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Introduction

This document is an interagency land health assessment for the National System of Public Lands administered by the Bureau of Land Management (BLM) Salmon Field Office and National Forest System lands administered by the Salmon-Challis National Forest (SCNF) Leadore Ranger District within the Canyon-Big Timber Watershed Assessment (CBT) boundary (see map 1).

The purpose of the assessment was to use a collaborative, landscape-level approach for understanding ecologic processes, current land uses, and management actions affecting resources within the CBT area.

This report documents the condition and/or function of public land and National Forest resources. For BLM-managed lands specifically, this includes an evaluation of the eight Idaho Standards for Rangeland Health (USDI 1997).

This report also contains recommendations developed by the multi-agency assessment team that address identified resource issues within the CBT area. These recommendations describe objectives related primarily to native vegetation management, but also address other concerns such as noxious weeds, wildland-urban interface (WUI), recreational uses, travel management, wildlife and fisheries habitat, and cultural resources. Recommendations for BLM-managed lands will be used to prioritize the implementation of a list of future management actions for BLM lands covered by the assessment. Initiation of priority management actions is anticipated to begin as early as summer 2011.

Although this assessment outlines recommendations to meet management objectives, it is not a decision-making document. Any changes in management proposed as a result of this assessment would be implemented through decisions consistent with the respective land use plans and programs, and would be analyzed site-specifically first to comply with the provisions of the National Environmental Policy Act (NEPA).

Process

The CBT assessment was completed by an interdisciplinary (ID) team comprised of BLM Salmon Field Office, Salmon-Challis National Forest, and Idaho Department of Fish and Game resource specialists. ID-team meetings were initiated in December of 2008, and facilitated through May of 2010.

Field tours conducted June through October of 2009 accomplished the following:

- Current resource conditions were observed and characterized (assessed) by the team;
- Desired resource objectives were reviewed and discussed; and
- Resource management issues were subsequently identified in the context of current land uses and policies.

Assessment data was then synthesized. The assessment starts with background information on the resources and land uses within the CBT area. The eight Idaho Standards for Rangeland Health are then described and a “call” is made for each allotment within the CBT as to whether the allotment is (1) “Meeting the Standard”; (2) “Not meeting the Standard”; (3) “Not meeting the Standard but making

significant progress toward meeting”; or (4) that the “Standard doesn’t apply”. Finally, a list of issues and recommendations for achieving management objectives within the CBT area are outlined.

This assessment was done in accordance with the following BLM regulations and applicable guidance:

- Code of Federal Regulations, 43 CFR, Subpart 4180
- BLM Manual H-4180-1, Rangeland Health Standards Handbook and Guidance for Conducting Watershed-Based Land Health Assessments
- Record of Decision (ROD)- Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Standards and Guides)(1997)
- Lemhi Resource Management Plan as Amended (2001)
- Central Idaho Fire Management Plan (2005)
- Lemhi River Sub-basin Review (1999)

Background

The CBT area is located in Lemhi County, Idaho, between the Beaverhead Mountains of the Bitterroot Range, and the Lemhi Range; and straddles the divide between the upper Lemhi drainage which flows into the Salmon River to the north, and the upper Birch Creek drainage which flows south towards the Snake River (see map 1). The CBT area is contained within Townships 12-17 North and Ranges 24-29 East, Boise Meridian.

The CBT boundary shown on map 1 primarily follows watershed boundaries. However, in order to avoid splitting allotments and thus facilitating evaluation of allotments toward meeting the Idaho Standards for Rangeland Health (USDI 1997), it was necessary in some locations to adjust the assessment boundary to follow allotment boundaries. Grazing allotment boundaries are administratively determined and often do not follow topographic features.

Within the CBT area there are approximately 322,580 total acres of land, of which 129,000 (40%) are public lands administered by the BLM Salmon Field Office; 144,000 (45%) are National Forest System lands administered by the Salmon-Challis National Forest; 41,057 (13%) are private; and 8,523 (2%) are administered by the state of Idaho.

Prehistory and History of the CBT area

BLM portions of the assessment area have received numerous intensive Class III cultural resource examinations, along with limited non-compliance surveys combining intensive and reconnaissance ground coverage. Class III intensive examinations over the past three decades, and particularly in the past six years, have been completed over approximately 22,000 acres (17% of the total BLM acreage). An additional 3,900 acres have been examined by proactive intensive or reconnaissance tactics. A total of about 20% of the BLM portion of the assessment area have thus received archaeological scrutiny.

Both prehistoric and historic Native American and Euro-American resources are documented. On BLM portions of the assessment area, prehistoric archaeological phenomena are differentially distributed.

Several notable site concentrations are thought to reflect “passage through” rather than “localized intensive” habitation within the upper valley landscape. These are clustered at intervals on the upper reaches of the vast alluvial fans that constitute the valley floor along the east margin of the Lemhi Valley. This site patterning apparently resulted from repeated short-term stops where travel intercepted flowing streams emerging from major canyons while moving north and south, parallel with the base of the Beaverhead Range. Lower alluvial fan reaches are characteristically sparsely populated with prehistoric resources. The historically documented aboriginal trails known to provide passage over the Lemhi and Beaverhead ranges into neighboring mountain valley and plains environments (discussed further below) were probably connected with this “passage through” phenomenon. However, site distribution on the more rugged Forest lands reveals episodes of more intense prehistoric exploitation of the subsistence and material resources offered within major tributary canyon systems in the assessment area (e.g., Canyon Creek, Hawley Creek, Eighteenmile Creek, and Big Timber Creek).

Most prehistoric sites on BLM lands are short-term encampments, often temporally overlapping and of mixed assemblages, reflecting the preponderance of mundane camp activities such as food preparation, fabrication, and tool maintenance functions. However other documented site types are known, including tool stone quarries, rare probable big-game post-hunt processing sites, and a few rock shelters with evidence of habitation, and at least one rock art locality. Chronologically diagnostic artifact types from many archaeological surveys and recorded sites point to fluctuating episodes of transhumance over the CBT area landscape since perhaps the end of the Pleistocene at 11,000 years ago – definitely by 9,000 to 10,000 years ago. Known late Pleistocene/early Holocene sites or isolates are very rare and widespread to date. However, the frequency and overall density of identified prehistoric resources increases markedly after late Holocene time (ca. 4,000 years ago), persisting at elevated levels into the era of contact with Euro-Americans.

The Contact period (ca. A.D. 1700 to 1805) is unusually well represented at specific documented sites in the upper Lemhi Valley, attesting to frequent horse-mounted Native American travel and encampment while following old trail routes through the mountains. Two principle travel ways ascended prominent tributaries and crossed mountain passes on the west and east sides of the assessment area. One led southwest up Big Timber Creek over the Lemhi Range into the upper Little Lost River Valley; and the other ascended Canyon Creek eastward, over Bannock Pass onto the buffalo plains of Montana. Fur trapping brigades of the 1820’s and 1830’s frequently followed these same passages that had conveyed Native American travelers afoot and on horseback for many centuries.

The Historic period begins with the arrival of the fur-trade expeditions in 1819, including those of the Northwest Company, Hudson’s Bay Company, Rocky Mountain Fur Company, and other explorers and missionaries. Many notable figures in western American history passed through, and many probably camped in, the CBT area between 1819 and 1840, including Donald McKenzie, Alexander Ross, Peter Skene Ogden, Kit Carson, John Work, Jedediah Smith, and many others. These parties routinely took those age-old trails over the mountains, or continued up-valley southward across the divide of drainages, passing against the base of the Beaverhead Range on the east side of the valley (opposite present-day State Highway 28). Capt. B.L.E. Bonneville may have spent the Christmas of 1832 in the sheltered confines of Swan Basin, on upper Timber Creek, as he abandoned so-called “Fort Bonneville” north of Salmon for new prospects at Jackson’s Hole. The large meadow on Eighteenmile Creek in the center of

the valley (into which Tenmile and Clear Creek channels flow) was referred to as “the fountain” by Hudson’s Bay trapping brigade leader John Work (1830), the name and place commonly known amongst trappers of the day. The Reverend Samuel Parker, on a missionary trip to Fort Walla Walla, passed the area in September of 1835, vividly describing a mid-day bison hunt from the backs of fast horses on the open-sage plain just south of present-day Leadore by a few of the large contingent of Nez Perce men, women, and children accompanying him.

Following a short hiatus after the fur-trade era, Euro-American exploration again entered the area with the rolling of Mormon wagons over unbroken sagebrush in June of 1855. Sent from Utah by LDS Church President Brigham Young to establish a presence in the northern mountains and to convert the native people, a small party of men struggled northwest past Mud Lake across the dry, sandy eastern Snake River Plain, and then turned north along the old established route up Birch Creek Valley (“Spring Creek”). Following directions from an ex-trapper they happened to befriend during a stop at old Fort Hall, they crossed over the “height of mountains” between the Birch Creek and Lemhi drainages on the east side, coming onto the highest reaches of Divide Creek. From there they dropped rapidly, halting to camp due to a broken wagon wheel at “the quaking asp grove” which was likely at the confluence of Divide and Eighteenmile Creeks. They stopped again for several days, recuperating and exploring just north of Leadore on lower Timber Creek (“the cottonwoods”), eventually establishing “Fort Limhi” in the lower Lemhi Valley near Tendoy. Several camp spots in the assessment area became regular stopping-off points during the duration of their presence in the region. For nearly three years, their many back-and-forth wagon convoys over those initial tracks in the sagebrush for supplies and new recruits blazed deep wagon ruts that permanently scarred the pristine landscape. The sudden abandonment of the little fort in the early spring of 1858 abruptly ended wheeled travel, and the ruts began to sprout vegetation again.

Within less than a decade however, long stretches of what would sometimes be dubbed the “Old Mormon Road” drifted dust again as a resurrected vital freight route linking the emerging mining boom towns of Leesburg and Salmon City (after 1866) with settlements on the Snake River Plain. Later called the “Dubois to Salmon City” road, this route saw many years of constant stagecoach and freighter service well into the 1890’s as mining, homesteading and settlement burgeoned in the Lemhi and Salmon River valleys. Also in the late-‘60’s, the “Bannock” or “Canyon” wagon road was blazed, ascending Canyon Creek over the ancient indian trail to Bannock Pass, which linked the Salmon country with the new gold mines of southwest Montana. The town of Junction sprung nearly instantly to life after 1869 at the convergence of these important transportation arteries. Fragile physical vestiges of these and other important historic roads are preserved on public land within the CBT area. Found within the assessment area as well are the locations of several local historic mining and ranching townsites born in the late-1870’s and 1880’s, including Junction, Bannister, and Gilmore.

The CBT area is also home to a short span of the Nez Perce National Historic Trail. The trail corridor descends Canyon Creek from a passage over Bannock Pass, approaching the present-day community of Leadore, and then swings southward toward Gilmore Summit, continuing down the length of Birch Creek valley. Having suffered a devastating attack by militia and volunteers at the “Big Hole”, an advance guard of young Nez Perce warriors emerged from the narrows of Canyon Creek on the morning of August 13, 1877. The news of their proximity had preceded them, and when the first rider emerged from the canyon, panicked upper valley homesteaders frantically raced into the protection of a little “fort” outside

of the town of Junction hurriedly constructed of vertical poles just days prior. Shortly afterward, a long string of elderly Nez Perce women and children filed out of the canyon following the wagon road. A seemingly endless number of travois carried the many wounded, along with hundreds of captured horses swatted along by young boys. Moving down the terraces toward the Lemhi River, they established camp on Big Timber Creek below present-day Leadore, within sight of Junction and the “fort.” A large contingent of Lemhi Shoshone and Bannocks lead by Chief Tendoy and his friend Col. Shoup, with a few volunteers from Salmon, had earlier raced to Junction to meet the Nez Perce arrival. Chiefs Joseph, Looking Glass and White Bird of the Nez Perce proceeded to parlay briefly with Tendoy and Shoup. When encouraged to join the Nez Perce in war, Tendoy flatly refused. He instead advised them to leave the country quickly. At about 4:00 PM that evening, the beleaguered Nez Perce again struck their tipis, packed their belongings and moved southward up the valley, halting for the night beneath the timber in the lower reach of Nez Perce Creek (within the assessment area). Several warriors moved nearer the mouth of the canyon, digging a number of shallow pits barricaded with stones as fortifications against possible attack. These pit features are still present, documented and protected as significant cultural and historical properties on Forest Service (FS) land within the assessment area.

In 1910, motivated by the rich lead and silver yields from several claims at Gilmore and surrounding operations in the assessment area (e.g., Leadville and Mineral Hills District), the Gilmore and Pittsburgh railroad was constructed from Armstead, Montana, over Bannock Pass and into the Lemhi Valley, closely following the old wagon road and the Nez Perce Trail. The railroad missed the by-then fading town of Junction, which promptly picked itself up and moved a few miles south against the rails, becoming the new community of Leadore. The line branched at Leadore, veering south to Gilmore, and north down the Lemhi Valley, where it terminated at the growing community of Salmon. The Gilmore and Pittsburgh closed operations in 1939 after ten years of lost profits due to the demise of the mines in the region, and removed steel from the grade in 1940. Long lengths of this historic rail line are also found and recorded on public lands in the CBT area.

Many of the original pioneers came for the Leesburg gold rush and decided to stay, and many of their descendents remain here today. Some of the pioneers came to tame and settle the land to raise cattle, sheep and crops, while some came after the great depression looking for a better life. Among the pioneer families now living in the assessment area are the Hoyts, Pearson’s, Rees’, Vreeland’s, Zook’s, Hawley’s, Ellsworth’s, Yearian’s, Purcell’s, Whittaker’s, McFarland’s, Allhands, Amonson’s, Barrett’s, and McReas’. Many of the original families remain on the land today as a vital part of the local economic and social structure.

Wilderness Study Area

There are no designated wilderness areas within the CBT area. The CBT area does, however, contain 20,188 acres (80%) of the 25,287 acre Eighteenmile Wilderness Study Area (WSA) which is managed in accordance with the *Interim Management Policy (IMP) for Lands Under Wilderness Review* (BLM Handbook H-8550-1). Management according to this policy is intended to ensure that wilderness values contained in this area are not impaired until such time as Congress either designates these areas as part of the National Wilderness Preservation System, or releases them from further consideration as wilderness. The Eighteenmile WSA is located on the western side of the Continental Divide nestled between Baldy Mountain to the north and Eighteenmile Creek to the south (see map 1). The topography is mountainous

and slowly gives way to gently rolling sagebrush hills. There are numerous tributaries draining into Eighteenmile Creek and the vegetation transitions from lowland sagebrush communities to Douglas-fir, lodgepole and limber pine timber, and grassy meadows at the higher elevations. The Eighteenmile WSA is largely unmarred by man with few range improvements or evidence of previous homesteaders, including no designated routes within its boundary. The area offers recreationists seeking solitude great backpacking, hunting, and wildlife viewing opportunities.

Wildland Fire

Wildland fire has shaped plant communities for as long as vegetation and lightning have existed on earth (Pyne 1997). It is a fundamental and relevant process of contemporary ecosystems that must be understood and managed to meet resource management goals. The important questions for managers about wildland fire are when, where and of what severity to resources?

Fire Occurrence

Evidence of historic wildland fires can be found throughout the CBT area in the form of fire scars on trees, charred pieces of wood, and ash layers in the soil profile. Historically, fire starts were due to lightning or Native American burning. It is believed these fire starts often grew to burn relatively large acreages (100s to 10,000s of acres) during the course of a given summer or fall season when left unchecked. Since the late-1800's however, wildland fire has effectively been excluded from the CBT area due to aggressive fire suppression policies, domestic livestock grazing (removal of fine fuels), and land-use practices.

Forest Service, BLM, and State fire occurrence records for the CBT area indicate that between 1977 and 2007, wildland fires accounted for approximately 2,652 acres burned during 44 fires. Seventy-five percent of these fires were 1 acre or less in size. Three fires accounted for nearly 97% of the burned acres. These relatively large fires burned in the lower Texas Creek (1,926 acres in 2000); Hawley Creek (475 acres in 1988); and Canyon Creek (165 acres in 1981) drainages. Large-fire acres that burned in the Texas Creek drainage consisted of semi-desert shrub & grassland cover types, while acres burned in the Hawley and Canyon Creek drainages consisted of a mix of semi-desert shrub & grassland cover types, and forest and woodland cover types.

Fire Ecology

Recurrent wildland fire has been the dominant landscape-level disturbance process affecting composition, structure, and pattern of the native, fire-adapted plant communities within the CBT area since at least the end of the Pleistocene (approx. 10,000 years ago). However, over a century of Euro-American settlement activities, including public land policies, have seriously altered that crucial role.

The natural role of wildland fire can be understood and communicated through the concept of fire regimes (Brown and Smith 2000). Generally, fire regimes describe historical (pre Euro-American settlement) fire conditions under which vegetation communities have evolved and have been maintained. Historical (natural) fire regime data provide reference conditions against which current conditions can be compared for assessing wildland fire risk to plant communities and other resources. Historic Fire Regime Groups (Hann and Bunnell 2001) -based on five combinations of fire return interval (frequency) and fire severity- for the CBT area are displayed in map 2.

Assessing Risk to Ecosystems using Fire Regime Condition Class (FRCC)

Fire Regime Condition Classes (Hann and Bunnell 2001) are qualitative measures describing the degree of departure from historical fire regimes possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, livestock grazing, exotic plant species, introduced insects and disease, or other past management activities. Three condition classes serve as relative wildfire risk rankings. The risk of loss of key ecosystem components from wildland fire increases from Condition Class 1 (lowest risk) to Condition Class 3 (highest risk).

