

**United States Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment (DOI-BLM-MT-B070-2013-0019-EA)**

**June 6, 2014**

**Iron Mask Planning Area Environmental Assessment**

*Location: Just west of Canyon Ferry Lake and Townsend, MT.*



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## 1.0 PURPOSE AND NEED

### 1.1 Introduction

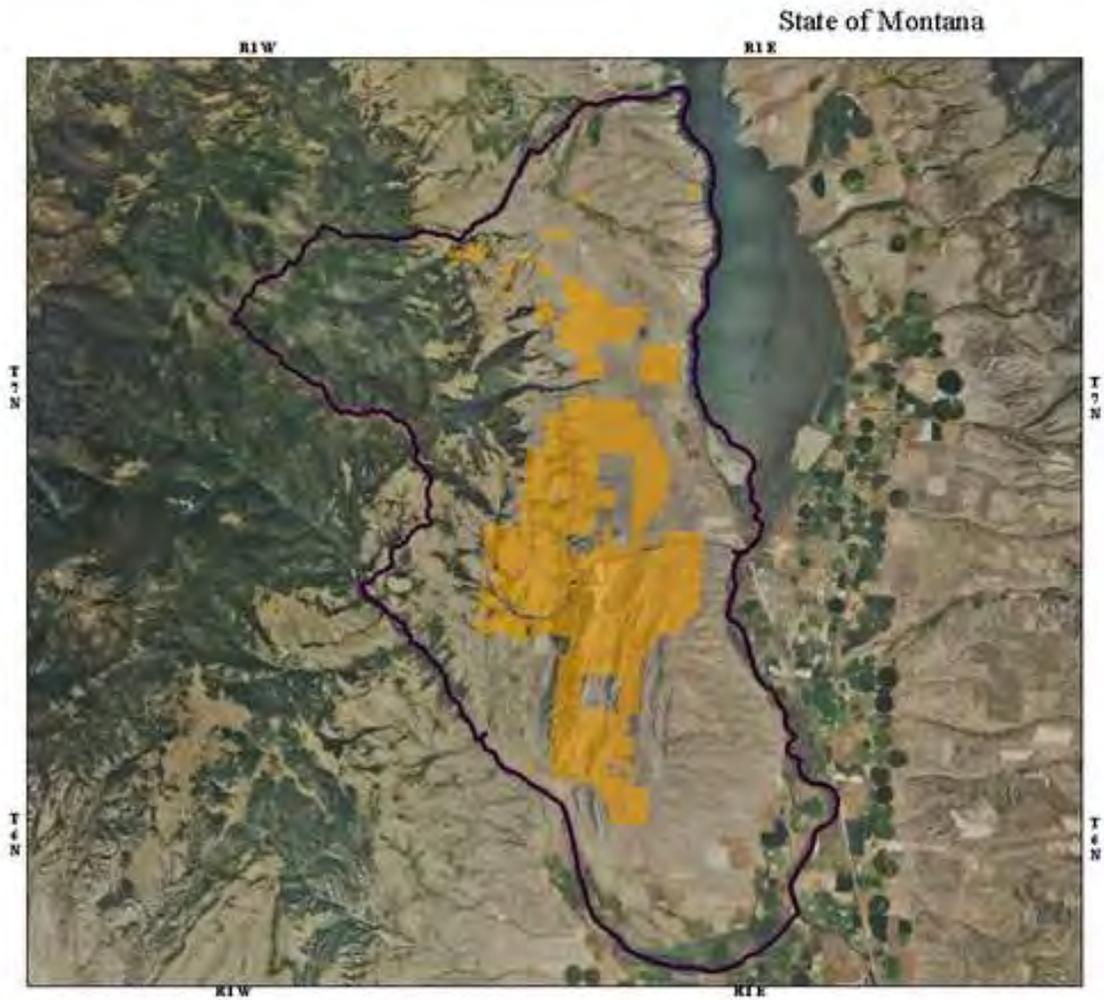
This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of existing and proposed management actions in the Iron Mask area by the BLM. The EA is a site-specific analysis of potential impacts that could result with the implementation of the proposed action or alternatives to the proposed action.

The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impact” (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the selected alternative. A DR, including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in the Butte Resource Management Plan (RMP) (USDI-BLM 2009a).

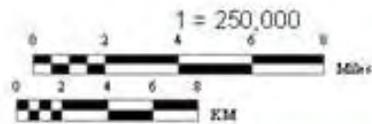
A list of acronyms is included in Section 5.2. The term “**Planning Area**” (PA) refers to the larger land area, defined primarily by watersheds, which contains BLM, Forest Service (USFS), state, and private lands. The term “**Decision Area**” (DA) refers to BLM-administered lands within the PA that are under consideration for management actions.

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# Map 1 General Setting



- Decision Area
- Planning Area

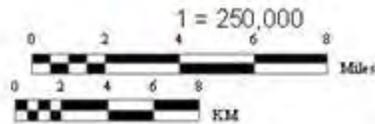
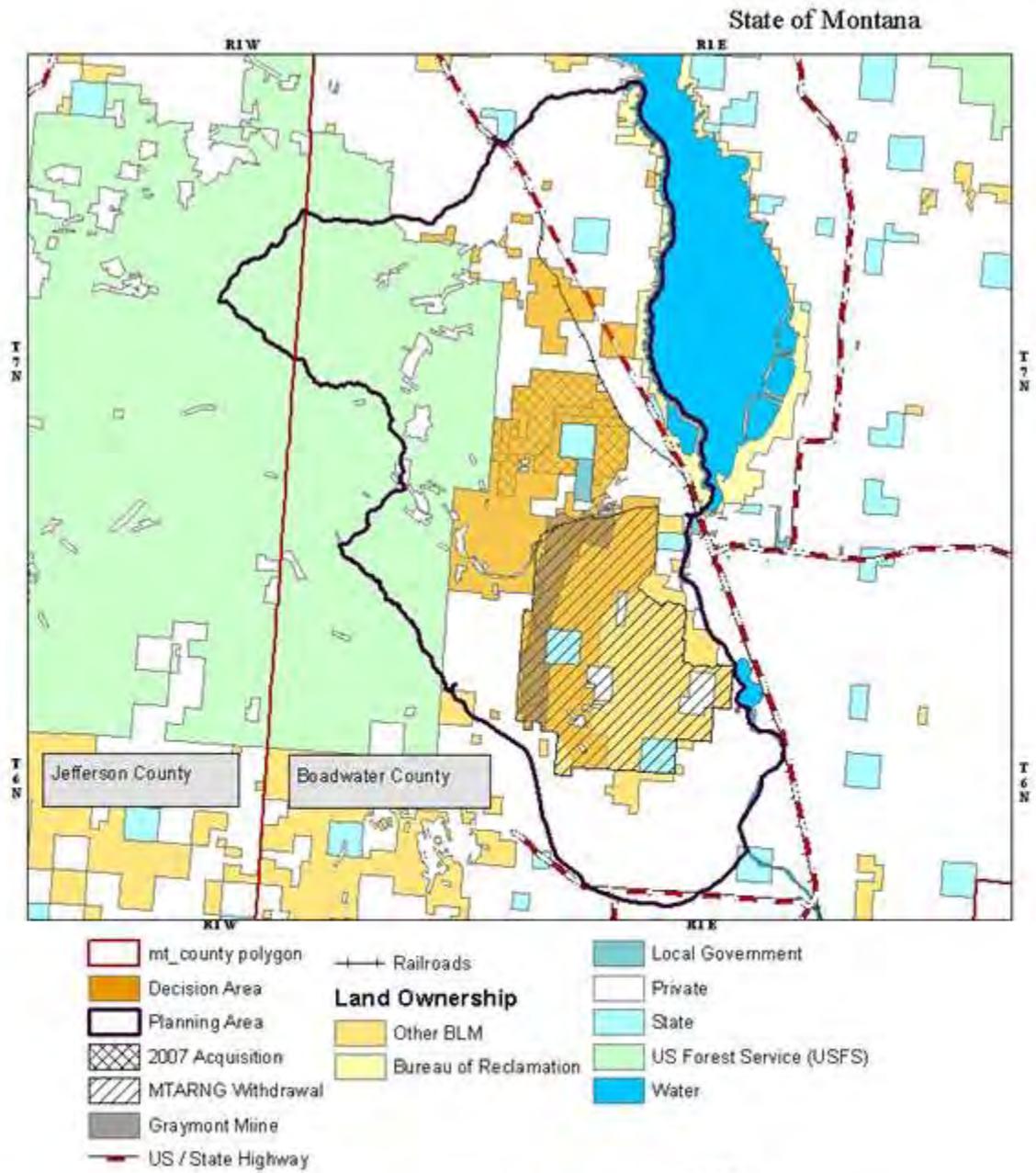


United States Department of the Interior  
 Bureau of Land Management  
 Montana/Dakotas State Office  
 Map created on April 13, 2009



**CAUTION:**  
 Land ownership data is derived from BLM accurate data from the 1:250,000 scale map only. Therefore, land ownership may not be shown for parcels smaller than 40 acres and boundaries may not be perfectly accurate due to source data.  
 No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

## Map 2 General Setting



United States Department of the Interior  
Bureau of Land Management  
Montana/Dakotas State Office  
Map dated on Aug 13, 2009



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## 1.2 Background

Land designations within the Iron Mask PA include the Elkhorn Mountains Area of Critical Environmental Concern (ACEC); a National Guard firing range known as the Limestone Hills Training Area (LHTA), which was withdrawn to the Department of the Army for military use in December 2013 and where BLM retains grazing management and locatable mineral management responsibilities; and the Elkhorns Cooperative Management Area (ECMA), an area managed cooperatively by the USFS, BLM and Montana Department of Fish, Wildlife, and Parks (FWP). Land ownerships in the PA include BLM, USFS, State of Montana, Bureau of Reclamation (BOR), local government, and private.

