Land Health Evaluation Report

Hi Ore Allotment

Bureau of Land Management
Butte Field Office

Introduction and Assessment Process

This report documents whether land health standards were achieved for the Hi Ore Grazing Allotment administered by the Bureau of Land Management's Butte Field Office. Standards for Rangeland Health were evaluated utilizing an interdisciplinary team (ID team) of resource specialists.

Rangeland Health Standards for Western Montana are described in detail in the Record of Decision (ROD) issued for Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota and South Dakota (August 1997). The preamble of the Western Montana Standards states: "The purpose of the S&Gs (Standards and Guidelines) are to facilitate the achievement and maintenance of healthy, properly functioning ecosystems within the historic and natural range of variability for long-term sustainable use." Standards are statements of physical and biological condition or degree of function required for healthy sustainable lands. Achieving or making significant progress towards these functions and conditions is required of all uses of public land as stated in 43 CFR 4180.1.

This report contains an evaluation of each of the five standards:

- Standard #1 Upland Health
- Standard #2 Riparian/Wetland Health
- Standard #3 Water Quality
- Standard #4 Air Quality
- Standard #5 Biodiversity

Available monitoring data from both upland and riparian sites, existing inventories, historical photographs and standardized methodology are used by an ID team to assess condition and function. Condition/function declarations regarding are expressed as:

- Proper Functioning Condition (PFC)
- Functioning at Risk (FAR), which is assigned a trend of up, down, static or not apparent
- Nonfunctioning (NF)

Standards are met when conditions are at PFC or FAR with an upward trend. This is dependent on scope and scale. The BLM will consider the information contained in this report, along with public scoping and other sources of information, to make a determination regarding causal factors and courses of action to be analyzed in a National Environmental Policy Act (NEPA) document.

General Allotment Summary

Allotment Name/Number: 07704

Current Management Category: I (Improve)

Location: ~ 3 miles W of Boulder, MT
T7N, R5W; T6N, R5W

Public Acres: 3, 663 acres; 86% public land

Season of Use: 6/16 through 09/20

Public Animal Unit Months: 104 cattle; 332 Animal Unit Months (AUMs)

Assessment Date/Period: 6/18/2009, 7/14-7/15/2009; June/July

General Setting:
The Hi Ore Allotment is a primarily timbered allotment. Average annual precipitation is 11 inches from 1948 to 2008 (Western Regional Climate Center, 2009). Vegetation and soils mapping of the area indicates that a variety of soil complexes occur on the allotment originating from residuum derived from decomposing granite. Topography is moderately steep and predominantly forested with few open meadows. Forested areas contain lodgepole pine (*Pinus contorta*), and Douglas fir (*Pseudotsuga menziessii*), and the understory is comprised of perennial grasses including rough fescue (*Festuca campestris*), Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegnaria spicata*), pinegrass (*Calamagrostis rubescens)* and several perennial forbs including lupine (*Lupinus spp.*) and pussytoes (*Antenaria spp.*). Mountain sagebrush (*Artemisia tridentata spp. vasyena* and basin big sagebrush (*Artemisia tridentata ssp. tridentata*) is also present some areas.

The allotment contains several perennial and ephemeral streams totaling 28 miles of streams. Only a few of the streams are fish-bearing and contain rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), and brown trout (*Salmo trutta*). The allotment also supports a variety of large and small mammals and birds.

Allotment History:
Historically this area has been grazed by sheep, cattle, and horses, and has been heavily mined since the late 1800's. Several reclamation projects have been completed on private and BLM lands within the allotment to reduce the amounts of heavy metals and toxins, particularly along Hi Ore Creek. Reports from the permittee have indicated that until the reclamation occurred on Hi Ore Creek, several livestock deaths were attributed to the toxins present in the stream. The private land is not fenced separately from public land in the allotment, and the majority of the more accessible areas for livestock grazing are on private land. The substantial portion of the allotment on BLM lands that are utilized by

livestock are within riparian areas.