FRCC for the CBT area is based on a subjective cross-walk from the five Northwest ReGAP (USDI 2009) land cover classifications representing existing native vegetation within the CBT area, and is presented in table 1 and displayed in map 3. Due to resolution limits of satellite-based imagery, estimates presented in table 1 may differ from future site-specific assessments. For example, estimates obtained through satellite imagery do not take into account finer scale factors influencing condition class such as livestock grazing, exotic plant species, recent insect and/or disease outbreak, individual stand structure, and associated biodiversity issues. Truly accurate assessments of FRCC should be obtained through forest stand examinations and range ecological site inventories.

Table 1. FRCC and Historic Fire Regime based on Northwest ReGAP Cover Classes within the CBT Area.

Northwest ReGAP Cover Class	Total Acres	% of Total Acres	Fire Regime Condition Class	Historic Fire Regime Group
Forest & Woodland	95,728	27	23,610 – CC1	35,424 - III
			70,932 – CC2	60,304 - IV
Mesic Shrubland & Grassland	13,345	4	11,071 – CC1	266 - III
			2,274 – CC2	9,372 - IV 3,707 - V
Semi-desert Shrubland & Grassland	215,085	60	215,085 – CC2	215,085 - IV
High Montane Vegetation	15,733	4	15,733 – CC1	15,733 - IV
Sparse Vegetation & Natural Barren Areas	6,821	2	6,821 – CC1	6,821 - V

This section will not discuss Agriculture, Urban & Other Developed Lands, or Open Water since they are not native plant communities.

Based on the FRCC assessment, semi-desert shrub & grassland, mesic shrub & grassland, and the lower-to mid-elevation, drier aspect forest and woodland portions of the CBT area are moderately to highly departed (CC2 & CC3) from historic conditions. Cause for departure is mainly due to fire exclusion and consequently species composition and stand structure changes due to succession, including over-stocking, that would contribute to non-characteristic wildland fire effects to these cover types. Livestock grazing and presence of exotic plant species are also very important contributing factors to departure in these

cover types and would be reflected in a finer grained spatial representation of CC2 and CC3 estimates within these cover types, however the course resolution of the vegetation data does not support that level of detail for this assessment.

Big Game

Big game occurring in the assessment area includes bighorn sheep, deer, moose, mountain goat, elk and pronghorn. Rocky Mountain bighorn sheep and mountain goats are associated with high mountains and steep canyons. Most of the Rocky Mountain bighorn sheep in the assessment area can be found on the Continental Divide side of the valley, though there is at least one record of bighorns in the Meadow Lake area in the Lemhi Mountains. An issue for bighorn in the area is possible transmission of *Pasteurella* bacteria from domestic sheep, resulting in pneumonia in the herd. While domestic sheep are generally immune to the bacteria bighorn sheep generally die from the infection. Currently three permits on three allotments allow sheep grazing in the assessment area.

Pronghorn antelope occupy semi-desert shrub land and grassland habitats. If “Native Plant Communities (Standard 4)” is being met, then habitat for pronghorn in the assessment area would be adequate. An issue for pronghorn in the assessment area is wire fences where the bottom wire is below 18 inches. Pronghorn usually move under fences. If the bottom wire is below 18 inches then they have a hard time getting past the fence. In addition, woven-wire fences are almost impossible for pronghorn to move through. Inventories of BLM fence in the assessment area have recorded 1.66 miles of woven-wire fences, and 8 miles of fences where the bottom wire is less than 18 inches. However, not all of the fences in the CBT area have been inventoried. Many fences on private land within the assessment area are woven-wire or have a bottom wire less than 18 inches.

Moose tend to be found along riparian areas, though they will cross semi-desert shrublands at times. If “Riparian Areas and Wetlands (Standard 2)” is being met then the area is providing adequate habitat for moose. There were no additional issues identified during the assessment.

Deer occupy all habitat types from semi-desert shrub and grassland to high montane vegetation. They reach their greatest densities in semi-desert shrublands on rough, broken terrain and mesic shrublands that provide abundant browse and cover. Deer are migratory, meaning they summer at higher elevations and move down slope as fall approaches. Deer move to lower elevations and forage on more protected south-facing exposures during mid-winter.

Rocky mountain elk can be found in most habitat types and elevations at least on a seasonal basis. Elk are considered generalist feeders that utilize shrubs, grasses, and forbs. Calving grounds are carefully selected by the cows and are generally in locations where cover, forage, and water are found together. Elk tend to inhabit higher elevations during spring and summer and migrate to lower elevations for winter range. Elk form large mixed herds on favored winter range.

The winter range for deer and elk generally overlap in the assessment area. There is about 22,000 acres of winter range in the assessment area, of which 18,000 acres is considered crucial. Most of the winter habitat is along the south-facing slopes at the base of the foot hills leading up to the Continental Divide. There is also some winter habitat along Leadore Hill, just south of the town of Leadore, Idaho. When the

allotments are meeting “Standard 4”, then habitat quality for elk, including winter range, should be adequate.

Authorized Uses

Public Land Uses

Based on public demand, the BLM Salmon Field Office processes and authorizes public use permits and rights-of-way. There are 49 rights-of-way authorized within the assessment boundary and uses include roads, power lines, telephone lines, communication sites, ditches and canals, and highways. Existing uses in the CBT area include a major power line which supplies power from Montana, and several road rights-of-way allowing access to private land. There is one land use permit for agricultural use authorized in the assessment area. There are six road easements granted to the BLM for public access across private land and State of Idaho land.

Forest Products

Timber has been extracted from the CBT area since before establishment of the Salmon River Forest Reserve in 1906, for wood products such as lumber, fuel wood, house logs, and post and poles. Most harvesting activities prior to WWII were local subsistence operations for personal-use, with one exception being tie-cutting operations connected with the initial construction of the Gilmore and Pittsburg rail line into the Lemhi Valley. The Gilmore and Pittsburg railroad accessed the assessment area via Bannock Pass from Montana and down Canyon Creek to Leadore. At Leadore the line branched, veering south to the mining town of Gilmore, and north down the Lemhi Valley, where it terminated at the growing community of Salmon. Virtually every draw bottom within the CBT area contains evidence in the form of old stumps cut by axes or cross-cut saw as testament to settlers’ needs for forest products. In particular, the area surrounding the historic mining town of Gilmore shows very conspicuous evidence of harvesting activities that supported the booming mining activities of the early 1900’s.

Timber and Forest Fuels Management

Since WWII, most timber harvesting activities within the CBT area have occurred on federally-owned lands and as prescribed by approved land use plans to meet resource and commodity production objectives. Timber sales on Forest Service and BLM-administered lands have harvested approximately 1,500 acres of timber since 1957 (see map 4). Silvicultural systems have included selection, shelterwood, and clearcut prescriptions. Post-sale treatments have included slash burning, thinning, and planting of sites that were clearcut. Additionally, some areas have had pre-commercial thinning. Forests and woodlands in the CBT area have a potential to provide a supply of wood products into the foreseeable future, however existing access is limited and market conditions are currently not favorable.

The most recent forest and woodland treatments within the CBT area are related to hazardous fuels reduction objectives around the historic townsite of Gilmore, an identified ‘Community-at-Risk’, and a relatively new subdivision located at the mouth of Silver Moon Gulch approximately one mile due south of Gilmore. The Gilmore Hazardous Fuels Reduction project was completed in 2008 and involved 232 acres.

Recreational Uses

Dispersed

The majority of lands within the CBT area are used yearlong for a variety of dispersed recreational uses including hunting, fishing, off-highway vehicle use, camping, and mountain biking. The heaviest recreational use of these lands occurs during the big-game hunting seasons, dramatically increasing the intensity of off-highway vehicle use and camping. Off-Highway vehicle use is most prolific in wildland-urban interface (WUI) areas where the communities of Leadore and Gilmore have easy access to public lands close to town. Residents of Idaho Falls are increasingly utilizing public roads within the CBT area, primarily for hunting access. The WUI areas within the CBT also have the highest frequency of pioneered routes, or user-created routes.

Developed

The Smokey Cubs developed recreation site is located within the CBT area. This site receives the majority of its use during the fall when hunters utilize this site as a camping and staging area for big-game hunting. The site also receives minimal use year round for fishing access and camping.

Mineral Resources

The CBT area varies greatly in mineral potential. Most of the area has a low potential for locatable minerals, however some sections in the southern part of the assessment area have moderate to high potential for locatable minerals. The past mineral production from the area was moderate, and was mostly lead and silver from the Gilmore District. There was also minor amounts of gold (both lode and placer), and some copper produced from the region. In addition, there has been a variety of other commodities mined over the years including sand and gravel, decorative rock, and gypsum. There are currently no active “Notices” or “Plans of Operation” within the CBT area.

The moderate to high mineral potential areas tend to have a number of abandoned mines, but none located on BLM-administered lands are known to be at high risk for environmental damage.

The entire area has potential for saleable minerals such as gravel and decorative stone; and there is potential for deep molybdenum and tungsten deposits especially in the altered terrain near Gilmore and the Eighteenmile WSA. There are currently two community gravel pits, one located along the Timber Creek road west of Leadore, and the other along Highway 28 between Leadore and Gilmore Summit. There are also numerous other locations throughout the assessment area where mineral materials have been removed, but are not currently active. Some oil and gas potential exists in the southern portion of the assessment area, and there have been limited exploration activities in the form of geophysical surveys and the drilling of two test wells in the upper Birch Creek drainage.

Livestock Grazing

There are 31 grazing allotments within the CBT area managed by the Salmon Field Office BLM and the Salmon-Challis National Forest (see map 1). There are currently 18 operators that have grazing permits for 17 allotments on BLM public lands within the assessment area. BLM-administered public lands provide a large proportion of the late spring, summer and fall forage base in the area. There are 16,336 active animal-unit months (AUMs) of livestock forage allocated on the 17 allotments. The livestock

grazing allocation and management for BLM allotments within the CBT area is displayed in tables 2 and 3.

Stocking rate on BLM lands within the CBT area averages approximately 7.5 acres per AUM and varies from 3.3 to 30.5 acres per AUM (see table 2 below). The amount of utilization appropriate for a given acre is influenced by soils, vegetation, topography (aspect, elevation, and slope), distance from water, and local weather. Cattle (cow/calf pairs) are the primary type of livestock authorized on the allotments. Several allotments are specifically permitted for, or allow flexibility to graze yearling cattle, sheep, and/or horses.

Other “Terms and Conditions” of permits held by permittees using allotments within the CBT area include (see Table 3 below):

1. As provided in 43 Code of Federal Regulations (CFR) 4130.3-2(d), you are hereby required to submit a certified actual use report within 15 days after completion of your annual grazing use. Failure to comply could result in the cancellation of your permit in whole or part.
2. BLM management of the allotment will continue to emphasize maintenance or improvement of riparian communities.
3. Use in the Chamberlain Creek Allotment will be in accordance with the Chamberlain Creek Allotment Management Plan (AMP).
4. Salt and/or mineral supplements will be placed in areas agreed upon by the BLM and the permittee. Placement will emphasize mitigating impacts to streams and undeveloped springs or seeps (including Texas Creek and Poison Springs), pygmy rabbit burrow sites, and critical sage grouse habitat.
5. The maximum allowable cattle use in the Spring Canyon Allotment is 2,544 BLM AUMs.
6. All range improvements will be maintained prior to turn-out, and all water developments and associated pipelines will be drained and winterized.
7. To allow flexibility, an earlier turn-out date may be applied for annually, and may be approved when range readiness has been determined to be appropriate.
8. The number of livestock may be increased and period of use shortened as long as the number of AUMs in the pastures does not exceed 518 in Lee Creek; 40 in State Section; 50 in Leadore Hill East; and 40 in Deer Park. During the growing season, start growth to boot stage, only 50% of preference may be used. There is no limitation on the percent of preference that may be used during the dormant season.
9. The 5 AUMs on Line 2 of the Two Dot Allotment are for active trailing and will be allowed for one day for up to 250 pair anytime between 10/10 and 10/31. No drift cattle will be allowed.
10. Salt and/or mineral supplements will be placed in areas agreed upon by BLM and the Permittee.
11. Active trailing will be permitted for one day between 11/1 and 12/31 for up to 500 head of cattle.
12. Livestock use will occur for trailing to and from the FS Hawley Creek C&H Allotment. Trailing use will not exceed the 30 permitted AUMs.
13. Management of the allotment will continue to maintain or improve riparian communities found within the allotment, as well as, continue to achieve or make significant progress toward the Idaho Standards of Rangeland Health.
14. Livestock numbers may increase and/or number of days may decrease as long as the total AUM use does not exceed the permitted 30AUMs.

15. The allotments shown on this permit shall meet the requirements as described in 43 CFR subpart 4180—Fundamentals of Rangeland Health and the Standards and Guidelines for grazing administration. Any changes in management will be based upon the resource evaluations and analysis as scheduled and completed by the area manager.
16. Use in the Free Strip Allotment will be limited to a maximum of four weeks, not to exceed 481 AUMs.
17. Free Strip Allotment can be used in conjunction with the USFS Grizzly Hill Allotment as a pasture, and will be rested in the rotation with the other four Grizzly Hill pastures in the Canyon Creek watershed. Free Strip will not be utilized more than three years out of four.
18. Unless permitted by the Authorized Officer, the west side of the Free Strip Allotment may be used for trailing only. Livestock are to stay on the Railroad Canyon Road, and shall not be left in this corridor during pasture changes.
19. Supplemental Feed is limited to salt, mineral, and/or energy/protein in block, granular, or liquid form. If used on Public Land, these supplements must be placed at least one-quarter (1/4) miles away from any riparian area, spring, stream, meadow, aspen stand, sensitive plant populations, playa, or water development located on Public Land unless variance is approved by the Authorized Officer.
20. Cattle numbers in the Hawley Creek Allotment may be increased up to a maximum of 296 cattle for a maximum of 6 weeks (maximum 438 AUMs). Use on the allotment can occur in the spring or the fall as long as the use is within the permit dates. In the third year, only fall use will be allowed unless authorized by the Authorized Officer.
21. The total active use is not to exceed 31 AUMs. Number of cattle on the allotment can be increased as long as the dates are decreased and the total number of cow/calf pairs does not exceed 40. This change will occur through the application process and will be approved by the Authorized Officer.
22. Livestock grazing in the (North Pasture) will not occur until 2001. The season of use will not occur before July 15. Grazing Actual Use will not Exceed 16 AUMs.
23. Livestock grazing in the (South Pasture) and (Middle Pasture) will not occur after July 15th and will not exceed 14 AUMs total.
24. 21 AUMs will be held in temporary suspension due to the conversion from sheep to cattle. These AUMs may be adjusted to active if it is deemed appropriate by the authorized officer after three years.
25. Livestock grazing will not occur in the Canyon Creek Pasture from October 1 – October 10.

Table 2. Livestock Grazing Allocation for BLM Allotments within the CBT Area.

Allotment	AUMs					Acres		Acres (GIS) per Current AUM
	Current Permit(s)	RMP Active	RMP Short Term	RMP Long Term	10-Year Average	RMP	Current (GIS)	
Bull Creek	150	235	141	235	115	1,817	2,311	15.4
Center Ridge	2,333	2,333	1,753	2,333	1,207	15,931	15,825	6.8
Chamberlain Creek	1,239	1,456	1,456	1,456	1,084	19,633	16,477	13.3
Dump	30	30	25	25	13	361	253	8.4
Free Strip	731	728	432	475	399	3,889	3,521	4.8
Hawley Creek	626	528	488	566	155	7,321	6,823	10.9
Jake's Canyon	31	31	31	31	25	546	548	17.7
Leadore	30	28	18	28	20	1,086	343	11.4
Leadore Hill	93	114	114	125	36	1,527	1,475	15.9
Leadville	535	528	543	566	412	6,798	4,950	9.3
Nez Perce	982	977	635	693	656	3,809	3,247	3.3
Powder Horn	5,021	4,794	5,035	4,425	2,238	28,765	32,359	6.4
Purcell Creek	21	28	30	32	13	902	640	30.5
Spring Canyon	3,330	3,379	2,569	2,826	1,501	23,123	22,884	6.9
Tex Creek	263	264	249	262	260	2,681	2,703	10.3
Timber Creek	911	883	772	868	518	6,947	7,033	7.7
Two Dot (Leadore Hill East Pasture)	50	NA	NA	NA	110	1,141	970	19.4
Total for Area	16,376	16,336	14,291	14,946	8,762	126,277	122,362	7.5

Table 3. Livestock Grazing Management for BLM Allotments within the CBT Area.