## 1.3 Need for Action

The need for action in the Iron Mask Planning Area is to address the following management issues:

**Land acquisition:** 5,566 acres of land in the Iron Mask area were acquired in 2007 by the BLM to “protect important resource values” and “improve wildlife habitat near the Missouri River corridor, and develop and enhance public recreation opportunities” (USDI-BLM 2005). Project level planning needs to occur to fully realize these goals.

**Travel planning:** A travel management plan for the Iron Mask lands acquired in 2007 is needed to fulfill directives established by BLM policy (criteria identified at 43 CFR 8340), the Butte RMP, and the Iron Mask Acquisition EA (USDI-BLM 2005). In the context of travel management planning, the Butte RMP indicates that “the recently acquired Iron Mask property will be managed under the limited area designation” and that “Site-specific travel management planning for Iron Mask will be conducted subsequent to the limited area designation and would require an amendment to the Elkhorns Travel Plan.” In the remainder of the DA, the BFO would adhere to the existing *Elkhorns Travel Plan* (USDI-BLM et al. 1995).

**Forage Reserve:** The RMP includes a decision to expand the Indian Creek allotment “up to 5,566 acres and 700 Animal Unit Months (AUMs) by including the Iron Mask acquisition lands. This allotment located in the Elkhorns Cooperative Management Area will be managed as a forage reserve allotment.” And “use will be authorized on a temporary, nonrenewable basis. The amount of use will be determined by the BFO, but not exceeding the allocation.” However, the Iron Mask acquisition area currently lacks appropriate infrastructure to be managed as a forage reserve allotment. There is a need to establish infrastructure for livestock grazing on these lands and develop an appropriate grazing system so the area can function as a forage reserve allotment.

**Grazing authorizations:** In addition to the Indian Creek allotment there are 14 active livestock grazing allotments, or portions of allotments in the PA. The grazing authorizations for these allotments are set to expire in coming years. Six of these allotments (Beaver, Beaver Creek, Dowdy Ditch, Kimber Diorite, Limestone Hills, and Whitehorse) will be analyzed and considered for renewal. Of these six allotments, grazing on two, Dowdy Ditch and Limestone Hills, is authorized under provisions outlined in the Consolidated Appropriations Act. After being authorized via the Appropriations Act it is necessary to fully process these permits as soon as feasible.

There is a need per 43 Code of Federal Regulations (CFR) Part 4100 - Grazing Administration, to reevaluate the terms and conditions of the six grazing authorizations and to renew them, or renew them with revisions if appropriate, based on the need to meet Standards for Rangeland Health or Land Health Standards. The range of alternatives analyzes whether or not to: 1) renew the grazing authorizations, 2) reevaluate and possibly amend the terms and conditions of the authorizations if they are renewed, 3) construct or modify range improvement projects. Also, a decision needs to be made on the disposition of 579 AUMs relinquished in 2012 on the Limestone Hills allotment.

Of the eight remaining allotments, three (Cottonwood Common, Section 33, and Breaks) have the majority of their acreage in other PAs and will be analyzed for renewal when those PA EAs are completed. Five (Bald Hills, Limestone East, Missouri, Riverside School, and Smith Individual) have not had recent Land Health Assessments and will be analyzed in the Broadwater County South EA, which is currently scheduled for 2016.

**Upland Vegetation Health:** Overall, vegetation communities in the project area have been altered from historic (pre-settlement) conditions by a combination of management activities, including long-term fire suppression and livestock grazing. There is a need to develop management actions that would improve/restore grassland, shrubland, and dry forest habitats in the DA.

Grassland and shrubland habitats in the project area have undergone colonization (often referred to as encroachment) by conifers due to the interruption of the natural disturbance regime by long-term fire suppression. Many acres of grasslands and shrublands within the PA have been converted to woodlands as a result of colonization by juniper, Douglas-fir, ponderosa pine, and limber pine. As a result, these acres are outside the expected historic range of natural variability. In their current condition, they are less stable and more susceptible to damage from disturbance events like severe or uncharacteristically large-scale wildland fire, insect infestations, and weed species establishment. Additionally, they are apt to change to the extent that they could cross thresholds which would prevent them from returning to a condition within the expected range of variability and functionality without help from an outside influence (e.g., application of herbicides to control weed species, spreading native seed to establish early seral communities with desired species composition, etc.).

Goal GS-1 in the Butte RMP is to “Manage upland vegetation communities to move toward or remain in proper functioning condition, including a full range of herbaceous and shrub species.” The RMP also established objectives to treat grasslands and shrublands to reduce conifer colonization as a result of long-term fire suppression. Objectives for the Upper Missouri watershed where this project area lies are 1,750 to 6,000 acres of grassland, 150 to 500 acres of shrubland, and 1,900 to 7,000 acres of dry forest to be treated per decade. There is a need to improve/restore grassland, shrubland, and dry forest habitats in the DA to contribute to meeting these management objectives identified in the RMP. (Due to the limitations in mapping grassland and shrubland habitats, the total acreages of grassland and shrubland proposed for treatment are considered in combination throughout this EA.)

Restoration of dry forest vegetation would be done to meet Forest and Woodland goals in the RMP:

- Restore and/or maintain the health and productivity of public forests, to provide a balance of forest and woodland resource benefits, as well as wildlife and watershed needs to present and future generations. (Goal FW1)
- Maintain and/or improve sustainability and diversity of woodland communities to meet ecological site potential. (Goal FW3)
- Manage dry forest types to contain healthy, relatively open stands with reproducing site-appropriate desired vegetation species. (Goal FW4).

**Riparian health:** There is a need to take action in areas where riparian health within the PA that is being impacted by historic mining, erosion, and unnatural succession.

Currently, two stream crossings of small, unnamed streams on Road #008 within the Iron Mask acquisition area boundary are capturing streamflow and diverting it down the road. This diversion causes erosion and subsequent sedimentation back into the stream channel farther downstream. A large headcut became established on Indian Creek during high stream flows in 2011. The Whipcracker Gulch channel below the inactive Iron Mask mine has been impacted by contaminants from the mine and dewatered as a result of mining.

Riparian vegetation communities have been affected by historic land use and long-term fire suppression. Some portions of the project area have mixed stands of conifers and aspen or cottonwood in riparian areas. Understory conifer colonization in close proximity to localized hardwood patches is preventing the establishment of aspen and cottonwood regeneration that would likely occur under a more natural disturbance regime. Butte RMP Goal RV1 is to “Manage riparian and wetland communities to move toward or remain in proper functioning condition (appropriate vegetative species composition, density, and age structure for their specific area).” Additional guidance in the RMP includes:

- Restorative treatments in riparian areas will focus on re-establishing willows, aspen, and cottonwood stands as well as other riparian vegetation, and to move toward pre-fire suppression stem densities in conifer stands. (Riparian Vegetation Management Action #5)
- Where conifers are outcompeting or precluding regeneration of aspen, or preventing establishment of aspen or cottonwood stands, conifers will be removed (via mechanical methods and/or prescribed burning) to provide suitable habitat for expansion of these species. (Riparian Vegetation Management Action #6)

**Fencing:** In the DA, and in fact across the American west, there are many fences that were constructed prior to techniques now understood to provide for containment of livestock but also allow greatest freedom of movement for wildlife. These fences constitute hazards to wildlife from entanglement or blocking of movement. One decision in the RMP is “Existing fences not meeting standard BLM wildlife specifications will be modified to meet the standard when reconstruction is done (Goals LG2, WF5, SE4).” There is a need to reconfigure fences within the DA to meet these standards.

## **1.4 Purpose of Action**

The purpose of action is to address the above issues within the context of BLM's multiple-use mandate and all applicable statutes and regulations.

Specifically, purposes include:

- To analyze and establish specific routes and supporting infrastructure (such as parking lots, kiosks, trailheads, etc.) that would be available for motorized and non-motorized travel subject to management constraints, legal motorized access considerations, resource protection concerns, resource use needs and social considerations.
- To analyze and determine what structural range improvements and grazing system would be authorized on the Indian Creek Forage Reserve allotment.
- To analyze and determine the appropriate renewal of grazing allotment authorizations to best achieve land health standards.
- To analyze and determine the most practical means for elimination of erosion and sedimentation impacts to soil and water occurring from roads, historic mining, and the Indian Creek headcut.
- To analyze and determine the methods for restoring riparian and upland vegetation communities so that they are more representative of the pre-settlement historic range of variability, and meet RMP goals and management direction for wildlife habitat.
- To analyze replacement or reconstruction of fencing that does not currently meet standards.

