EVALUATION AND DETERMINATION

Achieving the Idaho Standards for Rangeland Health
and
Conformance with the Guidelines for Livestock Grazing Management

Field Office: Bruneau FO, ID 120 Determination Date(s): May 21, 2008
Grazing Allotment Name/Number: East Castle Creek #0893
Name of Permittee(s): Gordon King #1101607, John Anchustegui #1100291, John Anchustegui (OCP lease) #1100397, Paul Black #1101661

This Evaluation and Determination evaluates information presented in the East Castle Creek Rangeland Health Assessment (United States Department of the Interior, Bureau of Land Management, 2008). This document is available upon request and is also on the worldwide web at http://www.blm.gov/id/st/en/info/nepa.2.html.

The East Castle Creek Allotment (#893) is located in Owyhee County southwest of Grand View, Idaho, and south of State Highway 78. The allotment extends southwest about 34 miles into the Owyhee Mountains. It is bordered by West Castle Creek Allotment (#801) on the west and Battle Creek Allotment (#802) on the east. Elevations range from approximately 2,700 feet to over 7,000 feet within the allotment.

There are three major landforms in East Castle Creek Allotment: the Snake River Plain or lakebed landform (predominantly composed of deposited lakebed sediments) at the north end of the allotment; the mountainous landform of the Owyhee Mountains on the western portion of the allotment; and the plateau landform at the southern end of the allotment. Streams that drain the Owyhee Mountains within East Castle Creek Allotment include Shoofly, West Fork Shoofly, Poison, Battle, Birch, Magpie, and South Fork Castle creeks.

The allotment includes 96,578 acres of BLM-administered public land, 8,944 acres of State of Idaho land, and 7,611 acres of private land. The allotment acreage is divided into 29 pastures: 14 of which are designated as fenced federal range (FFR) (pastures 13-27, 33, 37, 37A & 44); 2 are under state management (29 & 31); and 3 are small acreage or riparian pastures (29B, 29C & 29D). The remaining ten pastures (5B, 8B, 8BI, 8BIII, 10B, 11B, 12, 28, 28A & 29A) will be the focus of this Evaluation and Determination. The current permitted grazing use is a total preference of 10,872 AUMs. There are currently three permittees authorized to graze livestock on BLM lands in the allotment.

The East and West Castle Creek Allotments were historically managed as part of the Castle Creek Allotment. In 1993, a Rangeline Agreement was approved that divided the original Castle Creek Allotment into two management units – East and West Castle Creek Allotments. This Agreement also designated which pastures would be managed as Fenced Federal Ranges (FFRs) and provided that future management changes would be based on monitoring and the results of an allotment Analysis, Interpretation, and Evaluation (AIE).

In September 1997, the BLM released the Final Castle Creek Allotment AIE (USDI-BLM 1997). In December 1997, BLM issued Final Decisions modifying the associated permits in the East & West Castle Creek allotments. Modifications imposed on previous grazing practices were based upon the findings in the Final Castle Creek Allotment AIE and subsequent NEPA analysis of several alternatives.

The 1997 Final Decisions incorporated a combination of actions that included a deferred-rotation grazing system in summer ranges; deferred grazing and rest of early spring, late spring, and summer riparian and wet meadow pastures; and development of a number of exclosures to improve livestock distribution and reduce localized impacts. The 1997 Decision for East Castle Creek also put 2,599 AUMs into the Suspended Preference category, changing the Active Preference from 10,872 AUMs to 8,273 AUMs. These actions were intended to reverse unacceptable range, watershed, and wildlife habitat conditions. The East Castle Creek decision was subsequently appealed and implementation for several permits was stayed by the Interior Board of Land Appeals (IBLA 98-128).

Only portions of the provisions in the Final Decision were appealed, so some projects were constructed. From 1998 to 2004, during the stay of the 1997 Final Decision, livestock grazing management occurred similar to the previous permit. In July 2004, BLM and the Appellants in IBLA 98-128 submitted a "Stipulation to Adjust/Modify Final Decisions Relating to the East Castle Creek Allotment" to the Department of Interior, Office of Hearings and Appeals. This Settlement Agreement resolved appeals regarding the Final Decisions of December 1997. The 2004 Settlement modified the permitted use of the affected permits and was to be in effect during the 2005, 2006 and 2007 grazing seasons. For these reasons 'current management' has changed for several pastures beginning in 2005. The RHA and Evaluation both support the conclusion that grazing management prior to 2005 ('historic management') was a significant factor in not meeting the standard in these pastures. However, the effectiveness of the changes implemented in 2005 is yet to be determined.

Since the 2004 Settlement Agreement, the BLM has conducted a Rangeland Health Assessment (USDI-BLM 2008), which describes modifications to grazing practices and updates condition and trend descriptions within the allotment since completion of the 1997 Castle Creek AIE. This Rangeland Health Assessment provides the foundation for this Evaluation and Determination which evaluates the resource condition and trend and determines the cause for conditions which are not meeting rangeland standards.

Standard 1 (Watersheds)

☐ Standard doesn't apply

Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to the following:

- The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
- Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Evaluation and Information Sources:

- As summarized in the September 1997 Castle Creek Analysis, Interpretation, and Evaluation (AIE):
  - Condition maps from 1959 through 1980 data sources
  - Range condition inventory from 1979-80
  - Trend from 1983 through 1997
  - Forage production from 1980
  - Utilization and descriptions of past grazing practices
- Trend in basal cover during 1997 through 2007
- Rangeland Health Assessment (RHA) worksheets and photos from 2005 through 2007
- Photo trend during 1997 through 2007
- Draft State and Transition models for relevant ecological sites from USDA, Natural Resource Conservation Service (NRCS) (Franzen & Gibbs 2005)
- Utilization from 1998 through 2007
- Actual use and licensed use
- Grazing decisions
- The 2004 Settlement
- Project files
- Correspondence

Rangeland Health:

Rangeland Health Assessments (RHA) are used for Standard 1 and Standard 4. Twenty-three sites were assessed in the East Castle Creek Allotment from 2005 to 2007. The assessments were conducted in accordance with the procedure described in BLM Technical Reference 1734-6 "Interpreting Indicators of Rangeland Health". The Rangeland Health Assessments conducted in 2005 used Version 3 and the subsequent assessments conducted in 2006 and 2007 used Version 4 of "Interpreting Indicators of Rangeland Health" (both versions are compatible and "interpretations made with Version 3 will be consistent with those made with Version 4 *provided that the same reference information is used.*" (Pellant et al 2005). Since the same reference information has been used for the East Castle Creek Allotment the assessment results are

compatible and are displayed together – no further delineation of Version is made in this document.

The watershed standard includes 12 indicators related to Soil and Site Stability and Hydrologic Function attributes. Standard 4 (Native Plant Communities) includes 9 indicators related to biotic integrity. Attributes are summarized based upon a preponderance of evidence approach using the applicable indicators. Ratings categories are: None to Slight, Slight to Moderate, Moderate, Moderate to Extreme and Extreme to Total. Attribute ratings reflect the degree of departure from expected levels for each indicator identified in the reference sheet or ecological site descriptions. "Attribute ratings may stimulate further actions…to determine the reason for these ratings or determine if the trend is satisfactory under existing management" (Pellant et al 2005). Many ecological sites are present on the allotment, but not all sites were sampled during the rangeland health assessment process. Ecological sites examined were chosen based on how representative they were of the pasture and were selected during the field examination by the interdisciplinary field team.

The following table shows the degree of departure from expected conditions for assessment sites in the East Castle Creek Allotment. Pastures which had more than one rangeland health assessment site are indicated by multiple marks within the table for the individual site ratings.

Standard 1 - Rangeland Health Assessment Summary Each "X" represents an RHA site.

Standard 1-Watersheds	**Degree of Departure**				
	None to Slight (N-S)	**Slight to Moderate (S-M)**	**Moderate (M)**	**Moderate to Extreme (M-E)**	**Extreme to Total (E-T)**
Pasture 5B		XX	X		
Mud Flat Oolite Exclosure (5BEX)		X			
Pasture 8B	X	XX	X		
Birch Creek Exclosure		X			
Pasture 8BI				X	
Pasture 8BIII				X	
Pasture 10B		X	X		
Pasture 11B		X			
Pasture 12	X	XX			
Pasture 28		X		X	
Pasture 28A		X	X		
Pasture 29A			X		
Pasture 44		X			

Pasture 5B: This pasture had one location with a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern identified at this location

include water flow patterns, the amount of bare ground, pedestals and/or terracettes and the ability of the soil surface to resist erosion. This assessment site exhibited bare areas of moderate-size that were sporadically connected, moderate soil surface degradation in plant interspaces. Other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment. This assessment site showed evidence of currently active changes in soil stability and hydrologic function.

Pasture 8B: This pasture had one location with a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern identified at this location include water flow patterns, the amount of bare ground and the ability of the soil surface to resist erosion. This assessment site exhibited large, occasionally connected bare areas, moderate soil surface degradation in plant interspaces. Other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment. This assessment site showed evidence of currently active changes in soil stability and hydrologic function; particularly, there was evidence of water flow originating on adjacent badland slopes.

Pasture 8BI: The seeding had a 'moderate to extreme' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern include water flow patterns and gullies, the amount of bare ground, the ability of the soil surface to resist erosion and soil surface loss or degradation. This assessment site exhibited large, occasionally connected bare areas, severe soil surface degradation occurring in plant interspaces and other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment. Many of the soil surface characteristics (crusting, structure and soil cover) and lack of biological soil crust on the rangeland health assessment site are largely the consequence of plowing in 1988. This assessment site showed evidence of currently active changes in soil stability and hydrologic function; particularly, gullies formed by runoff both from adjoining foothill slopes and within the site.

Pasture 8BIII: The seeding had a 'moderate to extreme' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern identified at this location include water flow patterns, the amount of bare ground, pedestals and/or terracettes, ability of the soil surface to resist erosion and soil surface loss or degradation. This assessment site exhibited large, occasionally connected bare areas, severe soil surface degradation in plant interspaces. Other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment. Many of the soil surface characteristics (crusting, lack of structure, absence of surface gravel) and lack of biological soil crust on the rangeland health assessment site are largely the consequence of plowing in 1992. Cover provided by the seeded and surviving native grasses and cheatgrass did not compensate for loss of the gravel and biological soil crust at the time of the examination.

Pasture 10B: This pasture had one location with a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. It represents areas where the original understory has long

been lost. The main indicators of concern identified at this location include the amount of bare ground, litter, and the plant community composition and distribution in its relation to infiltration and runoff. This assessment site exhibited large, occasionally connected bare areas, some reduction in soil surface stability and some soil loss in plant interspaces. Other cover categories such as gravel, biological soil crust, and litter (including cheatgrass) did not compensate for the loss of the original understory components at the time of the assessment.

Pasture 28: This pasture had one location with a 'moderate to extreme' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern identified at this location include water flow patterns, pedestals and/or terracettes, litter amount and movement, the ability of the soil surface to resist erosion and soil surface loss or degradation and the plant community composition and distribution in relation to infiltration and runoff. This assessment site showed the presence of small bare areas that were rarely connected. Other cover categories such as gravel, biological soil crust, and particularly, litter did not compensate for the loss of the original understory components at the time of the assessment.

Pasture 28A: This pasture had one location with a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern identified at this location include the amount of bare ground and litter. Bare areas were large and occasionally connected, with greatly reduced amounts of litter. Other cover categories such as gravel, biological soil crust, and litter did not compensate for loss of original understory components at the time of the assessment.

Pasture 29A: This pasture had a 'moderate' overall rating for Soil and Site Stability and Hydrologic Function. The main indicators of concern identified at this location include water flow patterns, pedestals and/or terracettes and soil surface loss or degradation. This assessment site showed the presence of small bare areas that were rarely connected. Other cover categories such as gravel, biological soil crust, and litter did not compensate for loss of original understory components at the time of the assessment.

Pastures 11B, 12 and 44, Mud Flat Oolite and Birch Creek Exclosures: All locations had a 'slight to moderate' or 'none to slight' overall departure rating for Soil/Site Stability and Hydrologic Function. 'Slight to moderate' locations have some evidence of change to soil stability and hydrologic function from the reference condition, but it is primarily historic rather than currently active. Locations with a 'none to slight' overall departure rating are similar if not identical to the reference condition. 'None to slight' locations that were judged to be identical to the reference condition were used to quantify reference condition for that ecological site.

Pastures 29B, 29C, 29D and other FFR: Upland trend and Rangeland Health data were not collected in these pastures.

Rangeland Health Changes:

Pasture 5B: The shrub communities at RHA locations or trend sites on the lakebeds portion of the pasture, with one exception, contain few herbaceous perennials. These conditions as described by the state and transition models in the draft NRCS Ecological Site Descriptions and

by Laycock (1991). According to the Draft NRCS Ecological Site Descriptions these communities are functioning within one vegetation state with depleted conditions. According to Laycock these communities have crossed a threshold into a different vegetation state and the transition back to a perennial grass understory is "difficult to cross, and is highly unlikely if annuals are adapted to the area."

One BLM trend study in this pasture showed greater perennial grass basal cover to serve as a base for recruitment. Although the perennial grass basal cover is low compared to the amount of bare ground, it is much higher than at other lakebeds trend studies. Vegetation basal cover was not recorded by species in 2006, and trends in perennial grass basal cover could not be determined separately; however, basal cover of perennial plants as a whole was greater in 2006 than in 1997 at this trend study. By contrast, it was static at all of the other lakebeds trend studies in the winter and spring pastures, and also within the Poison Creek Exclosure.

Basal cover data for BLM trend studies on the lakebeds demonstrate very low cover of remnant perennial grasses to serve as a base for recruitment. Several factors continue to perpetuate these conditions: periodic mortality, sporadic recruitment, unfavorable growth conditions, near-complete cover of cheatgrass (the major component of non-persistent litter), and favorable conditions for cheatgrass germination and growth. Similar patterns have also been observed on lakebed areas within other Boise District allotments. Mortality of perennial grasses and shrubs without recovery by the perennial grasses also occurred within the Poison Creek Exclosure, which serves as a reference area for recovery of shadscale communities on the lakebeds in absence of livestock grazing. The Bruneau MFP watershed objective for these communities is to "allocate no more than 50% of vegetation to consumptive use [and] minimize erosion by maintaining a perennial vegetation cover where it exists."

Pasture 8B: The shrub communities at RHA locations or trend sites on the lakebeds portion of this pasture contain few herbaceous perennials (conditions are similar to description for pasture 5B).

A Trend study documents a static trend since 1997 in the foothills portion of the pasture. This study shows substantial basal cover for site protection from perennial grasses, shrubs, and biological soil crust, minimal bare ground, and minimal influence by cheatgrass. Sandberg's bluegrass is the primary perennial grass species at the trend site, reflecting the historic loss of the decreaser component on lower slopes and stream terraces in the foothills. The study also shows less bare ground in 2006-07 than in 1997.

The spring pastures received disproportionate uncontrolled use prior to adjudication and division into allotments and pastures. This continues to influence the rate and nature of recovery. Sandberg's bluegrass predominates on areas where historic grazing impacts have been greater, but areas dominated by bluebunch wheatgrass, Idaho fescue, and other decreaser grasses are also extensive. Only small areas lacking a substantial perennial grass understory occur. Shrubs are also denser than usual in some areas. These historic condition differences are documented in maps and associated documentation as summarized in the 1997 Castle Creek AIE.

The installation of fences between Pastures 8B and 12 has promoted the improvement (Pasture 12) in vigor of desirable plants by promoting regrowth and preventing repetitive grazing of the same desirable plants during spring each year. Fence installation beginning in 1969 and continuing through 1990, and implementation of grazing systems in this pasture under the 2004 Settlement have both contributed.

Pasture 8BI: Seeding has been applied to a portion of the shrub communities within Pasture 8BIII. Crested wheatgrass and fourwing saltbush were successfully established during 1993 through 1995.

This pasture has experienced a reduction of crested wheatgrass since 1997 for the seeded areas as a whole, although the loss is not clearly documented – there is no trend study in this pasture, however it exhibits similar conditions to pasture 8BIII which does contain trend studies. Inspection of the seeding indicates that areas where crested wheatgrass is still dominant are patchier than in 1997. Both severe drought and permitted grazing under the February 1997 permit are suspected to be responsible for the losses; however, existing information and monitoring data is not sufficient to make a more specific determination of cause. This pasture was rested or only slightly grazed in 2005 and 2006 to promote recovery of remaining seeded species.

The fenceline contrast between Pasture 8BI and the Birch Creek Exclosure reflect the difference between 40 years of grazing rest (exclosure) and grazing management and seeding (8BI). These historic condition differences are documented in maps and associated documentation as summarized in the 1997 Castle Creek AIE.