Allotment	Livestock	Grazing Period		%Public Land	AUMs				Other Terms and Conditions
		Begin	End		Current Permit	Active	Suspended	Grazing Preference	
Bull Creek	150 Cattle	4/20	5/11	69%	75	150	0	150	1,2
	150 Cattle	9/15	10/6	69%	75				
Center Ridge	1200 Sheep	5/22	6/12	90%	156	166	0	166	1,2,6,7,10
	1200 Sheep	7/13	7/13	90%	7				
	407 Cattle	5/24	10/31	100%	2154	2170	1361	3531	1,2,6,7,10,11
	500 Cattle	11/1	11/1	100%	16				
Chamberlain Creek	309 Cattle	6/1	9/30	100%	1239	1249	1331	2580	1,2,3
Dump	460 Cattle	6/1	6/2	100%	30	30	0	30	1,14
Free Strip	158 Cattle	6/1	10/31	92%	731	728	310	1038	1,13,16,17,18
Hawley Creek	450 Cattle	6/1	6/1	100%	15	30	0	30	1,12,13
	450 Cattle	9/10	9/10	100%	15				
	193 Cattle	5/15	6/30	100%	298	598	4	602	1,13,20
	193 Cattle	9/15	10/31	100%	298				
Jake's Canyon	15 Cattle	5/15	7/15	100%	31	31	31	62	1,21
Leadore	22 Cattle	7/15	8/5	100%	16	30	20	50	1,13,19,22,23
	41 Cattle	6/16	7/15	34%	14				
Leadore Hill	39 Cattle	5/16	7/31	94%	93	93	39	132	1,2,24
Leadville	500 Cattle	5/10	5/31	100%	362	528	398	926	1,13,19,25
	500 Cattle	10/1	10/10	100%	164				
Nez Perce	125 Cattle	5/20	10/1	26%	144	833	119	263	1,15
	600 Cattle	5/20	5/31	26%	62				
	750 Cattle	6/1	9/29	26%	776				
Powder Horn	350 Cattle	4/15	5/1	96%	188	4212	3065	7277	1,2
	37 Cattle	5/1	12/12	96%	264				
	625 Cattle	5/1	6/30	96%	1203				
	782 Cattle	7/1	7/15	96%	370				
	734 Cattle	7/16	7/31	96%	371				
	635 Cattle	8/1	9/15	96%	922				
	332 Cattle	9/16	12/10	96%	901				

Allotment	Livestock	Grazing Period		%Public Land	AUMs				Other Terms and Conditions
		Begin	End		Current Permit	Active	Suspended	Grazing Preference	
Powder Horn	200 Cattle	6/16	9/15	100%	605	802	592	1394	1,2
	200 Cattle	11/1	11/30	100%	197				
Purcell Creek	21 Cattle	5/1	6/30	50%	21	28	0	28	1,15
Spring Canyon	220 Cattle	5/15	5/31	83%	102	3329	988	4317	1,4,5,6
	420 Cattle	6/1	6/17	83%	195				
	720 Cattle	6/18	7/24	83%	727				
	720 Cattle	7/25	9/5	83%	845				
	399 Cattle	8/24	10/24	83%	675				
	1200 Sheep	6/14	10/11	83%	786				
Tex Creek	112 Cattle	5/12	7/11	100%	225	224	174	398	1,15
	20 Cattle	5/13	6/30	100%	32	38	49	87	1,15
	3 Horse	5/1	6/30	100%	6				
Timber Creek	100 Cattle	5/6	6/15	100%	135	134	52	186	1,2
	75 Cattle	5/6	6/30	100%	138	138	17	155	1,2
	245 Cattle	5/6	6/15	100%	330	398	163	561	1,2
	245 Cattle	10/1	10/5	100%	40				
	5 Horse	5/6	10/31	100%	29				
	1200 Sheep	5/1	6/6	82%	239	239	0	239	1,2
Two Dot (Leadore Hill East Pasture)	419 Cattle	5/1	6/30	78%	655	653	86	739	1,2,6,8,9
	210 Cattle	10/10	10/10	78%	5				

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Evaluation of the Idaho Standards for Rangeland Health

Approved in 1997, the eight Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing and Management (Standards and Guides) provide the resource measures and guidance needed to ensure healthy, functional rangelands. The Standards and Guides comply with regulation requirements and are in conformance with the Lemhi Resource Management Plan (RMP) (USDI 1987).

The eight Standards for Rangeland Health are: (1) Watersheds; (2) Riparian Areas and Wetlands; (3) Stream Channel/Floodplain; (4) Native Plant Communities; (5) Seedings; (6) Exotic Plant Communities, Other Than Seedings; (7) Water Quality; and (8) Threatened and Endangered Plants and Animals. The process involves evaluating various datasets to determine whether or not an allotment is meeting each of the eight Standards and why. Datasets considered include Properly Functioning Condition (PFC) and riparian Multiple Indicator Monitoring (MIM) surveys; sage grouse habitat assessments; invasive plant inventories; sensitive plant and animal surveys; and information collected during the Rangeland Health Assessment (RHA) process. The Guidelines for Livestock Grazing Management direct the selection of grazing management practices to promote significant progress toward, or the attainment and maintenance of, the Standards. Specific guidelines are not discussed in this document.

Between 2006 and 2009, the Salmon Field Office of the BLM conducted RHAs on the allotments within the CBT area (see Appendix B). The data from the RHAs will be used as part of the data to evaluate if the allotments are meeting Standards 1 and 4, and at a lesser level Standards 5 and 8. The sites selected for the RHAs were chosen based upon distance from water and other infrastructure, representative soil type, and ecological sites of the allotment, and were located in areas where rangeland conditions were of concern on the allotment. Soil type was confirmed by digging soil pits and comparing with soils maps of the area, ensuring that the ID team collected data for the RHAs on soils representative of the allotment.

Table 4 displays the variety and extent of major soil types found on BLM-managed lands within the CBT area, as well as the number of sites evaluated by soil type during the RHA process. Fifty-three other soil units are present in the assessment area but each make up less than 2 percent of the total BLM-managed acres in the area. Of the sites evaluated with an RHA: one was on the Chamberlain gravelly loam; three were on the Whiteknob gravelly loam; one was on the Heathcoat soil of the Heathcoat-Brabas complex; one on the Wiggleton gravelly loam; three were on the Oxhead gravelly loam; two were on the Mountainboy gravelly silt loam; four were on the Leadore gravelly loam; one was on the Resoot soil of the Resoot-Friedman complex; and the other four were on soil units representing less than 2 percent of the entire area, but represented the majority of the soil within the specific allotment. During the RHAs, seventeen indicators of rangeland health were evaluated for their departure from what was expected on the sites based on Ecological Site Descriptions developed by the Natural Resources Conservation Service (NRCS).

Table 4. Soil Types of the CBT area.

Soil Type	# RHAs completed	% of BLM-managed land	Soil Type	# RHAs completed	% of BLM-managed land
Chamberlain gravelly loam	1	8	Geemore gravelly loam		3
Whiteknob gravelly loam	3	8	Cryolls-Rubble land complex		3
Heathcoat-Brabas complex	1	8	Simeroi gravelly loam		2
Wiggleton gravelly loam	1	7	Resoot-Friedman complex	1	2
Oxhead gravelly loam	3	5	Brabas-Heathcoat complex		2
Mountainboy gravelly silt loam	2	5	Surrett gravelly loam		2
Cryepts-Rubble land-Rock outcrop complex		4	Zeelnot gravelly loam		2
Escarlo-Heathcoat complex		4	Povey-Klug complex		2
Leadore gravelly loam	4	4	Heathcoat gravelly silt loam		2
Meegero-Zeale complex		3	Fandow-Arbus complex		2
Cryolls-Rubble land-Rock outcrop complex		3	Mountainboy gravelly silt loam		2

Watersheds (Standard 1)

“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.” (USDI 1997)

For the watershed standard, 10 of the indicators evaluated during RHAs were used to rate the soil and site stability for each site, and 10 indicators were used to rate the hydrologic function for each site (Pellant et al. 2005). All of the indicators for soil and site stability at every site on every allotment were rated as a “none to slight” departure from expected. Most of the indicators for hydrologic integrity were also rated as a “none to slight” departure at every site on every allotment. The largest exception was a rating of “slight to moderate” departure for indicator #14 (Litter Amount) on 7 allotments: Free Strip, Jake’s Canyon, Leadore, Leadville, Powderhorn, Spring Canyon, and Tex Creek. The amount of litter varied due to a departure from expected in the amount of deep-rooted grasses on the sites. While this is important from a watershed health perspective it was felt that with indicators such as rills, waterflow patterns, pedestals and/or terracettes, and gullies at a “none to slight” departure from expected, the sites as a whole were a “none to slight” departure for hydrologic integrity.

The final evaluation finding for all allotments in the assessment area toward meeting Standard 1 is summarized in table 5 below. All allotments are currently “meeting” Standard 1.

Table 5. Evaluation Finding for Standard 1.

Allotments “Meeting the Standard”			
Bull Creek	Center Ridge	Chamberlain Creek	Dump
Free Strip	Hawley Creek	Jake’s Canyon	Leadore
Purcell Creek	Spring Canyon	Tex Creek	Timber Creek
Leadore Hill	Leadville	Nez Perce	Powderhorn
Two Dot (Leadore Hill East Pasture)			

Riparian Areas and Wetlands (Standard 2)

“Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.” (USDI 1997)

Riparian and wetland vegetation should also control erosion, stabilize streambanks, provide shading, filter sediment, aid floodplain development, dissipate energy, delay flood water, and increase groundwater recharge.

The riparian and wetland habitat in the CBT area is comprised of many different riparian and wetland species including beaked sedge, Northwest Territory sedge, Nebraska sedge, brookgrass, seep monkeyflower, and multiple species of rushes and other riparian grasses. Riparian trees and shrubs that are also found include aspen, Booth willow, Geyer willow, Bebb willow, coyote willow, Sitka alder, and gray alder. Habitat associations that include sedges and willows (plants with deep, binding root masses) tend to provide higher levels of bank stability. Habitat associated with the upper Lemhi River and tributary mountain streams also includes water birch, Engelmann spruce, cottonwood, and Douglas-fir. Of these habitat associations found in the assessment area, the spruce types are the most unstable and susceptible to impacts from disturbance.

Proper functioning condition (PFC) is a qualitative method for assessing the condition of riparian/wetland areas. The PFC assessment is performed by an interdisciplinary team that considers the hydrology, vegetation, and erosion/deposition attributes and processes to qualify riparian/wetland conditions. The on-the-ground condition refers to how well the physical processes are functioning; PFC is a state of resiliency that will allow a riparian/wetland area to hold together during high flows with an elevated degree of reliability. This resiliency allows an area to then produce desired values (i.e. fish and wildlife habitat). Riparian/wetland areas that are not functioning properly cannot sustain these values. Streams are assessed in the Salmon Field Office as either “Proper Functioning Condition (PFC)”; “Functional-At-Risk with an upward trend (FAR-up)”, downward trend (“FAR-down”), or static trend (“FAR-static”); “Non-Functional (NF)”; or “Non-Riparian” (see map 5).

The final evaluation finding for all allotments in the assessment area toward meeting Standard 2 is summarized in table 6 below.

Table 6. Evaluation Finding for Standard 2.

Allotments “Meeting the Standard”			
Bull Creek	Center Ridge	Jake’s Canyon	
Allotments “Not meeting the Standard, but making significant progress towards meeting”			
Free Strip	Leadore		
Allotments “Not meeting the Standard”			
Chamberlain Creek	Hawley Creek	Leadore Hill	Leadville
Nez Perce	Powderhorn	Spring Canyon	Tex Creek
Timber Creek			
Allotments where the “Standard doesn’t apply”			
Dump	Purcell Creek	Two Dot (Leadore Hill East Pasture)	

Allotments “Not meeting the Standard, but making significant progress toward meeting”:

Free Strip Allotment: The Free Strip Allotment includes many undeveloped springs. Most of these areas are moderately reduced in potential size and permanence. These springs show moderate evidence of trampling and soil alteration by livestock grazing; cattle grazing in the past caused an increased amount of hummocks in these spring areas. Most of these undeveloped spring areas consist of mainly riparian/wetland grasses and shrubs, although some mesic forbs and Kentucky bluegrass do exist. Also, there is not a diverse age-class distribution of riparian/wetland vegetation recruitment occurring in most of the springs. The main vegetation present are mature/decadent with only a few seedling/young plants.

Chippie Creek: The upper segment of Chippie Creek (approx. 1.1 miles) contains two forks that form the stream. These forks are very narrow and bordered by very steep slopes. The south fork is a dry, rocky channel dominated by heartleaf arnica, common dandelion, Kentucky bluegrass, and cinquefoil. The north fork is similar to the south fork but includes a live stream portion at the lower end supporting a sedge community. The steep terrain surrounding this segment of Chippie Creek causes livestock to concentrate in a narrow zone along the riparian/wetland zone. Very few young woody species exist, all which are browsed, in the upper segment. This segment of stream is determined to be “FAR-down”, although a “FAR-static” trend is evident in areas within this reach.

A small segment of Chippie Creek, below the two forks (approx. 0.5 miles), is classified as “FAR-static”. This section of the stream shows improvement from the upper forks, although the channel has been incised preventing water from accessing the floodplain in some areas. The channel is not vertically stable or in balance with the sediment and water supplied by the watershed. The landscape surrounding this part of the stream is a more gradual slope causing cattle impact to be less apparent. Riparian/wetland vegetation is dominated by aspen, willow, Nebraska sedge, tufted hairgrass, common yarrow, cinquefoil, and aster. There is a decrease in browse and increase in woody species recruitment compared to the upper forks.

The third segment of Chippie Creek (approx. 1.7 miles) is rated as “PFC”. This segment and the included tributaries receive a considerable amount of livestock impact, but the channels are well protected by

willows and downfall and the open meadow areas maintain an excellent sedge cover. Beaver have had a major impact in the past, falling large aspen in several locations, providing added protection to stream stability.

Whiskey Springs Creek: Most of the stream's riparian/wetland area is vegetated with a variety of wetland woody and herbaceous species. Overall, there is a diverse age-class distribution and composition of riparian/wetland vegetation present. The vegetation also exhibits high vigor and there is an adequate amount of cover and stability to protect banks and dissipate energy during high flows. Most of Whiskey Springs Creek is in "PFC" (approx. 0.6 miles) and "FAR-up" (approx. 2.0 miles).

One small segment on Whiskey Springs Creek is considered "Non-Functional" (approx. 0.25 miles). A raw three to four feet deep gully was cut during the 2009 spring runoff. This segment of the stream has been severely set back ecologically. A few young willows have recently established in this segment, but most of the vegetation is mature or decadent riparian/wetland shrubs.

Leadore Allotment:

Big Timber Creek: A small segment of Big Timber Creek (approx. 0.1 mile) exists on public land in the North Pasture of the Leadore Allotment. This section has not been assessed using the PFC method, but seems to be in an upward trend. In the past, cattle were grazed season long in the North Pasture but for the past 5 years grazing has only occurred in the spring. Grazing prior to the hot season allows vegetation the remainder of the growing season to re-grow and reproduce, and over time, improve condition along the creek (Kovalchik and Elmore 1991; USDI-BLM 2006).

Allotments "Not meeting the Standard":

Chamberlain Creek Allotment: There are several undeveloped upland springs in the Chamberlain Creek Allotment. Most of these springs are very close to Eighteenmile Creek, Divide Creek, McGinty Creek, and Pass Creek, and are in the same condition as these streams.

Divide Creek: The upper section of Divide Creek (approx. 1.4 miles) above the private property in the South Eighteenmile Pasture, is rated as "PFC". This section of stream has a thick riparian/wetland vegetation cover and a rocky channel creating stable streambanks. The overstory cover includes Douglas-fir, aspen, Geyer willow, Booth willow, and coyote willow. The lower section of Divide Creek (approx. 2.0 miles) below the private property in the Big Bend Pasture, is rated as "FAR-static", and is completely dewatered from a stock-water irrigation system on private land. This limits the riparian community and Divide Creek is an intermittent channel with sagebrush and other upland species for most of its length down to Eighteenmile Creek.

Eighteenmile Creek: The stream crosses a patchwork of public, private and state lands. All of the stream segments on BLM (approx. 4.7 miles) are rated as "PFC". Eighteenmile Creek's riparian/wetland area is at its potential extent and is almost entirely undisturbed. In the headwaters reach, riparian/wetland vegetation along the stream is diverse in age class and composition. The species present include spruce, lodgepole pine, Geyer willow, Booth willow, coyote willow, aspen and sedges. These species maintain high vigor and have root masses capable of bank stabilization. The stream channel is also very rocky

which helps stabilize the banks. Some willow die-off has occurred in the past in the upper end of the stream with an unknown cause. Further downstream, the public land segments include a ¼-mile segment excluded from livestock at the McFarland Boulevard crossing which is in “FAR-up” trend condition. Additionally, there is a 0.3 mile segment excluded from the Powderhorn Allotment, Eighteenmile Flat Pasture; and about 0.7 miles excluded on the Center Ridge-‘A’ Pasture. Both these segments are in “PFC”.

McGinty Creek: The upper section of McGinty Creek (approx. 1.7 miles) consists of a series of springs at the base of a mountain ridge and is rated as “FAR-static”. The aspen/willow communities that do exist are mature or decadent and lacking a diverse age class of riparian/wetland vegetation. Only a few, if any, seedling or young aspen and willow are present near the stream. The area receives heavy summer livestock use and streambanks are being altered by livestock causing an increase in sedimentation and decreased bank stability. The streambank herbaceous community consists mainly of Kentucky bluegrass, that has a very short stubble height with very few sedges present. All riparian/wetland vegetation types are present near the stream which assist maintenance and/or recovery. The lower section of McGinty Creek (approx. 0.6 miles) on BLM, is below private property. This segment of stream is rated as “NF” due to the channel drying up from a combination of natural infiltration and a private stock-water diversion.

Pass Creek: The stream is rated as “FAR-static”. Most of the channel is located in a draw where there is not much potential for a very wide floodplain. However, once the draw widens and opens, the riparian/wetland area is maintaining its extent. The willows that are present are mature/decadent and only a small amount of young willow recruitment is occurring. Kentucky bluegrass is the main riparian/wetland herbaceous component with scattered patches of sedges/rushes. Upland shrubs (i.e. sagebrush) are growing very close to the stream channel in most areas. Riparian/wetland vegetation is grazed to short stubble height annually, and summer-long grazing has limited sedge, willow and aspen recruitment. The stream does consist of a good amount of boulders which is keeping streambanks stable. Pass Creek receives moderate to heavy grazing in the late summer each year.