## **1.5 Decisions to be Made**

There are a number of decisions to be made within the planning area, including:

- Which travel routes within the Iron Mask acquisition area would be managed as open to the public for motorized use, or limited to authorized/administrative uses, and what restrictions would be required, if any.
- What, if any, types of structural range improvements and grazing systems would be established for the Indian Creek Forage Reserve grazing allotment.
- Whether or not to renew grazing authorizations on six allotments that will expire in coming years or are currently authorized under Appropriation Act provisions.
- Whether changes to existing grazing authorizations are needed to meet RMP Standards for Rangeland Health and land health goals.
- Determine the availability of 579 relinquished AUMs in the Limestone Hills allotment.
- Whether to treat upland vegetation to restore vegetation communities toward a more historic condition with regard to vegetation/wildlife habitat types and wildland fuels conditions, and if so, how many acres would be treated with what types of treatments.
- What actions, if any, would be taken to address soil erosion and water quality impacts in the project area which are occurring from historic mining, one large stream headcut, and locations on roads where water flow is disrupted.
- Whether to treat riparian vegetation communities, and if so how would they be treated to meet RMP goals and management actions for Riparian Management Zones.
- Whether to reconstruct or make adjustments to existing fences that do not currently meet wildlife specifications.

## 1.6 Relationship to Statutes, Regulations, or other Plans

The following laws, regulations, and authorities guided the content and scope of the environmental analysis; the list includes, but is not limited to:

- Antiquities Act of 1906, as amended
- Carlson-Foley Act of 1968 (Weed Control on Public Lands)
- Clean Air Act of 1970, as amended
- Clean Air Act of Montana as amended (75-2-102, MCA).
- Clean Water Act of 1972
- Code of Federal Regulations, Title 43, Part 4100 – Grazing Administration – Exclusive of Alaska, 2006
- Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, 2001
- Endangered Species Act of 1973, as amended
- Farmland Protection Policy Act of 1981
- Federal Land Policy and Management Act of 1976
- Federal Noxious Weed Act of 1974, as amended
- Migratory Bird Treaty Act of 1918
- Montana Clean Water Act (75-101 et seq., MCA)
- Montana Streamside Management Law and Rules
- Montana Strip and Underground Mine Reclamation Act of 2008
- National Environmental Policy Act of 1969
- National Historic Preservation Act of 1966
- Public Rangelands Improvement Act of 1978
- Sikes Act of 1960, as amended
- Standards for Rangeland Health and Guidelines for Grazing Management (43 CFR 4180)
- Surface Mining Control and Reclamation Act of 1997
- Taylor Grazing Act of 1934
- National Defense Operations Act, 2013

**Travel Management:** Statutes, regulations, and policies documented in the *2009 Butte RMP* (BLM 2009b, pages 10-13) apply to this TMP/EA. Additionally, the following regulations, policies, and planning documents provide specific guidance for the formation of travel management actions. All documents can be found online and are listed in the references cited section.

- 43 CFR 8340: Off-Road Vehicles, Subparts 8340-8342.3 (GPO 2014a)
- 43 CFR 9268: Recreation Programs (GPO 2014c)
- *Manual 1626: Travel and Transportation* (BLM 2011d)
- *Handbook H-8342: Travel and Transportation* (BLM 2012c)
- *Record of Decision: Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota and South Dakota* (BLM 2003)
- *National Mountain Bicycling Strategic Action Plan* (BLM 2002)
- *National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands* (BLM 2001a)
- *Recreation 2000: A Strategic Plan* (BLM 1988)

## **1.6.1 Conformance to Land Use Plan**

All proposed actions are in conformance with and tiered to the Butte RMP (2009) and the Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota and South Dakota (USDI-BLM 1997). All treatments of invasive species conform to the guidance and standards set forth in the Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (USDI-BLM 2007) and the Butte Field Office Weed Management Plan Revision EA (USDI-BLM 2009b).

The action alternatives presented in this EA would be in conformance with RMP direction more than the no action alternative. Examples of RMP goals and objectives actions that would be met under the action alternatives but not Alternative A include: maintain upland vegetation communities to move toward or remain in proper functioning condition; manage dry forest types to contain healthy, relatively open stands; the Indian Creek allotment will be expanded and managed as a forage reserve allotment; manage riparian and wetland communities to move toward or remain in proper functioning condition; manage for a sustainable level of livestock grazing while meeting or progressing toward Land Health Standards; move toward restoring and maintaining desired ecological conditions consistent with appropriate fire regimes; manage to provide a variety of well-distributed plant communities to support a diversity of habitats; the Iron Mask acquisition area will be managed for travel under the 'limited area' designation; non-motorized recreation will be promoted and emphasized in the Elkhorns ACEC.

## **1.7 Summary**

This chapter has presented the purpose and need for action that drove the development of the proposed action and action alternatives. The decisions to be made were presented to show the scope of the analysis being conducted. In order to meet the purpose and need in a way that resolves the issues, the BLM has developed a range of action alternatives. These alternatives, as well as a No Action alternative, are presented in Chapter 2. The existing conditions of resources are described and potential environmental impacts or consequences resulting from the implementation of each alternative are then analyzed in Chapter 3.

## **2.0 DESCRIPTION OF ALTERNATIVES**

### **2.1 Introduction**

This chapter describes the No Action alternative (Alternative A), and two action alternatives. Also presented are alternatives considered but not carried forward for detailed analysis. Design features/mitigation measures are also included in this chapter. Alternatives may apply to specific sites (e.g., Whipcracker Gulch), individual allotments (e.g., grazing management changes), or across a broader landscape (e.g., vegetation manipulation).

### **2.2 Features of Alternatives**

This section covers project design features that would be implemented to protect resource values regardless of a specific alternative, or combination of alternatives chosen by the Authorized Officer.

Any projects or actions selected for approval at the conclusion of this environmental analysis would be implemented as time and funding allow, with no exact timeframe unless stated otherwise.

### **2.2.1 Features Common to all Alternatives**

These features are common to all the alternatives, including the No Action Alternative.

#### **Travel Management**

- Travel management would be conducted in a manner that would meet, or move toward meeting, Land Health Standards.
- With the exception of travel planning in the acquisition area, the Elkhorns Travel Management Plan (1995) would be adhered to.
- In accordance with the 2003 Statewide OHV ROD (USDI-BLM 2003), under the “Limited” designation, all cross-country motorized, wheeled travel would be prohibited, with the following exceptions:
  - Any military, fire, search and rescue, or law enforcement vehicle for emergency operations
  - Official BLM administrative business (prescribed fire, noxious weed control, and range, recreation, travel management, etc.)
  - Other government agency business (surveying, damage control, etc.)
  - Administration of a federal lease or permit (e.g. livestock permittee maintaining fence, delivering salt, etc.)
  - For dispersed camping within 300 feet of an open travel route, site selection must be completed by non-motorized means, and accessed by the most direct route causing the least damage.
- BLM would continue to participate with the Southwest Montana Interagency Travel Management Committee in maintaining map and sign consistency, and seasonal restrictions.
- 

#### **Recreation**

- Dispersed recreational activities would continue to be managed consistent with other resource management objectives. Special Recreation Permits would continue to be considered on a case-by-case basis with the exception of big game hunting. Outfitted big game hunting would continue to be limited to existing permits and use levels. Opportunities for big game hunting, wildlife viewing, horseback riding, and other backcountry recreation would be maintained.

#### **Livestock Management**

- In the event of a prescribed fire, allotments or portions of allotments would be rested from livestock grazing up to one year prior to treatment, if necessary, to produce fine fuels to carry the burn. Treatment areas would be rested for a minimum of two growing seasons following treatment to promote recovery of vegetation. Livestock rest for more or less than two growing seasons could be justified on a case-by-case basis (USDI-BLM 2009a).