Pasture 8BIII: General inspection of the seeding indicates that areas where crested wheatgrass is still dominant are patchier than in 1997. Both severe drought and permitted grazing under the February 1997 permit are suspected to be responsible for the losses. This pasture was rested in 2002, and was rested or only slightly grazed in 2005 and 2006 to promote recovery of remaining seeded species. At BLM trend study 07S02E28GE, bare ground was much lower, non-persistent litter was much higher, and perennial vegetation and seeded perennial grass basal cover was the same in 2006 as in 2000. Cheatgrass was abundant in 2006 after two consecutive favorable years for germination and growth. The remaining crested wheatgrass plants and the seeded fourwing saltbush are also vigorous.

Seeding has been applied to a portion of these shrub communities within Pasture 8BIII. Crested wheatgrass and fourwing saltbush were successfully established during 1993 through 1995.

Pasture 10B: A Trend study documents a static trend since 1997 in the foothills portion of the pasture. This study also shows substantial basal cover for site protection from perennial grasses, shrubs, and biological soil crust, minimal bare ground, and minimal influence by cheatgrass. Sandberg's bluegrass is the primary perennial grass species at the trend site, reflecting the historic loss of the decreaser component on lower slopes and stream terraces in the foothills. The study also shows less bare ground in 2006-07 than in 1997.

The spring pastures received disproportionate uncontrolled use prior to adjudication and division into allotments and pastures. This continues to influence the rate and nature of recovery. Sandberg's bluegrass predominates on areas where historic grazing impacts have been greater, but areas dominated by bluebunch wheatgrass, Idaho fescue, and other decreaser grasses are also extensive. Only small areas lacking a substantial perennial grass understory occur. Shrubs are also denser than usual in some areas. These historic condition differences are documented in maps and associated documentation as summarized in the 1997 Castle Creek AIE.

The installation of fences between Pastures 10B and 11B has promoted the improvement (Pasture 11B) in vigor of desirable plants by promoting regrowth and preventing repetitive grazing of the same desirable plants during spring each year. Fence installation beginning in 1969 and continuing through 1990; and implementation of grazing systems in this pasture under the 2004 Settlement have both contributed.

Pasture 12: A Trend study documents a static trend since 1997 in the foothills portion of the pasture. This study shows substantial basal cover for site protection from perennial grasses, shrubs, and biological soil crust, minimal bare ground, and minimal influence by cheatgrass. Sandberg's bluegrass is the primary perennial grass species at the trend site, reflecting the historic loss of the decreaser component on lower slopes and stream terraces in the foothills. The study also shows less bare ground in 2006-07 than in 1997.

One BLM trend site in the late spring pastures burned in 1992, and the fire and subsequent selective grazing of that site each year during June are the primary influences on trend in basal cover. However, the loss of the litter component and increase in bare ground following the fire is not indicative of the current or even the pre-1998 management. The dense shrub canopy and cheatgrass understory that have developed since the fire currently provide the primary watershed protection.

The spring pastures received disproportionate uncontrolled use prior to adjudication and division into allotments and pastures. This continues to influence the rate and nature of recovery. Sandberg's bluegrass predominates on areas where historic grazing impacts have been greater, but areas dominated by bluebunch wheatgrass, Idaho fescue, and other decreaser grasses are also extensive. Only small areas lacking a substantial perennial grass understory occur. Shrubs are also denser than usual in some areas. These historic condition differences are documented in maps and associated documentation as summarized in the 1997 Castle Creek AIE.

The installation of fences between Pastures 8B and 12 has promoted the improvement (Pasture 12) in vigor of desirable plants by promoting regrowth and preventing repetitive grazing of the same desirable plants during spring each year. Fence installation beginning in 1969 and continuing through 1990, and implementation of grazing systems in this pasture under the 2004 Settlement have both contributed.

Pasture 28: This pasture is comprised of the plateau landform. The trend studies showed that basal cover of perennial species increased during 1997 through 2006. Changes in perennial grass basal cover could not be determined because perennial basal cover was not recorded by species. Cover of non-persistent litter and bare ground were static. Cheatgrass is nonexistent at these

study sites. Biological soil crust basal cover was static. The shrub canopy, basal cover of perennial plants, gravel and stones (at 08S02W24) provide adequate protection from raindrop impact and resistance to overland flow of water. Biological soil crusts are less important to soil stabilization at higher elevations such as found on the plateau landform. While western juniper is located within the pasture it has not reached a density where it is the dominant species or is outcompeting the desired understory species.

Pasture 28A: This pasture is comprised of the plateau landform. Photo trend plots have been present throughout the changes in management since 1969 and document long-term encroachment of western juniper. There has been a recovery of perennial grasses in big and low sagebrush uplands, and recovery of wet meadows within the network of exclosures that has been built. While western juniper is located within the pasture it has not reached a density where it is the dominant species or is out-competing the desired understory species.

Pasture 29A: This pasture is comprised of the plateau landform. The trend study showed that basal cover of perennial species increased during 1997 through 2006. Changes in perennial grass basal cover could not be determined because perennial basal cover was not recorded by species. Non-persistent litter and bare ground were static. Cheatgrass is nonexistent at these studies. At the trend study site biological soil crust basal cover was static. The shrub canopy and basal cover of perennial plants provide adequate protection from raindrop impact and resistance to overland flow of water. Biological soil crusts are less important to soil stabilization at higher elevations such as found on the plateau landform. Within this pasture, western juniper has not yet reached a density where it is the dominant species or is out-competing the desired understory species.

Pasture 44: The site evaluated in this pasture in 2007 had a slight to moderate departure from expected. Water flow patterns were short, somewhat connected and more frequent than expected. There were few bunchgrasses in the interspaces and they were pedestalled.

Livestock Grazing Management:

The 1997 Final Grazing Decision adjusted length of use period, turnout date, and amount of authorized use in portions of the allotment. In 2004 a Settlement Agreement modified livestock grazing management in the spring pastures (Pastures 8B, 8BI, 8BIII, 10B, 11B & 12). A grazing system has been developed and partially implemented. The livestock grazing practices on the spring pastures of East Castle Creek Allotment changed substantially from those analyzed in the 1997 AIE as a consequence of the 2004 Settlement. The Settlement was implemented and monitored during 2005 through 2007. The Settlement implemented alternating April and May use between Pastures 8B, 8BI, 8BIII and Pasture 10B, such that the perennial grasses are not grazed during the critical growth period in consecutive years. The Settlement also implemented rest rotation in Pastures 11B and 12. In the summer and winter pastures, the livestock grazing practices were similar to those analyzed in the AIE, with several exceptions - the management of two new riparian pastures, and the formal implementation of grazing systems on the summer pastures (Pastures 28, 28A, 29A & B). In addition to these grazing practices turnout dates, pasture move dates, stocking levels and water locations (an additional water haul site in Pasture 5B) are usually adjusted annually to fit current forage and water conditions. Due to the short

period since implementation, the effects of grazing practices as implemented under the 2004 Settlement are inconclusive with regard to watershed health.

The 2004 Settlement stipulates 25 percent nonuse in the spring pastures for 3 years. Actual use in these pastures by one permittee exceeded this amount in 2005 and 2006, including willful trespass, while the other permittee took more nonuse than was stipulated by the Settlement. Overall spring use exceeded the Settlement Agreement in 2005.

The Bruneau MFP states that the primary watershed decision is to "allocate no more than 50 percent of vegetation to consumptive use." The vegetative cover to be left on site is intended to provide protection from erosion.

Utilization transects at key areas serve as an index of the amount of use over time, but do not necessarily reflect the intensity of impacts in 'critical areas', such as riparian areas or sensitive plant locations or over the pasture as a whole. Utilization transects at other locations reflect the amount of use in the portion of the landscape that was sampled, but also do not necessarily characterize livestock use in a pasture as a whole. For those reasons, Smith et al. (2005) suggest use pattern mapping as a means of estimating carrying capacity, of validating the locations of key areas, and of determining whether livestock grazing is the cause of observed condition and trend. The Bruneau Field Office has incorporated use pattern mapping to monitor utilization levels.

Utilization levels of perennial grasses during 1998 through 2004 exceeded MFP objectives at several utilization transects in Pastures 5B, 8B, 8BI , 8BIII , and 12 (USDI BLM 2008).

In 2006 and 2007 utilization in Pasture 8B was light. In 2006 utilization levels at the upper end of Pasture 12 were greater in areas that typically receive less use, but the greatest impacts still occurred on stream terraces, lower slopes, and on gentler slopes.

Utilization levels of perennial grasses under the 2004 Settlement during 2005 through 2007 at transects and based upon use pattern mapping were within objectives identified in the Bruneau MFP for watershed protection. Management was also annually adapted to respond to current conditions.

Utilization levels on perennial grasses have limited influence on the level of watershed cover in plant communities where annual grasses are the predominant understory or where shrubs are the predominant structural component. Fluctuation in bare ground and non-persistent litter usually shows an inverse relationship in annual grass communities because cheatgrass is the major component of non-persistent litter. Fluctuation in these two categories shows a more consistent relationship with climatic (precipitation patterns) fluctuation than with actual use reported for livestock.

Evaluation – Standard 1

1. ■ Meeting the Standard Pastures: 11B, 12, 44	5. □ Not Meeting the Standard, cause not determined
2. ■ Not Meeting the Standard, **but making significant progress towards** Pastures: 28, 28A, 29A	
3. ■ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors Pasture: 5B Historic livestock grazing use and practices	6. ■ Conforms with Guidelines for Livestock Grazing Management
4. ■ Not Meeting the Standard, current livestock grazing management practices are significant factors Pastures: 8B*, 8BI, 8BIII, 10B* early spring use during critical growing season prior to 2005	7. □ Does not conform with Guidelines for Livestock Grazing Management

* In the East Castle Creek Allotment 'current management' changed for several pastures beginning in 2005, as a result of the 2004 Settlement Agreement. The RHA and Evaluation both support the conclusion that grazing management prior to 2005 was a significant factor in not meeting the standard in these pastures. However, the effectiveness of the changes implemented in 2005 is yet to be determined.

Rationale:

43 CFR 4180 requires that "watersheds are in, or are making significant progress toward properly functioning physical condition." Existing grazing management must be modified upon determining that changes are necessary to ensure that the watershed requirement is met.

The Bruneau MFP objectives require that "range programs and management techniques . . . increase the vigor, density, and production of desirable vegetation on areas . . . where . . . low site productivity and . . . lack of desirable vegetative species . . . prevent . . . improvement into the fair condition category" and that they increase range condition in the remainder of the poor and fair condition areas. "Areas on which the existing vegetation is predominantly big sagebrush, cheatgrass, and Sandberg's bluegrass would not be expected to significantly improve in range condition with grazing management [and] . . . were to be treated . . . to increase forage production and reduce the acreage of range in poor condition."

Downward trends were observed, particularly on the seedings (8BI & 8BIII), during 1998 through 2004 (under the February 1997 permits). These trends were substantially a consequence of repetitive severe use during the critical growth period each year. Those grazing practices were not in conformance with Guidelines 1 and 4. The stocking rate in 2006 under the Settlement in

Pasture 12 was too high for portions of the landscape even under a favorable season of use and grazing system. Willful trespass of livestock further contributed to the observed impacts.

Results of monitoring and assessment of soil and vegetation conditions in pastures 5B, 8B and 10B all support the conclusion that historic livestock grazing practices have had a detrimental impact on resource conditions. As a result of the 2004 Settlement Agreement livestock grazing management was changed beginning in 2005 in Pastures 8B and 10B. While these changes were implemented with the intent to reverse unacceptable range, watershed, and wildlife habitat conditions, the effectiveness of these changes is yet to be determined. Actual use in these pastures did not reflect the change in management in 2005, therefore 2006 was the first year the changes were fully implemented. Even though monitoring has continued, it is impossible at this time to draw conclusions regarding trend in rangeland health as a result of the changed management.

There is also a divergence in thought regarding the potential change in rangeland conditions resulting from a change in grazing management. Both scientific literature (Laycock 1991 & NRCS Ecological Site Descriptions (draft)) and site specific range monitoring data support this divergence. On the lakebeds, many areas are now shrub communities with few herbaceous perennial plants. These conditions are described both by the draft NRCS Ecological Site Descriptions and by Laycock (1991). According to the Draft NRCS Ecological Site Descriptions these communities are functioning within one vegetation state with depleted conditions. According to Laycock these communities have crossed a threshold into a different vegetation state and the transition back to a perennial grass understory is "difficult to cross, and is highly unlikely if annuals are adapted to the area." These areas may not be able to attain their potential condition without the aid of active restoration, such as reseeding. Lakebed areas that are in better condition (8B, 8BI, 8BIII) have also been impacted by historic grazing practices (prior to 2004).

Specifically:

Not Meeting the Standard, but making significant progress toward

In the summer pastures (28, 28A & 29A) some locations meet the Standard, some do not. The long-term trend is upward since the 1960's, and juniper encroachment in vulnerable areas has not reached a point where it controls hydrologic function. Change to summer use, division of the Castle Creek allotment and initiation of the current grazing system have all contributed to measured progress toward meeting Standard 1 in the summer pastures.

Not Meeting the Standard, current livestock grazing management practices are not significant factors

Historic livestock grazing practices have had a detrimental impact on resource conditions in pasture 5B. Mortality of perennial grasses and shrubs without recovery by the perennial grasses, as described in pasture 5B, also occurred within the Poison Creek Exclosure. This exclosure serves as a reference area for recovery of shadscale communities on the lakebeds in absence of livestock grazing. Since similar conditions were exhibited on both grazed and ungrazed areas current livestock grazing is not a causal factor in this pasture.

Not Meeting the Standard, current livestock grazing management practices are significant factors:

In Pastures 8BI and 8BIII, the following factors contribute to not meeting this standard:

- excessive livestock use on seeding areas.

On lakebeds and in foothills in Pastures 8B and 10B, the following factors contribute to not meeting this standard:

- livestock grazing management implemented prior to 2005 - – i.e. continual early spring use during the critical growing season,
- annual weather patterns (below average precipitation)

Standard 2 (Riparian Areas and Wetlands) ☐ Standard doesn't apply

Riparian-wetland areas are in proper functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow. Indicators may include, but are not limited to, the following:

- The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water areas to reduce water temperature, stabilizing shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater, and increasing recharge of groundwater appropriate to site potential.
- Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
- Age class and structural diversity of riparian/wetland vegetation is appropriate for the site.
- Noxious weeds are not increasing.

Evaluation and Information Sources:

- Riparian habitat inventories and monitoring conducted during 1998-2007
- Functioning condition assessments of spring wetlands conducted in 2002 and in 2006, and of stream segments during 1999-2007.

Rangeland Health:

Stream Riparian Areas

Pasture 8B: A short segment of Birch Creek (0.2 mile long) is located upstream of the private land at the Doyle homestead. This segment is functioning at risk (FAR) with an upward trend. Shrub cover is increasing on historically incised streambanks.

Most of the lower portion of Poison Creek (2.5 miles) is nonfunctioning (NF) (see Standard 3). Streambanks are weakly vegetated as the channel is deeply incised (4 to 8 feet deep) and most of the skunkbush sumac (*Rhus trilobata*/bench C.T.; Jankovsky-Jones et al. 2001) is growing on the upper banks and edge of the stream terrace. The upper 1.2 miles of Poison Creek is functioning at risk with a static trend. These segments are vegetated with plant communities dominated by willows (predominantly sandbar willow [*S. exigua*/mesic grass-forb] types) and forbs. Vegetation is inadequate to protect most streambanks and dissipate stream energy during high flows.

The downstream-most segment of West Fork Shoofly Creek (0.5 mile) is functioning at risk with a static trend. Streambanks are inadequately vegetated with bank-stabilizing plants and plants on the upper one-third of the segment exhibited low vigor as a result of high use and high levels of bank alteration. Shrub recruitment is also lacking. The channel on the lower portion of the

segment is incised 2-3 feet, and is weakly vegetated with wild rose (*Rosa woodsii*) and sagebrush due to the loss of bank storage of water resulting from the historic incision of the channel.

West Fork Shoofly Creek (1.6 miles) in the canyon reach is functioning at risk with an upward trend. Streambanks are largely vegetated with bank stabilizing plant communities dominated by willows (*S. lutea, S. lasiandra, S. lemmonii*), red-twig dogwood (*Cornus sericea*), with some black cottonwood (*Populus trichocarpa*) trees present. About 20% of the reach is vegetated with early seral plant communities, which are being colonized by late-seral rushes (*Scirpus microcarpus*).

Pasture 10B: Birch Creek is functioning at risk with an upward trend. Riparian wetland areas are widening with good shrub recruitment and growth. Riparian areas are generally vegetated with willow plant community types (*Salix exigua*/mesic forb; *S. lutea*/mesic grass; *S. lasiandra*/bench).