Hawley Creek Allotment:

Hawley Creek: A small section of Hawley Creek (approx. 0.3 miles) from the Forest Service boundary to the irrigation diversion below the mouth of the canyon is rated as “PFC”. This section of the stream has a thick riparian/wetland vegetation cover and a rocky channel creating stable streambanks. The overstory cover includes Douglas-fir; Geyer, Booth, and coyote willow; water birch, aspen, scouringrush horsetail, tufted hairgrass, and sedges. The rest of the stream on public land (approx. 3.0 miles) is the natural channel below the irrigation diversion which dewateres the channel for most of the year. Irrigation practices have kept this segment dry for many years, however flows have been restored from November through April for the last 2 years. Recent winter flows do not show erosion and are favorably influencing riparian/wetland vegetation by displacing some of the sagebrush in the channel, allowing young willows to reestablish in several areas. This segment of stream is rated as “NF”. The apparent trend is upward from NF, and expected to continue as improved flow conditions will eventually restore PFC status to the segment.

Leadore Hill Allotment:

Big Timber Creek: The stream (approx. 2.0 miles) flows on the boundary of the Leadore Hill and Timber Creek Allotments. The stream is rated as “PFC”. There is a diverse age-class distribution and composition of riparian/wetland vegetation. The vegetation that exists maintains high vigor and is comprised of plants or plant communities that have root masses capable of withstanding high stream flows. The floodplain is regularly inundated above bank-full. The stream channel is controlled by boulders and riparian/wetland vegetation and little erosion is occurring. The stream is vertically stable and in balance with the water and sediment being supplied by the watershed.

Little Timber Creek: On the allotment, Little Timber Creek is completely dewatered (approx. 0.5 mile) from July through October due to an irrigation diversion at the upper allotment boundary. The dewatered channel is rated as “NF” due to lack of riparian/wetland vegetation and down cutting in some areas. A wet meadow in the lower portion, influenced by natural springs, is adjacent to the dry stream channel near the private boundary. This area is almost entirely covered with deep-rooted herbaceous species. Although the stream is dewatered, the channel near the meadow is maintaining riparian/wetland vegetation. This segment of stream is rated as “FAR-up”.

Leadville Allotment: Only one undeveloped spring exists on the Leadville Allotment. This spring is near the Hawley Creek ditch and has spring characteristics when the ditch is running water.

Canyon Creek: The stream is rated as “PFC” (approx. 2.0 miles) on the allotment. Canyon Creek is densely vegetated with Geyer, Booth, and coyote willows, water birch, aspen, beaked sedge, Kentucky bluegrass, currant, Wood’s rose, Basin wildrye, red top, aster, and common yarrow. Livestock impact along the stream is restricted by the density of willows and other shrubs. No evidence of erosion exists, and the stream is vertically stable and in balance with the water and sediment being supplied by the watershed.

Hawley Creek: See “Hawley Creek Allotment” above.

Nez Perce Allotment:

Deer Creek: The stream channel on the BLM is below an irrigation diversion and has been dry for many years. The streambed is filled with upland vegetation and no riparian/wetland vegetation exists along the stream. The stream is rated as “Non-Riparian”.

Negro Green Creek: The stream channel on the BLM is dry and is located below an irrigation diversion. Before the diversion was in place, Negro Green Creek could have flowed farther but the alluvial soils cause natural infiltration. There is no existing riparian/wetland vegetation present. The stream is rated as “Non-Riparian”.

Texas Creek: Most of Texas Creek on this allotment is on private lands. There is only approximately 1 mile on the BLM; 0.5 miles is below Highway Spring (see Spring Canyon Allotment below) and is rated as “PFC”, and the other 0.5 miles is broken up on three private/boundary corners. These corners are not fenced and livestock on private property are free to graze the BLM. These corners do have all riparian/wetland vegetation components, they just lack in age-class diversity and amount to maintain soil

moisture. Banks are stable on these corners, although some bank alterations/hummocking does exist. Rushes and sedges are growing on the “green-line” near the stream. These small sections of Texas Creek are rated as “FAR-static”.

Powderhorn Allotment: The Powderhorn Allotment includes many undeveloped upland springs. Most of these springs are in good ecological condition. They are at or near their potential size, extent, and permanence, and are dominated by riparian/wetland vegetation with proper age structure and diversity. There is minimal evidence of trampling or soil alteration by livestock, and soil moisture and stability is being maintained. A few upland springs in the allotment are moderately impacted by livestock. These spring areas are moderately reduced from their potential size, extent, and permanence. Bank alteration at these springs is also moderate and the vegetation recruitment is low.

Clear Creek: The upper reach of Clear Creek (approx. 2.0 miles) is rated as “PFC”. The stream is protected by steep terrain and forest vegetation for most of the upper reach length. Clear Creek’s spring source is located on BLM and is in good condition.

The segment of stream (approx. 0.65 miles) between the upper reach and a section of private property is rated as “FAR-down”. The stream has been destabilized and gullies are present in some areas, causing no floodplain inundation or sinuosity of the stream. This segment of Clear Creek is lacking riparian/wetland shrub and herbaceous vegetation. There is not an adequate amount of riparian/wetland vegetation to protect banks and dissipate energy during high flows. The streambanks are also lacking diverse age-class distribution and diverse composition of riparian/wetland vegetation.

Below the private property, Clear Creek is rated as “PFC” (approx. 0.6 miles). The stream is well protected with riparian/wetland shrubs. The lower end of this segment is characterized by a broad willow meadow. The topography becomes narrower on the upper end of this segment near the private property, and has a spruce, fir, and aspen overstory. Riparian/wetland vegetation includes Geyer, Booth, and coyote willow, currant, Nebraska sedge, beaked sedge, red top, Kentucky bluegrass, meadow barley, aster, and common yarrow.

Clear Creek is diverted below the PFC reach and is considered “Non-Riparian”. The irrigation channel is well protected with sedges and rushes and there is minimal livestock impact.

Poison Creek: The upper reach of Poison Creek consists of the main channel (approx. 0.8 miles), which is ephemeral, and a south fork (approx. 0.35 miles) of the stream. The south fork provides the majority of the stream flow for Poison Creek. The upper reach, including the south fork and main channel, is rated as “PFC” (approx. 2.0 miles). A dense willow and aspen stand is present and is well protected from livestock impacts. The floodplain is regularly inundated, and sinuosity, width/depth ratio, and gradient are in balance with the landscape. There is a diverse age-class distribution and composition of riparian/wetland vegetation present. The amount of sedges and willows present protect the streambank from erosion and limit access to the stream.

A small segment (approx. 0.7 miles) below the upper reach is rated as “FAR-static”. It is impacted by an old irrigation diversion that captures the flow into three gully-like reaches. In these reaches, where the

flow is forced down the irrigation ditch, the water table drops. Adjacent, formerly wet meadows have dried and shrunk in size, and the woody species are decadent.

Past slumping caused the old irrigation diversion to breach, allowing the flow to return to the natural channel. The stream is rated as “PFC” after the reconnection and until it reaches a private property boundary (approx. 0.6 miles). This segment maintains a dense cover of Geyer and Booth willows.

Ten Mile Creek: The upper reach of Ten Mile Creek is rated as “PFC” (approx. 1.4 miles). The reach is a series of distinct wet meadows that appear to be glacial cirques, which eventually open up to a large, natural amphitheatre. The flow is greatest between the Forest Service boundary and the lower end of the uppermost cirque. The second cirque, downstream, does not have a channel outlet and all the flow is subterranean from this cirque. There are other areas of no surface flow. Streambank vegetation includes: sedges, meadow barley, red top, tufted hairgrass, bearded wheatgrass; bluebells; and nettles. There is an overstory of Douglas-fir and aspen in some areas. Surface flow occurs in the channel below the upper meadows, but the majority of the water is still sub-surface. The channel is well protected by sedges, rushes, red top, and bearded wheatgrass.

Flows become subterranean again approximately 0.8 miles above private property. This segment is rated as “Non-Riparian” due to the almost non-existent channel and riparian/wetland vegetation, although there are a few areas within this segment that do have a defined channel and are vegetated by Basin wildrye.

Spring Canyon Allotment: Very few riparian/wetland areas exist on the allotment. A few wet meadow springs, including Highway Spring and Slaughterhouse Spring, and a few undeveloped springs are present on the allotment. The wet meadow springs are a good source of water and are impacted by livestock grazing. The vegetation in these meadows consists mainly of upland grasses, although a small amount of riparian/wetland grasses do grow on the green-line. The soil moisture and stability of the wet meadow springs are being maintained by the large amount of rocks in the soil. Soil erosion is occurring due to the low amount of riparian/wetland vegetation.

Texas Creek: The source of flow for Texas Creek exists on the Spring Canyon Allotment. This spring is named “Highway Spring” and is heavily impacted by livestock. Highway Spring consists mainly of upland herbaceous vegetation, although a small amount of sedge does grow along the green-line. The spring does consist of a large amount of rocks which is maintaining soil moisture and stability, although near the spring, heavy bank alteration with hummocking exists. The channel downstream of the spring is almost entirely comprised of sedge species, however near the spring the vegetation is almost entirely brook grass with only remnant sedges.

Tex Creek Allotment: Very few riparian/wetland areas exist on the allotment. A few undeveloped springs exist along with sections of Eighteenmile Creek and the Tex Creek ponds. The Tex Creek ponds are “non-functional” due to the lack of riparian/wetland vegetation and large amounts of soil erosion. The extent of these ponds is approximately 1-2 acres and consists mainly of upland vegetation. The riparian/wetland vegetation around the ponds is severely reduced causing instability of pond banks and decrease in the soil moisture of the site.

Eighteenmile Creek: Two small segments of Eighteenmile Creek are present on the allotment. One section is fenced-in with a piece of private property (approx. 0.25 miles) and is rated as “PFC”. This section consists of a healthy willow community with a riparian/wetland grass and forb understory. The other segment of Eighteenmile Creek on the allotment is rated as “FAR-static” (approx. 0.13 miles). The vegetation along the stream consists mainly of sagebrush and currants. Riparian/wetland grasses are found on the green-line but are heavily utilized. Riparian/wetland vegetation that does exist includes Kentucky bluegrass, red top, creeping meadow foxtail, bald spikerush, and meadow barley. Forb species include common yarrow, aster, and common dandelion. No evidence exists of any lateral erosion or down-cutting.

Timber Creek Allotment: Approximately 10 upland springs exist on the allotment. Segments of Big Timber Creek, Little Timber Creek and Basin Creek also exist on the allotment. The upland springs maintain a high existing vegetation community condition. A diverse age-class of riparian/wetland shrubs exists. Shrub recruitment is occurring in these areas; however the springs have not yet met their potential extant. Also, there is little alteration or erosion due to the amount of riparian/wetland grasses near the springs.

Big Timber Creek: Small segments of the stream (approx. 0.8 miles) are present on the allotment and are rated as “PFC”. See “Leadore Hill Allotment” above.

Little Timber Creek: Approximately 1.1 miles of Little Timber Creek is present on the allotment. Most of the stream (approx. 0.7 miles) is rated “PFC” on the allotment with the exception of approximately 0.4 miles which is rated as “NF” due to an irrigation diversion. Water flows in this segment until early summer, but then is diverted for private irrigation until fall. Only a few decadent species of riparian/wetland shrubs exist where the stream is rated as NF. Although some willow recruitment is occurring, most of the vegetation consists of upland shrubs and grasses. Some erosion is occurring on streambanks on this segment of Little Timber Creek due to the lack of riparian/wetland vegetation present. The channel is exceptionally rocky which contributes to adequately dissipating energy during high flows. The segment of stream rated as PFC maintains diverse age-class distribution and composition or riparian/wetland vegetation. The riparian/wetland area is widening and has hit its potential in most of the reach. Streambanks are vertically and laterally stable as rushes and sedge species are growing along the green-line and extending out. In addition, the channel is exceptionally rocky and contains a large amount of woody debris. Riparian/wetland vegetation growing in this segment includes Bebb willow, Booth willow, Geyer willow, coyote willow, cottonwood, sedges, Baltic rush, and aspen.

Swan Basin Creek: There are multiple undeveloped upland springs adjacent to the stream that maintains PFC. These springs have a diverse riparian/wetland plant community. They include large aspen stands with good recruitment and age-class diversity and are at or near potential size, extent and permanence. Swan Basin Creek is rated as “FAR-up”. Upstream of the BLM, a diversion for private irrigation exists on a section of private property. Also, historic grazing caused widening of the stream via livestock alteration and vegetation removal on or near the streambanks. The channel is narrowing and riparian/wetland grasses and shrubs are expanding on the green-line. There is a large amount of mature and decadent riparian/wetland shrubs and good recruitment of seedling shrubs, but a middle age-class of shrubs is absent. The channel is also very rocky which assists in stabilizing the banks and aids in

dissipating energy. The riparian/wetland area is widening, vegetation is exhibiting high vigor, and the stream is in balance with the water and sediment being supplied by the watershed.

Stream Channel/Floodplain (Standard 3)

“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.” (USDI 1997)

Stream channels and floodplains should dissipate energy of high water flows and transport sediment. Soils should support appropriate riparian/wetland species, allow water movement, sediment filtration, and water storage. Channels should not be entrenching. Also, width/depth ratio, gradient, sinuosity, and pool/riffle/run frequency should be appropriate for the valley bottom type, geology, hydrology, and soils. Streams should have access to their floodplain and sediment deposition should be evident. Streambanks should also be within an appropriate range of stability according to site potential.

For the majority of the allotments, the evaluation of Standard 3 in the CBT area came to the same conclusions as for Standard 2, and for the same reasons. Two exceptions are the Bull Creek and Tex Creek allotments. The Bull Creek Allotment is meeting Standard 2; however Standard 3 doesn’t apply because the allotment does not have a stream channel/floodplain for evaluation under Standard 3. The Tex Creek Allotment does not meet Standard 2 due to the riparian/wetland condition of the Tex Creek Allotment ponds; however the Tex Creek Allotment ponds do not have a stream channel/floodplain for evaluation under Standard 3. The only stream channel/floodplain in the Tex Creek Allotment is along Eighteenmile Creek, which is making progress towards meeting the Standard.

The final evaluation finding for all allotments in the assessment area toward meeting Standard 3 is summarized in table 7 below.

Table 7. Evaluation Finding for Standard 3.

Allotments “Meeting the Standard”			
Center Ridge	Jake’s Canyon		
Allotments “Not meeting the Standard, but making significant progress towards meeting”			
Free Strip	Leadore	Tex Creek	
Allotments “Not meeting the Standard”			
Chamberlain Creek	Hawley Creek	Leadore Hill	Leadville
Nez Perce	Powderhorn	Spring Canyon	Timber Creek
Allotments where the “Standard doesn’t apply”			
Bull Creek	Dump	Purcell Creek	Two Dot (Leadore Hill East Pasture)

Native Plant Communities (Standard 4)

“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.” (USDI 1997)

The CBT area includes eight classes of land cover as defined by BLM Idaho Instruction Memorandum No. ID-2009-053 (see map 6). Using the Northwest ReGap (USDI 2009) satellite-based vegetation layer, these classes are: Forest & Woodland (27%); Mesic Shrubland & Grassland (4%); Semi-desert Shrubland & Grassland (60%); High Montane Vegetation (4%); Sparse Vegetation & Natural Barren Areas (2%), Agriculture (2%); Urban & Other Developed Lands (1%); and Open water (<1%). This section will not discuss Agriculture, Urban & Other Developed Lands, or Open Water cover types since they are not considered native plant communities.

While most of the assessment area consists of intact native vegetation, a number of invasive, non-native species are present. These include spotted knapweed, cheatgrass, leafy spurge, houndstongue, nodding plumeless (musk) thistle, Canada thistle, and other less aggressive, yet non-native species such as Kentucky bluegrass and smooth brome. Despite localized areas of weed infestation (along travel routes and disturbed areas), much of the assessment area remains relatively weed-free.

Forest & Woodland

This land cover class includes natural vegetation dominated or characterized by tree species requiring environmental conditions of moderate moisture and temperature or which are only partially protected against desiccation. The CBT area contains approximately 95,728 acres of forested and woodland vegetation. Elevation, aspect, precipitation, and soil type are the primary determinants of forest and woodland distribution due to their influence on daily temperature extremes and available moisture for plant growth. Generally, persistent forest and woodland acres are found at higher elevations (above 7,000 feet) and on more mesic sites on north and east facing slopes within the CBT area. However, the ecotone (transition) between rangeland and forest communities can fluctuate significantly up or down slope depending on aspect. Drier south and west aspects often support rangeland communities to higher elevations, while north and east slopes support forest stringers lower into the valley. Productivity and growth rates of forest and woodland vegetation within the assessment area are relatively low compared to other regions within the larger Columbia River Basin, primarily because of limited precipitation.

Composition

Lowest-elevation forest and woodlands contain Douglas-fir, limber pine, curl-leaf mountain mahogany (rocky outcrops, slopes and ridges), and scattered Rocky Mountain juniper. As a result of fire exclusion over the past 100 years, the lower forest boundary has been creeping (encroaching) into what would be considered historically as rangelands. Given enough time these areas are slowly converting from range to forest/woodland communities as the result of tree canopy closure.

Mid-elevation forests are dominated by Douglas-fir. With increasing elevation, Douglas-fir gives way to mixed conifer communities of lodgepole pine, subalpine fir, and Engelmann spruce. Finally, whitebark pine is a minor type found at the highest forested elevations, generally above 8,600 feet, on windswept ridgelines.