Summary of Standards Achieved --Yes, No, N/A (Not Applicable)--						
Allotment Name	Allot #	1. Upland	2. Riparian	3. Water Quality	4. Air Quality	5. Biodiversity
Hi Ore	20231	No	No	No	Yes	Yes

Rangeland Health Standards Evaluation and Rationale

The issue of scope and scale must be kept in mind when evaluating each standard. It is recognized that isolated sites within a landscape may be Functioning at Risk (FAR) and not meeting the standards; however, considering broader scope and scale, the area may be deemed in Proper Functioning Condition (PFC). Likewise, isolated sites may be in PFC, but, overall, the resource within the allotment or area could be FAR and not meeting standards. Therefore, no single indicator provides sufficient information to determine rangeland health. Indicators are used in combination to provide information necessary to make rangeland health determinations.

Western Montana Standard #1
"Uplands are in Proper Functioning Condition"

Finding **Standard is not met.**

Rationale

The majority of the BLM portion of the allotment is timbered and contains a few open meadows dominated by perennial grasses, forbs, and small component of shrubs. The indicators for rangeland health were assessed on very shallow site, with the soil depth to bedrock at 10 inches. All the indicators for soil and site stability, hydrologic function, and biotic integrity were as expected compared to the ecological site guide. The other open upland areas that cattle also utilize also exhibit healthy conditions.

However, in many of the lodgepole pine dominated conifer stands, the stands have become so dense that very little vegetation is present in the understory. Many of the lodgepole pine trees are of similar age, and a diverse age class was not observed during ID team field visits. The pine trees are also becoming decadent as a result of the mountain pine beetle on BLM, private, and adjacent Forest Service lands. Douglas fir on the allotment is also becoming decadent as a result of the spruce budworm.

Daubenmire trend data (Table 1) indicates that Kentucky bluegrass (*Poa pratensis*) is decreasing, canopy cover and composition of Idaho fescue is increasing, and frequency, canopy cover, and composition of bluebunch wheatgrass is also increasing. Improvements in the desirable perennial grasses indicates an upward trend, however rocky mountain juniper is also increasing.

Table 1. Canopy cover, frequency, and composition at a daubenmire trend site in the Hi

Ore Allotment.

Study #	Year	Species	% Frequency	% Canopy Cover	% Composition
Hi Ore Daub	1986	Idaho Fescue	85	10	18
	2008	Idaho Fescue	85	20	27
	1986	Bluebunch Wheatgrass	30	0.7	1
	2008	Bluebunch Wheatgrass	60	8	10
	1986	Kentucky Bluegrass	35	9	15
	2008	Kentucky Bluegrass	15	0	1
	1986	Rocky Mtn. Juniper	5	3	5.5
	2008	Rocky Mtn. Juniper	15	6	11

In 2000, a lightning strike caused a fire that burned a portion of the Hi Ore Allotment. The burn allowed the understory vegetation to visually improve, however the majority of the burn occurred on an adjacent allotment. The natural fire regime on the allotment has been altered and a diverse age-class of conifers is no longer present. Understory vegetation in these areas has also been much reduced. Because of these factors in particular, the upland standard is not met.

Western Montana Standard #2
"Riparian and Wetland Areas are in Proper Functioning Condition"

Finding **Standard is not met.**

Rationale

The Hi Ore Allotment has ~ 28 miles of stream within its boundaries. Out of the 28 miles, 24 miles are functional at risk and 4 miles are in proper functioning condition. The ID team completed assessments along reaches that were previously rated functional at risk or non-functional, as well as the spring complexes that had previously not been assessed.