Pasture 11B: Most of Birch Creek (2.5 miles) is functioning at risk with an upward trend. Riparian vegetation is largely composed of early-seral species, but cover of bank stabilizing vegetation (willows and rushes) is increasing with less bare soil and eroding streambanks. Changes in plant cover occur slowly, particularly in incised channel areas (G-channel types, Rosgen 1996) with limited floodplain development. A short (0.2 mile long) segment in a rugged, rocky canyon is in PFC with vegetation dominated by willows and aspen trees. About 0.2 mile of Birch Creek is nonfunctioning due to historical channel incision and loss of water.

Pasture 12: Four miles of Poison Creek is functioning at risk. Streambanks are inadequately vegetated with bank-stabilizing plants or are at risk of erosion because banks are unstable due to historic channel incision and shearing and pugging of streambanks. About 3.2 miles of stream are predominantly vegetated with early-seral plant communities with scattered willows present. This area has high levels of bank alteration that is negatively impacting riparian plant cover and vigor. Another 0.8 mile is vegetated with willow plant communities (primarily *S. lutea*/bench types), but channels and banks are unstable due to the historic incision of the channel (2 to 5 feet deep; see Standard 3). About 0.4 mile of Poison Creek in the central portion of the pasture is in proper functioning condition (PFC). Streambanks are densely vegetated with late-seral plant communities dominated by old-aged willows (*S. lutea*/*C. sericea*, *S. lasiandra*/bench C.T.s) that armor streambanks and prevent streambank alteration and erosion. Additionally, 0.2 miles of Poison Creek in the Summit Springs and Poison Creek Recreation Site grazing exclosures are in proper functioning condition. Streambanks are stable and strongly-vegetated with plant communities dominated by bank-stabilizing species.

About 0.7 mile of Fall Creek (a tributary to Poison Creek) is in PFC. About 90% of streambanks are stable and densely vegetated with shrub community types, including aspen (*Populus tremuloides/Cornus sericea*), and willow (*Salix geyerian*/bench; *S. lutea*/bench) types. However, about 10% of riparian areas and most of the ecotone area between the riparian shrub communities and upland plant communities adjacent to Fall Creek are composed of bare ground or vegetated with disturbance-induced plant communities dominated by burr buttercup, mullen, and Kentucky bluegrass.

Lone Juniper Creek is another tributary to Poison Creek. About 0.5 mile of Lone Juniper Creek is functioning at risk because of the presence of 3 active headcuts (see Standard 3). Trend in condition is static; about 15-20% of banks are bare or unstable because of trampling and pugging of streambank soils. This stream is predominantly vegetated with shrub communities including aspen and willow (*S. lutea*/bench and *S. exigua*/bench) types. Areas with less bank storage of water are dominated by Baltic rush (*Juncus balticus*) and Elk sedge (*Carex douglasii*) community types.

Pasture 14: West Fork Shoofly Creek is functioning at risk with an upward trend. Upstream of the private land parcel, 0.6 mile of West Fork Shoofly Creek is in PFC. Streambanks and floodplains are well vegetated with bank stabilizing plant communities dominated by willows (*S. lasiandra, S. lutea, S. lasiolepsis, and S. scouleriana*) and quaking aspen (*P. tremuloides*). Shrubs armor and stabilize 90-95% of streambanks. Floodplains are vegetated with 75-225 feet wide areas of woody shrubs.

Pasture 28A: The lower 0.5 mile of Sheep Creek is in PFC. Streambanks are adequately vegetated with bank-stabilizing species. About 20% of streambanks are unstable due to bank alteration (trailing). Streamflows are intermittent with no surface flows on most of the reach by July. Much of the lower one-quarter of this segment is vegetated with facultative species (Silver sage [*Artemesia cana*], Juniper [*Juniperus occidentalis*], and grasses) due to the limited availability of water. The upper 0.3 mile on Sheep Creek is functioning at risk. Streambanks are vegetated with facultative grasses, with small areas of sedges present. Streambanks and channels are actively eroding at the downstream end (lower 150 feet) of the segment, but overall trend is static.

Pastures 29C and 29D: Battle Creek (1.6 miles on public land) in pastures 29C and 29D is in functional at risk condition with an upward trend. Bank-stabilizing riparian vegetation is strongly colonizing streambanks within this reach. Riparian areas are predominantly vegetated with Nebraska sedge and baltic rush community types (*Carex nebrascensis* and *Juncus balticus* C.T.s), and willows (primarily *Salix geyeriana*) are being recruited into these communities.

Pasture 33: About 0.3 mile of Rock Creek located downstream of pasture 33 is functioning at risk with a strong upward trend. This segment was excluded from grazing in 1997. Riparian areas are vegetated with a Geyer's willow type (*Salix geyeriana/Carex nebrascensis* C.T.). Young willows are abundant and sedge and willow cover is increasing on banks and floodplains. About 0.2 mile of Rock Creek in pasture 33 is functioning at risk with a slow upward trend. The channel is historically incised 4 to 6 feet in depth. Most streambanks of Rock Creek in pasture 33 are vegetated with bank stabilizing sedges and willows, and sedge and willow cover is slowly increasing.

About 0.2 mile of Sheep Creek in pasture 33 located at the confluence upstream to the road crossing at the BLM/private land boundary is in PFC. Streambanks are stable and well vegetated with plant communities dominated by bank-stabilizing species. The predominant plant community is a Geyer's willow type (*Salix geyeriana/Carex nebrascensis* C.T.). A 0.25 mile long segment upstream of the private land is functioning at risk with a downward trend as channels are eroding at active headcuts (see Standard 3). Plant communities are vigorously

vegetated with Geyer's and Booth willow types (*S. geyeriana*/*C. nebrascensis* and *S. boothi*/C. *nebrascesis* C.T.s).

Wetlands

Of 38 wetlands at springs that were assessed for functioning condition, 71% (27) are in FAR or NF condition and not meeting the standard. Almost all of the spring wetlands are located in pastures grazed in late spring and summer (21 springs) or in FFR pastures (10 springs).

Wetlands at 24% (6 of 25) of undeveloped springs are in PFC and meeting the standard. Thirteen springs that have been developed to provide water for livestock are located in pastures 10B, 11B, 12, 17, 19, 28, 29A, and 44. Eight (62%) of the wetlands at developed springs are not meeting the standard. Ten wetlands at developed springs have not been fenced to exclude livestock grazing; four of which have ponds excavated in the wetland. High of levels of grazing use and trampling and pugging of wetland soils contribute to wetland vegetation at springs not meeting the standard. Some wetlands at developed springs are also impacted by all or a portion of the wetland being dewatered.

Rangeland Health Change:

Pastures 8B, 10B, and 11B: Birch Creek is improving in health as riparian plant cover (particularly that of willows) is increasing with restricting livestock grazing to spring use. In 2007, 0.4 mile of Birch Creek in pasture 11B (0.2 mile in NF, 0.2 mile in FAR with an upward trend) was fenced in with State land and grazed at substantially higher levels than that during 1998 to 2005.

West Fork Shoofly Creek in the canyon segment (1.6 miles long) in pasture 8B that was closed to livestock grazing in 1997 has an upward trend in plant cover and diversity. However, recent trailing (in 2006) from un-authorized livestock use of the grazing exclosure resulted in bare soil areas that are placing the floodplain at risk of erosion during high stream flows.

Pasture 12: Poison Creek had an upward trend in willow cover from 1993 to 1999, but plant cover and bank stability has declined since 1999. Livestock alteration of streambank soils on Poison Creek was higher during 1999 to 2006, during which Birch Creek in pasture 11B was grazed at lighter levels and had an upward trend in condition.

Pastures 29C and 29D: Battle Creek in pastures 29C and 29D was mostly rested from grazing or grazed at light to moderate levels during 1998 to 2006, compared to annual summer-long grazing prior to 1998. Cover and vigor of bank-stabilizing riparian plants including sedges and willows is increasing on 1.6 miles of stream and streambank and channel stability is improving.

Pasture 33: Rock Creek is rapidly improving on 0.3 mile of stream that was fenced into a grazing exclosure in 1997. Young willows are abundant and sedge and willow cover is increasing on banks and floodplains. Similarly, about 0.2 mile of Rock Creek in pasture 33 is slowly improving in health as sedge cover is increasing on streambanks and floodplains and willows are successfully recruiting young plants.

About 0.25 mile of Sheep Creek in pasture 33 is strongly vegetated with willow and sedge plant communities, but trend in stream and riparian health is downward due to the channel actively down-cutting and eroding at 3 locations. Channel instability is related to the loss of active beaver dams.

Livestock Grazing Management:

Stream Riparian Areas

Most stream riparian areas on the allotment are impacted by historical channel incision (down-cutting into gullied channels [G-channels; Rosgen 1996] 4 to 5 feet below the original floodplain level). Consequently, riparian areas are often primarily vegetated with weakly-rooted, early-seral stage plant communities. As a result, most riparian areas on this allotment are susceptible to mechanical disturbance from hoof shearing and pugging. A few stream reaches are located in rugged, rocky canyons that restrict livestock use and armor streambanks (about 2.5 miles of stream). These segments have a higher percentage of their riparian areas vegetated with late-seral bank-stabilizing species and are in PFC or FAR with an upward trend.

Pastures 8B, 10B, 11B, 29C, and 29D: Stream segments that are grazed primarily in spring and historically incised, but not to the point that the streams have become significantly dewatered, are generally improving in condition (i.e. Battle Creek and 5.5 miles of Birch Creek). Grazing in these pastures (spring use then rest in the summer or fall) has generally been consistent with guideline 5 (Implement grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential). These areas have upward trends in functioning condition. Elimination of the trailing of livestock down Birch Creek in the fall has also contributed to increases in cover of bank-stabilizing vegetation, by reducing riparian plant use and streambank alteration. Wetland soils were highly pugged and sheared on a spring-influenced meadow reach of Birch Creek in pasture 10B when grazed when the soils were saturated in April 2006 (instead of the usual May use). Birch Creek in pasture 11B was rested from livestock grazing in 2006, which improved riparian plant vigor. High levels of grazing use on 0.4 mile of Birch Creek, which was fenced in with State land separate from pasture 11B in 2007, will likely reverse the upward trend in condition of 0.2 mile of stream, with 0.2 mile remaining in NF condition

Most of lower Poison Creek in pasture 8B is non-functioning because of historical impacts (channel incision and loss of bank storage of water) that resulted in significant dewatering of riparian areas. Livestock grazing, when limited to spring grazing, is not impacting these nonfunctioning segments. Inventories in 2006-2007 revealed riparian areas that are functioning at risk due to channel incision were additionally being impacted by livestock grazing in late summer or fall. Residual stubble heights of < 2 inches on bank-stabilizing herbaceous species were observed. Portions of the upper-most 1.2 miles of Poison Creek in pasture 8B receive high levels of soil and bank alteration during spring grazing due to hoof shearing and pugging of livestock. This mechanical disturbance is restricting willow recruitment and sedge and rush colonization and expansion on portions of these segments.

Livestock grazing of the lower 0.5 mile of West Fork Shoofly Creek in pasture 8B when use is limited to spring grazing is consistent with guideline 5. However, when inventoried in winter 2007, residual stubble height on herbaceous bank-stabilizing vegetation was <2 inches as a result of summer or fall grazing. If livestock grazing had been limited to spring grazing, residual stubble height and vigor would have been much greater. Livestock grazing has generally been excluded from the canyon segment in pasture 8B that was closed to grazing in 1997. However, a few livestock entered the exclosure in 2006 and their trailing created bare soil areas in the floodplain.

Pasture 12: Poison Creek is grazed in June, such that timing of livestock grazing is generally consistent with guideline 5. However, an improved road that parallels the stream through this pasture facilitates livestock spending significant amounts of time grazing and watering on Poison Creek. Livestock alteration of streambanks and trampling of early-seral vegetation is too high to improve the density and cover of bank-stabilizing species on 3.2 miles of stream. Livestock stocking levels have increased since 1999; trend in bank stability and riparian plant cover is downward since 1999 and is associated with high levels of bank alteration. Most of Poison Creek is FAR with a static trend in condition. Current livestock grazing impacts add to the historical impacts (dewatering, unstable banks) resulting from channel incision. Occasionally, Poison Creek in pasture 12 has received late season grazing use, but residual stubble heights have generally been >4 inches (indicative of limiting livestock use to spring grazing). Poison Creek was rested from livestock grazing in 2007.

Pasture 14: Livestock do not access most of West Fork of Shoofly Creek because of dense riparian shrubs armor streambanks and floodplains.

Pasture 28A: The upper 0.3 mile of Sheep Creek is grazed in summer when water is generally present in the channel. Utilization levels and alteration of streambanks is too high to improve the density and cover of bank-stabilizing species. Summer grazing is not consistent with guideline 5. The lower segment of Sheep Creek is dry when grazed by livestock and is not highly used by livestock, except for some trailing impacts.

Pasture 33: Fall grazing use of Rock Creek and Sheep Creek is consistent with guideline 5. Vigor of late-seral vegetation is high, and willows are recruiting successfully. About 0.25 mile of Sheep Creek is in a downward trend due to active headcuts resulting from the loss of beaver dams. Exclusion of livestock grazing on 0.3 mile of Rock Creek has resulted in a strong upward trend in riparian health.

Wetlands

Eight of thirteen spring wetlands that have been developed to provide water for livestock are not in conformance with guideline 5, guideline 6 or guideline 17 (Pellant 2005). Livestock use of wetland vegetation at 19 of 25 undeveloped wetlands is too high to be in conformance with guideline 5.

Evaluation – Standard 2

1 ■ Meeting the Standard Pastures: 14	5 □ Not Meeting the Standard, cause not determined
2 ■ Not Meeting the Standard, but making significant progress towards Pastures: 10B, 11B , 29C, 29D & 33	
3 ■ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors Pastures: 11B (0.2 miles of Birch Creek); 33 (0.25 miles of Sheep Creek) Historic channel incision and active headcuts resulting from beaver dams	6. □ Conforms with Guidelines for Livestock Grazing Management
4 ■ Not Meeting the Standard, current livestock grazing management practices are significant factors Pastures: 8B & 12 (portions of Poison Creek), 28A (portions of Sheep Creek); 17, 19, 28, 29A & 44 (wetlands and springs) High levels of grazing riparian vegetation and excessive amounts of bank alteration	7 ■ Does not conform with Guidelines for Livestock Grazing Management (list Guidelines No(s) in non-conformance): 5, 6, and 17

Rationale: Changes in livestock grazing management (changing or limiting grazing to spring use) since 1997 have resulted in substantive improvements in riparian health on 7.6 miles of stream (primarily in the Battle and Birch Creek drainages). However, 5.2 miles of Poison and Sheep Creeks (26% of the 19.85 miles of stream on the allotment) do not meet Standard 2 because of livestock grazing impacts. Additionally, 70% of the spring wetlands do not meet the standard because of livestock grazing impacts. Of 2.8 miles of stream riparian areas meeting the standard (in PFC) 2.45 miles are associated with rugged, rocky canyon segments that restrict livestock access. The remaining PFC segments are fenced to exclude livestock use. About 2.7 miles of stream are in NF condition because of dewatering resulting from historical channel incision, and about 1.55 miles are FAR and not meeting the standard because of non-livestock grazing impacts (primarily historical channel incision).

The Bruneau MFP (USDI-BLM 1983) identified 8.7 miles of riparian habitat conditions to be improved to provide good condition habitat for riparian-dependent wildlife on Battle, Birch, and Poison creeks. Of this 8.7 miles, 5.7 miles is improving and making progress towards MFP objectives, the remaining other 3 miles continue to reflect conditions caused by historical channel incision and loss of water availability.

Standard 3 (Stream Channel/Flood plain)

☐ Standard doesn't apply

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

- Stream channels and floodplains dissipate energy of high water flows and transport sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment filtration, and water storage. Stream channels are not entrenching.
- Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.
- Streams have access to their floodplains and sediment deposition is evident.
- There is little evidence of excessive soil compaction on the floodplain due to human activities.
- Streambanks are within an appropriate range of stability according to site potential.
- Noxious weeds are not increasing.

Evaluation and Information Sources:

- Riparian habitat inventories and monitoring conducted during 1998-2007
- Functioning condition assessments of stream segments conducted during 1999-2007.

Rangeland Health:

Pasture 8B: The short segment of Birch Creek (0.2 mile long) is functioning at risk (FAR) with an upward trend. Channels on this segment are historically incised about 5 feet deep (G-channel type; Rosgen 1996).

Most of the lower portion of Poison Creek (2.5 miles) is nonfunctioning (NF) because the channel has incised 5 to 8 deep into a gullied channel (G-channel type; Rosgen 1996). Another 1.2 miles is functioning a risk with a static trend. Channels are straightened, widened, and steeper than that appropriate for the landscape setting. Vigor and cover of riparian vegetation has been impacted by the loss of bank storage of water resulting from the historic incision of the channel, particularly on segments that are nonfunctioning.