Quaking aspen and black cottonwood are two hardwood tree species present within the CBT area, and are typically constrained to drainage bottoms and/or moist upland areas (seeps, springs, etc.). Stands of these species tend to be narrow (linear), and/or are usually small (less than five acres) and often have other tree species or mesic shrubs interspersed. In particular, the extent and integrity of the aspen cover type within the CBT area has been significantly reduced by wildland fire exclusion.

Structure

Forest and woodland acres within the CBT area can generally be described as multi-structured and multi-aged. The current stand structure and age-class distribution is primarily the by-product of forest succession coupled with a relatively successful fire suppression policy during the past 50-100 years. These factors have added significantly to an abundance of younger age- and smaller size-classes.

Historically, the preponderance of CBT area stands established and developed under a mixed-severity fire regime. Effects of variable burn severity included maintaining a fine-grained forest community mosaic across the forested extent. Elements of this mosaic were small stands dominated by various age structures of seral conifer species (Douglas-fir, lodgepole pine, limber pine, whitebark pine) and seral hardwoods such as aspen. Some stands experienced non-lethal underburns that maintained open understories by killing saplings and fire-sensitive species. Others experienced patchy fire mortality that gave rise to patchy tree regeneration including seral species. Occasional stand-replacement fires may have reduced the spatial diversity, but the varying distribution of seed sources and sprouting shrubs in the pre-burn mosaic probably enhanced variability in post-burn vegetation (Brown and Smith 2000). A fire effect near the lower forest boundary was to maintain seral grasslands, shrublands, and aspen groves by periodically removing most of the invading young Douglas-fir (Arno and Gruell 1986).

Vestiges of the historic, mixed-severity fire regime “effect” are still visible throughout the CBT area. However, the fine-grained community mosaic indicative of a functioning mixed-severity regime is slowly fading from the landscape as successional processes continue to coalesce and homogenize forest patches over time in the absence of fire.

Forest Health

In broad terms, a healthy forest is one that maintains desirable ecosystem functions and processes. Aspects of forest health include biological diversity; soil, air, and water productivity; resilience or resistance to natural disturbances; and the ability to provide for the needs of people.

The predominant forest health issue within the CBT area is reduced stand and tree vigor due to overstocking. Overstocking is primarily the result of fire exclusion since the early 1900's. Few of the forest stands within the CBT area have experienced the thinning, sanitation, and fuel-reducing benefits of mixed-severity fire since Euro-American settlement. In southwestern Montana, Arno and Gruell (1983) estimated a mean fire-free interval of only 41 years within similar habitat types.

The state of decreased forest vigor and overstocking within the CBT area is increasing the risk of tree mortality due to greater susceptibility to insects, disease and stand-replacing fire. Stand replacement (high-severity) fire potential is positively correlated to increases in the accumulation of dead material on the forest floor and increases in stocking density characteristic of forest stands within the CBT area.

Mountain pine beetle activity is currently at epidemic levels throughout the CBT area (see map 7) causing extensive mortality in lodgepole pine, whitebark pine and limber pine, and is most conspicuous in the Big Timber Creek and Grizzly Hill areas of the Salmon-Challis National Forest. During low beetle population levels, attacks are primarily on individual or small groups of trees under stress due to injury, drought, overcrowding, etc. However as beetle populations increase, attacks may involve most trees 8 inches diameter at breast height (dbh) or greater, regardless of their apparent health. Epidemic levels of infestation are expected to continue until suitable stand conditions have been exhausted.

Douglas-fir bark beetle activity is currently at elevated levels throughout the Douglas-fir forest type (see map 7) causing mortality to large, mature Douglas-fir where it occurs. Douglas-fir most susceptible to bark beetle attack are generally larger than 14 inches dbh; older than 120 years; growing in dense stands; or are weakened by drought, root disease, or defoliation.

Western spruce budworm defoliation is widespread within Douglas-fir, subalpine fir and Engelmann spruce stands of the CBT area (see map 7), causing extensive mortality in mid- and lower-canopy levels of those host species due to expansive areas with multi-storied stand structures. Generally western spruce budworm does not cause direct tree mortality, however it will predispose trees to attacks by other insects or diseases. Budworms grow more vigorously in stressed trees, and budworm populations can increase dramatically during drought conditions. Densely stocked and/or multi-storied stands with predominantly Douglas-fir or subalpine fir are at highest risk to budworm infestation.

Douglas-fir dwarf mistletoe and lodgepole pine dwarf mistletoe disease is conspicuous throughout the CBT area with significant areas being characterized as having 'heavy' infection levels as rated using the 6-class dwarf mistletoe rating system (Hawksworth 1977).

Mesic Shrubland & Grassland

This land cover class includes natural vegetation dominated or characterized by shrub and/or herb species requiring environmental conditions of moderate moisture and temperature or which are only partially protected against desiccation. For the CBT area most of the vegetation that falls into this type is considered riparian and is discussed under Standard 2.

Semi-desert Shrubland & Grassland

This land cover class includes natural vegetation dominated or characterized by shrub and/or herb species having structural or functional adaptations to prevent water loss by evaporation. The majority of the assessment area (60%) is mapped as this type. This land cover type includes various ecological sites. About a third of the semi-desert type is dominated by Wyoming big sagebrush with a bluebunch wheatgrass dominated understory, mostly in the lower, drier elevations near the town of Leadore. As the elevation and amount of precipitation increases, there is a shift to mountain big sagebrush with an Idaho fescue dominated understory. Again, this represents about a third of the semi-desert landscape. The other third is a mix of other vegetation types, with the majority of these being threetip sagebrush with an understory of Idaho fescue and low sagebrush with bluebunch wheatgrass. These two types tend to occur in the transition areas between the Wyoming big sagebrush sites and the higher elevation, moister sites that support mountain big sagebrush.

In the early 1980's, an Ecological Site Inventory (ESI) was completed in the assessment area. At that time about two-thirds of the semi-desert landscape was in "good" condition and a little less than a third was in "fair" condition. The rest was split between "excellent" and "poor" condition. An excellent condition community would have 76 to 100 percent of the kinds, amounts, and proportions of vegetation produced in the potential plant community; good, fair, and poor condition classes would have 51 to 75 percent, 26 to 50 percent, and 0 to 25 percent respectively of these factors (USDI 1987). Between 2006 and 2009, the Salmon Field Office of the BLM conducted rangeland health assessments (RHAs) on the allotments in the assessment area (see description of site locations under Standard 1). During these assessments, similar to the 1980's inventory, the BLM recorded seventeen indicators of rangeland health and how they departed from the "reference state" as described by the appropriate rangeland ecological site description (Pellant et al. 2005). There are two major differences that should be pointed out between the inventory of the 1980's, and the newer RHA method. First, the rangeland ecological site descriptions have been modified to better reflect the natural variation in a site. In the 1980's, the range sites were compared to the potential plant community only. Since that time, it has been accepted that a site in an early seral state can still be considered in excellent shape even though it is not at potential. For example, a wildfire in a healthy system will leave the site in an early seral condition, however the site will still characteristically move towards the potential plant community over time. Second, for each indicator, the departure from the site description is recorded, but it is not rated using the same method (e.g. good or fair) as in the 1980's inventory.

Of the seventeen indicators, nine are relevant to biotic integrity and thus native plant communities. Across the assessment area the majority of these nine indicators were considered to be a "none to slight" departure from expected, meaning that the sites were very similar to what was expected for those sites. Where departures did occur it was often because of the order of dominance of functional/structural groups on the sites and the annual production. Most sites, and thus most allotments (9), in the assessment area had a "none to slight" departure from expected for biotic integrity; five allotments had a "slight to moderate" departure; and three allotments had a "moderate" departure.

Indicator #12 (Functional /Structural Groups) was determined to be a "moderate" departure on three allotments (Hawley Creek, Jake's Canyon, and Leadville) and a "slight to moderate" departure on six allotments (Bull Creek, Free Strip, Leadore, Powderhorn, Spring Canyon, and Timber Creek). Functional/structural groups are a suite of species that are grouped together, on an ecological site basis, because of similar shoot (height and volume) or root (fibrous vs. tap) structure, photosynthetic pathways, nitrogen fixing ability, or life cycle (Pellant et al. 2005).

The Hawley Creek, Jake's Canyon, and Leadville allotments determined as having a "moderate" departure for this indicator are in the lower elevations of the assessment area on a gravelly loam soil type dominated by a Wyoming big sagebrush overstory and bluebunch wheatgrass understory. The site description for this ecological site (R012XY004ID) describes a site with a composition, by weight, of 55-70% grasses; 20-30% shrubs; and 5-15% forbs. However the composition by weight on all three allotments is currently dominated by shrubs. Within the grass component, the sites should be dominated by deep-rooted, perennial grasses (e.g. bluebunch wheatgrass). On both the Hawley Creek and Leadville allotments there has been a shift in the grass component from deep-rooted grasses to more shallow-rooted grasses (e.g. Sandberg bluegrass). Some causes for this shift could be improper grazing management and

lack of fire as a disturbance on the landscape. Of the six allotments that had sites with a “slight to moderate” departure, four (Bull Creek, Leadore, Spring Canyon, and Timber Creek) were also in the R012XY004ID ecological site. There were also shifts in composition on these sites, but to a lesser degree than on the allotments that were determined to be a “moderate” departure.

The Free Strip Allotment supports primarily mountain big sagebrush with an Idaho fescue understory on a loamy soil type. The site description for this ecological site (R012XY021ID) describes a site with a composition by weight of 50-70% grasses; 20-30% shrubs; and 10-20% forbs. It was determined that the composition on the allotment was dominated by shrubs. However, unlike with the “moderate” departure allotments, the grass component was still dominated by deep-rooted grasses and had not shifted in favor of the shallow-rooted grasses. As with the Wyoming big sagebrush sites, this shift to a higher composition could be due to things such as improper grazing management and lack of fire as a disturbance on the landscape.

The Powderhorn Allotment site was dominated by low sagebrush and bluebunch wheatgrass on a gravelly loam soil type. The site description for this ecological site (R012XY002ID) describes a site with a composition by weight of 50-60% grasses; 25-35% shrubs; and 10-15% forbs. Composition was as expected for the site; however within the grass component site dominance was shared between deep-rooted grasses and shallow-rooted grasses.

Indicator #15 (Annual Production) was determined to be a “moderate” departure on two allotments (Jake’s Canyon, and Leadville) and a “slight to moderate” departure on five allotments (Hawley Creek, Leadore, Powderhorn, Spring Canyon, and Timber Creek). The departure for this indicator parallels Indicator #12. Annual production, as used in this document, is the net quantity of above-ground vascular plant material produced within a year. It is an indicator of the energy captured by plants and its availability for secondary consumers in an ecosystem given current weather conditions. Production potential will change with communities or ecological sites, biological diversity, and latitude (Pellant et al. 2005). Sites generally had lower annual production due to shifts from deep-rooted grass dominance to sites with more shrubs and shallow-rooted grasses. Annual production by weight for shrubs and shallow-rooted grasses is less than for deep-rooted grasses. A “moderate” departure was determined if the shift was 40-60% compared to expected, and a “slight to moderate” departure was determined when the shift was 60- 80% compared to expected.

Other indicators with a “slight to moderate” departure include Indicator #14 (Litter Amount), #16 (Invasive Plants), and #17 (Reproductive Capability of Perennial Plants). Five allotments (Free Strip, Jake’s Canyon, Leadore, Leadville, and Spring Canyon) had a “slight to moderate” departure in the amount of litter on the allotment. This was due to the decrease in the amount of deep-rooted grasses on the sites which limited the amount of litter that could be produced. Two Allotments (Dump and Timber Creek) were a “slight to moderate” departure for invasive species. These sites had some cheatgrass present along abandoned ditches. Most of the cheatgrass was within the disturbed area. Two allotments (Jake’s Canyon and Leadore) had a “slight to moderate” departure for the reproductive capability of perennial plants. The apparent reproduction on the sites was less than expected and not uniform across the site.

High Montane Vegetation

This land cover class includes natural vegetation dominated or characterized by shrub and/or herb species having structural or functional adaptations to survive cold temperatures and resist frost damage. Most of this cover type within the assessment area is found on lands managed by the Salmon-Challis National Forest. The only BLM-managed allotments in the assessment area that have “high montane” vegetation are the Chamberlain Creek and Powderhorn allotments. These areas are located within the Eighteenmile WSA, high on the slopes near the Continental Divide.

Sparse Vegetation & Natural Barren Areas

This land cover class includes natural vegetation dominated or characterized by shrub, herb, or non-vascular plant species having structural or functional adaptations for living on rock surfaces or in rocky substrates. Vegetation is scattered or nearly absent; total vegetation cover, excluding crustose lichens, is generally 1-10% at the peak of the growing season. In addition, natural areas (undisturbed by man) where vegetation is generally less than 1% of the surface area are included. Most of this relatively rare cover type within the CBT area is found on lands managed by the Salmon-Challis National Forest at or above timberline on the Continental Divide and the Lemhi Range sides of the assessment area. The only BLM-managed allotments in the assessment area that have “sparse vegetation and natural barren areas” are the Chamberlain Creek and Powderhorn allotments. These areas are located within the Eighteenmile WSA, high on the slopes near the Continental Divide.

The final evaluation finding for all allotments in the assessment area toward meeting Standard 4 is summarized in table 8 below.

Table 8. Evaluation Finding for Standard 4.

Allotments “Meeting the Standard”			
Bull Creek	Center Ridge	Chamberlain Creek	Dump
Free Strip	Leadore Hill	Nez Perce	Powderhorn
Purcell Creek	Spring Canyon	Tex Creek	Timber Creek
Two Dot (Leadore Hill East Pasture)			
Allotments “Not meeting the Standard, but making significant progress toward meeting”			
Hawley Creek	Leadore		
Allotments “Not meeting the Standard”			
Jake’s Canyon	Leadville		

Allotments “Not meeting the Standard, but making significant progress toward meeting”:

Hawley Creek Allotment: Changes in management in recent years have allowed progress toward meeting the Standard. In May 2008, a grazing decision was issued for the Hawley Creek Allotment which stipulated that half the use in the allotment be moved from the growing season to fall use, after the grasses in the allotment would have completed their growth cycles. By moving some of the utilization of the allotment out of the critical growth period, the grasses in the allotment should improve in vigor and density.

Leadore Allotment: Changes in management in recent years have allowed progress toward meeting the Standard. In October 2008, a grazing decision was issued for the Leadore Allotment which called for resting the northern pasture for 3 years and then stipulating use to occur after the 15th of July in that pasture. This management is allowing the native grasses to complete the critical growth period without being utilized by domestic cattle. This is allowing the allotment to make significant progress towards meeting this standard.

Allotments “Not meeting the Standard”:

Jake’s Canyon Allotment: The allotment has shifted from the understory being dominated by deep-rooted bunch grasses, to the understory being dominated by shallow-rooted grasses. In Jake’s Canyon the allotment is dominated by shrubs. Grasses are considered sub-dominate and forbs are only a minor component on the allotment. The allotment should have more grass and forb species if it were meeting the Standard.

Leadville Allotment: The allotment has shifted from the understory being dominated by deep-rooted bunch grasses to the understory being dominated by shallow-rooted grasses. The allotment is dominated by shrubs. Grasses are considered sub-dominate and forbs are only a minor component on the allotment. The allotment should have more grass and forb species if it were meeting the Standard.

Seedings (Standard 5)

“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.” (USDI 1997)

There have been two seedings on BLM-managed lands in the assessment area that involved predominately non-native plants. The first was the Hawley Creek Seeding that took place in the Leadville Allotment in 1965. Approximately 180 acres of the allotment were plowed and drilled with a rangeland drill using 6 pounds of Nordan crested wheatgrass per acre. The second was the Tex Creek Seeding and involved two allotments; the Tex Creek Allotment and the Carlton’s Field pasture of the Powderhorn Allotment. In 1962, the two areas were seeded with crested and Siberian wheatgrass at 5 to 6 pounds per acre. A portion of this seeding, involving both allotments, was burned by a wildfire in 2000. This has resulted in that portion of the burn reverting back to an almost monoculture of wheatgrass.

The Carlton’s Field pasture portion of the seeding was evaluated in 2009, and the Tex Creek Allotment portion was evaluated in 2006. The seeding was a “none to slight” departure from what was expected, except for the actual species and litter on the site. Crested wheatgrass dominated the sites and had replaced the native bluebunch wheatgrass that should have been present if the seeding had not occurred. It was also felt that the sites had more litter than expected, again due to the amount of crested wheatgrass on the sites and the amount of litter that was being produced because of it. Except in the area that burned in 2000, the Wyoming big sagebrush expected for the sites has revegetated the sites. In fact, shrubs in the seeded area are a sub-dominate functional/structural group, as expected. The diversity and density of forbs in the seeding are not as expected, but they are a minor component of the vegetation composition in the pasture.

The final evaluation finding for all allotments in the assessment area toward meeting Standard 5 is summarized in table 9 below.

Table 9. Evaluation Finding for Standard 5.

Allotments “Meeting the Standard”			
Leadville	Powderhorn	Tex Creek	
Allotments where the “Standard Doesn’t Apply”			
Bull Creek	Center Ridge	Chamberlain Creek	Dump
Free Strip	Hawley Creek	Jake’s Canyon	Leadore
Leadore Hill	Nez Perce	Purcell Creek	Spring Canyon
Timber Creek	Two Dot (Leadore Hill East Pasture)		

Exotic Plant Communities, other than Seedings (Standard 6)

“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. (USDI 1997)

Standard 6 was developed specifically for those areas on BLM lands within the state of Idaho where invasion by exotic, non-native species (primarily cheatgrass and medusahead rye) has altered the ecosystem to a point where it is incapable of recovery without expensive rehabilitation. This situation does not occur anywhere within the CBT area; so this Standard does not apply.