- Encourage, and, if warranted, require use of temporary electric fence, livestock supplement (e.g., salt, protein block) placement, riding, and herding as a means of improving livestock distribution in all alternatives.
- Annual utilization guidelines on native herbaceous forage would be 45% on native forage and 55% on non-native forage on a pasture average basis to maintain plant health and vigor (USDI-BLM 2009a).
- High tensile electric fences would be considered in areas where they may provide an effective alternative to traditional barbed wire construction. These would also be constructed in conformance with BLM Fencing Handbook H-1741-1.
- All stock water developments would be equipped with a small animal escape ramp.
- Permittees or lessees shall provide reasonable administrative access across private and leased lands to the BLM lands for the orderly management and protection of the public lands.
- The following other terms and conditions are common to all grazing permits:
  - No salt and/or mineral blocks shall be placed within ¼ mile of livestock water, springs, meadows or streams. In the event that topography and/or available water sources do not allow for the ¼ mile requirement, coordination would be done with BLM personnel prior to placement of salt each year.
  - You (permittee/lessee) are required to perform normal maintenance on the range improvements to which you have been assigned maintenance responsibility as part of your signed range improvement permit(s), cooperative agreement(s) or assignment of range improvements agreement.
  - The terms and conditions of your permit/lease may be modified if additional information indicates that revision is necessary to conform with the standards and guidelines for rangeland health (43 CFR 4180).
  - No livestock grazing would be allowed within any fenced spring, riparian area, or vegetative study enclosure.
  - Motorized wheeled cross-country travel is limited to the administration of the lease or permit.
- The following Standard Terms and Conditions are included in every permit and lease throughout the BLM.
  1. Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
  2. They are subject to cancellation, in whole or in part, at any time because of:
    - a. Noncompliance by the permittee/lessee with rules and regulations.
    - b. Loss of control by the permittee/lessee of all or a part of the property upon which it is based.
    - c. A transfer of grazing preference by the permittee/lessee to another party.
    - d. A decrease in the lands administered by the Bureau of Land Management within the allotment(s) described.
    - e. Repeated willful unauthorized grazing use.

- f. Loss of qualifications to hold a permit or lease.
  3. They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans **MUST** be incorporated in permits or leases when completed.
  4. Those holding permits or leases **MUST** own or control and be responsible for the management of livestock authorized to graze.
  5. The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
  6. The permittee's/lessee's grazing case file is available for public inspection as required by the Freedom of Information Act.
  7. Grazing permits or leases are subject to the nondiscrimination clauses set forth in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
  8. Livestock grazing use that is different from that authorized by a permit or lease **MUST** be applied for prior to the grazing period and **MUST** be filed with and approved by the authorized officer before grazing use can be made.
  9. Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in the payment of amounts due, including settlement for unauthorized use.
  10. Grazing fee payments are due on the date specified on the billing notice and **MUST** be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of \$25 or 10 percent of the amount owed but not more than \$250) will be assessed.
- No Member of, or Delegate to, Congress or Resident Commissioner, after his/her election of appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of Advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App.1) and Sections 309 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise there from; and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C. Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may be applicable.

### **Conifer Treatments**

- Pheromones (e.g., verbenone, MCH) and/or funnel traps may be applied to selected areas where trees are determined to be at risk to bark beetle attack (USDI-BLM 2011).

### **Noxious and Invasive Species**

- Management of noxious weeds would continue in cooperation with Broadwater County, federal and state agencies, private landowners, and other partners under the current Butte Field Office Weed Plan Revision (2009), which allows an integrated management approach to noxious and invasive species. All invasive species on the Montana state noxious weed list will be treated to the degree financial resources allow. Areas where private landowners cooperate, participate, and support the BLM's weed management strategies, are given a higher priority for treatment.

### **Special Status Plant Species**

- Any newly identified population of Special Status Plants would be documented and forwarded on to the Montana Natural Heritage Program for their tracking system.
- All projects would have Special Status Plant inventory completed prior to implementation. If Special Status Plants are present, the project would be redesigned or abandoned to reduce impacts to the species.

### **Monitoring**

- Under all alternatives, resource monitoring (such as riparian and upland health, forage utilization, vegetation establishment following treatments, etc.) would either be continued or new monitoring implemented to measure trends and progress towards meeting Standards for Rangeland Health and objectives.

### **2.2.2 Features Common to All Action Alternatives**

These features are common to Alternative B and Alternative C.

### **Travel Management**

- **Route Designations:** All wheeled motorized travel would be “Limited” to designated roads, primitive roads, and trails. No cross-country motorized vehicle travel would be allowed, unless otherwise managed.
- **Administrative and Authorized Access:** This designation would “Limit” motorized access to BLM administrative and authorized uses only. BLM employees and authorized users (i.e. permittees, contractors, and personnel from other agencies) would be allowed motorized access for resource management, maintenance, inventory, monitoring, and/or compliance purposes without the need for a travel variance. General public use on these administrative routes would be limited to non-motorized access. Administrative access for rights-of-ways or other permit holders would be limited to authorized or permitted activities only. No motorized recreational use would be authorized on these routes.
- **Access to BLM Lands and Routes across Private Property:** Where public motorized access is contingent upon the governing consent of adjoining private landowner (s), BLM would exercise a reciprocal “All or None” road use policy. This means that as long as the public is allowed access to these roads, no changes in travel management would occur. However, should the adjacent landowner refuse public access, the BLM would reciprocate by closing its travel routes to their use as well, without amending the TMP.

### **Livestock Management**

- Livestock management changes would be initiated during the 2014/2015 grazing seasons. Full implementation, which is dependent on other proposals (e.g., range improvement projects), may take up to several years, due to funding, logistical, or other constraints.
- Any decrease of current active use would be held in suspended non-use on the revised term grazing permits/leases.
- Range improvements generally would be designed to achieve both wildlife and range objectives (USDI-BLM 2009a).
- The following additional Terms and Conditions will be added to all permits/leases:
  - After consultation with the BLM, and written approval, permittees/lessees may be required to adjust the pre-planned pasture grazing sequence identified in an

Allotment Management Plan (AMP) or other management plan due to drought or other unforeseen natural events.

- With prior BLM approval, flexibility would be authorized for the season of use on each allotment if annual weather conditions and forage production warrant. The grazing period may be adjusted up to seven days earlier or later than specified in the Mandatory Terms and Conditions due to yearly variations in weather affecting forage production so long as total grazing days are not exceeded from that stated in the Mandatory Terms and Conditions.
- With prior BLM approval, more livestock may be grazed for a shorter period within the authorized season of use. However, the maximum authorized AUMs, or season of use, as specified in the term grazing permits/leases cannot be exceeded by allowing this flexibility.
- Livestock may need to be removed from a specific pasture prior to the maximum number of days specified in the grazing schedule. If this occurs, the time allocated in subsequent pastures would be adjusted proportionally.

### **Vegetation Treatments**

- State of Montana Best Management Practices (BMPs), the Streamside Management Zone (SMZ) laws, and Riparian Management Zone (RMZ) guidelines (USDI-BLM 2009a, pp. 21-22) would be followed for all treatments or road activities in or near riparian areas. Guidelines as described in the Montana SMZ law (available at <http://www.mt.nrcs.usda.gov/technical/ecs/forestry/technotes/forestryMT18/>) would be the minimum standard design features unless alternative practices authorizations are obtained.
- Conifer treatment units would be monitored for noxious weeds and cheatgrass, and treated to prevent the expansion of noxious weeds.
- Conifer treatment units in suitable habitat would be surveyed for sensitive bird species prior to implementation. If a nest of a sensitive species is found in a treatment unit, timing and/or buffer stipulations would be enforced to avoid disturbing nesting activity.
- Any equipment used for vegetation treatments would be washed free of weed seeds prior to entering and departing the treatment areas to prevent the spread of noxious and invasive weeds between treatment areas.
- Pre-treatment weed inventory/control and post treatment weed control would be completed within each unit.
- Preserve, to the extent possible, limber and ponderosa pines due to high regional mortality of these and similar species from insects and disease.
- Conserve adequate wildlife cover and travel corridors.
- Retain all snags with nest cavities. Retain an average of four snags per acre, depending on stand characteristics, with larger snags preferred. In sagebrush and savannah treatments, all trees with “old growth” characteristics (large, open grown branches, rough limbs, broken tops, etc.) would be retained.
- Retain all trees and snags with active or inactive raptor nests. If raptor nests are discovered during marking, logging, or thinning operations, a 40-acre modified treatment buffer would be established to conserve the nest area. Treatment-related disturbance within a 40-acre buffer of active nests would be approved on a case-by-case basis by the BLM biologist prior to disturbance. The time of implementation could be modified based on the species using the site and the size of the buffer could be larger than 40 acres,

depending on species and location of the nest. Although thinning could occur around a nest site, suitable habitat would be retained within 40 acres (or the adequate buffer size determined for the site) surrounding any active or inactive raptor or owl nest sites.

- In forest treatments, legacy trees (trees that were well established and mature prior to settlement) and the largest trees with old, structural characteristics or potential to develop old, structural characteristics would be retained.
- Silvicultural prescriptions would be consistent with accepted methods related to site, species, habitat types, and the individual requirements of the forest stand to which they will be applied.
- Where slopes exceed forty percent, vegetation treatment options would be limited to non-mechanized operations such as hand cutting. Any material cut by hand would be lopped and scattered to prevent undesirable fuel accumulation. Residual slash must be patchy, not form a continuous mat, not exceed 12” in height, and contain less than 5% of pieces greater than 3’ long.
- Project layout and implementation would be completed in a manner to avoid creating unnatural appearing linear features, as seen from key observation points and the surrounding area.
- Monitor before and after treatment applications to determine whether the treatments were making progress towards meeting the objectives stated in Section 2.4.4. If no vegetation trend monitoring exists throughout the different treatment method areas, then monitoring studies would be established prior to treatment.
- If monitoring over time shows that objectives were initially met but are diminishing due to conifer seed source present at the time of treatment, or other factors, retreatment could be conducted.
- Timing and accomplishment of treatments would be dependent on funding, weather, and grazing pasture rotations.
- Culturally modified trees (trees scarred intentionally for various purposes) would be protected when possible, or mitigated. These trees would not be cut and would be protected from damage by mechanical equipment or falling trees.