Hi Ore Creek was rated as functional at risk with an upward trend. The ID team observed that the riparian area was continuing to widen, riparian plants were highly vigorous, and point bars were beginning to form suggesting the system is beginning to balance itself after the complete re-design and stabilization of the channel and streambanks occurred several years ago. The ID team was concerned about some of the species of herbaceous vegetation that were planted, as well as the overall design of the stream channel. A few small headcuts were noted. Some of the herbaceous species that were planted, including western yarrow (*Achillea millifolium*) and western wheatgrass (*Agropyron smithii*), do not have the root masses capable of holding streambanks together during high run-off events. Coconut fabric was placed along the streambanks to help stabilize the soils. The woody

riparian vegetation planted, such as sandbar willow (*Salix exigua*), is very vigorous. Some of the woody riparian vegetation was already present prior to channel reconstruction and reclamation. Several culverts along the county road are plugged with sediment, and most of the ditches are not functioning and may lead to a culvert blowing out. Hi Ore Creek just below the mine has no vegetation on the streambank for ~50 yards, of which a large portion of that is private land. It appears that reclamation efforts were made, but the vegetation planted was not successful.

The majority of Hi Ore Creek below the Comet Mine is fenced inside a series of exclosures whereas the portion above the mine is not. Cattle utilize this portion of the stream and the streambanks have historically been trampled. Most of the streambanks that were trampled in past years have healed and have re-colonized with beaked sedge (*Carex utriculata*) and several species of willows. One of the tributaries to Hi Ore Creek was also rated functional at risk with an upward trend due to the evidence of historic trampling that has not completely healed.

A 5-acre spring complex near Hi Ore Creek was assessed and the ID team rated the complex as functional at risk with a downward trend. Signs of heavy trampling, the extent of the hounds tongue (*Cynoglossum officinale*) and multiple species of thistle, and the only one age-class of woody riparian species was present comprised of mature/decadent shrubs are present throughout the complex. Similar conditions exist around most of the other upland springs in the allotment.

Peters Gulch is also a tributary to Hi Ore Creek, and also has signs of historic mining activity throughout the length. The reach was rated FAR and no trend was apparent. Most of the woody riparian shrubs have been eliminated with the exception of the lower portion where it flows into Hi Ore Creek. Most of the herbaceous riparian vegetation has been converted to Kentucky bluegrass (*Poa pratensis*) and clover (*Trifolium repens*). Utilization of Kentucky bluegrass along the greenline is heavy, and bank alteration along most of the reach is evident. The stream channel has also been altered substantially. Riparian coverboard data from a site located at the confluence of Peters Gulch with Hi Ore Creek indicates that between 1982 and 2008 cover of red osier dogwood (*Cornus sericea*) decreased significantly. During the same period, cover of currant (*Ribes spp*.) which is a more mesic species also significantly declined, however this species is not a highly desirable riparian species. Between 1990 and 2008, cover of aspen (*Populus tremuloides*) significantly increased. The area where this coverboard study was implemented had historically been heavily utilized. Utilization appears to have been reduced in this area, but these conditions are not representative of the remainder of Peters Gulch on the Hi Ore Allotment.

Big Limber Gulch was rated as functional at risk and the trend was not apparent. Additional sediment is being transported into the gulch, and in some areas streambank trampling was noted. Aspen regeneration is limited, and much of the aspen present is not vigorous. Two exclosures were constructed along the gulch; the upper most was part of a reclamation project and the lower exclosure for wildlife habitat in cooperation with

Montana Fish, Wildlife, and Parks. The vegetation within the reclamation exclosure was not appropriate riparian vegetation species and was predominantly comprised of upland species. In an ephemeral draw that would drain into Big Limber Gulch, historic mining activities have created two ponds that were rated as proper functioning condition. The ID team observed several frogs and many aquatic invertebrates utilizing the pond. Very minimal amounts of upland erosion may be contributing sediment into the ponds. A riparian coverboard study along Big Limber Gulch indicates that between 1982 and 2008, cover of forbs has significantly increased and cover of red osier dogwood has significantly decreased to the point of total loss at the study site.