The downstream-most segment of West Fork Shoofly Creek (0.5 mile) is functioning at risk with a static trend. Most of the channel is incised 2 to 3 feet from historical impacts. The incised channel is straightened and steeper that that expected from the landscape setting. Most of the segment is weakly vegetated with wild rose and sagebrush due to the loss of bank storage of water resulting from the historic incision of the channel. West Fork Shoofly Creek (1.6 miles) in the canyon reach is functioning at risk with an upward trend.

Pasture 10B: Birch Creek is functioning at risk with an upward trend. Channels of Birch Creek are altered due to historical impacts (down-cutting 4 to 5 feet below the original floodplain), but

channel and bank stability is improving due to increased recruitment and growth of riparian shrubs, and presence of active beaver dams.

Pasture 11B: About 0.2 mile of Birch Creek in a cobble-alluvial fill reach is nonfunctioning. Obligate riparian vegetation was almost entirely absent along the incised channel. Bank storage of water was non-existent in this reach. A short rock-armored reach (0.2 mile long) in a steep, rocky canyon is in proper functioning condition (PFC). Streambanks and channels are stable in the canyon reach. Trend monitoring showed the lower 1.7 miles of Birch Creek (segments 10.6, 11.7, and 12.2) are functioning at risk with an upward trend. Streambanks and channel stability is increasing due to increases in cover of bank stabilizing vegetation (willows and rushes). The upper 1.0 mile of Birch Creek (segment 13.0) has an active headcut (5 feet deep) located near the lower end of the segment. This headcut is slowly cutting upstream through depositional soils in an area that formerly had beaver dams. Channel and floodplain stability is improving on the remainder of the segment with willow and sedge cover increasing on streambanks and floodplains.

Pasture 12: Four miles of Poison Creek are functioning at risk. Channels on these segments are historically incised into G-channels (Rosgen 1996) that are 2 to 5 feet deep. Channels are straightened and steeper than that appropriate for the landscape setting. Channels are unstable because of unstable streambanks resulting from the historic incision of the channel or lack of bank-stabilizing vegetation. High levels of bank alteration are continuing to impact channel shape and form. Old-aged willows armor streambanks and prevent channel alteration and erosion on about 0.4 mile of Poison Creek that is in proper functioning condition. Additionally, 0.2 mile of channels and floodplains in the Summit Springs and Poison Creek Recreation Site grazing exclosures are in proper functioning condition. Banks and floodplains are strongly vegetated with bank-stabilizing species.

About 0.7 mile of Fall Creek is in PFC; about 90% of streambanks are armored by old-aged riparian shrubs. As a result stream channels and floodplains are stable and protected from disturbance. About 85% of the segment is comprised of B-channels (Rosgen 1996) that are appropriate for the landscape setting. Some areas vegetated with aspens are historically incised (2 to 5 feet) into G-channels.

Lone Juniper Creek is functioning at risk because of the presence of 3 active headcuts. The largest headcut is cutting into a fill area associated with an unimproved road crossing. Two headcuts, 0.5 to 1.0 foot in depth, are present in the upper end of the reach. The majority of the channel is a B-channel type (Rosgen 1996), but is at risk of gullying (forming an incised G-channel; Rosgen 1996), due to the presence of the headcuts.

Pasture 14: The lower end of West Fork Shoofly Creek is historically incised 4 to 5 feet into a G-channel type (Rosgen 1996). Streambanks of these reaches are well vegetated with bank-stabilizing plants, or where lacking, plant cover on streambanks and floodplains is increasing. Upstream of the private land parcel, 0.6 mile of West Fork Shoofly Creek is in PFC. Channel shape and form are appropriate for the landscape setting. Floodplains are well vegetated with 75-225 feet wide areas of woody shrubs.

Pasture 28A: The downstream segment of Sheep Creek (0.5 mile) is in PFC. Stream channel shape and form is appropriate for the landscape setting (90% B stream type; Rosgen 1996). The upper BLM segment on Sheep Creek is functioning at risk. Streambanks and channels are actively eroding at the downstream 150 feet of the segment. Overall trend is static with the channel altered to a degraded G channel type (Rosgen 1996).

Pastures 29C and 29D: Channels and floodplains of Battle Creek are functioning at risk with an upward trend. Channel shape and form is not yet in balance with the landscape setting because of impacts from the historical incision of the channel. However, the stream is progressing towards an E-channel type that is appropriate for the landscape setting (Rosgen 1996). Trend monitoring shows a strong upward trend in channel and floodplain health since 1993.

Pasture 33: The 0.3 mile of Rock Creek that was fenced into a grazing exclosure in 1997 is functioning at risk with an upward trend. Channel shape and form are impacted by the historic incision (4 to 6 feet deep) of the channel. However, channels are narrowing and channel sinuosity is improving as streambanks and floodplains are increasingly becoming vegetated with bank-stabilizing vegetation. A short segment of Rock Creek (0.2 mile) is located in this pasture and is functioning at risk with a slow upward trend. This channel is also historically incised 4 to 6 feet deep. Channel shape and form are slowly improving as sedges and willows are colonizing streambanks and floodplains. A few terrace banks (at the height of the former floodplain prior to the channel down-cutting) are actively eroding.

About 0.2 mile of Sheep Creek from the confluence upstream to the road crossing at the BLM/private land boundary is in PFC. Stream channel shape and form are appropriate for the landscape setting (predominantly B and E stream types; Rosgen 1996). Streambanks and floodplains are stable and well vegetated with plant communities dominated by bank-stabilizing species. The next BLM segment upstream (0.25 mile long) is functioning at risk with a downward trend. Three active headcuts are present where the channel is actively eroding due in large part to the loss of active beaver dams. Presently, 90% of the segment has a channel shape and form appropriate for the landform (E stream type; Rosgen 1996).

Rangeland Health Change:

Pastures 8B, 10B, and 11B: Channels and floodplains of Birch Creek are improving in health as riparian plant cover (particularly that of willows) is increasing with restricting livestock grazing to spring use. An exception is a portion of upper Birch Creek in pasture 11B where a 5 foot deep headcut is eroding the channel at the lower end of a 0.25 mile long segment of stream that is not historically incised. In 2007, 0.4 mile of Birch Creek in pasture 11B (0.2 mile in NF, 0.2 mile in FAR with an upward trend) was fenced in with State land and grazed at substantially higher levels than that during 1998 to 2006.

West Fork Shoofly Creek is improving in the canyon segment (1.6 miles long) in pasture 8B that was closed to livestock grazing in 1997. However, recent trailing (in 2006) from un-authorized livestock use of the grazing exclosure resulted in bare soil areas that are placing the floodplain at risk of erosion during high stream flows.

Pasture 12: Poison Creek had an upward trend in bank stability and plant cover from 1993 to 1999, but plant cover and bank stability has declined since 1999. Livestock alteration of streambank soils on Poison Creek was higher during 1999 to 2006, during which Birch Creek in pasture 11B was grazed at lighter levels and had an upward trend in condition.

Pastures 29C and 29D: Battle Creek was mostly rested from grazing or grazed at light to moderate levels during 1998 to 2006, compared to annual summer-long grazing prior to 1998. Streambank and channel stability is improving as cover and vigor of bank-stabilizing riparian plants is increasing. Stream channels are progressing towards an E-channel type that is appropriate for the landscape setting (Rosgen 1996).

Pasture 33: Rock Creek is rapidly improving on 0.3 mile of stream that was fenced into a grazing exclosure in 1997. Young willows are abundant and sedge and willow cover is increasing on banks and floodplains. Similarly, about 0.2 mile of Rock Creek is slowly improving in health as sedge cover is increasing on streambanks and floodplains and willows are successfully recruiting young plants.

About 0.25 mile of Sheep Creek is strongly vegetated with willow and sedge plant communities, but trend in channel and floodplain health is downward due to the channel actively down-cutting and eroding at 3 locations. Channel instability is related to the loss of active beaver dams.

Livestock Grazing Management:

Most streams on this allotment are impacted by historical channel incision (down-cutting into gullied channels [G-channels; Rosgen 1996] 4 to 5 feet below the original floodplain level). Streambanks are often primarily vegetated with weakly-rooted, early-seral stage plant communities, therefore, many stream segments on this allotment are susceptible to mechanical disturbance from hoof shearing and pugging. A few stream reaches are located in rugged, rocky canyons that restrict livestock use and armor streambanks (about 2.5 miles of stream). These segments have a higher percentage of their riparian areas vegetated with late-seral bank-stabilizing species and are in PFC or FAR with an upward trend.

Pastures 8B, 10B, 11B, 29C, and 29D: Condition of historically incised stream segments that are not significantly dewatered is generally improving under spring grazing (i.e. 5.5 miles of Birch Creek in pastures 8B, 10B, and 11B, and Battle Creek in pastures 29C and 29D). Grazing in these pastures (spring use and then rest in summer or fall) has generally been consistent with guideline 7 (Grazing management practices maintain, promote, or progress toward appropriate stream channel and streambank morphology functions). Channels and floodplains in these areas have upward trends in functioning condition. Elimination of the trailing of livestock down Birch Creek in the fall has also contributed to increased channel and bank stability, by reducing riparian plant use and streambank alteration. High levels of grazing use on 0.4 mile of Birch Creek, which was fenced in with State land separate from pasture 11B in 2007, will likely reverse the upward trend in condition of 0.2 mile of stream.

Most of lower Poison Creek (2.5 miles) in pasture 8B is nonfunctioning because of historical impacts (channel incision and loss of bank storage of water) that resulted in significant

dewatering of riparian areas. Livestock grazing, when limited to spring grazing, is not impacting these nonfunctioning segments. Inventories in 2006-2007 revealed riparian areas that are functioning at risk due to channel incision and were being impacted by livestock grazing in late summer or fall. Residual stubble heights of < 2 inches on bank-stabilizing herbaceous species were observed. Hot season and fall grazing was resulting in less residual stubble height and plant vigor and consequently hindering increases in bank and channel stability. Portions of the upper-most segment of Poison Creek in pasture 8B (1.2 miles) receive high levels of soil and bank alteration due to hoof shearing and pugging from livestock. This mechanical disturbance is restricting willow recruitment and sedge and rush colonization and expansion on portions of these segments.

Livestock grazing of the lower 0.5 mile of West Fork Shoofly Creek in pasture 8B when use is limited to spring grazing is consistent with guideline 7. The channel in this segment is historically incised 2 to 3 feet, with a resulting loss of water storage in streambank soils. However, observations in winter 2007 showed channel stability is impacted by summer or fall grazing which reduced riparian plant vigor, hindering its ability to colonize and stabilize streambanks and floodplains. Livestock grazing has generally been excluded from the canyon segment in pasture 8B that was closed to grazing in 1997. However, a few livestock entered the exclosure in 2006 and their trailing created bare soil areas in the floodplain.

Pasture 12: Poison Creek is grazed in June, such that timing of livestock grazing is generally consistent with guideline 5. An improved road that parallels the stream through this pasture facilitates livestock spending significant amounts of time grazing and watering on Poison Creek. Livestock alteration of streambanks and trampling of early-seral vegetation is too high to improve the density and cover of bank-stabilizing species on 3.2 miles of stream. Livestock stocking levels have increased since 1999; trend in bank stability and riparian plant cover is downward since 1999 and is associated with high levels of bank alteration. Most of Poison Creek is FAR with a static trend in condition. Current livestock grazing impacts add to the historical impacts (dewatering, unstable banks) resulting from channel incision. Occasionally, Poison Creek has received late season grazing use, but residual stubble heights have generally been >4 inches (indicative of limiting livestock use to spring grazing). Poison Creek was rested from livestock grazing in 2007.

Pasture 14: Livestock do not access most of West Fork of Shoofly Creek because dense riparian shrubs armor streambanks and floodplains.

Pasture 28A: The upper 0.3 mile of Sheep Creek in this pasture is grazed in summer when water is generally present in the channel. This segment receives high plant use and alteration of streambanks and floodplains from hoof pugging and shearing. Streambanks and channels are actively eroding at the downstream end of the segment, with the channel altered to a degraded G channel type (Rosgen 1996). High levels of grazing during the summer are not consistent with guideline 7. The lower segment of Sheep Creek in this pasture is dry when grazed by livestock and channels and floodplains are largely not impacted by livestock, except for some trailing impacts.

Pasture 33: Fall grazing use of Rock Creek and Sheep Creek is consistent with guideline 7. Vigor of late-seral vegetation is high, and cover of bank-stabilizing vegetation is increasing on streambanks and floodplains. About 0.25 mile of Sheep Creek in this pasture is in a downward trend due to active headcuts resulting from the loss of beaver dams. Exclusion of livestock grazing on 0.3 mile of Rock Creek has resulted in a strong upward trend in stream channel and floodplain health.

Evaluation – Standard 3

1 ■ Meeting the Standard Pastures 14	5 □ Not Meeting the Standard, cause not determined
2 ■ Not Meeting the Standard, **but making significant progress towards** Pastures: 10B, 11B, 29C, 29D & 33	
3 □ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors	6 □ Conforms with Guidelines for Livestock Grazing Management.
4 ■ Not Meeting the Standard, current livestock grazing management practices are significant factors Pastures: 8B & 12 (portions of Poison Creek); 28 & 28A (portions of Sheep Creek) High levels of grazing of streamside vegetation is destabilizing banks and channels	7 ■ Does not conform with Guidelines for Livestock Grazing Management (list Guidelines No(s) in non-conformance): Guideline 7

Rationale: Changes in livestock grazing management (changing or limiting grazing to spring use) since 1997 have resulted in substantive improvements in stream channel and floodplain health on 7.6 miles of stream (primarily in the Battle and Birch Creek drainages). However, 5.2 miles of Poison and Sheep Creeks (26% of the 19.85 miles of stream on the allotment) continue to not meet Standard 3 because of livestock grazing impacts. Of 2.8 miles of stream meeting the standard (in PFC) 2.45 miles are associated with rugged, rocky canyon segments that restrict livestock access. The remaining PFC segments are fenced to exclude livestock use. About 2.7 miles of stream are in NF condition because of dewatering resulting from historical channel incision, and about 1.55 miles are FAR and not meeting the standard because of non-livestock grazing impacts (primarily historical channel incision).

Standard 4 (Native Plant Communities)

☐ Standard doesn't apply

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

- Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
- The diversity of native species is maintained.
- Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.
- Noxious weeds are not increasing.
- Adequate plant litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Evaluation and Information Sources:

- Castle Creek Allotment Final Analysis, Interpretation, and Evaluation 1997
- Long Term Vegetation Studies, Nested Plot Frequency Transect Data and Photo Monitoring, 1983 to 2007
- Livestock actual use and utilization data
- Rangeland Health Assessments 2005-2007

Rangeland Health:

Rangeland Health Assessments (RHA) are used for Standard 1 and Standard 4. Twenty-three sites were assessed in the East Castle Creek Allotment from 2005 to 2007. The assessments were conducted in accordance with the procedure described in BLM Technical Reference 1734-6 "Interpreting Indicators of Rangeland Health". The Rangeland Health Assessments conducted in 2005 used Version 3 and the subsequent assessments conducted in 2006 and 2007 used Version 4 of "Interpreting Indicators of Rangeland Health" (both versions are compatible and "interpretations made with Version 3 will be consistent with those made with Version 4 *provided that the same reference information is used.*" (Pellant et al 2005). Since the same reference information has been used for the East Castle Creek Allotment the assessment results are compatible and are displayed together – no further delineation of Version is made in this document.

The watershed standard includes 12 indicators related to Soil and Site Stability and Hydrologic Function attributes. Standard 4 (Native Plant Communities) includes 9 indicators related to biotic integrity. Attributes are summarized based upon a preponderance of evidence approach using the applicable indicators. Ratings categories are: None to Slight, Slight to Moderate, Moderate, Moderate to Extreme and Extreme to Total. Attribute ratings reflect the degree of departure from expected levels for each indicator as identified in the reference sheet or

ecological site descriptions. "Attribute ratings may stimulate further actions…to determine the reason for these ratings or determine if the trend is satisfactory under existing management" (Pellant et al 2005). Many ecological sites are present on the allotment, but not all sites were sampled during the rangeland health assessment process. Ecological sites examined were chosen based on how representative they were of the pasture and were selected during the field examination by the interdisciplinary field team.

The following table shows the degree of departure from expected conditions for assessment sites in the East Castle Creek Allotment. Pastures which had more than one rangeland health assessment site are indicated by multiple marks within the table for the individual site ratings.

Standard 4 - Rangeland Health Assessment Summary Each "X" represents a RHA site.