### **Prescribed Fire**

- Slash piles would be built so they cover a minimum area of ground (i.e., narrow and tall, rather than broad and short). Piles would be burned when soils are moist and soil temperatures are low, in the fall, winter, or spring. To prevent scorching of, and heat stress to live trees, burn piles would be placed at least 20 feet away from the drip line of crowns of live green leaf trees.
- Slashing of small conifers to augment fuel loading could be necessary before prescribed burning. Slashing could be done by hand or by mechanical methods.
- Burning would be in accordance with Montana/Idaho smoke management programs.

### **Riparian and Aquatics**

- Storage of fuels and toxicants within riparian areas would be prohibited. Refueling within riparian areas would be prohibited except for emergency situations, in which case refueling sites would have an approved spill containment plan.
- No cutting of vegetation that contributes to bank stability (bank rooted trees) would be allowed.
- There would be no pile burning within 25 feet of perennial streams.

- Lop and scatter would be the preferable method to use when reducing low concentrations of conifers in riparian areas.

### **Stream Crossings**

- All applicable State and Federal Permits would be obtained and all permit conditions would be followed for construction of stream crossings.
- The most appropriate stream crossings (e.g., culverts, hardened crossings or temporary bridges), would be selected based on site specific conditions and potential impacts, including: floodplain fill, economics, road safety as well as impacts to stream channel and vegetation.
- Temporary and/or permanent culverts would be adequately sized to maintain stream dimensions, patterns and profiles.

### **Soils**

- Broadcast and jackpot burning would be performed when soil moisture levels are high as determined by the BLM.
- On forested treatment sites, sufficient residual down woody material (5-20 tons/acre) would be left on-site to maintain nutrient recycling and desirable micro-site conditions.
- If skid trails are needed, their locations would be approved by the BLM prior to use.
- Designated skid trails would be utilized to limit the amount of soil surface disturbance, to minimize soil erosion and to limit compaction. Skid trails would be designed and located in such a manner to minimize compaction, erosion and loss of soil productivity. Skid trails would avoid wet (hydric) soils and those with a high water table. Examples of skid trail design features include locating them over deep soils, on low slopes and over down woody debris.
- Soils rated with a severe or very severe erosion potential would be avoided for mechanical and burn treatments. Soils with a severe compaction risk would be avoided for mechanized use. Wet (hydric) soils, which indicate wetlands, would be excluded from mechanical treatment. Hand-cut operations would be employed on hydric soils and in riparian areas.
- Mechanical activity would only be allowed when soils are dry or frozen.
- Use of a subsoiler could be used to accelerate break-up of compacted layers in roads and landings, thereby accelerating recovery and return to normal surface water infiltration rates.

### **Noxious and Invasive Species**

- Any new noxious weed infestations would be targeted for prompt eradication before they have a chance to become established.
- Biological control agents would be released on larger infestations of noxious and invasive species in remote and difficult terrain to reduce the plant's competitiveness and help control the spread of weeds by reducing seed production.
- When a biological control becomes available for houndstongue it would be considered for release on infestations within the PA.
- All project maintenance or construction involving ground disturbance would be reseeded with a native seed mix approved by the authorized officer.
- Areas where noxious weeds dominate the landscape would be reseeded with a native seed mix appropriate for the site approved by the authorized officer.

- Weed patches would be avoided when operating machinery.
- All heavy equipment and off-road equipment associated with project implementation would be inspected and approved prior to entering the project area to ensure they are “weedfree.” In some cases, weed inspections could also be required before moving between units on the same project.
- Areas proposed for burning or for the operation of mechanized equipment that occur within existing weed populations would be treated for weeds prior to activities.
- All roads and trails (new and old) would be treated to control weeds before the initiation and after the completion of project activities. All project areas would be monitored for the emergence of new weed species, as well as the expansion or establishment of known weed species.
- All weed treatment sites would be monitored for infestations before operations and weeds would be treated annually after project completion.

### **Special Status Plant Species**

- Activities that disturb mineral soil (such as blading, plowing, ripping, etc.) may not be allowed within the boundaries of populations of special status plant species. In habitats likely to support rare plants, field inspections would be conducted to search for special status plant species prior to authorizing surface disturbing activities. If rare plants are found in the course of the botanical survey, adverse impacts would be mitigated through project redesign or abandonment.

### **Water Developments**

- All applicable State and Federal Permits would be obtained and the terms and conditions applied.
- Spring sources and associated riparian wetland habitat would be fenced to exclude livestock use on developed springs.
- Flow measurements would be gathered at springs proposed for new development. Springs that have inadequate flows to provide a reliable water source for authorized livestock, while maintaining existing wetland/riparian habitat would not be developed. Adequate water would be left at the spring source to maintain wetland hydrology, hydric soils, and hydric vegetation.
- Routes leading to previously authorized water developments may be maintained. Maintenance routes could be constructed with minimal (less than 1/2 acre total per maintenance route) ground disturbance exposing bare mineral soil. These new routes would be “Limited to administrative and authorized users. Permit/lease holders may be authorized to travel along pipeline routes to perform maintenance as defined in the term grazing permit/lease.
- All old materials (pipeline, troughs, head boxes, etc.) would be cleaned up and removed when springs are redeveloped, maintained, or abandoned. Permittees are responsible for cleanup on projects they maintain or construct; BLM is responsible for cleanup on projects that BLM maintains and/or constructs.
- Soil disturbance resulting from pipeline installation would be seeded with a BLM approved native seed mix following construction.

## **Cultural Resources**

- Personnel from the BLM would be notified of the presence and location of any cultural resources should they be encountered by any permittees or contractors during the course of operations on public lands.
- A Class III cultural resource inventory would be conducted in areas where construction or ground disturbing activity would take place to ensure compliance with Section 106 of the National Historic Preservation Act.
- Sites located in construction areas would be avoided, when possible, or mitigated.
- Culturally modified trees (trees scarred intentionally for various purposes) would be protected when possible, or mitigated. These trees would not be cut and would be protected from damage by mechanical equipment or falling trees.
- Sites located in burn areas would be avoided by reducing fuels in and around vulnerable features or by stationing suppression equipment in those same areas during implementation.
- A 1:24,000 USGS topographic map would be provided to the fire/fuels staff showing the location of all recorded cultural resources to facilitate avoidance.
- Hand cutting or slashing of standing or dead trees <8” in diameter would be allowed within the boundary of known cultural resources, as long as the slash is scattered or removed and piled off the site area for burning.
- Prior to the initiation of broadcast burning, a safety zone or “black line” 100 feet in width would be established around the perimeter of the site and/or any wooden structures or features. During the broadcast burning process, fire suppression equipment would be kept on hand and structure protection efforts initiated at all site locations that contain standing or collapsed structures.
- The archaeologist would be available to relocate and reestablish site boundaries, as needed.
- During the course of project design or implementation, the discovery of any previously unrecorded cultural/heritage resources would cause project operations in the area of the discovery to cease until analysis and evaluation of the heritage resources are completed, including consultation with the Montana State Historic Preservation Office and appropriate Indian Tribes.

## **Wildlife**

- Prescribed burning could only occur between May 1 and August 30 if surveys identify low potential for nesting birds or if mitigation measures could adequately reduce negative impacts.
- Retain all trees and snags with active or inactive raptor nests. If raptor nests are discovered during marking, logging, or thinning operations, a 40-acre modified treatment buffer would be established to conserve the nest area. Treatment-related disturbance within a 40-acre buffer of active nests would be approved on a case-by-case basis by the BLM biologist prior to disturbance. The time of implementation could be modified based on the species using the site and the size of the buffer could be larger than 40 acres, depending on species and location of the nest. Although thinning could occur around a nest site, suitable habitat would be retained within 40 acres (or the adequate buffer size determined for the site) surrounding any active or inactive raptor or owl nest sites.
- Trees and snags containing raptor nests (active or inactive) would not be cut.

- Unless otherwise stated, all snags >15” diameter at breast height (DBH) would be retained, with the exception of those threatening human safety.
- If any sensitive bird species are found to be nesting in a treatment unit, appropriate timing or buffer stipulations would be established by the BLM biologist.
- Timing restrictions would be used in crucial wildlife breeding and wintering areas that would be identified during project planning depending on the species present in treatment units.
- Native materials or manufactured fencing would be utilized to create barriers to wildlife and livestock, when necessary, to allow for regeneration of riparian habitats or aspen stands.

### 2.3 Alternative A – No Action

Under the No Action alternative, the BLM would not implement any new activities in the PA. Livestock grazing would be authorized on all DA allotments as currently permitted, including the class of livestock, season of use, animal unit months (AUMs), percent public land, and terms and conditions.