Bishop Creek and one of its tributaries was previously rated as nonfunctional. After completing an assessment, the ID team determined Bishop Creek is in proper functioning condition, and an additional tributary that had not previously been assessed was also in proper functioning condition. Both herbaceous and woody riparian vegetation was abundant and vigorous, and a diverse population of species was observed among both glasses of vegetation. A riparian coverboard study indicated that cover of engelman spruce had significantly increased since the study was established in 1991.

The other tributary that was previously rated as non-functioning was rated at functional at risk with an upward trend due to the condition of the alder (*Alnus incana*), which is one of the main woody riparian species along the reach. The alder were not as vigorous as expected, particularly for being the dominant shrub along the reach. Adjacent to the reach just outside of the riparian zone, a substantial aspen stand was examined that had almost no signs of browsing and was comprised of multiple age classes. Signs of historic mining were still present above and below the main road, as well as two old road cuts that crossed the stream above the main road.

The majority of the streams on the Hi Ore Allotment are still functioning at risk; therefore the allotment is not meeting riparian and wetland standards.

Western Montana Standard #3:
"Water Quality Meets State Standards."

Finding **Standard is not met.**

Rationale

No quantitative data was collected for water quality during the assessment; however Hi Ore Creek, Big Limber Gulch, and the Boulder River are listed on the State Department of Environmental Quality 303d list indicating that the water quality is impaired and unable to support the beneficial uses. Water quality in Hi Ore Creek is impaired due to the amounts of arsenic, cadmium, copper, lead, mercury, sediment/siltation, water temperature, and total suspended solids. The ID team observed large amounts of sediment being transported into Hi Ore Creek from the adjacent county road. Big Limber Gulch is impaired due to the amount of mercury and lead, and the Boulder River is impaired for many of the same elements as Hi Ore Creek. Not all of the point sources

have been identified, because the Total Maximum Daily Load (TMDL) assessment has not been completed for the area. Hi Ore Creek, Big Lumber Gulch, and the Boulder River do not meet state water quality standards, and therefore the allotment does not meet the BLM water quality standard.

Western Montana Standard #4
"Air Quality Meets State Air Quality Standards."

Finding **Standard is met.**

Rationale
Although no quantitative data was collected, visual parameters were assessed during the rangeland health assessment. Vegetation was not dust covered in any areas of the allotment, nor was any impairment of visibility noticeable; therefore the air quality standard is being met.

Western Montana Standard #5
"Provide habitat as necessary, to maintain a viable and diverse population of native plant and animal species, including special status species."

Finding **Standard is met.**

Rationale
The following indicators were used to assess whether existing habitat conditions are at a condition to support viable and diverse populations of native plant and animal species, including special status species.

- Plants and animals are diverse, vigorous, and reproducing satisfactorily
- Noxious weeds are absent or insignificant in the overall plant community.
- Spatial distribution of species is suitable to ensure reproductive capability and recovery.
- A variety of age classes is present.
- Connectivity of habitat or presence of corridors prevents habitat fragmentation.
- Diversity of species (including plants, animals, insects, and microbes) are represented.
- Plant communities in a variety of successional stages are represented across the landscape.

No BLM sensitive plant species were observed during the assessment, nor have any sensitive plant populations been previously identified or documented. Sensitive wildlife species that potentially occur in the area include boreal toads (*Bufo boreas*), multiple species of bats, three-toed woodpecker (*Picoides tridactylus*), and northern goshawk (*Accipiter gentiles*). Mule deer, elk, and black bear have been observed on the allotment, as well as more than one species of frogs during rangeland health assessments. Interstate 15 presents a significant barrier to wildlife movement to the south, but the allotment is connected to large areas of habitat, including USFS and BLM land, to the east, west, and

north. Roads and houses are interspersed through the allotment, but not at a density that would significantly inhibit wildlife movement.

Upland plant communities are not exhibiting more than one successional stage nor a variety of age-classes within the conifers. The allotment is also a main corridor for transmission lines that may impact some wildlife species. The two main habitat types on the allotment are forested and riparian. Although the forested habitat is so dense the amount of forage available for wildlife is limited, a variety of wildlife species continue to be observed.