Biotic Integrity Attribute	Degree of Departure				
	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme to Total
Pasture 5B		XXX			
5BEX		X			
Pasture 8B		XX	XX		
Pasture 8BI	X			X	
Pasture 8BIII				X	
Pasture 10B		X		X	
Pasture 11B		X			
Pasture 12	X	X	X		
Pasture 28		X	X		
Pasture 28A		X	X		
Pasture 29A		X			
Pasture 44		X			

Pasture 5B: In this pasture and the Mud Flat Oolite Exclosure (5BEX) the biotic integrity indicator ratings are slight to moderate. The main biotic concerns were the changes in the functional/structural groups and the increase of invasive plants -indicated by the decrease of deep rooted cool season bunchgrasses in the interspaces between shrubs and the increase of cheatgrass. Biological soil crust is an important functional/structural group that is well represented in this pasture. Biological soil crusts help to retain soil moisture, discourage annual weed growth and help to bind the soil particles together, thus protecting soil integrity. Soil surface resistance to erosion was decreased slightly to moderately based on reduced organic matter in shrub interspaces and there was some historic soil loss and degradation. Mortality, decadence and vigor varied throughout the pasture from a slight to moderate departure, particularly on shrubs.

Pasture 8B: The biotic integrity ratings are slight to moderate at two sites and moderate at two sites. The main biotic concerns are changes in functional/structural groups indicated by decreased cool season deep rooted perennial bunchgrasses; decreased annual production of native perennial plants; decreased litter amount; and invasive plants. Cheatgrass makes up a large component of the understory in this pasture, with remnant cool season deep rooted bunchgrasses occurring primarily under the shrub cover, especially in the lakebeds portions. There are more perennial native grasses in the interspaces between shrubs in the south and southeastern portion of the pasture, away from water.

Pastures 8BI and 8BIII: Pastures 8BI and 8BIII are part of the Castle Creek Plow and Seed Project (Phase I and III) which were plowed and drilled to crested wheatgrass in 1988 and 1992, respectively. Crested wheatgrass, particularly in 8BI, is not the visually dominant plant. It is on a downward trend in 8BIII. For these two pastures, crested wheatgrass is one of the perennial species under the functional/structural group cool season deep rooted bunchgrasses because in hydrologic terms, it functions the same as a native cool season deep rooted bunchgrass.

The biotic integrity rating is moderate to extreme departure in pasture 8BI. The pasture 8BI site exhibited changes in plant communities and changes in soil surface and soil degradation. Large cool season deep rooted bunchgrasses (including crested wheatgrass) are not as represented as expected for the pasture and frequency is low. Litter was greatly reduced. Reproductive capability of plants was reduced with most interspatial plants exhibiting low vigor and most seed heads restricted to protection of the shrubs. There were active gullies and flow paths, physical crusting and weak soil structure. The Birch Creek Exclosure, located in pasture 8BI but not plowed and seeded, has a none to slight rating for biotic integrity. The cool season deep rooted bunchgrasses were co-dominate with Wyoming big sagebrush within the exclosure and there was little bare ground and a good biological soil crust component.

Pasture 8BIII, the other historic seeding in this allotment, had a moderate to extreme departure from expected for indicators associated with Standard 4. All indicators associated with Biotic Integrity rated moderate to extreme. Soil surface exhibited weak structure, low organic material, and high amounts of physical crusting. Physical soil crusts are transient soil-surface layers that are structurally different from the material beneath them and functionally reduce water infiltration and can prevent emergence of vascular plants. Soil loss was evidenced by pedestalled plants, physical crusts, and flow paths. There was a low occurrence of biological soil crusts, which are an important functional/structural group. The density of deep rooted cool season bunchgrasses was low as was the density of biological soil crusts. Litter was from cheatgrass and trampled plants. Annual production of deep rooted cool season bunchgrasses was reduced for the site. Plants lacked vigor and there was evidence of die-out of bunchgrasses.

Pasture 10B: The biotic integrity rating at one site in pasture 10B was moderate to extreme and at another was slight to moderate. The dominant visual aspect in this pasture was shrubs with a sparse cool season deep rooted bunchgrass understory. The site rated moderate to extreme had a high amount of bare ground, reduced litter, increased cheatgrass, and few, cool season deep rooted and shallow rooted bunchgrasses. Soil surface resistance to erosion had a slight to moderate departure due to decreased organic matter in the soil surface. Litter amount was greatly reduced on the site relative to site potential and weather. Cheatgrass provided most of

the litter present. The indicator for functional/structural groups was rated moderate to extreme due to the reduced cool season deep rooted bunchgrasses, increased cheatgrass and rabbitbrush.

The site rated slight to moderate had minor changes in the plant community, particularly in the functional/structural groups. There were more shrubs than expected relative to the ecological site description and fewer interspatial cool season deep rooted bunchgrasses. Invasive plants were rare on the site and litter amount was only slightly reduced.

Pasture 11B: Biotic integrity had a slight to moderate departure. There was an increase in shrubs compared to the ecological site description and interspatial cool season deep rooted bunchgrasses were sparse and exhibited poor vigor. Bluegrass and cheatgrass were increasing in the interspatial areas. Litter from shrubs was slightly higher than expected and high from cheatgrass.

Pasture 12: The biotic integrity ratings were none to slight, slight to moderate and moderate. The site with a none to slight departure was considered a reference site for the ecological site Shallow Claypan 12-16", as it was in very good condition. The site with a slight to moderate departure had minor changes overall in the plant community with an increased shrub component and decreased cool season deep rooted bunchgrasses. Some areas had a good complement of functional/structural groups and others had reduced bunchgrasses. Litter on the site was primarily from cheatgrass with very little litter from cool season deep rooted bunchgrasses remaining from the previous years. Cheatgrass was common throughout and burr buttercup and junipers were scattered across the landscape.

The site with a moderate departure was dominated by basin big sagebrush with a bluegrass and cheatgrass understory. Changes in plant communities led to a moderate departure for functional/ structural groups due to the decrease in cool season deep rooted bunchgrasses and increase in shrubs. Cool season shallow rooted bunchgrasses were increased on the site. Forbs and shrubs supplied most of the litter on the site, due to decreased cool season deep rooted bunchgrasses. Abundant rabbitbrush, juniper and cheatgrass on the site represented a moderate departure for invasive plants.

Pasture 28: Biotic integrity had a moderate rating at one site and a slight to moderate at another. At the moderate site, the indicators for soil surface resistance to erosion and soil surface loss or degradation both had a moderate departure from expected, with physical soil crusts, pedastalling of plants, and sparse litter. The indicator for functional/structural groups exhibited a moderate departure from expected. There is a high frequency of Idaho fescue in the pasture, although some of the Idaho fescue plants exhibited crown die-out at the time of the rangeland health assessment field visit, resulting in a moderate departure for the Plant Mortality/Decadence indicator. Reproductive capability of cool season deep rooted bunch grasses had a moderate departure. Vigor on bitterbrush was poor due to the plants being severely hedged. Invasive plants, cheatgrass and juniper, were increasing, as was rabbitbrush, primarily in disturbed areas.

The slight to moderate site had similar biotic integrity concerns, but at a reduced level than the moderate site. This site had some soil loss evidenced by pedestalled plants. This site also had a

decrease of cool season deep rooted bunchgrasses, crown die-out on the well represented Idaho fescue and bluegrass. Litter amount was slightly reduced.

Pasture 28A: Biotic integrity was slight to moderate at one site and moderate at another. At the slight to moderate site, cool season deep rooted bunchgrasses were reduced in the shrub interspaces and shrubs were increased. Litter amount was reduced resulting in a moderate departure from expected for this indicator. Invasive plants had a slight to moderate departure from expected based on increased juniper and rabbitbrush.

At the moderate site, cool season deep rooted bunch grasses were present but at a reduced density and shrubs were above normal compared to the site guide. Mountain big sagebrush was increased on the site. Plant mortality and decadence had a moderate to extreme departure. Litter amount was reduced. Inadequate litter and decreased bunchgrasses have led to bare areas with physical crusting and soil movement. There was a moderate departure from expected for invasive plants. Juniper was scattered across the site but at a low percentage. There was little recruitment of bunchgrasses, and those present exhibited poor vigor.

Pasture 29A: Biotic integrity of pasture 29A had a slight to moderate departure from expected. Perennial grasses were reduced and the amount of sagebrush was high, rabbitbrush was common and juniper was scattered within the pasture. There was some soil loss or degradation as indicated by pedestalled perennial grasses and rocks within the interspatial areas. There was some mortality of sagebrush and crown die-out was common on the pedestalled Idaho fescue plants. Litter amount was reduced.

Pasture 44: Biotic integrity had a slight to moderate departure due primarily to decreased bunchgrasses, increased shrubs and invasive plants. Soil surface loss or degradation had a slight to moderate departure from expected due to evidence of historic loss. There was a moderate departure from expected for functional/structural groups due to the increased sagebrush and decreased cool season deep rooted bunchgrasses, which were present but in reduced numbers. There was a moderate to extreme departure from expected for invasive plants because of the cheatgrass component. The other indicators for the biotic integrity attribute did not depart from expected.

Rangeland Health Changes:

Pasture 5B: The plant communities have been altered for some decades, and were rated in poor condition in 1966. Past surveys have recognized the existence of pockets of better condition communities with an Indian ricegrass understory. These pockets generally received limited livestock use because of steep slopes, broken topography, or distance from reliable water sources. These areas also had substantial remnant populations of increaser grasses. The 1997 AIE noted a fenceline contrast in places between winter (such as 5B) and spring pastures and stated that in general, perennial grasses and palatable shrubs were more vigorous and abundant in winter pastures than spring pastures.

There are three nested plot frequency transects sites located in this pasture. Since the sites were established (one in 1983 and two in 1988) there has been a decrease in squirreltail. Squirreltail is

susceptible to cyclical die-offs caused by drought (Sharp et al. 1990). The allotment has experienced drought conditions several times within the last 25 years including 1999-2004, which could account for the decrease in squirreltail. Ricegrass frequency, present at two of the trend sites, overall is static since 1983. However, it did increase from 5% in 1997 to 11% in 2006 at site 06S02E04. Sandberg's bluegrass has steadily increased at this site. Shadscale frequency has remained static at two sites and increased at the third, site 06S02E04. Budsage has decreased at two sites and is static at the third. Winterfat has increased at the one site where it is present. Overall trend in this pasture is static. One trend site has a slight upward trend (06S02E04) based on the increases in ricegrass, Sandberg's bluegrass, and winterfat but shadscale and budsage have decreased at this site. The other two trend sites are static.

Pasture 8B: The plant communities in most of this pasture have been altered over decades of spring grazing with heavy utilization occurring in several of the years monitored. Shrubs with a cheatgrass understory and remnant perennial bunchgrasses under the shrub canopies are the dominant visual aspect over approximately 50% of the pasture, especially the northern portions. The northern, lakebed, lower elevation areas have a cheatgrass understory which competes with the sparse remnant perennial bunchgrasses for space and energy. Recruitment of bunchgrasses is therefore low. Areas of better condition plant communities exist in the foothills portion of the pasture, above Shoofly Creek and in the more remote areas without reliable water sources. According to the 1997 AIE, the long-term ecological trend for perennial grasses was static to downward and the long-term trend for shrubs was static to upward. Vigor and productivity of perennial grasses, according to the AIE, were generally low. Consistent grazing from initiation of growth through the critical growth stage of forage species and drought conditions resulted in static or declining conditions beginning in 1987.

There are four nested plot frequency transect study sites located in this pasture. One site was established in 1983 and the other three sites were established in 1990. Long term (from either 1983 or 1990, depending on when the site was established to present) trend on squirreltail is downward at three sites and upward at one site. Ricegrass is static at the one trend site where it has been regularly recorded (site 07S02E22) and bluegrass is static overall. Overall trend on grasses is static to downward. For shrubs, long term (from 1983) frequency of shadscale was downward at two sites and upward at one and budsage was static at two sites and upward at one. Long term trend for native perennial grasses is static to downward and trend on shadscale is downward and budsage is static. In the short term, from 1997 to present, trend on perennial grasses is downward and trend on shrubs (including low sage and Wyoming big sage) is downward.

In addition, there is one site in the Poison Creek Exclosure which was established in 1983. Squirreltail has declined from 1983 to 1997, but has increased since 1997. Shadscale frequency was static and budsage has increased since 1983.

Pastures 8BI and 8BIII: One trend study site is located in 8BIII. Established in 2000, the site has shown a marked decrease in frequency of seeded wheatgrass. Sandberg's bluegrass, although present in 2000, did not occur in 2006. The apparent trend on seeded wheatgrass, based on 2000 and 2006 data, is downward in 8BIII. There are no long term study sites in 8BI,

although based on the Rangeland Health Assessment conducted in the pasture, vigor and productivity were poor on the seeded wheatgrass.

Pasture 10B: The lower portions of the pasture, the alluvial basins and lower slopes, have been rated in poor condition since 1966. They are dominated by annual grasses in the understory with sparse Sandberg's bluegrass. As you move higher in elevation there is a more abundant and diverse understory of perennial bunch grasses. Sandberg's bluegrass increases in the understory and islands of other perennial bunchgrasses persist, particularly on the steeper slopes and mountain tops, but also in the trend plot. The 1997 AIE concluded the historic trend in this pasture was downward in areas with gentle slopes receiving moderate livestock use and static to upward on steep slopes and mountain tops that receive lighter use. Season of use, grazing levels, and drought conditions have limited the recovery of perennial grasses.

There is one trend site in this pasture. Bluegrass is well represented at the site and frequencies have remained high throughout the years. Bluebunch wheatgrass has decreased since 1983 and Thurber needlegrass is static. Frequency of low sage is static from 1983 to 2007. From 1997 to 2007, frequency of bluebunch wheatgrass and Thurber needlegrass increased and low sage decreased.

Pasture 11B: There are no long term trend locations in this pasture. The historic condition mapping from 1959 and 1966 rated the lower elevations in fair condition. In 1974 and 1979 lower elevations portions were rated in poor condition. Condition was generally fair or good at higher elevations on steep north-facing slopes and areas less accessible to livestock or some distance from reliable water. The plant communities have a mix of understories, including Sandberg's bluegrass and other perennial native grasses.

Pasture 12: Condition of upland vegetation in this pasture is associated with steepness of slope, elevation, proximity to water including Poison Creek, and historic uses. Condition rating ranged from poor along Poison Creek, a historic livestock corridor, to fair in the steeper portions of the pasture away from water sources based on historic condition ratings. Poorer condition areas are dominated by increaser grass understories (Sandberg's bluegrass) with the better areas having a diverse understory dominated by Idaho fescue, bluebunch wheatgrass and other perennial bunchgrasses, depending on ecological sites. The steeper slopes opposite Poison Creek have reference condition low sage communities, with abundant and vigorous Idaho fescue and forbs.

There are two long term trend study sites in pasture 12. Site 08S01E20 is located close to the Mud Flat road just past Summit Spring in the upper portion of pasture 12. It burned in 1992 and was not rested from livestock use or seeded for recovery. Bluegrass has recovered to near the same frequency as prior to the fire and substantially greater, nearly double, the frequency than when the site was established in 1983. Mountain big sagebrush is at the same frequency as 1983. Thurber needlegrass, Idaho fescue and bluebunch wheatgrass have not recovered at the site. Snowberry has recovered, but bitterbrush has not. Frequency at the other trend site, 08S01E02, located just north of the Mud Flat Road in the lower portion of the pasture, is static on perennial bunchgrasses, upward on low sage and downward on mountain big sagebrush. Overall trend in this pasture is static to downward.

Pasture 28: The plant communities in this pasture include low sagebrush communities and mountain big sagebrush communities, with bitterbrush and mountain mahogany scattered throughout. Cool season deep rooted bunchgrasses including bluebunch wheatgrass and Idaho fescue are prevalent in the understory along with Sandberg's bluegrass, which dominates. At the low sagebrush trend site located at 08S01W28, approximately ½ mile from Rat Spring in the eastern portion of the pasture, trend on perennial grasses and low sage is upward. The other trend location (08S02W24) is also a low sagebrush site located just off the Antelope Ridge Road, north of Station Spring approximately ¾ mile. The frequency of low sagebrush has nearly doubled at this site since it was established in 1983. Idaho fescue and squirreltail are increasing. Overall trend on grasses at this location is also upward, except on bluegrass which has decreased.

Pasture 28A: There are no long term trend data for this pasture. Vegetation mapping based on the ecological site inventory of 1979, as presented in the 1997 AIE, rated this pasture in good condition. The rangeland health assessments noted that cool season deep rooted bunchgrasses were reduced from the ecological site descriptions and juniper and rabbit brush were increasing on the site.