No new range projects would be constructed and no modifications would be made to existing projects. There would be no vegetation treatments. Fences would remain in their current locations and conditions, unless modified under a separate environmental review. Grazing would not be authorized on the Indian Creek Forage Reserve allotment, due to a lack of infrastructure such as fences and water developments. Restoration projects on Indian Creek and Whipcracker Gulch would not occur. Travel planning for the acquisition area would not be completed and the current management of the area would continue as directed under the temporary closure order that was completed in 2007. The entire area would remain closed to motorized uses yearlong and the two boundary trailheads located at in the northeast and southwest extremities would remain at the same condition level with no improvements.

#### Livestock Management

Under Alternative A, livestock management would continue under the current Terms and Conditions in seven grazing allotments:

Table 1

<i>Current Livestock Grazing Regimes</i>										
Allotment Name, Number	Authorization Number	Livestock Number & Kind*	Season of Use	Grazing System*	BLM Stocking Rate (acres per AUM)	% Public Land	BLM AUMs	BLM Acres	Acres in Other Ownership	Total Acres
Beaver 20223	2507857	21 C	6/1 – 10/30	D	5.3	100	11	39	19 Pvt.	2,747
Beaver Creek 10229	2507866	2 C	5/15 – 10/31	C	3.5	100	101	559	6570 Pvt.	7,129
Dowdy Ditch 20209	2504527 2504487	18	5/1 – 6/15	D	59.6	100	30	1,547	3,509 Pvt.	5,056

<b>Indian Creek 20233</b>	NA	NA	NA	NA	NA	NA	NA	7,932	643 State 481 Local Gov. 1513 Pvt.	9,767
<b>Kimber Diorite 20227</b>	2507866	221 C	6/1 – 10/15	RR	10.7	100	221	2,366	3,532 Pvt.	5,781
<b>Limestone Hills 20273</b>	2500155 2500156 2507897	486 C	5/31 – 9/30	RR	14.0 (10.4)***	100	1,944 (1,365) ***	13,118	640 State 484 Pvt.	14,242
<b>Whitehorse 20222</b>	2507857	62 C	6/10 – 10/15	D	5.9	36	87	511	934 Pvt.	1,481
<p>*Kind: C = cattle  **Grazing System: C = custodial, D = deferred, RR= rest rotation  ***Numbers in parentheses indicate active AUMS and Stocking Rate after the relinquishment of one operator's 579 AUMS.  (An AUM is the amount of forage needed to sustain one animal unit for one month. An animal unit is one mature cow of approximately 1,000 pounds and her calf up to 6 months of age, or their equivalent.)</p>										

**Terms and conditions listed for the allotments below are in addition to those terms and conditions that are common to all allotments (Section 2.2.1):**

**Beaver #20223**

- This allotment will be used in conjunction with your normal livestock operation, during the period shown, as long as such use is not detrimental to the public lands and fees are paid prior to turnout.
- The begin/end grazing date may be adjusted by up to two weeks to account for annual weather variability. Adjustments must be coordinated with the BLM before turnout. Total grazing time is limited to 152 days for Beaver allotment.
- Active use is 108 AUMs for Beaver allotment. The grazing schedule shows smaller amount (I.E. 105) because any further livestock number increase for those grazing periods would exceed the active AUMs.

**Beaver Creek #10229**

- This allotment will be used in conjunction with your normal livestock operation, during the period shown, as long as such use is not detrimental to the public lands and fees are paid prior to turnout.
- The begin/end grazing date may be adjusted by up to four weeks to account for annual weather variability. Adjustments must be coordinated with the BLM before turnout. Total grazing time is limited to 170 days for Beaver Creek allotment.

**Dowdy Ditch #20209**

- This allotment will be used in conjunction with your normal livestock operation, during the period shown, as long as such use is not detrimental to the public lands and fees are paid prior to turnout.
- The begin/end grazing date may be adjusted by up to two weeks to account for annual weather variability. Adjustments must be coordinated with the BLM before turnout. Total grazing time is limited to 46 days for Dowdy Ditch allotment.

### **Indian Creek #20233**

- Under Alternative A there are no terms and conditions specific to this allotment.

### **Kimber Diorite #20227**

- Grazing use would be in accordance with the Kimber Diorite AMP dated March 2001.
- Livestock numbers may vary as long as 221 AUMs are not exceeded and the change is coordinated with the BLM before turnout.
- The begin/end grazing date may be adjusted by up to four weeks to account for annual weather variability. Adjustments must be coordinated with the BLM before turnout. Total grazing time is limited to 137 days for Kimber Diorite allotment.

### **Limestone Hills #20273**

- Actual use for both Limestone Hills and Rattlesnake Creek allotments must be turned in within 15 days following the grazing season.
- The Limestone Hills Training Area (LHTA) was withdrawn by the United States of America on December 26, 2013. As part of the withdrawal, the Department of the Interior and the Department of the Army will:
  - a. Jointly establish procedures that are consistent with the Department of the Army's explosive and range safety standards,
  - b. Provide for the safe use of the withdrawn land.

With the agreement of the Secretary of the Army, the Secretary of the Interior may assign the authority to issue and to administer grazing permits and leases to the Secretary of the Army, except that the assignment may not include the authority to discontinue grazing on the land withdrawn.

### **Whitehorse #20222**

- Livestock numbers may vary as long as 87 AUMs are not exceeded and the change is approved by the BLM before turnout.
- The begin/end grazing date may be adjusted by up to two weeks to account for annual weather variability. Adjustments must be coordinated with the BLM before turnout. Total grazing time is limited to 118 days for Whitehorse Allotment.
- Active use is 88 AUMs for Whitehorse Allotment. The grazing schedule shows a smaller amount (87) because any further livestock number increase for those grazing periods would exceed the active AUMs.

## **2.4 Alternative B – Proposed Action**

### **2.4.1 Travel & Recreation**

Under this alternative, the temporary closure of the acquisition area routes would become permanent to motorized use by the general public for the majority of the area. Wheeled motorized use on all travel routes in the acquisition area would become limited to administrative (BLM) and authorized uses (i.e. grazing operators, other agencies, etc.) only, except on the routes described below. Segments of routes 012 and 013 (1.6 miles) in and around the county shooting range that were designated as open in the Elkhorns Travel Plan would be closed yearlong to provide for public safety. No public access to these routes currently exists. Route

002 (0.1 miles), immediately across the railroad tracks off Whitehorse Lane, would be open yearlong to the public for wheeled motorized use to provide private access to a proximity home and upper lands northwest of the area. A locked gate would be installed at the beginning of Route 003 (east boundary). Route 19 (0.5 miles) that leads to the abandoned Iron Mask Mine Site would be open from May 16<sup>th</sup> to Dec 2<sup>nd</sup> to wheeled motorized use following reclamation work planned at the site. A small trailhead would be established and historical interpretive information displayed. In addition, two road closure gates would be installed to prevent unauthorized motorized travel on BLM and the Forest Service between the Iron Mask Mine and Indian Creek Road in Sections 25 and 30.

Finally, the two existing boundary trailheads at the end of Whitehorse Lane and Shep's Ridge Roads would be improved. Improvements would include:

- Grading and graveling parking surfaces large enough for several vehicles and trailers.
- Placing barriers to limit vehicle violations as needed.
- Installation of locking gates for administrative traffic.
- Installation of a smaller side gate to allow for non-motorized entrance (foot, horses and mountain bikes).
- Erecting kiosk panels with maps and other information.

Roads in the acquisition area necessary for administrative use and authorized use of the forage reserve allotment would be maintained in primitive condition. Areas where roads could be causing stream channel alteration, erosion, or other resource damage would be improved to mitigate the damage. Culverts would be installed on two spots on road 008 where stream flows are currently diverted and run down the road.

There are two poured concrete cisterns in the acquisition area. They are approximately 3-4 feet wide and at least 10 feet deep, if not more. They present a safety hazard to people and animals using the area, and the most durable means of mitigating this hazard would be to fill them with dirt to within a foot or less, of the tops. This is most easily done with a backhoe, which would gather dirt from an approved area and drop it into each opening.

A few inches of each feature would remain visible to provide special and technical information for future historical reference. Utilization studies focused on ranching and homesteading would find the proximity of the cisterns to their companion features useful. Also, the type of concrete used for these cisterns would also play an important part in these studies.