The final evaluation finding for all allotments in the assessment area toward meeting Standard 6 is summarized in table 10 below.

Table 10. Evaluation Finding for Standard 6.

Allotments where the “Standard Doesn’t Apply”			
Bull Creek	Center Ridge	Chamberlain Creek	Dump
Free Strip	Hawley Creek	Jake’s Canyon	Leadore
Leadore Hill	Leadville	Nez Perce	Powderhorn
Purcell Creek	Spring Canyon	Tex Creek	Timber Creek
Two Dot (Leadore Hill East Pasture)			

Water Quality (Standard 7)

“Surface and ground water on public lands comply with the Idaho Water Quality Standards.” (USDI 1997)

In 1998, the Idaho Division of Environmental Quality (DEQ) in conjunction with Idaho BLM assessed water quality and identified a state-wide list (the “303(d)” list) of water quality-limited streams and water

bodies on Idaho public lands in response to section 303(d) of the Clean Water Act. Assessment of water quality on public lands is based on meeting beneficial uses with regards to stream/riparian habitat and using biological species as indicators. The DEQ subsequently published the *1998 Lemhi River Watershed Sub-basin Assessment* and the *1999 Lemhi River Total Maximum Daily Load (TMDL) Report* for streams included on the 1998 303(d) list, some of which also occur within the CBT area.

The DEQ updates the 303(d) list every two years, the most recent being in 2008, with publication of the *2008 Integrated 303(d)/305(b) Report*. Water bodies and streams within the CBT area that support beneficial uses and/or are water quality-limited (303(d)) are listed in tables 11 and 12 below.

Table 11. Water Bodies that Support Beneficial Uses in the Canyon-Big Timber Area.

Stream	Segment	Length (miles)
Big Timber Creek	Little Timber Creek to mouth	4.9
Little Timber Creek	source to diversion (T15N, R25E, Sec.	13.7
Little Timber Creek	source to diversion (T15N, R25E, Sec	1.6
Big Timber Creek	Rocky Creek to Little Timber Creek	9.6
Clear Creek	source to mouth	17.2
Tenmile Creek	Powderhorn Gulch to mouth	2.8
Hawley Creek	source to diversion (T15N, R27E, Sec. 3)	11.5
Canyon Creek	source to diversion (T16N, R26E, Sec.22)	8.8

Source: State of Idaho DEQ 2008 Integrated 303(d)/305(b) Report

Other monitoring relative to surface water quality in the CBT area includes DEQ’s Beneficial Use Reconnaissance Program (BURP) data, which are published in DEQ’s sub-basin assessments. The BLM also monitors water temperature and riparian and stream habitat indicators, and conducts some fish sampling in conjunction with the DEQ and the Idaho Department of Fish and Game (IDFG). Much of the DEQ identified limitations in the CBT area are related to private irrigation withdrawals which are non-discretionary to the BLM.

Table 12. Water Quality-Limited Streams and Water Bodies in the Canyon-Big Timber Area.

Stream	Segment	Impairment	Length (miles)
Texas Creek	All	Other flow regime alterations; Combined Biota/Habitat; Bioassessments; Sedimentation/Siltation; Fecal Coliform	14.9
Eighteenmile Creek	Hawley Creek to mouth	Low flow alterations; Temperature-water Added 3/27/2006	2.2
Eighteenmile Creek	Clear Creek to Hawley Creek	Temperature-water; Added 3/27/2006	8.4
Eighteenmile Creek	Divide Creek to Hawley Creek	Fishes; Bioassessments Temperature-water	6.0
Eighteenmile Creek	source to Divide Creek	Combined Biota/Habitat; Bioassessments	29.7
Canyon Creek	source to diversion (T16N, R26E, Sec. 22)	Combined Biota/Habitat; Bioassessments	70.1
Hawley Creek	diversion to mouth (T15N, R27E, Sec. 3)	Cause Unknown; Nutrients Suspected Impairment	2.2

Source: State of Idaho DEQ 2008 Integrated 303(d)/305(b) Report

The final evaluation finding for all allotments in the assessment area toward meeting Standard 7 is summarized in table 13 below.

Table 13: Evaluation Finding for Standard 7.

Allotments “Meeting the Standard”			
Free Strip	Leadore	Leadore Hill	Timber Creek
Allotments “Not meeting the Standard”			
Center Ridge	Chamberlain Creek	Hawley Creek	Jake’s Canyon
Leadville	Nez Perce	Powderhorn	Spring Canyon
Tex Creek			
Allotments where the “Standard Doesn’t Apply”			
Bull Creek	Dump	Purcell Creek	Two Dot (Leadore Hill East Pasture)

Allotments “Not meeting the Standard”:

Center Ridge: The allotment contains about 1.0 mile of Eighteenmile Creek (listed on 2008 DEQ Integrated Report). The stream channel segment on public land is in PFC and has received early season grazing for at least the previous 30 years. Livestock do impact the streambank stability, however the plants have most of the growing season to recover and therefore to reduce erosion and sedimentation into the stream. Conditions of the riparian community show no measurable negative impacts to water quality. The stream is also used extensively for private irrigation.

Chamberlain Creek: The allotment contains about 4.0 miles of Eighteenmile Creek (listed on 2008 DEQ Integrated Report). The stream channel segment in the WSA on public land is also in PFC with a strong community of shrubs and deep-rooted herbaceous plants. It has received light/incidental grazing for at least the previous 15 years. Livestock do impact the streambank stability, however the plants have most of the growing season to recover and therefore to reduce erosion and sedimentation into the stream. Conditions of the riparian community show no measurable negative impacts to water quality. The stream is also used extensively for private irrigation.

Hawley Creek: The allotment contains about 0.2 miles of Eighteenmile Creek and 3.0 miles of Hawley Creek (both listed on 2008 DEQ Integrated Report). The stream channel segment of Eighteenmile Creek on public land is in PFC with an upward trend of riparian shrubs and deep-rooted herbaceous plants. It has received light grazing mostly in the late spring for at least the previous 10 years. Livestock do impact the streambank stability, however the plants have most of the growing season to recover and therefore to reduce erosion and sedimentation into the stream. The stream is also used extensively for private irrigation. Hawley Creek has poor riparian conditions for most of the segment in the allotment and is in NF condition.

Jake's Canyon / Leadville: These allotments are adjacent to each other. Jake's Canyon has 0.3 miles on Canyon Creek and Leadville contains 2.3 miles on Canyon Creek (listed on 2008 DEQ Integrated Report). The stream channel segments on public land are in PFC with an upward trend of riparian shrubs and deep-rooted herbaceous plants. They have received light grazing mostly in the late spring for at least the previous 10 years. Livestock do impact the streambank stability, however the plants have most of the growing season to recover and therefore to reduce erosion and sedimentation into the stream.

Nez Perce: The allotment contains about 1.0 mile of Texas Creek on four individual parcels (listed on 2008 DEQ Integrated Report). The public land is grazed as part of a much larger private land grazing unit. The stream channel is in PFC for these segments. Approximately 1.25 miles of Deer Creek is in NF condition and is mostly a dry ephemeral channel on public land. The water is diverted into a private irrigation system from April through November each year.

Powderhorn: The allotment has two short segments of Eighteenmile Creek. The upper segment (0.25 miles) is at the McFarland Boulevard crossing and is in PFC. The second segment, also about 0.2 miles, is roughly 3 miles downstream and has been limited to light or no use since 1998, and is also in PFC. The stream is also used extensively for private irrigation.

Spring Canyon: The allotment includes some of the headwaters of Texas Creek (listed on 2008 DEQ Integrated Report). Most of these channels are intermittent/ephemeral but the Highway Spring located at the lower portion of the allotment is in NF condition and contributes excessive sediment and nutrients into upper Texas Creek.

Tex Creek: The allotment has two short segments of lower Eighteenmile Creek (listed on 2008 DEQ Integrated Report). The upper segment is 0.15 miles and is in FAR-static condition. This area receives moderate grazing in the early to mid-summer and has time during the growing season to have some vegetative recovery and streambank stabilization. The lower segment is also about 0.15 miles and in

PFC. This area is used less and has more deep-rooted hydric vegetation to stabilize streambanks and reduce erosion.

Threatened and Endangered Plants and Animals (Standard 8)

“Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.” (USDI 1997)

Habitat in the area supports mammals, birds, amphibians, reptiles, fish, and plants (upland and riparian). Some of these species are listed on the Idaho State Director’s list of sensitive species (May 20, 2003) and are the focus of this Standard. A “common-to-scientific name” crosswalk of all plant and animal species mentioned in this section can be found in Appendix A.

Mammals

Mammals within the CBT area include the Canada lynx, which is listed as threatened under the ESA; as well as gray wolf, pygmy rabbit, Townsend’s big-eared bat, fisher, and wolverine which are listed as sensitive species by the Idaho State Director of the BLM.

There is one Canada lynx Analysis Unit (LAU) comprising a total of approximately 39,074 acres of habitat within the planning area (497 BLM, 37,428 USFS, and 1,149 Private). Based on the Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al. 2000), forested lands within the assessment area do not provide primary lynx habitat since the forest vegetation is considered a “dry site,” which lacks adequate components for species reproduction and foraging. There are thirteen records of lynx occurring within the assessment area; they occurred mostly along riparian areas near private land. Sightings in the area were first recorded in the 1970’s and last recorded in the 1990’s. The mapped habitat is primarily secondary habitat since it is mostly dry Douglas-fir and lodgepole pine forest type.

Surveys for pygmy rabbits have been completed throughout most of the assessment area. Pygmy rabbits can be found throughout the area, with denser concentrations in the Wyoming big sagebrush type in the valley bottoms. Pygmy rabbits in the Canyon Creek and possibly Hawley Creek drainages probably help connect the Idaho population to the Montana population over the Continental Divide both physically and genetically.

Reports of wolves in the assessment area are increasing each year. Although the wolf population in the area continues to grow, there are no records of rendezvous or den sites within the assessment area. There are no records of Townsend’s big-eared bats or fisher in the assessment area. There are multiple records of wolverine within the assessment area. Most of the sightings are along State Highway 28, adjacent to Texas Creek. There are also records along the Continental Divide within the Eighteenmile WSA.

Birds

There are seventeen birds listed as Sensitive Species by the Idaho State Director for the BLM within the SFO area including the yellow-billed cuckoo, greater sage-grouse, bald eagle, peregrine falcon, ferruginous hawk, flammulated owl, prairie falcon, northern goshawk, calliope hummingbird, Lewis’s woodpecker, Williamson’s sapsucker, willow flycatcher, olive-sided flycatcher, loggerhead shrike, sage sparrow, Hammond’s flycatcher and Brewer’s sparrow.

Approximately 170,000 acres of land in the assessment area are currently identified as “key” greater sage-grouse habitat (see map 8). Within those acres, approximately 52,000 are mapped as nesting habitat; 38,000 as winter habitat; and 150,000 as summer habitat with overlap between the seasonal habitats. The Challis Sage-Grouse Local Working Group has included about 87,000 acres within the assessment area as the Upper Lemhi Priority Area; this is an area where the group felt there was a high priority for protection and restoration (Challis 2007). There are 10 leks mapped within the assessment area, including 2 lek routes used to help index the statewide population. The Upper Lemhi lek route had a maximum count of 231 males in the spring of 2006, but only 108 males counted in 2009. 2006 was an odd year for greater sage-grouse counts on the route. The number of birds on a single lek more than doubled that year from the years prior and after. Researchers do not know where the birds came from or where they went. Other than 2006, the highest lek count was 137 males in the spring of 2002. The other lek route in the assessment area is the Leadore East lek route, which had a maximum count of 55 in 2009.

Within each allotment where nesting habitat for the greater sage-grouse occurs, a breeding habitat assessment was completed. This assessment rates habitat as “unsuitable”, “marginal” or “suitable” for greater sage-grouse nesting. Three allotments do not have nesting habitat due to elevation, slope, habitat type or distance from known leks. These allotments are Free Strip, Nez Perce, and Purcell Creek. Three allotments were rated as “suitable” habitat; they are: Center Ridge, Spring Canyon and the Leadore Hill East pasture of the Two Dot Allotment. Most of the allotments (eleven) were rated as “marginal”; they are: Bull Creek, Chamberlain Creek, Dump, Hawley Creek, Leadore, Leadore Hill, Leadville, Powderhorn, Tex Creek, and Timber Creek. Most of these allotments were rated as marginal instead of suitable due to either the average grass height or the average sagebrush height on the allotment not meeting the “suitable” threshold. In the Powderhorn and Tex Creek allotments, the marginal rating was due to a lack of forb diversity and sagebrush canopy cover in the crested wheatgrass seedings. Jake’s Canyon was rated unsuitable for greater sage-grouse nesting habitat due to grass and forb heights, sagebrush canopy cover and diversity. The allotment is across the highway from the nearest known greater sage-grouse lek, but the allotment should be providing at least marginal habitat for nesting sage-grouse, which it is not currently.

There are six raptor species which are considered sensitive by the BLM that may occur in the assessment area. Bald eagle activities within the assessment area are concentrated along the Lemhi River, near the town of Leadore between late fall and early spring, but principally during the winter. These bald eagles generally utilize cottonwoods in the valley bottom, although conifers may provide perch or roosting sites. While lower valley bald eagles principally forage on fish and waterfowl, those found in the assessment area are likely feeding more on animals that are winter-killed or vehicle mortalities. There are no known bald eagle nests within the assessment area. There are also records within the assessment area of northern goshawk and ferruginous hawk. The northern goshawk sightings are in the Douglas-fir portion of the forest habitat and have been located primarily on Forest Service-managed lands. The ferruginous hawk sighting was on BLM-managed lands in the sage-steppe flats near Eighteenmile Creek.

Most migratory bird use is limited to the summer period due to the cool climate, low precipitation, and harsh fall, spring, and winter month conditions in the assessment area. Birds arrive during late spring (April/May) and migrate from the area in early fall (August/September). The species present during

summer are most likely breeding and rearing young. They leave as the weather changes in late summer. A few species are present during the wintertime, including the bald eagle and greater sage-grouse.

Suitable habitat for the yellow-billed cuckoo is considered to be a “large block” (a minimum of 25 acres to upwards of 99 acres) of cottonwood canopy and a thick willow understory (Federal Register 2001). This type of habitat is not present in the SFO area. The only acknowledged sightings of yellow-billed cuckoo in the SFO area were reported at a backyard feeder just north of the city of Salmon. The bird was likely a migrant, vagrant, or transient bird since the sighting-habitat lacked the “preferred” vegetative composition. Within the assessment area there are some cottonwood galleries near the town of Leadore, but the size of the galleries would not be as large as a yellow-billed cuckoo would prefer. The other nine sensitive bird species could occur in the assessment area, and probably do, though records of their occurrence are lacking.

Amphibians and Reptiles

One amphibian, the western toad, and one reptile, the common garter snake, are on the Idaho BLM State Director’s Sensitive Species list for the assessment area. The western toad has been recorded in the Hawley Creek drainage on Forest Service- managed lands and may occur in other wet areas throughout the assessment area. The common garter snake is not expected to be found within the assessment area. There are very few records of snakes in the assessment area, and no records of the common garter snake.

Fish

Fish species within the CBT area include the Chinook salmon, steelhead, and bull trout (see map 9), which are listed as “threatened” under the ESA; as well as the westslope cutthroat trout, which is listed as a sensitive species by the Idaho State Director of the BLM. Table 14 summarizes distribution of Threatened, Endangered, and Sensitive (TES) fish species and designated critical habitat found within the CBT area.

Distribution of TES fish species in the CBT area has been reduced from the historic extent. Fish access from the Lemhi River to the tributary streams is limited from the historical ranges mostly due to irrigation/diversion practices that started in the 1870’s and that continue today. Habitat has also been modified via historical grazing practices, beaver removal, mining and other activities. Additionally, bull trout may have been limited during this period due to increased water temperatures in the lower reaches of the streams.

The introduction of eastern brook trout into the system has further affected bull trout, as these two species interbreed, producing sterile offspring. Brook trout are also more aggressive and likely to out-compete bull trout for food and cover, especially in the lower elevation, warmer stream reaches.

Table 14. TES Fish Species Distribution and Critical Habitat within the CBT area.

Species	Drainage/Stream				
	Canyon	Hawley	Eighteenmile	Texas	Big Timber
Chinook	NP - Historic	NP - Historic	NP - Historic	NP - Historic	NP - Historic
DCH	Yes	Yes	Yes	Yes	Yes
Steelhead	NP - Historic	NP - Historic	NP - Historic	NP - Historic	NP - Historic
DCH	No	No	No	Yes	No
Bull Trout	Present - Rough Canyon Cr only (headwaters)	Present – found on FS only	Present – Headwaters & Clear Cr only	Present – Deer Cr only	Present
DCH-P	Yes	Yes	Yes	Yes	Yes
Cutthroat Trout	Present	Present	Present	Present	Present

NP - Historic = Not currently present but was historically present.

DCH = Designated Critical Habitat

DCH-P = Designated Critical Habitat- Proposed

Redband/resident rainbow trout and westslope cutthroat trout are found in almost every stream reach in the assessment area. Cutthroat trout are on a decline throughout their range due to habitat loss, dewatering, sedimentation, and competition from introduced species. Some of these introduced species, such as rainbow trout from out-of-basin, have affected the genetics of cutthroat stocks. Rainbow and cutthroat trout can tolerate warmer conditions and have remained throughout much of the assessment area. Streams and high mountain lakes within the sub-basin have been stocked by various individuals and government agencies throughout the last century. Idaho Department of Fish and Game (IDFG) started a regular stocking program in the late 1960's. They have planted five species of game fish of various strains and stocks during the last 25 years.