Pasture 29A: The plant communities in the pasture include low sagebrush communities and mountain big sagebrush communities, with bitterbrush and mountain mahogany scattered throughout. Cool season deep rooted bunchgrasses are prevalent in the understory, along with many forbs. There is one trend site in this pasture, located at 08S01W26. Trend on some perennial bunchgrasses (Junegrass and bluebunch wheatgrass) was upward. Squirreltail had a downward trend and Idaho fescue is static overall. Trend on bitterbrush is upward, while mountain big sagebrush is downward. Apparent trend at this site overall is upward.

Pasture 44: There are no long term trend data for this pasture or for the other FFR pastures in this allotment. Vegetation mapping based on the ecological site inventory of 1979, as presented in the 1997 AIE, showed this pasture as having an increase in the cover of increaser grasses and a subsequent decrease in cover in the decreaser grasses. It was rated in fair condition based on this data. Cheatgrass was noted as dominating the understory during the 2007 Rangeland Health Assessment.

Livestock Grazing Management:

Pasture 5B: Pasture 5B is grazed from November 1 to January 31 every year. Measures have been taken to reduce utilization of palatable shrub populations or of perennial grasses in preferred locations, including construction of additional pipelines, water hauling, herding, and voluntary nonuse. Cheatgrass provides a substantial part of the available forage. Eleven troughs fed by 10.8 miles of pipeline were placed in winter pastures by 1984. The purpose of the pipeline and troughs was to improve livestock distribution. Neither the 1997 Final Decision nor the 2004 Settlement affected the season of use or amount of permitted use in this winter pasture. The Mud Flat Oolite Exclosure fence was completed in 1999. The area within the exclosure was previously part of Pasture 5B and had been grazed in winter since 1970.

Utilization was very high in 1999 and 2000. Average utilization was 71% on ricegrass in pasture 5B in 1999 and 2000 and 64% on squirreltail in 1999 and 2000. Utilization of Thurber

needlegrass, measured at one site, was 70%. In 2006 utilization on ricegrass was lighter, averaging 22%. Different transects were measured in 2006 than were measured in earlier years which may account for some of the differences, as actual use was much higher in 2005 and 2006 than from 1998 to 2004. Utilization of winterfat was heavy in 1999 and 2000, but has not been measured since.

Heavy utilization reduces thermal cover, stresses plants and decreases overall vigor of individual plants. Overall trend in this pasture is static. Grazing use complies with guidelines that recommend grazing outside the critical growth stages of perennial plants. However, due to the high utilization observed, remaining plant material is not adequate to meet guidelines (guidelines numbers 4, 9, and 12).

Pastures 8B, 8BI and 8BIII: These pastures are the early spring pastures on the East Castle Creek Allotment and are grazed April 1 - May 1 and May 1 - June 1 in alternating years under the 2004 Settlement. During 1998 through 2004, the overall period of spring use was April 1 - June 30, with use occurred primarily during April and May. All three pastures are open to use concurrently under the 2004 Settlement, but 8BI and 8BIII were basically rested in 2005 and 2006 to allow recovery from an extended period of drought.

Utilization averaged 70% on ricegrass and 42% on squirreltail from 1998 to 2002. In 2003, utilization was recorded as "nil" on all species in pasture 8B. In 2006, utilization was 27% on ricegrass at one location in pasture 8B and nil at another. There was heavy utilization on Sandberg's bluegrass in 1999, 2001 and 2002 in pasture 8BI and moderate to heavy use on crested wheatgrass. In 2006 use was light overall throughout pasture 8BI; however, very few crested wheatgrass plants were observed and slight use was observed on Sandberg's bluegrass. Use was heavy in 1998, 1999 and 2001 in pasture 8BIII. The heavy utilization and adverse growing conditions in 2001 prompted an agreement with the permittees to close pasture 8BIII to use in 2002; and adverse growing conditions in 2002 through 2004 prompted near-complete rest of this pasture in 2005 and 2006. Consistent spring grazing and heavy utilization have contributed to the decline of the seedings. Plant production and seed production have been reduced due to the grazing management. Adequate litter and standing dead plant material are not left in amounts necessary for soil protection. Grazing management practices have not maintained or promoted the physical and biological conditions to maintain the seedings.

Livestock grazing use in these pastures does not conform to guidelines (numbers 4, 9, 12). Periodic rest or deferment during the critical growth stages is not allowed in these pastures. Use dates overlap the critical growth stages for Sandberg's bluegrass and therefore do not provide adequate deferment (Phenology of rangeland forage plants as presented in the 1997 AIE p.11). Under the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (USDI BLM 1997), deferment is defined as "[n]ongrazing, either by delay or discontinuance of grazing, from the beginning of plant growth until the seed is set or the equivalent stage of vegetative reproduction" . Utilization prior to the settlement was very high in each of these pastures and did not provide for physiological needs of remnant native perennial plants in the pastures.

Pasture 10B: Under the settlement this pasture was grazed May 1 - May 23 in 2005; April 1 - April 30 in 2006, and May 1 - June 1 in 2007. Prior to that, it was grazed during the month of May. Actual use data for this pasture from 1998 to 2004 is unavailable. Utilization in this pasture was moderate in 2001 and 2006 (right around 50%), with slight to light use in 1999 and 2000.

Livestock grazing use in pasture 10B does not conform to guidelines (numbers 4, 9, and 12) because periodic rest or deferment does not occur during plant critical growth stages. Livestock grazing use in this pasture generally alternates between April and May each year, thus overlapping critical growth stages for some perennial grasses. The 1997 AIE also concluded that livestock use in this mid spring pasture based on 1997 management practices overlaps the critical growth phase of some perennial grasses.

Pasture 11B: This pasture is one of the later spring pastures and was grazed May 24 - June 17 in 2005, rested in 2006 and effectively rested again in 2007. The 2004 Settlement grants one week flexibility in move dates, extending the allowable period of use through June 24. Prior to the 2004 Settlement, from 1998 to 2004 this pasture was grazed with the other spring pastures and overall period of use was April 1 –June 30, with grazing use primarily during June. In 2001 it was grazed for one week in spring. In 2002, it was grazed for 19 days in spring. Utilization was measured in 1999 and was light on Idaho fescue.

Due to the light use this pasture has received under the 2004 Settlement, and the rest provided every other year under the settlement, this pasture conforms to grazing guidelines. Use prior to the settlement, used in conjunction with the other spring pastures from April 1 to June 30, would not have conformed to livestock grazing guidelines due to livestock use occurring during the critical growth period every year.

Pasture 12: Under the 2004 Settlement this pasture was grazed May 24 - June 17; June 2 –June 17 and then rested in 2007. Prior to that, from 1998 to 2004 the pasture was grazed during June.

Utilization was heavy in 2006: 76% on bluebunch wheatgrass and Idaho fescue; 66% on Thurber needlegrass. From 1998 to 2003 utilization averaged 43% on bluebunch wheatgrass (ranging from 10% in 1999 to 80% in 2003); 61% on Idaho fescue. From 1998 to 2006 utilization was moderate, averaging 49% on Sandberg's bluegrass. From 1998 to 2001 utilization averaged 59 % on Thurber needlegrass.

Use in this pasture under the 2004 Settlement provides rest in one out of three years. Providing periodic rest conforms to grazing guidelines, however, the utilization in 2006 at measured sites does not allow for plant vigor for proper seed production, or seed dispersal. It exceeds the MFP objectives set on perennial grasses to assure that the physiological needs of these grasses are being met. Based on utilization in this pasture, livestock grazing does not conform to guidelines.

Pasture 28, 28A, and 29A: These are the summer pastures on the East Castle Creek Allotment and are grazed under a deferred-rotation system. Under the Settlement, livestock grazing in Pastures 29A and 29B alternates between June 18 - August 31 and July 15 - August 31 in successive years. Livestock grazing in riparian pasture 29C during June 15 - 30 alternates with

rest in successive years. Grazing in riparian Pasture 29D during June 15 - 30 was licensed in 2006 and 2007. Livestock grazing in Pastures 28 and 28A alternates between June 25 - July 28 and July 29 - August 31 in successive years. No change to the amount of permitted use occurred in the summer pastures under the Settlement.

In pasture 28, utilization ranged from 30% to 68% on bluebunch wheatgrass in 2006. Use pattern mapping around 08S01W20 was 50-60% in 2006 on bluebunch wheatgrass and Idaho fescue in the mountain big sagebrush communities and much lighter in the low sage communities. Overall, in 2006 utilization was 51% on bluebunch. Use on Idaho fescue was light to moderate from 1998 to 2007. In 28A, utilization from use pattern mapping was 10-40% on bluebunch and Idaho fescue in 2006. Utilization was heavier on Idaho fescue in 29A than on bluebunch wheatgrass. Utilization on bitterbrush and mountain mahogany in pasture in 28 and 28A was heavy to severe (62-92 %). Utilization data were collected in 29A in 1998 and 1999. Utilization was 43 and 46% on bluebunch wheatgrass and 50 and 62% on Idaho fescue during 1998 and 1999.

Pasture 44: This pasture has been formally designated as FFR since 1993, and has retained that status under the 2004 Settlement. In FFRs, livestock numbers, season of use, and permitted use for included public land are at the discretion of the permittee provided that BLM land use plan objectives are met. Although no specific actual use data are available, spring use in conjunction with or immediately after the licensed use period in pastures 11B and 12 is probably the most typical scenario. Utilization in 2007 was 40%.

Evaluation – Standard 4

1. ■ Meeting the Standard Pastures: 11B, 29A, 44 and FFR pastures	5. □ Not Meeting the Standard, cause not determined
2. □ Not Meeting the Standard, **but making significant progress towards**	
3. ■ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors Pasture: 5B Historic livestock grazing use and practices	6. □ Conforms with Guidelines for Livestock Grazing Management
4. ■ Not Meeting the Standard, current livestock grazing management practices are significant factors Pastures: 8B*, 8BI, 8BIII, 10B* and 12 Depletion of deep rooted perennial bunchgrasses, season and intensity of livestock use Pastures: 28 and 28A Utilization of bitterbrush and mahogany	7. ■ Does not conform with Guidelines for Livestock Grazing Management 4, 9, 12

* In the East Castle Creek Allotment 'current management' changed for several pastures beginning in 2005, as a result of the 2004 Settlement Agreement. The RHA and Evaluation both support the conclusion that grazing management prior to 2005 was a significant factor in not meeting the standard in these pastures. However, the effectiveness of the changes implemented in 2005 is yet to be determined.

Rationale:
Pasture 5B is not meeting the standard due to historic livestock grazing. It is low elevation pasture and received heavy use by livestock for decades during the 1900s. The depleted understory has not recovered, but remnant populations of native perennial bunchgrass still exist. This pasture is comprised mostly of salt desert shrub communities and is grazed during the winter.

Prior to 2005, livestock grazing use occurred during April and May. Pasture 8B is not meeting the standard due to the long term downward trend in the pasture, annual spring use and heavy to severe utilization in 1999, 2000, 2001, and 2002. Utilization was lighter in 2006 and 2007 as measured at three transects. Trend was static to downward for grasses and static to downward for shrubs, Livestock grazing in this pasture occurs every spring during the critical growth stages for Sandberg's bluegrass. Two of the sites evaluated for rangeland health had moderate departures from ecological site descriptions for biotic integrity.

Pastures 8BI and 8BIII do not meet the standard due to the downward trend and the heavy to severe utilization observed in 1998, 1999, 2001, and 2002. The trend site in 8BIII has a downward trend on crested wheatgrass and upward trend on sagebrush. Livestock grazing when authorized in these pastures occurs in the spring during the critical growth stages for grasses. Both pastures had moderate to extreme departures for biotic integrity.

Pasture 10B does not meet the standard. The lower portions of pasture 10B, the alluvial basins and lower slopes, and are not meeting the standard. These areas show changes (depleted cool season deep rooted perennial bunchgrasses and increase in shrubs) in the plant community functional/structural groups due to repeated spring livestock grazing. As you move higher in elevation there is a more abundant and diverse understory of perennial bunchgrasses. Steeper portions of the pasture which are less accessible to livestock are meeting the standard. The 1997 AIE concluded the historic trend in this pasture was downward in areas with gentle slopes receiving moderate to heavy livestock use and static to upward on steep slopes and mountain tops that receive lighter use. One rangeland health assessment site had a moderate to extreme departure from ecological site descriptions for biotic integrity.

Results of monitoring and assessment of soil and vegetation conditions in pastures 8B and 10B all support the conclusion that historic livestock grazing practices have had a detrimental impact on resource conditions. As a result of the 2004 Settlement Agreement livestock grazing management was changed beginning in 2005 in Pastures 8B and 10B. While these changes were implemented with the intent to reverse unacceptable range, watershed, and wildlife habitat conditions, the effectiveness of these changes is yet to be determined. Actual use in these pastures did not reflect the change in management in 2005, therefore 2006 was the first year the changes were fully implemented. Even though monitoring has continued, it is impossible at this time to draw conclusions regarding trend in rangeland health as a result of the changed management.

There is also a divergence in thought regarding the potential change in rangeland conditions resulting from a change in grazing management. Both scientific literature (Laycock 1991 & NRCS Ecological Site Descriptions (draft)) and site specific range monitoring data support this divergence. On the lakebeds, many areas are now shrub communities with few herbaceous perennial plants. These conditions are described both by the draft NRCS Ecological Site Descriptions and by Laycock (1991). According to the Draft NRCS Ecological Site Descriptions these communities are functioning within one vegetation state with depleted conditions. According to Laycock these communities have crossed a threshold into a different vegetation state and the transition back to a perennial grass understory is “difficult to cross, and is highly unlikely if annuals are adapted to the area.” These areas may not be able to attain their potential condition without the aid of active restoration, such as reseeding. Lakebed areas that are in better condition (8B, 8BI, 8BIII) have also been impacted by historic grazing practices (prior to 2004).

Since 2005, livestock grazing management (current management) for pastures 8B and 10B has followed the 2004 Settlement with use occurring April 1 - May 1 and then May 1 - June 1 in alternating years. Periodic rest or deferment (USDI BLM 1997b) during the critical growth stages do not occur these pastures. Use dates overlap critical growth stages and therefore do not

provide adequate deferment (Phenology of rangeland forage plants as presented in the 1997 AIE p.11).

Pasture 12 does not meet the standard, particularly on gently sloping areas near Poison Creek. Overall trend in the pasture is static to downward on perennial vegetation. Utilization levels on perennial bunchgrasses have been heavy to severe in 1999, 2000, 2001, 2003, and 2006. Livestock use occurs during the critical growth period for perennial bunchgrasses. Steeper areas, as represented by the RHA site 08S01E21 were considered in reference condition and meet Standard 4, but overall the standard is not met in the pasture. One rangeland health assessment site in pasture 12 showed a moderate departure for biotic integrity.

Pastures 28 and 28A do not meet the standard due to the heavy utilization of bitterbrush and mountain mahogany. Trend of perennial bunchgrasses is upward in pasture 28, because livestock use occurs after the critical growth period for perennial grasses. The use on shrubs; however, is higher than appropriate levels. Heavy utilization does not promote healthy, productive and diverse native animal habitat. Heavy utilization of bitterbrush and mountain mahogany limits and degrades plant vigor, cover, production, recruitment and litter. Each pasture had one rangeland health assessment with a moderate departure for biotic integrity.

Rangeland Health Assessments were not conducted on the remaining pastures (13, 14, 15, 16, 17, 18, 19, 20, 21, 27, 29B, 29C, 29D, 31, 33, and 37). These pastures are generally small and made up of mostly private lands and are considered Fenced Federal Ranges. No trend data exists for these pastures.

Standard 5 (Seedings)

■ Standard doesn't apply

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow and the hydrologic cycle. Indicators may include, but are not limited to, the following:

- In established seedings, the diversity of perennial species is not diminishing over time.
- Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.
- Noxious weeds are not increasing.
- Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Crested wheatgrass seedings were planted in the East Castle Creek Allotment in Pastures 8BI and 8BIII in the past. These two seeded pastures are evaluated under Standard 4: Native Plant Communities (page 28) for a number of reasons.

- Untreated native plant communities exist in the pastures.
- Native shrubs, forbs and some native grasses are re-establishing and contributing to the remnant native plant community.
- Biological soil crust is present, which is one of the functional/structural groups evaluated in the rangeland health assessment.
- Crested wheatgrass is one of the perennial species under the functional/structural group cool season deep rooted bunchgrasses since, in hydrologic terms, it functions as a native cool season deep rooted bunchgrass.

Standard 6 (Exotic Plant Communities, other than Seedings)

- Standard doesn't apply

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

The allotment does not contain vegetation communities solely composed of exotic plants in the allotment. All vegetated communities contain various levels of native plants and are addressed under Standard 4: Native Plant Communities (page 28).