#### **2.4.2 Indian Creek Forage Reserve Allotment**

The land acquired under the Iron Mask acquisition in 2007 would be combined with the existing Indian Creek allotment. This forage reserve allotment would be utilized by permittees of other allotments within the ECMA when their own allotments are unavailable or unusable due to events such as drought, fire, vegetation treatments, or agency project work. The RMP allows for up to 1,076 AUMs to be utilized over 7,932 acres. A two-pasture system would be devised using existing and new fencing, which would result in a West pasture consisting of approximately 3605 acres, an East pasture consisting of approximately 3,330 acres, and approximately 775 acres of isolated tracts that would become unavailable for grazing. Based on the historic stocking rates and current data from the NRCS (2013), the West pasture could support a

maximum of 489 AUMs and the East pasture 448 AUMs. Approximately 136 AUMs would become unavailable for grazing. Applications would be accepted after the pasture division fence and proposed water developments are implemented. Current regulations under 43 CFR 4100 and the following criteria would be used to assess applications:

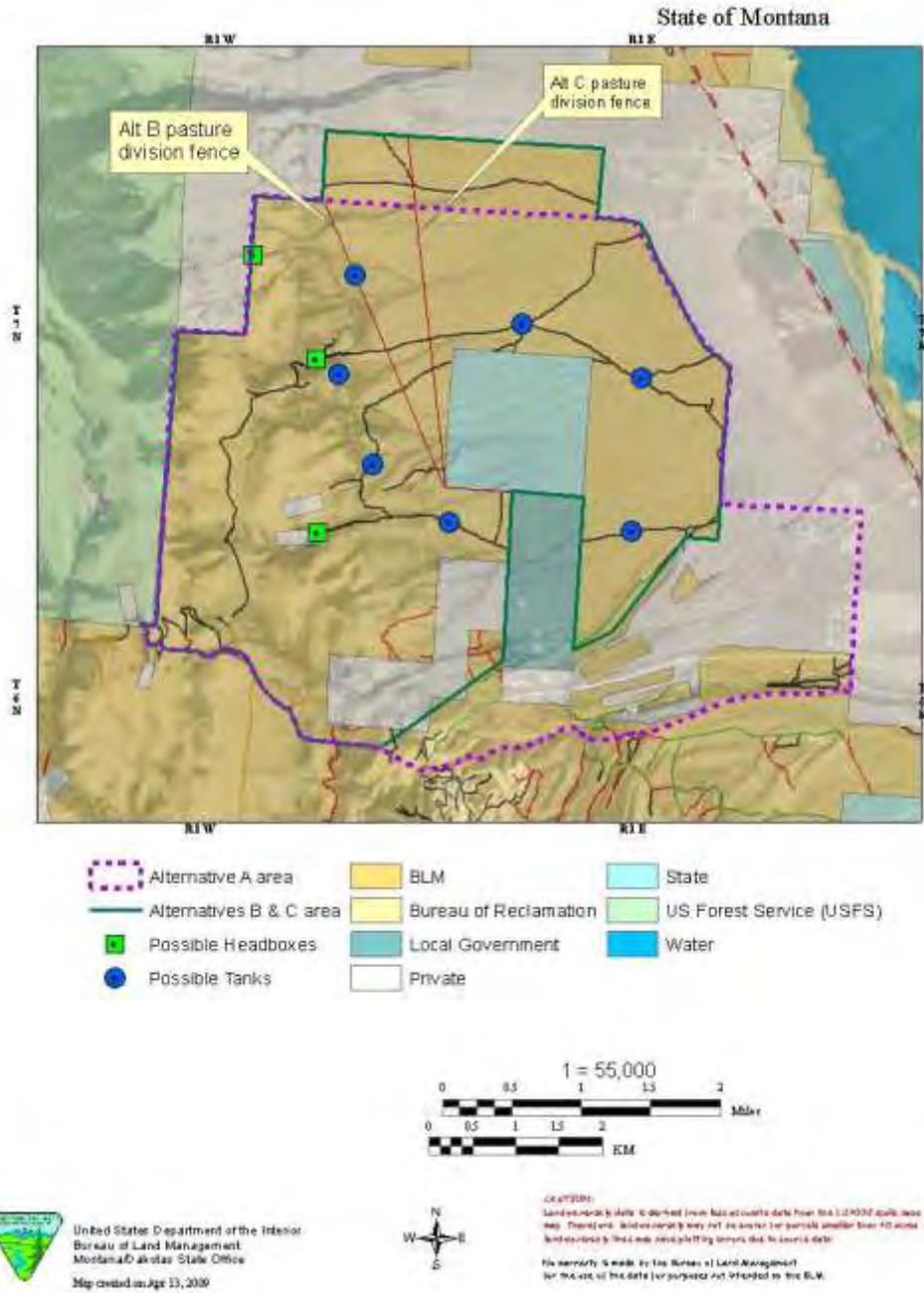
1. Be a state or federal permittee or lessee, or private landowner within the boundaries of the Elkhorns Cooperative Management Area (ECMA).
2. Implementing projects or vegetation management on ECMA lands.
3. Facilitating a change in management to improve resource conditions on ECMA lands.
4. Accommodating permittees or lessees displaced by natural causes (i.e. wildland fire, drought, insect infestations, etc.)
5. The criteria found at 43 CFR §4130.1-2 (USDI-BLM 2006) when conflicting applications are submitted.

Applicants selected to graze the Indian Creek allotment would be required to sign a cooperative agreement and assume maintenance responsibility of all range improvement projects for the duration of their temporary nonrenewable permit (43 CFR 4120.3-2 and 4120.3-5). Range improvement projects would be maintained to BLM specifications and standards (43 CFR 4120.3-4).

The season of use for the Indian Creek allotment would be from 5/15-10/15 (see table below). Once a 40% relative use (USDI-BLM 1999a) on key forage species has been met in the East pasture, livestock would be moved to the other pasture or removed from the allotment to meet wildlife habitat objectives. In the West pasture, after a 6" stubble height is achieved on key species in riparian areas that are outside of proposed riparian exclosures, livestock would be moved to the East Pasture if that was next on the rotation or taken off of the allotment. In order ensure accuracy of carrying capacity, clipping and weighing would be used on at least one low precipitation year, one average year, and one above average year (USDI-BLM 1999b).

Jackleg and rail riparian exclosures would be constructed around spring sources for stock water developments, in addition to a let-down exclosure around the wet meadow in the west pasture that would be let down when livestock are not using the allotment. A pipeline and tank would be constructed adjacent to the exclosure.

### Map 3 Indian Creek Forage Reserve Proposed



Removal of approximately six miles of obsolete fence would occur along with construction of approximately five miles of new fence. All new fence construction would meet wildlife-friendly standards, and let-down fence would be utilized where possible. Existing boundary fences would be repaired or rebuilt where needed. Three headboxes/spring developments would be constructed and feed up to seven tanks to maximize cow dispersal across the pastures. Three tanks would be fenceline tanks accessible from both pastures, and four tanks would be located in the east pasture. The headboxes would be fenced if necessary, based upon impacts from hoof or grazing damage in the immediate vicinity. The tanks would be either of fiberglass or rubber tire construction.

Up to 6 ½ miles of pipelines would need to be installed to supply the tanks. Pipelines would be buried where possible. Pipelines would be on the surface where rock or topography prevents burial. A total of less than four acres of disturbance may occur from pipeline burial. Pipeline trenches would be reseeded with native plant mix following pipeline burial.

Minimal (less than ½ acre per new water development) ground disturbance may occur while creating new maintenance routes and access to new spring development locations. Route work would be only the extent necessary to allow access of necessary equipment, generally a rubber tire equipped backhoe. The routes created as a result of this initial access would be “Limited to administrative and authorized users.” These routes would serve as maintenance routes for the spring development and subsequent pipelines. Erosion control measures (i.e. waterbars, rolling dips, waddles, etc.) would be installed where overland flow is observed or expected to occur.

The applicant selected to graze the Indian Creek Allotment would be responsible for obtaining a grazing permit from the Montana Department of Natural Resources (DNRC) for the state section fenced within the allotment. Additional coordination would be required prior to turnout with the BLM and other affected landowners within the Indian Creek allotment.

The authorization would read as follows:

Allotment Name, Number	Livestock Number & Kind	Season of Use	Grazing System	BLM Stocking Rate (ac./AUM)	% public land	BLM AUMs	BLM Acres	Acres in Other Ownership	Total Acres
Indian Creek 20233	185 C	5/15 - 10/15	D	7.4	100	937	6933	643 State 512 Private	8088

Additional Terms and Conditions:

- Allowable use by livestock would not exceed 40% relative use in both pastures.
- An average riparian stubble height of 6 inches would be maintained in key areas. (These key areas would be identified once infrastructure is in place and livestock patterns and high use areas are determined.)
- Livestock numbers may vary as long as 937 AUMs are not exceeded and use occurs within the identified season of use.
- You are required to perform normal maintenance on the range improvements associated with the Indian Creek allotment during your authorized period of use.

### 2.4.3 Grazing Authorizations

Grazing Management under Alternative B for the following allotments would be similar to Alternative A: Beaver, Beaver Creek, Kimber Diorite, and Whitehorse. The only changes would be additional terms and conditions listed in Section 2.2.2 that standardize language and allow for seasonal variation within the mandatory terms and conditions of the permit.

#### Dowdy Ditch #20209

Under Alternative B the transfer of grazing preference would be approved for authorization #2504487 and a new 10-year term grazing permit would be issued to the applicant. The percent

Public Land would also change from 100% to 10% and the season of use would change from 5/1 – 6/15 to 6/1 – 8/15 to reflect the actual use of the BLM and private lands fenced within the Dowdy Ditch Allotment.