Private irrigation diversions are common in the CBT area. These can originate on public or private lands and often create a lower volume in the stream channel or dewater a stream segment completely. Specific stream segments with fish that are usually impacted this way on public land include Hawley, Eighteenmile, Tenmile, Clear and Deer Creeks.

The following grazing allotments within the CBT area contain a portion of a stream occupied by either resident fish or TES fish species: Leadville, Hawley Creek, Powderhorn, Chamberlain Creek, and Center Ridge.

The Free Strip Allotment does not have habitat for fish. Both Chippie and Whiskey Springs Creek are non-fish bearing streams too small to provide habitat. Chippie Creek flows into a pond before it reaches a private parcel and then into Canyon Creek. Whiskey Springs Creek is intermittent and mostly dry at the lower end. The closest bull trout habitat is in Rough Canyon Creek a tributary of Cruikshank Creek. The closest Chinook salmon and steelhead habitat is downstream in the Lemhi River.

Plants- Upland

Upland plant species in the CBT area listed as sensitive species by the Idaho State Director of the BLM include the plains milkvetch, Salmon twin bladderpod, and Lemhi penstemon (see map 10). Plains milkvetch and Salmon twin bladderpod are primarily found on sloped habitats of barren knolls, rocky outcrops, scree and talus at mid elevations amongst sagebrush habitats (Craig and Craig 1996; Ladyman 2004). Lemhi penstemon is found in the interface between semi-desert shrubland and grassland, and forest and woodland cover types (Elzinga 1997) (see table 15).

Plains milkvetch is a perennial found on habitat of loose unconsolidated scree or semi barren rocky domes associated within larger sagebrush steppe communities. Vegetative cover is usually 15-30%. Soils are usually reddish sandy-clay soils with some surface gravel or gravelly outwash fan. Plant species associated with plains milkvetch include various sagebrush species, green rabbitbrush and other rabbitbrush species, biscuitroot, penstemons, locoweeds, other milkvetches, prickly phlox, buckwheats such as railroad canyon buckwheat, parsnip flowered buckwheat, and cushion buckwheat. Associated grasses include needle and thread, Indian ricegrass, and prairie Junegrass (Ladyman 2004). Plains milkvetch is found in the Hawley Creek Allotment.

Salmon twin bladderpod is a perennial, primarily found on south facing slopes of natural barren area habitats, such as knolls, rocky outcrops, scree and talus at mid elevations where rock coverage can be as much as 80% or higher. Parent material is Challis volcanics and can be andesite, latite and rhyolite flow material. Commonly associated plant species include bluebunch wheatgrass, Douglas' dustymaiden, silverleaf phacelia, and tufted evening primrose. It may also be associated with basin big sagebrush, which can grow where soil and water accumulate at the base of barren slopes or along roads (Craig and Craig 1996). Salmon twin bladderpod is found in the Leadville Allotment.

Lemhi penstemon is a short-lived perennial found in early seral habitats with soil from parental volcanics, granites, dolomites, and limestone. The soils are usually shallow and can be clay to sandy loams with coarse rocky components. It occurs on all aspects. Lemhi penstemon can be found in forest and woodland, mesic shrubland and grassland, or semi-desert shrubland and grassland. In forest and woodland areas it is mainly found in open, grassy patches. It may inhabit disturbed areas, open xeric grasslands and mountain sagebrush sites with sulphur-flowered buckwheat, lupines, fernleaf biscuitroot, nineleaf biscuitroot, and bluebunch wheatgrass. Fire can help maintain open Lemhi penstemon habitat within the shrub steppe and open woodland landscape (Elzinga 1997). Lemhi penstemon is found along Canyon Creek within the BLM Free Strip Allotment, and along Tenmile and Clear Creeks in the Powderhorn Allotment.

Other sensitive upland plants found within the CBT area, but not on BLM-managed land, include a boreal subalpine tree, the white spruce. The white spruce is found within the high montane vegetation land cover class, which is managed by the USFS in the Lemhi Mountains. It usually occurs in subalpine forests at tree line and in cool moist ravines among other spruce and fir species. Idaho is at the southern end of this tree's range in the North American west. Although the white spruce has not been located on BLM-managed lands within the CBT area, it may occur in the higher elevations of the Eighteenmile WSA.

Table 15. Habitat and Known Occurrence of Upland Sensitive Plant Species within the CBT Area.

Sensitive Plant Species	Habitat and Known Occurrence within the Assessment Area
Plains milkvetch	Barren knolls, scree, rocky outcrops. Known to occur in the BLM Hawley Creek Allotment.
Lemhi penstemon	Early seral habitats and areas of disturbance in dry grasslands, sagebrush steppe, and open Douglas-fir/grasslands. Known to occur in BLM Free Strip and Powderhorn Allotments.
Salmon twin bladderpod	Mid-elevation talus slopes in sagebrush foothills. Known to occur in the Leadville Allotment.

The upland sensitive plant species listed in table 15 prefer open habitat. Lack of disturbance may allow shrubs and trees to encroach on this habitat, thus increasing competition for light, water, and nutrients. Fire can help reduce competition and can help maintain these open habitats. These species are easily outcompeted for light, water, and nutrients by invasive, non-native species, such as cheatgrass, spotted knapweed, leafy spurge, Canada thistle, and nodding plumeless (musk) thistle. These invasives are known to be in moderately close proximity to sensitive plant populations and habitats. There are infestations of spotted knapweed within 1/4 mile of plains milkvetch and Salmon twin bladderpod; infestations of leafy spurge within 1/4 mile of Salmon twin bladderpod; and infestations of nodding plumeless (musk) thistle within 1/4 mile of plains milkvetch.

Plants- Riparian and Wetland

Riparian and wetland plant species in the assessment area include the meadow milkvetch, alkali primrose, pink agoseris, and hoary willow, which are listed as sensitive species by the Idaho State Director of the BLM (see map 10). These species inhabit mesic shrublands and grasslands that contain components of herbaceous wetlands (see table 16).

Meadow milkvetch and alkali primrose are perennials that inhabit wetland sites containing a peat-based soil layer that is basic in pH and considered a fen or alkaline wet meadow. Streams and springs are usually interwoven through the wetlands. Other common plants associated with these wetland species are gray and Sitka alders, water birch, redosier dogwood, cottonwoods, willows, simple kobresia, and other hydrophytic graminoids (Decker *et al.* 2006). Meadow milkvetch is found on BLM-managed lands along Eighteenmile Creek. Alkali primrose is found in the Nez Perce Allotment and on BLM-managed lands along Eighteenmile Creek.

The perennial herb pink agoseris is located in the mesic shrubland and grassland land cover type. It prefers sunny, open sites that have perennially moist soils that may be neutral or acidic in nature. Commonly associated plants are hydrophytic grasses such as Kentucky bluegrass, sedges, and rushes. Pink agoseris is found in the Chamberlin Creek Allotment.

The shrub or sub-tree hoary willow prefers alkaline wetlands and associated springs found within the mesic shrubland and grassland land cover type (Moseley 1992). Other common plants associated with this wetland shrub are gray and Sitka alders, redosier dogwood, cottonwood, meadow milkvetch, simple

kobresia, and other hydrophytic graminoids (Decker *et al.* 2006). Hoary willow is found on BLM-managed lands along Eighteenmile Creek.

Other sensitive riparian and wetland plants that have been found within the CBT area, but not on BLM-managed lands, include marsh felwort, false mountain willow, pale sedge, and white spruce. These species are located on private, state, and Forest Service-managed lands within the CBT area. These species are found in peat wetlands and riparian sites associated with mesic shrubland and grassland land cover types. Marsh felwort and false mountain willow prefer fens in similar habitat to the hoary willow and alkali primrose (Henderson 1981). The hydrophytic pale sedge is more flexible in its pH preference and tolerates both acidic and basic bogs commonly known as fens (Caicco 1988). The white spruce is also found in peatland valleys, in addition to the upland, alpine habitat described above (Bursik and Moseley 1992). Although the above species have not been located on BLM-managed lands within the assessment area, suitable habitat exists on BLM-managed land.

Table 16. Habitat and Known Occurrence of Riparian and Wetland Sensitive Plant Species within the CBT Area.

Sensitive Plant Species	Habitat and Known Occurrence within the Assessment Area
Pink /Mill Creek agoseris	Wet meadows with the soil saturated throughout the growing season. Found along Eighteenmile Creek.
Meadow milkvetch	Moist and mesic soils in alkaline meadows along spring fed creeks. Found along Eighteenmile Creek.
Alkali primrose	Spring-fed alkaline wet meadow systems. Found along Texas and Eighteenmile Creek.
Hoary willow	Moist and mesic soils in alkaline meadows and peat bogs along spring fed creeks. Found along Texas Creek and Eighteenmile Creek.

The sensitive plant species described in table 16 are not tolerant of large changes in hydrology from direct anthropogenic actions or climate change (Decker *et al.* 2006). These species are also intolerant of invasive, non-native plant competition. Invasive, non-native plants in moderately close proximity to wetland sensitive species are whitetop and Canada thistle. Whitetop infestations are known to occur within 1/4 mile of alkali primrose, hoary willow, and meadow milkvetch populations. Pink agoseris and other natives in wet meadows are vulnerable to habitat encroachment from the non-native common dandelion, Kentucky bluegrass, and smooth brome.

The final evaluation finding for all allotments in the assessment area toward meeting Standard 8 is summarized in table 17 below.

Table 17. Evaluation Finding for Standard 8.

Allotments “Meeting the Standard”			
Bull Creek	Center Ridge	Dump	Free Strip
Jake’s Canyon	Leadore Hill	Purcell Creek	Spring Canyon
Two Dot (Leadore Hill East Pasture)			
Allotments “Not meeting the Standard, but making significant progress toward meeting”			
Leadore ^{1,2,3,4}	Tex Creek ²		
Allotments “Not meeting the Standard”			
Chamberlain Creek ²	Hawley Creek ²	Leadville ²	Nez Perce ^{2,3}
Powderhorn ²	Timber Creek ^{2,3,4}		

¹ Allotment is not meeting for greater sage-grouse

² Allotment is not meeting for bull trout

³ Allotment is not meeting for steelhead

⁴ Allotment is not meeting for Chinook salmon

Allotments “Not meeting the Standard, but making significant progress toward meeting”:

Leadore: Habitat in the allotment is marginal for the greater sage-grouse. The lack of sagebrush canopy and canopy height, as well as the diminished forb canopy and grass height make the allotment marginal for sage-grouse. While the nearest lek is on the west side of Big Timber Creek, the allotment should have better habitat for sage-grouse. The grazing decision issued in October of 2008 called for resting the northern pasture for 3 years and then permitting use to occur after the 15th of July in that pasture. This management is allowing the native grasses to complete the critical growth period without being utilized by domestic cattle. This is allowing the allotment to make significant progress towards providing suitable habitat for the greater sage-grouse and meeting this standard.

Grazing occurs along approximately 300 feet of Big Timber Creek on public land. This parcel was historically utilized with the adjacent private lands for most of the year, leaving the stream/riparian condition in a poor condition. Since about 2006, the allotment is used in the late-spring and early summer in the pasture containing Big Timber Creek and is showing improvement. The stream segment has some mature cottonwoods and alders that are expected to continue to stabilize habitat and provide for young plant recruitment.

Tex Creek: With regard to TES fish, the segments on lower Eighteenmile Creek were historically heavily grazed. These two segments have benefitted from a change in the irrigation practices on the Oxbow and Drake Ranches which now leave more water in the stream channel. These areas were completely dewatered in many summers and now with year-round flow, the stream/riparian habitat has improved substantially. The upper segment is now in PFC with numerous willows and carex reestablishing. The lower site is in FAR-static trend and also has hydric riparian vegetation reestablishing, but has an entrenched channel.

Allotments “Not meeting the Standard”:

Chamberlain Creek Allotment: The allotment has made great improvements from the historical conditions of Eighteenmile Creek in the WSA where bull trout occur. The continuation of this area being grazed very lightly from livestock is expected to continue to maintain and improve PFC. Pass Creek, a very small tributary stream to Eighteenmile Creek, also has a few bull trout. This stream has been completely isolated from Eighteenmile Creek by a private irrigation diversion. In 2009, the stream was allowed to resume flow towards Eighteenmile Creek but has not yet formed the channel to complete the reconnection. The grazing on Pass Creek has been in late summer for the past 50 years or more and the stream lacks some of the expected hydric vegetation. Much of the stream has mature willow and scattered aspen with a limited sedge/rush community. The stream habitat for bull trout is not providing the appropriate components for spawning and rearing habitat.

McGinty Creek is a small spring-fed stream near the headwaters and an intermittent channel for the lower end. The stream often dewater naturally and goes subsurface. In the upper reaches, livestock graze the riparian areas heavily throughout the summer and have reduced the riparian plant community significantly. Although much of McGinty Creek is on private land, the public land portions contribute excessive sediment into Eighteenmile Creek further downstream and eventually on into the Lemhi River.

Hawley Creek Allotment: The allotment contains a segment of Hawley Creek which contains bull trout further upstream on National Forest lands. Most of this segment is dewatered from private irrigation diversions and does not provide suitable habitat for fish. BLM has no discretion over this activity.

Leadville Allotment: The allotment contains a portion of Canyon Creek which is in PFC and meeting the Standard for TES fish. The allotment contains a segment of Hawley Creek which contains bull trout further upstream on National Forest lands. Most of this segment is dewatered from private irrigation diversions and does not provide suitable habitat for fish. BLM has no discretion over this activity.

Nez Perce Allotment: The allotment contains a segment of Deer Creek which provides habitat for bull trout further upstream on National Forest land. The segment on BLM is dewatered for most of the year from a private irrigation diversion. BLM has no discretion over this activity.

Powderhorn Allotment: The allotment contains a segment of Clear Creek which contains bull trout further upstream on BLM and private lands. Most of this segment is dewatered from private irrigation diversions and does not provide suitable habitat for fish. BLM has no discretion over this activity.

Timber Creek Allotment: The allotment contains a portion of Big Timber Creek which is in PFC and meeting the Standard for TES fish. It also contains a portion of Little Timber Creek below a series of irrigation diversions which dewater the stream during most summer/fall periods. This has severely impacted stream/riparian habitat and is non-discretionary to the BLM.

Idaho Standards for Rangeland Health- Evaluation Summary

Table 18 summarizes the results of the Standards and Guides evaluation process by allotment. Allotments meeting all applicable Standards are: Bull Creek, Dump, Purcell Creek, and the Leadore East Pasture of the Two Dot Allotment. Allotments meeting, or making progress toward meeting, all applicable Standards are: Free Strip and Leadore.

Table 18: Summary of Standards and Guides Evaluation by Allotment.

Allotment	Std 1	Std 2	Std 3	Std 4	Std 5	Std 6	Std 7	Std 8
Bull Creek	Met	Met	N/A	Met	N/A	N/A	N/A	Met
Center Ridge	Met	Met	Met	Met	N/A	N/A	Not Met	Met
Chamberlain Creek	Met	Not met	Not met	Met	N/A	N/A	Not Met	Not met ²
Dump	Met	N/A	N/A	Met	N/A	N/A	N/A	Met
Free Strip	Met	Not met; progress	Not met; progress	Met	N/A	N/A	Met	Met
Hawley Creek	Met	Not Met	Not Met	Not met; progress	N/A	N/A	Not Met	Not met ²
Jake's Canyon	Met	Met	Met	Not met	N/A	N/A	Not Met	Met
Leadore	Met	Not met; progress	Not met; progress	Not met; progress	N/A	N/A	Met	Not met; progress ^{1, 2,3,4}
Leadore Hill	Met	Not Met	Not met	Met	N/A	N/A	Met	Met
Leadville	Met	Not Met	Not Met	Not Met	Met	N/A	Not Met	Not met ²
Nez Perce	Met	Not Met	Not Met	Met	N/A	N/A	Not Met	Not met ^{2,3}
Powderhorn	Met	Not Met	Not Met	Met	Met	N/A	Not Met	Not met ²
Purcell Creek	Met	N/A	N/A	Met	N/A	N/A	N/A	Met
Spring Canyon	Met	Not Met	Not Met	Met	N/A	N/A	Not Met	Met
Tex Creek	Met	Not Met	Not met; progress	Met	Met	N/A	Not Met	Not met; progress ²
Timber Creek	Met	Not Met	Not Met	Met	N/A	N/A	Met	Not met ^{2,3,4}
Two Dot (Leadore E. Past.)	Met	N/A	N/A	Met	N/A	N/A	N/A	Met

¹ Allotment is not meeting Standard 8 for greater sage-grouse.

² Allotment is not meeting Standard 8 for bull trout.

³ Allotment is not meeting Standard 8 for steelhead.

⁴ Allotment is not meeting Standard 8 for Chinook salmon.

Allotments that are currently not meeting, or making progress toward meeting, all applicable Standards are: Center Ridge, Chamberlain Creek, Hawley Creek, Jake's Canyon, Leadore Hill, Leadville, Nez

Perce, Powderhorn, Spring Canyon, Tex Creek, and Timber Creek (see map 11). These eleven allotments require an Authorized Officer's "determination" to document the causal factors for not achieving the Standards; this will be completed in a subsequent Determination document.

Recommendation for Management Objectives

The ID team has reviewed all of the information presented in this document and has prioritized the following objectives for project development; appropriate analysis under the NEPA; and implementation. These objectives were created to mitigate or rectify priority issues that have been discussed earlier in this document. Objectives that are required to move towards meeting the Standards are specified. Other objectives, while important for improving the CBT area, are not necessarily needed for an allotment to move towards meeting the Idaho Standards for Rangeland Health.