Standard 7 (Water Quality)

☐ Standard doesn't apply

Surface and groundwater on public lands comply with the Idaho Water Quality Standards. Indicators may include, but are not limited to, the following:

- Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Evaluation and Information Sources:

- Riparian habitat and stream inventories 1998-2007
- Water quality monitoring 1998-2007
- Functioning condition assessments of stream segments 1999-2007
- Review of Idaho Department of Environmental Quality (IDEQ) sub-basin assessments and total maximum daily load (TMDL) allocations (IDEQ 2003, 2004a, 2007).

Rangeland Health:

The six major streams on BLM-managed lands in the East Castle Creek Allotment are not fully supporting the cold water aquatic life (CWAL) beneficial use (IDEQ 2004b). IDEQ (2003, 2004a, and 2007) has set total maximum daily loads (TMDLs) for temperature or sediment for Battle, Birch, Poison, Rock, Sheep, and West Fork Shoofly creeks. Additionally, IDEQ found that Magpie Creek, which is almost entirely located on State and private land in the allotment with only a small portion on BLM land, is not fully supporting the cold water aquatic life beneficial use. BLM water quality (temperature) monitoring supports IDEQ's finding that Birch and Poison creeks do not fully supporting the cold water aquatic life beneficial use. BLM monitoring showed bacteria concentrations in Poison Creek regularly exceeded State criteria for full support of the recreation beneficial use. Elevated bacteria concentrations are associated with high sediment levels for which IDEQ has established a TMDL for Poison Creek (IDEQ 2004a).

Water quality of streams by pasture is discussed below:

Pasture 8B: BLM water quality monitoring indicates Poison Creek is not meeting the *E. coli* bacteria criteria for full support of secondary contact recreation (SCR) beneficial use, and also not meeting the temperature criteria for full support of the cold water aquatic life (CWAL) beneficial use. Percent fines in the substrate are elevated (58 % fines); IDEQ (2004a) set a TMDL for sediment. On West Fork Shoofly Creek recent hot season grazing contributed to bare soil areas (trails) that are at risk of contributing elevated sediment; IDEQ has established a TMDL for sediment. Recent summer grazing also reduced vigor of bank-stabilizing vegetation.

Pasture 10B: Birch Creek does not meet the CWAL temperature criteria, but in most years met the SCR bacteria criteria. Percent fines in the substrate are elevated (47 to 61 % fines); IDEQ (2004a) set a TMDL for sediment. Trend in riparian and channel health of Birch Creek is upward, contributing to improved water quality.

Pasture 11B: Birch Creek does not meet the CWAL temperature criteria, but in most years met SCR bacteria criteria. Trend in riparian and channel health for Birch Creek in this pasture is upward, resulting in improved water quality.

Pasture 12: BLM monitoring showed *E. coli* bacteria concentrations in Poison Creek regularly exceed State criteria for the SCR beneficial use, and also that water temperatures do not fully support CWAL beneficial use. Percent fines in the substrate are elevated (65 to 66%). The excess sediment is filling in the gravel and cobble interspaces in which aquatic insects live. The IDEQ (2004a) has set a TMDL for sediment in Poison Creek

Pasture 14: Most of West Fork Shoofly is densely vegetated and channel form is appropriate for the landscape setting. About 0.2 mile is historically incised with an upward trend in riparian health, thus resulting in progress toward meeting IDEQ's (2004a) TMDL for sediment.

Pasture 28A: The upper BLM segment on Sheep Creek is weakly vegetated with early seral vegetation. Streambanks and channels are actively eroding on the downstream 150 feet of the segment where the channel is altered to a degraded G channel type (Rosgen 1996). Unstable and weakly vegetated banks are negatively impacting water quality by contributing elevated levels of sediment to the stream.

Pastures 29C and 29D: Battle Creek has a TMDL for temperature (IDEQ 2003). The channel is historically over widened (predominantly an F-channel; Rosgen 1996), but progressing towards a narrow, deeper, more shaded channel, which will improve water quality over the long term.

Pasture 33: Rock and Sheep creeks have TMDLs for temperature (IDEQ 2007). These streams have historic or current channel incision. Trend in riparian and channel health is upward on Rock Creek. Water quality is improving over the long term as increased vegetation cover results in a deeper, narrower, and more shaded channel. Loss of permanent beaver dams on Sheep Creek is contributing to channel erosion and downward trend in channel health on 0.25 mile of stream.

Rock Creek Grazing Exclosure: Upward trend in channel and floodplain health on 0.3 mile of stream is contributing to improved water quality.

Rangeland Health Change:

Pasture 8B: West Fork Shoofly Creek is improving in the canyon segment (1.5 miles long) that was closed to livestock grazing in 1997. However, recent livestock trailing (in 2006) resulted in bare soil areas that are placing the floodplain at risk of erosion during high stream flows.

Pasture 10B and 11B: Channels and floodplains of Birch Creek are improving in health as riparian plant cover (particularly that of willows) is increasing with livestock grazing generally restricted to spring use since the late 1990s.

Pasture 12: Poison Creek had an upward trend in bank stability and plant cover from 1993 to 1999, but plant cover and bank stability has declined since 1999. Livestock alteration of streambank soils on Poison Creek was higher during 1999 to 2006.

Pastures 29C and 29D: Battle Creek was mostly rested from grazing or grazed at light to moderate levels during 1998 to 2006, compared to annual summer-long grazing prior to 1998. Streambank and channel stability is improving as cover and vigor of bank-stabilizing riparian plants is increasing. Stream channels are progressing towards an E-channel type that is appropriate for the landscape setting (Rosgen 1996).

Pasture 33: About 0.2 mile of Rock Creek is improving in health as sedge cover is increasing on streambanks and floodplains and willows are successfully recruiting young plants. About 0.25 mile of Sheep Creek is strongly vegetated with willow and sedge plant communities, but trend in channel and floodplain health is downward due to the channel actively down-cutting and eroding at 3 locations. Channel instability is related to the loss of active beaver dams.

Rock Creek Grazing Exclosure: Rock Creek is rapidly improving on 0.3 mile of stream that was fenced into a grazing exclosure in 1997. Young willows are abundant and sedge and willow cover is increasing on banks and floodplains.

Livestock Grazing Management:

Pasture 8B: Portions of the upper-most 1.2 miles of Poison Creek receives high levels of soil and bank alteration during spring grazing due to hoof shearing and pugging by livestock. This mechanical disturbance is restricting willow recruitment and the stabilization of streambanks by riparian plants. High numbers of livestock graze and water on Poison Creek, which combined with high levels of sediment from unstable banks results in high concentrations of *E. coli* bacteria. Riparian areas that are functioning at risk are impacted by livestock grazing in late summer or fall. Residual stubble heights of < 2 inches on bank-stabilizing herbaceous species were observed in winter 2006-2007.

Residual stubble height on herbaceous bank-stabilizing vegetation was also <2 inches on the lower 0.5 mile of West Fork Shoofly Creek as a result of summer or fall grazing in 2006. However, most of the elevated sediment in this segment is due to weakened streambanks from historic channel incision and loss of water availability. Livestock grazing has generally been excluded from the upstream canyon segment that was closed to grazing in 1997. However, a few livestock entered the exclosure in 2006 and their trailing created bare soil areas in the floodplain, with the potential for elevated delivery of sediment during high stream flows.

Limiting livestock grazing to spring use on a 0.2 mile long segment of Birch Creek has resulted in upward trend in stream health and water quality over the long term consistent with guideline 10 (implement management practices that comply with Idaho Water Quality Standards, including limiting the length of time livestock spend trailing and resting along riparian areas).

Pastures 10B and 11B: Grazing in these pastures (spring use and then rest in summer or fall) has generally been consistent with guidelines 5 and 7, such that these areas have upward trends

in riparian and channel health, and subsequently improvements in water quality over the long term (consistent with guideline 10). Elimination of the trailing of livestock down Birch Creek in the fall has also contributed to increases in cover of bank-stabilizing vegetation, by reducing riparian plant use and streambank alteration. Pasture 11B was rested from grazing in 2006, which resulted in improvements in riparian plant vigor and cover.

Pasture 12: Poison Creek is grazed in June - timing of livestock grazing is generally consistent with guidelines 5 and 7 to improve riparian and channel health. However, an improved road parallels the stream through the pasture and facilitates livestock spending significant amounts of time grazing and watering on Poison Creek. Livestock alteration of streambanks and trampling of early-seral vegetation is too high to improve the density and cover of bank-stabilizing species along the stream. Livestock stocking levels have increased since 1999; trend in bank stability and riparian plant cover is downward since 1999 and is associated with high levels of bank alteration. As a result Poison Creek also does not fully support SCR and CWAL beneficial uses. Current livestock grazing impacts add to the historical impacts (dewatering, unstable banks) resulting from channel incision. Occasionally, Poison Creek has received late season grazing use, but residual stubble heights have generally been >4 inches in recent years. This pasture was rested from livestock grazing in 2007, resulting in improved riparian plant vigor.

Pasture 14: Livestock do not access most of West Fork of Shoofly Creek because of dense riparian shrubs that armor streambanks and floodplains.

Pasture 28A: Summer grazing is negatively impacting water quality on upper Sheep Creek in this pasture. High use of riparian vegetation by livestock is preventing banks from being colonized with late seral, bank-stabilizing vegetation. Excessive bank alteration by livestock is impacting bank stability. Unstable and weakly vegetated banks are contributing elevated levels of sediment to the stream.

Pastures 29C and 29D: Since 1997, Battle Creek has primarily been grazed lightly in spring or rested from livestock grazing. Trend in riparian and channel health is upward. Improved channel shape and form and increased bank cover are contributing to improvements in water quality over the long term.

Pasture 33: Fall grazing use of Rock Creek and Sheep Creek is consistent with guideline 10. Vigor of late-seral vegetation is high, and willows are recruiting successfully, contributing to long-term improvement in water quality. About 0.25 mile of Sheep Creek is in a downward trend due to active headcuts resulting from the loss of beaver dams, resulting in increased sedimentation and widening of stream channels.

Rock Creek Exclosure: Exclusion of livestock grazing on 0.3 mile of Rock Creek has resulted in an upward trend in riparian health and improvement in water quality over the long term.

Evaluation – Standard 7

1 ☐ Meeting the Standard	5 ☐ Not Meeting the Standard, cause not determined
2 ■ Not Meeting the Standard, **but making significant progress towards** Pastures: 10B, 11B, 14, 29C, 29D & 33	
3 ☐ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors	6 ☐ Conforms with Guidelines for Livestock Grazing Management.
4 ■ Not Meeting the Standard, current livestock grazing management practices Pastures: 8B & 12 (portions of Poison Creek); 28A (portions of Sheep Creek) High levels of grazing of riparian vegetation and excessive amounts of bank alteration	7 ■ Does not conform with Guidelines for Livestock Grazing Management 10

Rationale: The allotment contains 17.85 miles of perennial streams. Of these, 1.6 miles are meeting the standard due to restricted livestock access either through topography (rugged, rocky canyon segments; 1.4 miles) or exclusion fencing (0.2 miles). In the Battle and Birch Creek drainages 7.6 miles are not meeting the standard but are making significant progress towards due to changes in livestock grazing management (changing or limiting grazing to spring use) since 1997. Portions of Poison Creek (4.7 miles) are not meeting the standard due to livestock grazing impacts. There are also 3.95 miles that are not meeting the standard due to dewatering caused by historical channel incision (2.7 miles), and the presence of headcuts due to historic channel incision (1.25 miles).

Standard 8 (Threatened and Endangered Plants and Animals)

□ Standard doesn't apply

Special Status Animals

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species. Indicators may include, but are not limited to, the following:

- Parameters described in the Idaho Water Quality Standards.
- Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
- Age class structure diversity or riparian/wetland vegetation is appropriate for the site.
- Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
- The diversity of native species is maintained.
- The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
- Noxious weeds are not increasing.

Evaluation and Information Sources (*required regardless of which box is checked*):

- Castle Creek Allotment Final Analysis, Interpretation, and Evaluation 1997
- Sage grouse lek (mating ground) surveys by helicopter in 2004 and 2005,
- Idaho Department of Fish and Game (IDFG) sage grouse historical lek database, 2003
- Sage grouse habitat assessments in 2006 and 2007,
- Pygmy rabbit surveys in 2002-2006
- Bighorn sheep and livestock habitat use studies 1987-1991(Elroy Taylor, USGS, unpublished data)
- Conservation Data Center (IDFG) Rare Species database,
- General wildlife field observations in 2002-2007,
- Upland trend and condition data (see Standard 4)
- Riparian trend and condition data (see Standard 2)

Rangeland Health:

The standard is not met for sage grouse brood-rearing habitat. Overall, 74% of 47 riparian areas associated with springs and wet meadows, which provide late-summer brood-rearing habitat, were marginal or unsuitable because of erosion and high use levels by livestock resulting in bare

ground, drying of wet areas, and lack of food plants (USDI BLM 2008 - Tables 58 and 59). This problem occurs in all pastures with springs and wet meadows except riparian pastures 29B, 29C, and 29D. Wetlands associated with springs in both summer-grazed and spring-grazed pastures have erosion problems. Pastures 5B, 8B, and 31 lack wet areas.

Late summer brood-rearing habitat is much more limited in acreage than breeding habitat, and therefore more critical. It consists of wet meadows and riparian areas that are not in canyons, where grouse can find green forbs to eat when upland plants are dry. In the East Castle Creek Allotment, some of the most important wet meadows are in the top of pasture 12, 28, and 29A, 29B, 29C, and 29D. The meadows in the riparian pastures created after the 1997 decisions in 29B, 29C, and 29D are in an upward trend. The meadows in 12 and 29A are in a downward trend with active cuts from hoof-shearing of wet soils.

The standard is not met for breeding habitat in pasture 28 but was met in 28A and 29A, which have most of the big sage breeding habitat. The canopy cover of native bunchgrasses was about half of potential (compared to two nearby reference areas) in pasture 28A. Thus, although the pasture met the parameters on the habitat assessment form, it has the potential to provide about twice as good of cover for nesting grouse. However, the trend in grass cover is up (see Standard 4). Thus, while overall the nesting habitat could be better, it is meeting the standard and the trend is up.

Pygmy rabbits are found in pastures 12, 29A, 28, 28A, 29B, 29C and 29D. Habitat consists of patches of thick sagebrush with grasses and forbs in good condition. The sage in the vast majority of potential habitat is not trampled or damaged by cattle. However, canopy cover of grasses is about half of reference areas in pastures 28 and 28A. This translates to a lack of hiding cover and food. The trend is up in pasture 28A and unknown in pasture 28.

Studies of bighorn sheep and livestock habitat use in Shoofly-Little Jacks-Big Jacks canyons did not indicate habitat problems related to livestock grazing. Wild sheep and cattle generally use separate areas, though some overlap occurs on the plateaus adjacent to rims.

Habitat conditions in Sheep Creek for spotted frogs are at risk due to a head cut moving up the stream from old beaver dams. The riparian vegetation is in excellent condition. Therefore, not meeting the standard in Sheep Creek is not caused by current livestock grazing.

Rangeland Health Change:

Current conditions for Spotted Frogs in Battle Creek are improving due to riparian pastures built after the 1997 decision (see Standard 2). Potential habitat for spotted frogs and mountain quail in Birch Creek is on an upward trend with changes in livestock management since 1997 (see Standard 2). Grass cover in pastures 28A and 29A is in an upward trend.

Livestock Grazing Management:

Use levels at springs and wet meadows throughout the allotment are generally very heavy, heavier than seen in other nearby allotments that Bruneau Field Office (BFO) has assessed in recent years – Big Springs and Battle Creek. These high use levels caused 74% of 47 springs and wet meadows to be in marginal or unsuitable habitat condition for sage grouse. Severe hoof-shearing and pugging is common, reducing or eliminating preferred forbs for sage grouse as well as reducing the amount of area where they can grow, because of drying and erosion. In pasture 12, the intensity of use is too high on small hanging wet meadows. Even though much of the meadows regrow after use, the wettest soil areas at the bottom of the hanging meadows are hoof-sheared to 1-4 foot cuts, do not regrow, and the meadows are dewatered and at risk of headcuts.

Based on trend data, grazing management changes in the summer pastures in the last decades have been successful in improving the condition of the grasses. These changes were: reducing the duration of use (ending grazing August 31 instead of October 31); delaying use until later in the season; and rotating use periods.

Evaluation – Standard 8 – Special Status Animals

1. □ Meeting the Standard	5. □ Not Meeting the Standard, cause not determined
2. □ Not Meeting the Standard, **but making significant progress towards**	
3. □ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors	6. □ Conforms with Guidelines for Livestock Grazing Management
4. ■ Not Meeting the Standard, current livestock grazing management practices are significant factors : Pastures: 10B, 11B, 12, 28, 28A, 29A & 44 Heavy grazing of springs and wet meadows	7. ■ Does not conform with Guidelines for Livestock Grazing Management : 3, 5, 9

Rationale: Although there is improvement in Birch Creek and part of the headwaters of Battle Creek, 74% of 47 springs and wet meadows in the allotment are in marginal or unsuitable condition for sage grouse brood-rearing habitat and other wildlife habitat, and trend is downward. Cause of the downward trend is heavy use by livestock, erosion and hoof-shearing of wet soils.