Preliminary Identification of Causal Factors and Recommendations

Based on the field review and observations, it appears the following factors may be contributing to land health standards not being achieved:

- The upland standard is not met primarily due to the density/age-class of the forested portion of the allotment resulting from altered fire regimes
- The riparian standard is not met primarily due to historic mining activities and subsequent reclamation that in some areas was unsuccessful along Hi Ore Creek and Big Limber Gulch. Grazing and mining are impacting Peters Gulch. Trampling and grazing during the hot season is the primary cause for the condition of the upland springs and Peters Gulch. Changing the season of use may improve conditions in both areas.
- Water quality is impaired as a result of the roads along Hi Ore Creek and Big Limber Gulch, as well as historic mining activities. Reclamation has occurred along both sites, however additional work is still needed to improve riparian vegetation and channel morphology.

Final determinations will be made upon assessment of further information. It should be noted that if changing current management or use will not result in progress toward meeting the standards, then the current management or use should not be considered a significant causal factor.

The following actions may be necessary in order to make significant progress in achieving the Western Montana Standards for Rangeland Health:

- Continuing to assist the Montana DEQ with future TMDL planning in the area, as well as determining any point sources for contamination on BLM lands. Replanting riparian vegetation on Hi Ore Creek and within the reclamation exclosure along Big Limber Gulch. Sediment from BLM and private roads and the repository is also a concern along Big Limber Gulch. The county road and culvert placement/functionality and ditch functionality are the primary sources for the additional sediment observed in Hi Ore Creek below the mine.
- Building riparian pastures, incorporating Hi Ore into a grazing rotation with an adjacent allotment also utilized by the same permittee, or building additional exclosures may be necessary to reduce the grazing related impacts to Peters Gulch and the upland springs. Some of the reaches exhibited signs of historic grazing impacts, careful management of these areas is critical for continued

improvement. Developing other sources of water off-site may also reduce livestock use of riparian areas.

How This Information Will Be Used

If the information in this Evaluation Report indicates that the allotment meets the Western Montana Standards for Rangeland Health, BLM will issue grazing decision(s) (subject to protest and appeal) to renew or issue associated grazing authorizations as necessary, with the appropriate level of NEPA documentation and public involvement in accordance with CEQ guidance and BLM direction. No additional final determinations are necessary.

For allotments not meeting the Western Montana Standards for Rangeland Health, BLM will use the information in this Evaluation Report along with any other relevant data or information, including input from interested parties, to make a final determination whether or not current grazing management or levels of use are a significant causal factor in not meeting rangeland health standards on the allotment. If current grazing management and/or levels of use appear to be a significant causal factor, BLM will use the NEPA process to document the affected environment and develop alternatives to propose changes to grazing management to facilitate achieving rangeland health standards. These changes or actions will be addressed with an appropriate level of NEPA documentation and public involvement in accordance with CEQ guidance and BLM direction. A Final Determination Document will be prepared in concert with the NEPA analysis and associated decision(s). Pursuant to 43 CFR 4180.2(c), the Authorized Officer shall take appropriate action as soon as practicable, but not later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards. Any grazing decisions, however, are subject to protest and appeal.

If current grazing management or levels of use do not appear to be a significant causal factor, changes or activities in other program areas or activities that appear to be significant causal factors may or may not be undertaken through a NEPA process, dependent on program and office priorities. However, a Final Determination Document will be prepared to document and outline the significant causal factors.

Involvement of Permittees, State Agencies and Interested Publics

The following groups/individuals were notified of the Hi Ore Allotment Assessment:

Dave Rieder, grazing permittee

Western Watersheds Project

Beaverhead-Deerlodge National Forest; Butte and Whitehall Ranger Districts
Montana Fish, Wildlife, and Parks
Butte Area Resource Office

MT Department of Natural Resources & Conservation
Conservation & Resource Development Division

BLM Staff Participants

The following BLM staff participated in the preparation of this report:

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