Site Specific

Non-native vegetation (none are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Protect pink agoseris in the Chamberlain Creek Allotment from competition from non-native plants.
- 2) Eradicate or reduce bulbous bluegrass where it is present along Tenmile Creek in the Powderhorn Allotment.
- 3) Eradicate or reduce leafy spurge where it is present in the Canyon Creek drainage. This includes the BLM Jake's Canyon and Leadville allotments and the SCNF Grizzly Hill Allotment.
- 4) Eradicate or reduce spotted knapweed where it is present in the Gilmore area. This includes the BLM Spring Canyon Allotment and the SCNF Gilmore Allotment.

Forest and Woodland (1 and 2 are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Reduce conifer encroachment into aspen stands along Clear Creek in the Powderhorn Allotment.
- 2) Improve regeneration survival in aspen stands in the Chamberlain Creek Allotment.
- 3) Reduce the wildfire hazard around private land in the BLM Spring Canyon Allotment and the SCNF Gilmore Allotment.
- 4) Reduce conifer encroachment into aspen stands along Big Timber Creek in the Timber Creek Allotment.
- 5) Improve regeneration survival in aspen stands in the SCNF Grizzly Hill Allotment.
- 6) Reduce the wildfire hazard and improve forest health in the SCNF Grizzly Hill and Mollie Gulch allotments.
- 7) Reduce conifer encroachment into aspen stands in the SCNF Swan Basin Allotment.

Mesic Shrubland and Grassland (Riparian) (1 through 7 are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Improve riparian habitat along Clear Creek from “FAR- down” to at least an upward trend in the Powderhorn Allotment.
- 2) Improve riparian habitat along Pass Creek from “FAR-static” to at least an upward trend in the Chamberlain Creek Allotment.
- 3) Improve riparian habitat along McGinty Creek from “NF” and “FAR-static” to at least an upward trend in the Chamberlain Creek Allotment.
- 4) Improve riparian habitat around the Tex Creek ponds in the Tex Creek Allotment.
- 5) Improve riparian habitat along Texas Creek from “FAR-static” trend to at least an upward trend in the Spring Canyon Allotment.
- 6) Improve riparian habitat along Whiskey Spring and Chippie Creeks from “NF”, “FAR-down”, and “FAR-static” to at least an upward trend in the Free Strip Allotment.
- 7) Improve riparian habitat at Poison Spring in the Center Ridge Allotment.

Semi-desert Shrubland and Grassland (1 and 2 are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Increase the cover of bluebunch wheatgrass and the diversity and cover of forbs within the Leadville Allotment, while maintaining Wyoming big sagebrush.
- 2) Increase the cover of bluebunch wheatgrass and the diversity and cover of forbs within the Jake’s Canyon Allotment, while maintaining Wyoming big sagebrush.
- 3) Reduce conifer encroachment into mountain big sagebrush in the BLM Spring Canyon Allotment and the SCNF Gilmore Allotment.

Infrastructure (none are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Prevent water from eroding road in the Chamberlain Creek Allotment.
- 2) Adjust fences for wildlife needs in the Bull Creek and Hawley Creek allotments.
- 3) Adjust private/BLM allotment fences in the Leadore Allotment.

Archeology (none are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Protect archeological site from disturbance in the Hawley Creek Allotment.
- 2) Protect archeological site from disturbance in the Timber Creek Allotment.

Common throughout the area (none are needed for allotment(s) to move toward meeting Standard(s)):

- 1) Adjust fences so bottom wire is at least 16 inches above the ground in pronghorn antelope habitat.
- 2) Adjust fences so top wire is less than 38 inches above the ground.

- 3) Implement a fire management strategy that includes the full range of activities to help achieve ecosystem sustainability including the “use of wildland fire”¹ consistent with BLM direction² for Implementation of Federal Wildland Fire Management Policy (USDA and USDI 2009). As part of this strategy, investigate and document potential control lines for wildland fire management following existing roads, which roughly segregates forest and woodlands of the Beaverhead Mountains of the Bitterroot Range and the Lemhi Mountains of the Lemhi Range, from rangelands of the upper Lemhi drainage.
- 4) Issue “trailing” permit(s) where appropriate for cattle trailing in the CBT area.

These objectives will be explored during the 2010 field season and alternatives for addressing them will be developed. Where Standards are not being met, and no progress is being made towards meeting the Standards, information will also be gathered to help determine the causal factors for not meeting the Standards.

¹ See National Wildfire Coordinating Group Memorandum NWCG #024-2010 titled *Terminology Updates Resulting from Release of the Guidance for the Implementation of Federal Wildland Fire Management Policy (2009)*. An electronic copy of the memorandum can be found at: <http://www.nwcg.gov/general/memos/nwcg-024-2010.html>.

² See BLM Instruction Memorandum #2009-112 titled *Updated Policy for Implementation of Federal Wildland Fire Management Policy*. An electronic copy of the memorandum can be found at: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-112.html

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Appendix A- Common-to-Scientific Name Crosswalk

Grass and Grass-Like		
Common Name	Scientific Name	Status
Bald spikerush	<i>Eleocharis erythropoda</i>	native
Baltic rush	<i>Juncus balticus</i>	native
Basin wildrye	<i>Leymus cinereus</i>	native
Beaked sedge	<i>Carex rostrata</i>	native
Bearded wheatgrass	<i>Elymus caninus</i>	native
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	native
Brookgrass	<i>Catabrosia aquatica</i>	native
Bulbous bluegrass	<i>Poa bulbosa</i>	introduced, invasive
Cheatgrass	<i>Bromus tectorum</i>	introduced, invasive
Creeping meadow foxtail	<i>Alopecurus arundinaceus</i>	native
Crested wheatgrass	<i>Agropyron cristatum</i>	introduced
Idaho fescue	<i>Festuca idahoensis</i>	native
Indian ricegrass	<i>Achnatherum hymenoides</i>	native
Kentucky bluegrass	<i>Poa pratensis</i>	native
Letterman's needlegrass	<i>Achnatherum lettermanii</i>	native
Meadow barley	<i>Hordeum brachyantherum</i>	native
Medusahead	<i>Taeniatherum caput-medusae</i>	introduced, invasive
Nebraska sedge	<i>Carex nebrascensis</i>	native
Needle and thread	<i>Hesperostipa comata</i>	native
Nordan crested wheatgrass	<i>Agropyron desertorum</i> cv. Nordan	introduced
Northwest Territory sedge	<i>Carex utriculata</i>	native
Pale sedge	<i>Carex livida</i>	BLM Type 4
Prairie Junegrass	<i>Koeleria macrantha</i>	native
Red top	<i>Agrostis gigantea</i>	native
Rush	<i>Juncus spp.</i>	native
Sandberg bluegrass	<i>Poa secunda</i>	native
Sedge	<i>Carex spp.</i>	native
Siberian crested wheatgrass	<i>Agropyron fragile</i>	introduced
Simple kobresia	<i>Kobresia simpliciuscula</i>	native
Smooth brome	<i>Bromus inermis</i>	introduced
Tufted hairgrass	<i>Deschampsia cespitosa</i>	native
Water sedge	<i>Carex aquatilis</i>	native

Forbs		
Common Name	Scientific Name	Status
Alkali primrose; Bluedome primrose	<i>Primula alcalina</i>	BLM Type 3
Arctic buttercup/Ice cold buttercup	<i>Ranunculus karelinii</i>	native
Aster; Daisy	<i>Aster</i> spp.	native
Beautiful Indian paintbrush	<i>Castilleja pulchella</i>	native
Bluebells	<i>Mertensia</i> spp.	native
Canada thistle	<i>Cirsium arvense</i>	introduced, state noxious
Cinquefoil	<i>Potentilla</i> spp.	native
Common dandelion	<i>Taraxacum officinale</i>	invasive
Common yarrow	<i>Achillea millefolium</i>	native
Cordilleran phacelia; Silverleaf phacelia	<i>Phacelia hastata</i>	native
Cushion buckwheat	<i>Eriogonum ovalifolium</i>	native
Douglas' dustymaiden	<i>Chaenactis douglasii</i>	native
Douglas-fir dwarf mistletoe	<i>Arceuthobium douglasii</i>	native
Fernleaf biscuitroot	<i>Lomatium dissectum</i>	native
Gardencress pepperweed	<i>Lepidium sativum</i>	native
Groundsel	<i>Senecio</i> spp.	native
Heartleaf arnica	<i>Arnica cordifolia</i>	native
Herb sophia	<i>Descurainia sophia</i>	introduced, invasive
Indian paintbrush	<i>Castilleja</i> spp.	native
King's sandwort	<i>Arenaria kingii</i>	native
Leafy spurge	<i>Euphorbia esula</i>	introduced, state noxious
Lemhi penstemon	<i>Penstemon lemhiensis</i>	BLM Type 3
Lewis' flax	<i>Linum lewisii</i>	native
Locoweed	<i>Astragalus</i> spp.	native
Lodgepole pine dwarf mistletoe	<i>Arceuthobium americanum</i>	native
Lupine	<i>Lupinus</i> spp.	native
Marsh feltwort	<i>Lomatogonium rotatum</i>	BLM Type 3
Meadow milkvetch	<i>Astragalus diversifolius</i>	BLM Type 3
Milkvetch	<i>Astragalus</i> spp.	native
Mill Creek agoseris; Pink agoseris	<i>Agoseris lackschewitzii</i>	BLM type 4
Musk thistle; Canada thistle	<i>Cirsium arvense</i>	introduced, state noxious
Nettle	<i>Urtica</i> spp.	native
Nineleaf biscuitroot	<i>Lomatium triternatum</i>	native
Nodding plumeless thistle	<i>Carduus nutans</i>	introduced, state noxious
Pale agoseris	<i>Agoseris glauca</i>	native
Park milkvetch	<i>Astragalus leptaleus</i>	BLM Type 5
Parsnipflower buckwheat	<i>Eriogonum heracleoides</i>	native
Penstemon	<i>Penstemon</i> spp.	native

Forbs		
Common Name	Scientific Name	Status
Plains milkvetch	<i>Astragalus gilviflorus</i>	BLM Type 3
Rail Road Canyon buckwheat	<i>Eriogonum soliceps</i>	native
Salmon twin bladderpod; Idaho bladderpod	<i>Physaria didymocarpa</i> var. <i>lyrata</i>	BLM Type 2
Sandwort	<i>Arenaria</i> spp.	native
Scouringrush horsetail	<i>Equisetum hyemale</i>	native
Seep monkeyflower	<i>Mimulus guttatus</i>	native
Spotted knapweed	<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	introduced, state noxious
Spotted knapweed	<i>Centaurea stoebe</i>	introduced, state noxious
Sulphur-flower buckwheat	<i>Eriogonum umbellatum</i>	native
Tufted; Desert evening primrose	<i>Oenothera caespitosa</i>	native
Western tansymustard	<i>Descurainia pinnata</i>	native
Whitetop; Hoarycress	<i>Cardaria draba</i>	introduced, state noxious
Yellow fritillary	<i>Fritillaria pudica</i>	native
Yellowstone draba	<i>Draba incerta</i>	native

Shrubs and Sub-shrubs		
Common Name	Scientific Name	Status
Antelope bitterbrush	<i>Purshia tridentata</i>	native
Basin big sagebrush	<i>Artemisia tridentata</i> spp. <i>tridentata</i>	native
Bebb willow	<i>Salix bebbiana</i>	native
Booth willow	<i>Salix boothii</i>	native
Coyote willow; Narrow-leaf willow	<i>Salix exigua</i>	native
Currant	<i>Ribes</i> spp.	native
Drummond's willow	<i>Salix drummondiana</i>	native
False mountain willow	<i>Salix pseudomonticola</i>	BLM Type 3
Geyer willow	<i>Salix geyeriana</i>	native
Gray alder	<i>Alnus incana</i>	native
Greasewood	<i>Sarcobatus vermiculatus</i>	native
Green rabbitbrush	<i>Ericameria teretifolia</i>	native
Hoary willow; Sageleaf willow	<i>Salix candida</i>	BLM Type 3
Low sagebrush; Little sagebrush	<i>Artemisia arbuscula</i>	native
Mountain big sagebrush	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	native
Rabbitbrush	<i>Ericameria</i> spp.	native
Railroad Canyon buckwheat	<i>Eriogonum soliceps</i>	native
Redosier dogwood	<i>Cornus sericea</i>	native

Shrubs and Sub-shrubs		
Common Name	Scientific Name	Status
Rubber rabbitbrush	<i>Ericameria nauseosa</i>	native
Sagebrush	<i>Artemisia</i> spp.	native
Sitka alder	<i>Alnus viridis</i> ssp. <i>sinuata</i>	native
Threetip sagebrush	<i>Artemisia tripartita</i>	native
Water birch	<i>Betula occidentalis</i>	native
Willow	<i>Salix</i> spp.	native
Wood's rose	<i>Rosa woodsii</i>	native
Wyoming big sagebrush	<i>Artemisia tridentata</i> spp. <i>wyomingensis</i>	native

Trees		
Common Name	Scientific Name	Status
Aspen	<i>Populus tremuloides</i>	native
Black cottonwood	<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	native
Cottonwoods	<i>Populus</i> spp.	native
Curl-leaf mountain mahogany	<i>Cercocarpus ledifolius</i>	native
Douglas-fir	<i>Pseudotsuga menziesii</i>	native
Engelmann spruce	<i>Picea engelmannii</i>	native
Fir	<i>Abies</i> spp.	native
Limber pine	<i>Pinus flexilis</i>	native
Lodgepole pine	<i>Pinus contorta</i>	native
Ponderosa pine	<i>Pinus ponderosa</i>	native
Rocky Mountain juniper	<i>Juniperus scopulorum</i>	native
Rose	<i>Rosa</i> spp.	native
Saltcedar	<i>Tamarix ramosissima</i>	introduced, state noxious
Spruce	<i>Picea</i> spp.	native
Subalpine fir	<i>Abies lasiocarpa</i>	native
White spruce	<i>Picea glauca</i>	BLM Type 4
Whitebark pine	<i>Pinus albicaulis</i>	native

(Hitchcock and Cronquist, 1973; USDA NRCS 2010)

Fish		
Common Name	Scientific Name	Status
Bull trout	<i>Salvelinus confluentus</i>	ESA Threatened
Eastern brook trout	<i>Salvelinus fontinalis</i>	Introduced
Snake River steelhead trout	<i>Oncorhynchus mykiss</i>	ESA Threatened
Snake River spring/summer Chinook salmon	<i>Oncorhynchus tshawytscha</i>	ESA Threatened
Westslope cutthroat trout	<i>Oncorhynchus clarki lewisii</i>	ID BLM Sensitive
Redband/resident rainbow trout	<i>Oncorhynchus mykiss</i>	Introduced
Mountain whitefish	<i>Prosopium williamsoni</i>	No Special Status
Various sculpin	<i>Cottus spp.</i>	No Special Status
Various suckers	<i>Castostomus spp.</i>	No Special Status
Speckled dace	<i>Rhinichthys osculus</i>	No Special Status
Redside shiner	<i>Richardsonius balteatus</i>	No Special Status

Birds		
Common Name	Scientific Name	Status
bald eagle	<i>Haliaeetus leucocephalus</i>	ID BLM Sensitive
Brewer's sparrow	<i>Spizella breweri</i>	ID BLM Sensitive
calliope hummingbird	<i>Stellula calliope</i>	ID BLM Sensitive
ferruginous hawk	<i>Buteo regalis</i>	ID BLM Sensitive
flamulated owl	<i>Otus flammeolus</i>	ID BLM Sensitive
greater sage-grouse	<i>Centrocercus urophasianus</i>	ESA Candidate Species
Hammond's flycatcher	<i>Empidonax hammondii</i>	ID BLM Sensitive
Lewis's woodpecker	<i>Melanerpes lewis</i>	ID BLM Sensitive
loggerhead shrike	<i>Lanius excubitor</i>	ID BLM Sensitive
northern goshawk	<i>Accipiter gentilis</i>	ID BLM Sensitive
olive-sided flycatcher	<i>Contopus cooperi</i>	ID BLM Sensitive
peregrine falcon	<i>Falco peregrinus</i>	ID BLM Sensitive
prairie falcon	<i>Falco mexicanus</i>	ID BLM Sensitive
sage sparrow	<i>Amphispiza belli</i>	ID BLM Sensitive
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	ID BLM Sensitive
willow flycatcher	<i>Empidonax traillii</i>	ID BLM Sensitive
yellow-billed cuckoo	<i>Coccyzus americanus</i>	ESA Candidate Species

Mammals		
Common Name	Scientific Name	Status
Canada lynx	<i>Lynx canadensis</i>	ESA Threatened Species
elk	<i>Cervus elaphus</i>	
fisher	<i>Martes pennanti</i>	ID BLM Sensitive
gray wolf	<i>Canus lupus</i>	ID BLM Sensitive
moose	<i>Alces alces</i>	
mountain goat	<i>Oreamnos americanus</i>	
mule deer	<i>Odocoileus hemionus</i>	
pronghorn	<i>Antilocapra americana</i>	
pygmy rabbit	<i>Brachylagus idahoensis</i>	ID BLM Sensitive
Rocky Mountain bighorn sheep	<i>Ovis canadensis canadensis</i>	
Townsend's big eared bat	<i>Corynorhinus townsendii</i>	ID BLM Sensitive
wolverine	<i>Gulo gulo</i>	ID BLM Sensitive

Amphibians and Reptiles		
Common Name	Scientific Name	Status
common garter snake	<i>Thamnophis sirtalis</i>	ID BLM Sensitive
western toad	<i>Bufo boreas</i>	ID BLM Sensitive