Special Status Fish

Rangeland Health:

Pasture 8B: About 1.5 mile of West Fork Shoofly Creek is located in a rocky canyon that is closed to grazing. Streamflows are perennial in this section except in drought years. This segment is providing adequate habitat for the long-term maintenance of redband trout populations. Streambanks and floodplains are densely vegetated with riparian shrub and tree communities. Stream channels are stable and well shaded. The lower 0.5 mile of West Fork Shoofly Creek is intermittent with duration of stream flows dependent on the amount of winter snowpack. This segment is historically incised 2 to 5 feet deep into a G-channel (Rosgen 1996). Redband trout habitat is impacted by the historical incision, which has reduced bank storage of water needed to maintain stream flows. Riparian plants needed to stabilize streambanks and channels are also impacted by the loss of water and this segment is functioning at risk with a static trend. Additionally, bank-stabilizing plants on the upper one-third of the segment exhibited low vigor in 2006 as a result of high use and high levels of bank alteration during the summer and fall. Redband trout habitat is not adequate on this reach due to unstable banks and channels and loss of stream flows. This reach is an important migratory corridor for redband trout moving between Shoofly Creek and perennial headwater reaches of West Fork Shoofly Creek.

Pasture 14: Most of West Fork Shoofly Creek (0.6 mile) provides adequate habitat for the long-term maintenance of redband trout populations. Upstream of the private land (LL Cow Camp), streambanks are stable and densely vegetated with willow shrub communities so that stream channels are stable and well shaded. About 0.2 mile of West Fork Shoofly downstream of private land is historically incised 4 to 5 feet deep into a G-channel (Rosgen 1996). Sediment levels are elevated because about 20 to 25% of the steep, incised banks are bare and eroding. Redband trout habitat quality is impaired in this 0.2 mile reach due to the historical incision of the channel, but is improving as streambank vegetation has an upward trend in cover and density.

Pasture 33: About 0.3 mile of Rock Creek was fenced into a grazing exclosure in 1997. This segment formerly was weakly vegetated with bank-stabilizing plant species, and streambanks and channels were unstable. Trend in habitat condition for redband trout is upward with late-seral plant cover increasing on streambanks and floodplains and stabilizing banks and channels. About 0.2 mile of Rock Creek is improving in habitat condition as cover of willows and sedges is increasing on streambanks and floodplains.

About 0.2 mile of Sheep Creek from the confluence upstream to the road crossing at the BLM/private land boundary is providing adequate habitat for the long-term maintenance of redband trout populations. Streambanks are stable and well vegetated with plant communities dominated by bank-stabilizing species. Channel form is largely appropriate for the landscape setting. The next BLM segment upstream (0.25 mile long) is also well vegetated with plant communities dominated by bank-stabilizing species, and stream channels are well shaded. However, 3 active headcuts are present, and the segment is functioning at risk with a downward

trend as channels are continuing to erode at the headcuts. Consequently, this reach is not providing adequate habitat for the long-term maintenance of redband trout populations.

Rangeland Health Change:

Pasture 8B: West Fork Shoofly Creek is improving in the canyon segment (1.5 miles long) that was closed to livestock grazing in 1997. However, recent livestock trailing (in 2006) resulted in bare soil areas that are placing the floodplain at risk of erosion during high stream flows. Recent late season grazing impacted vigor of bank-stabilizing plants on the upper one-third of a 0.5 mile long reach of West Fork Shoofly Creek that is accessible to livestock.

Pasture 33: Rock Creek is improving on 0.3 mile of stream that was fenced into a grazing exclosure in 1997. Young willows are abundant and sedge and willow cover is increasing on banks and floodplains. Similarly, about 0.2 mile of Rock Creek is improving in health as sedge cover is increasing on streambanks and floodplains and willows are successfully recruiting young plants.

About 0.25 mile of Sheep Creek is strongly vegetated with willow and sedge plant communities, but trend in channel and floodplain health is downward due to the channel actively down-cutting and eroding at 3 locations. Channel instability is related to the loss of active beaver dams.

Livestock Grazing Management:

Pastures 8B and 14: Livestock grazing of the lower 0.5 mile of West Fork Shoofly Creek in pasture 8B when use is limited to spring grazing is consistent with guidelines 5, 7, and 10. The channel of this segment is historically incised 2 to 3 feet, with a resulting loss of water storage in streambank soils. However, observations in winter 2007 showed channel stability is impacted by summer or fall grazing which reduced riparian plant vigor, hindering its ability to colonize and stabilize streambanks and floodplains. Livestock grazing has generally been excluded from the canyon segment in pasture 8B that was closed to grazing in 1997. However, a few livestock entered the exclosure in 2006 and their trailing created bare soil areas in the floodplain. Livestock do not access most (0.6 mile) of West Fork of Shoofly Creek in pasture 14 because of dense riparian shrubs that armor streambanks and floodplains. Another 0.2 mile is relatively inaccessible to livestock because the stream is inside a deeply incised channel.

Pasture 33: Fall grazing use of Rock Creek and Sheep Creek is consistent with guidelines 5, 7, and 10. Vigor of late-seral vegetation is high, and cover of bank-stabilizing vegetation is increasing on streambanks and floodplains. About 0.25 mile of Sheep Creek is in a downward trend due to active headcuts resulting from the loss of beaver dams. Exclusion of livestock grazing on 0.3 mile of Rock Creek has resulted in an upward trend in stream channel and floodplain health.

Evaluation – Standard 8 – Special Status Fish

1. □ Meeting the Standard	5. □ Not Meeting the Standard, cause not determined
2. ■ Not Meeting the Standard, **but making significant progress towards** Pastures: 8B, 14 & 33 On Rock, most of Sheep, and portions of W.F. Shoofly creeks	
3. □ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors	6. □ Conforms with Guidelines for Livestock Grazing Management
4. ■ Not Meeting the Standard, current livestock grazing management practices are significant factors. Pasture: 8B (on portions of W. F. Shoofly Creek) High use and levels of bank alteration	7. ■ Does not conform with Guidelines for Livestock Grazing Management : 5, 7, 10 recent summer grazing on West Fork Shoofly Creek

Rationale: Of the 3.75 miles of stream providing habitat for redband trout within the allotment, most streams are meeting (0.6 mile of West Fork Shoofly Creek) or making progress towards the standard (2.4 miles of Rock, Sheep, and West Fork Shoofly Creeks). Of 0.75 mile that is not meeting the standard, 0.5 mile of West Fork Shoofly Creek is predominantly impaired by historic channel incision and subsequent loss of stream flows, but is also additionally impacted by summer grazing (outside of the traditional spring grazing use for pasture 8B). Another 0.25 mile of Sheep Creek is degrading because of channel erosion due to the loss of beaver dams. About 2.8 miles of West Fork Shoofly Creek in pastures 8B and 14 was identified for improvement in habitat condition for redband trout in the 1983 Bruneau MFP (WL-AQ Objective 2.1) (USDI BLM 1983). Of 2.0 miles in pasture 8B, 1.5 mile is improving in condition or meeting the MFP objective (excluded from grazing in 1997). About 0.5 mile is functioning at risk with a static trend and not meeting the MFP objective, primarily because of historic channel incision. This segment received summer grazing in 2006, reducing riparian plant vigor and cover. This summer use also hindered progress towards meeting MFP fish habitat objectives. In pasture 14, 0.6 mile of stream is meeting the MFP objective, while another 0.2 mile is historically incised and functioning at risk with an upward trend, and thus making progress towards the MFP objective.

Special Status Plants

Rangeland health:

The only special status plant in this allotment that had problems associated with cattle grazing was the Mulford's milkvetch, which occurs in pasture 5B. Mulford's milkvetch is the highest priority of the nine species found in the allotment. General health of the rangeland in pasture 5B is poor due to historic grazing. Trampling of one population (EO11) was noted where a water haul site was located near the population. In March 2008, the trampling of vegetation and soil disturbance within Mulford's milkvetch habitat was observed up to 0.5 miles from the water trough. Mulford's milkvetch occurs on sandy slopes and the trampling was observed throughout these slopes and not limited to specific trailing areas. At other populations, some cattle grazing use was noted, but livestock impacts to the populations were not observed. Off highway vehicle (OHV) tracks near populations and the potential risk of impact from this use were of more concern than grazing impacts in these areas.

The next highest priority of the plant species is mudflat milkvetch. Two of the three populations visited had good-to-excellent habitat condition, with the third being fair-to-good condition. For the other special status plant species, either they are not affected by grazing because of their habitat (rocky) or no particular concerns were noted in site visits.

Rangeland Health Change:

Mulford's milkvetch has been monitored since 2003 in pasture 5B. Populations have shown declines ranging from 32% to 100%. The population at the water trough site showed increases in cheatgrass and tumble mustard cover over time (Mancuso, 2006). The population at the watering trough showed declines in plant density from 2006 to 2007. However, when all the populations in southwest Idaho are considered together, a net increase in plant density was observed from 2006 to 2007 (ICDC, 2008). Trend monitoring data of Mulford's milkvetch is not sufficient (too short a time period) to differentiate the effects of grazing versus natural variation in this allotment (2003-2007). Trend studies of upland vegetation show no change in two plots and an upward trend in Indian ricegrass in one site in pasture 5B.

Livestock Grazing Management:

Pasture 5B is grazed in the winter, when Mulford's milkvetch is dormant. The roots and general habitat are at risk to trampling by cattle, particularly in concentration areas such as the water trough location at EO 11. Increases in invasive species such as cheatgrass as a result of proximity to the water trough could cause decreases in Mulford's milkvetch populations as a result of competition for resources.

Evaluation – Standard 8 – Special Status Plants

1. ■ Meeting the Standard Pasture: 8B	5. □ Not Meeting the Standard, cause not determined
2. □ Not Meeting the Standard, but making significant progress towards meeting the standard.	
3. □ Not Meeting the Standard, current livestock grazing management practices are **not** significant factors	6. □ Conforms with Guidelines for Livestock Grazing Management
4. ■ Not Meeting the Standard, current livestock grazing management practices are significant factors Pasture: 5B Heavy grazing and trampling associated with water haul site near one population (EO 11)	7. ■ Does not conform with Guidelines for Livestock Grazing Management : 9, 11

Rationale:
Overall, there was limited direct evidence that the rare plants in the allotment are being impacted by cattle grazing. One of the seven populations of Mulford's milkvetch receives impacts from livestock grazing because of the proximity to a nearby water haul site. At the water haul site, increases in cheatgrass cover and trampling reduces the habitat quality for this species. Increased competition with cheatgrass and trampling may limit the ability of the site to maintain this population. This site is one of 14 monitored locations within the Owyhee complex of Mulford's milkvetch populations. With respect to the larger population of the species, the plant density at this location is relatively low. Because the species is also sensitive to changes in climate and amount of precipitation, anthropogenic impacts and natural variation are often difficult to discern. The remaining populations of this species do not receive direct impacts from livestock grazing.

Other BLM Sensitive species in this allotment either have restricted (often ungrazed) substrate requirements or do not have impacts from grazing or grazing related habitat alterations.

Field Manager's Determination:

Upon review of the East Castle Creek Allotment Rangeland Health Assessment and the East Castle Creek Allotment Evaluation and Determination, I have determined that several Idaho Standards for rangeland health (1, 2, 3, 4, 7 & 8) and Guidelines for livestock grazing management (3, 4, 5, 6, 7, 9, 10, 11, 12 & 17) (Attachment 1) are not being met in portions of the East Castle Creek Allotment. The following summary identifies the specific pastures/areas of the allotment with Standards and Guideline concerns and the associated determination.

Determination Summary by Standard

Pasture		Not Meeting Standard			
	Meets	Progress Towards	Cause Not Current Livestock Management	Cause Current Livestock Management	Cause Not Determined
5B			1, 4	8	
8B*		8		1,2, 3, 4, 7, 8	
8BI*				1, 4	
8BIII*				1, 4	
10B*		2, 3, 7		1,4, 8	
11B*	1, 4	2, 3, 7		8	
12*	1			2, 3, 4, 7, 8	
14	2, 3	7, 8			
17				2	
19				2	
28		1		2, 4, 8	
28A		1		2, 3, 4, 7, 8	
29A	4	1		2, 8	
29C		2, 3, 7			
29D		2,3, 7			
33		2, 3, 7, 8			
44	1, 4			2, 8	

*Spring pastures where management was adjusted according to the 2004 Settlement Agreement.

Several pastures show that significant progress is being made toward meeting some of the standards (8B, 10B, 11B, 14, 28, 28A, 29A, 29C, 29D & 33). However, for 11 pastures within the allotment, one or more of the standards are not being met; significant progress toward meeting the standards is not occurring; and livestock grazing is a significant factor contributing to the current condition.

Pasture 5B: Does not meet Standard 8 because of heavy grazing and trampling associated with a water haul site near one population of Mulford's milkvetch (EO 11), a special status plant.

Pastures 8B, 8BI, 8BIII & 10B: Do not meet Standard 1 because of continued early spring use during the critical growing season prior to 2005; excessive livestock use on seeded areas (1998-2004).

Pastures 8B, 12, 17, 19, 28A, 29A & 44: Do not meet Standard 2 on portions of Poison and Sheep Creeks, and spring and wetland areas because of high levels of riparian vegetation grazing and excessive amounts of bank alteration.

Pastures 8B, 12 & 28A: Do not meet: Standards 3 and 7 on portions of Poison and Sheep Creeks because of high levels of riparian vegetation grazing and excessive amounts of bank alteration.

Pastures 8B, 8BI, 8BIII, 10B & 12: Do not meet Standard 4 because of the depletion of deep rooted perennial bunchgrasses and the season and intensity of livestock use.

Pasture 8B: Does not meet Standard 8, with regard to special status fish, on portions of W.F. Shoofly Creek because of heavy livestock use and levels of bank alteration.

Pastures 10B, 11B, 12, 28, 28A, 29A & 44: Do not meet Standard 8, with regard to special status animals, because of heavy livestock use of springs and wet meadows.

Pastures 28 & 28A: Do not meet Standard 4 because of the high utilization of bitterbrush and mahogany.

Conformance with Guidelines for Livestock Grazing Management

Conforms:	Guidelines:	1, 2, 8, 13, 14, 15, 16, 18 and 20
Does not Conform:	Guidelines:	3, 4, 5, 6, 7, 9, 10, 11, 12 and 17

* In the case of the East Castle Creek Allotment the 'current management' changed for several pastures (the spring pastures) beginning in 2005, as a result of the 2004 Settlement Agreement. Prior to 2005 spring use occurred from April 1 – June 30; under the Settlement Agreement the spring pastures are grazed during different timeframes over a two or three year rotation with periodic rest incorporated in the schedule in pastures 11B & 12. Normally a Range Health Assessment and Evaluation will assess and evaluate resource conditions over a period of similar or stable range management procedures referred to as 'current management'. The RHA and Evaluation both support the conclusion that, in these pastures, grazing management prior to 2005 was a significant factor in not meeting Standards, and did not conform to several Guidelines. However, progress towards meeting Standards, as a result of the pasture rotation strategies implemented in 2005 that limit grazing use during portions of the critical growing season (April & May), are yet to be determined.

Since Standards are not being met on this allotment at this time the Bruneau Field Office will be preparing an Environmental Assessment (EA) to adjust management in order to make significant progress toward meeting the Standards. During this process various management options and monitoring strategies appropriate to those options will be evaluated. At its culmination, this process will adopt management and monitoring, as appropriate, to address specific concerns on the allotment.

Arnold F. Puke — Acting Bruneau Field Manager

5/21/08 — Date

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Attachment 1

Guidelines (taken from USDI-BLM 1997b):

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover to support infiltration, maintain soil moisture storage and stabilize soils.
2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.
3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.
4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.
5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.
6. The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/ paleontological values associated with the water source.
7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.
8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants and animals appropriate to soil type, climate and landform.
9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate and landform.
10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.
11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.
12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.
13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.

14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized.
15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;
    b. native plant species cannot maintain or achieve the standards; or
    c. non-native plant species provide for management and protection of native rangelands

    Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.
16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetated the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.
17. Carefully consider the effects of new management facilities (e.g. water developments, fences) on healthy and properly functioning rangelands prior to implementation.
18. Use grazing management practices, where feasible, for wildfire control and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusahead wildrye, and noxious weeds while enhancing vigor and abundance of desirable native or seeded species.
19. Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.
20. Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.