Authorization #2504527 would continue with the same livestock numbers and mandatory terms and conditions as under Alternative A, but with the inclusion of the new terms and conditions listed in Section 2.2.2.

The authorization would read as follows:

Allotment Name, Number	Authorization Number	Livestock Number & Kind	Season of Use	Grazing System	BLM Stocking Rate (ac./AUM)	% Public Land	BLM AUMs	BLM Acres	Acres in Other Ownership	Total Acres
Dowdy Ditch 20209	2504527	7 C	5/1 – 6/15	D	59.60	100	11	284	699	983
	2504487	13 C	6/1 – 8/15	D	59.60	10	20	1,263	2,810	4,073

### **Limestone Hills #20273**

In 2012, one grazing operator on the Limestone Hills allotment relinquished their entire 579 AUMs. Under Alternative B, the BLM proposes to reallocate the 579 AUMs to wildlife use, thereby reducing the total permitted livestock AUMs from 1,944 to 1,365, a 30% reduction in total AUMs on the allotment.

Proposed fencing in the Whipcracker Pasture would fence out part of the pasture that lies south of Indian Creek. The fenced out area would be used for trailing purposes only.

The pasture rotation schedule established in the 1985 AMP does not work well on the ground, which in turn has contributed to nonconformance to the grazing schedule. The current pasture rotation does not allow logical trailing and movement of cattle throughout the allotment. It is impractical and inefficient to move cattle in the southernmost pasture all the way to the northernmost pasture and back down to another pasture in the south end of the allotment. In addition, with construction of the proposed pasture fencing, the Whipcracker pasture would be an independent pasture in the grazing system and no longer used in conjunction with the Cold Springs pasture.

Under Alternative B, a revolving type of pasture rotation schedule is proposed that would lend to more efficient cattle movement throughout the allotment. BLM also proposes that this rotation schedule be flexible so as to meet the training needs of the Montana Army National Guard (MTARNG), allow the BLM to be responsive to variable precipitation and plant growth levels that may change from year to year, as well as to incorporate rest periods before and after vegetation treatments. Overall, this proposed pasture rotation schedule would be followed as closely as possible with the ultimate goal of improving or maintaining rangeland health.

The following pasture rotation schedule is proposed to address these issues:

Year	6/1 – 6/24	6/25 – 7/19	7/20 – 8/13	8/14 – 9/7	9/8 – 9/30	Rest
2014	Compound	Cold Springs	Iron Mask	Whipcracker	Tank Range	Marble Quarry
2015	Marble Quarry	Compound	Cold Springs	Iron Mask	Whipcracker	Tank Range
2016	Tank Range	Marble Quarry	Compound	Cold Springs	Iron Mask	Whipcracker
2017	Whipcracker	Tank Range	Cold Springs	Compound	Marble Quarry	Iron Mask
2018	Marble Quarry	Cold Springs	Iron Mask	Tank Range	Compound	Whipcracker
2019	Whipcracker	Iron Mask	Compound	Marble Quarry	Tank Range	Cold Springs
# of days	24	24	24	24	23	0

In summary, BLM proposes to renew the three grazing authorizations with the change in the part of the Whipcracker Pasture south of Indian Creek to trailing use only, reallocation of the relinquished 579 AUMs to be used by wildlife, separation of the Whipcracker and Cold Springs pastures with new fencing, and revision of the pasture rotation schedule.

The authorizations would read as follows:

Allotment Name, Number	Authorization Number	Livestock Number & Kind	Season of Use	Grazing System	BLM Stocking Rate (ac./AUM)	% Public Land	AUMs	BLM/LHTA Acres	Acres in Other Ownership	Total Acres
Limestone Hills 20273	2500155	126 C	6/1 – 9/30	RR	26	100	505	2,545 BLM 10,573 LHTA	640 State	13,758
	2500156	126 C	6/1 – 9/30	RR	26	100	505	2,545 BLM 10,573 LHTA	640 State	13,758
	2507897	73 C	6/1 – 9/30	RR	45	100	295	2,545 BLM 10,573 LHTA	640 State	13,758

Additional terms and conditions would include those under Alternative A, the terms and conditions listed in Section 2.2.2., and the following: The Iron Mask EA serves as the equivalent of an Allotment Management Plan (AMP) and replaces the Limestone Hills AMP dated 10/25/84. For safety purposes, the permittees will coordinate closely with the MTARNG when livestock are grazing within the LHTA.

The part of the Whipcracker Pasture south of Indian Creek (fenced separately) will be used for trailing purposes only.

The LHTA was withdrawn by the United States of America on December 26, 2013. The permittee is required to coordinate with MTARG prior to grazing and moving livestock between pasture while active grazing use is occurring.

With the agreement of the Secretary of the Army, the Secretary of the Interior may assign the authority to issue and to administer grazing permits and leases to the Secretary of the Army, except that the assignment may not include the authority to discontinue grazing on the land withdrawn.

## **Limestone Hills Allotment - Proposed Range Improvement Projects**

BLM proposes to construct wildlife-friendly pasture boundary fences on BLM land to create solid barriers between the Whipcracker, Cold Springs, Iron Mask, and Tank Range Pastures. Gap fences are proposed on the east side of the Tank Range Pasture. ATVs or four-wheel-drive vehicles may be used cross-country to transport fence materials and fence-building equipment. For subsequent annual maintenance, access to the Shep's Ridge and Whipcracker Fences would be by foot or horseback.

By establishing solid boundaries between pastures, the grazing operators would be able to better adhere to the proposed rest-rotation schedule discussed above.

**Fence #1, Whipcracker Fence:** A three-wire barbed wire boundary fence approximately 10,500 feet in length would be built to the north of Indian Creek to form a solid south pasture boundary for the Whipcracker pasture. The west end of this new fence would tie into rimrock. The proposed Whipcracker pasture fence would separate the Whipcracker and Cold Springs pastures and would allow the permittees to keep cattle in the scheduled pastures.

An unused cattle guard currently along the east boundary fence of the Compound Pasture would be relocated and installed where this proposed fence crosses the north-south road in the Whipcracker pasture. A 150-foot section of let-down fence would be installed to the west of the cattle guard location that would provide an open area for wildlife to cross the fence after cattle have been removed from the allotment in the fall. The part of the Whipcracker Pasture south of Indian Creek would be used for trailing purposes only.

**Fence #2, Shep's Ridge Fence:** A pasture boundary fence, approximately 8,400 feet long, would be built between the Iron Mask and Whipcracker pastures just to the west of the north-south limestone ridge to prevent cattle movement between the two pastures. This ridge is also used by elk to move east and west of this ridge during winter. Without a solid barrier between the pastures, the cattle can access both pastures at the same time, which is not in compliance with the proposed pasture rotation schedule. This fence would be designed with three separate let-down segments that would be laid on the ground when the pastures are not being used, primarily October through May 15<sup>th</sup> of each year. These let-down segments would be located on bare, less steep slopes where field inspections have determined (by visual observations of elk and scat sign) wildlife crossings commonly occur along the ridge.

**Fence #3, Cold Springs Pasture Fence:** A pasture boundary fence, approximately 8,500 feet in length, would be built on the north boundary of the Cold Springs pasture and just south of Indian Creek along the ownership boundary. The west end would tie into the BLM/USFS boundary fence and the east end would tie into an existing fence.

No fence currently exists between these pastures, and cattle can move uninhibited between pastures. This fence would function in conjunction with the Whipcracker pasture fence proposed above to create two entirely separate Cold Springs and Whipcracker pastures, as well as lessen conflicts between private landowners and grazing operators.

**Spring improvements:** Nineteen developed springs exist on the Limestone Hills allotment, eight of which were constructed prior to NEPA requirements. These springs are a critical key in better cattle distribution throughout the pastures, thereby resulting in less overuse in concentrated areas. In addition, enhanced water availability benefits many wildlife species that drink from these developed springs.

These developed springs are included in this proposed action for the purpose of future redevelopment. These water developments were constructed as early as 1942 and currently require reworking or may require reworking in the future

Redeveloping these springs would entail a combination of the following, dependent on the needs at each spring location:

- a. Re-digging and resetting spring headboxes,
- b. Digging up and replacing pipeline from headboxes to watering tanks,
- c. Replacing drain lines, and
- d. Replacing water tanks.

Depending on each location the rework would be done by hand and/or by excavating machinery such as a rubber-tired backhoe. The reworks would be contained within the original areas of disturbance.

**Iron Mask Pipeline and Tank:** A new pipeline from the spring at the Iron Mask Mine would be constructed going to the south and through the fence line into the Whipcracker pasture of the Limestone Hills. A new water tank would be installed at the end of this pipeline. The pipeline would be trenched underground. The tank would be either a fiberglass or rubber tire type.

The proposed pipeline and tank installation would be contingent on it being located far enough away from the planned Iron Mask trailhead parking area to the east to avoid cattle-recreationist conflicts.

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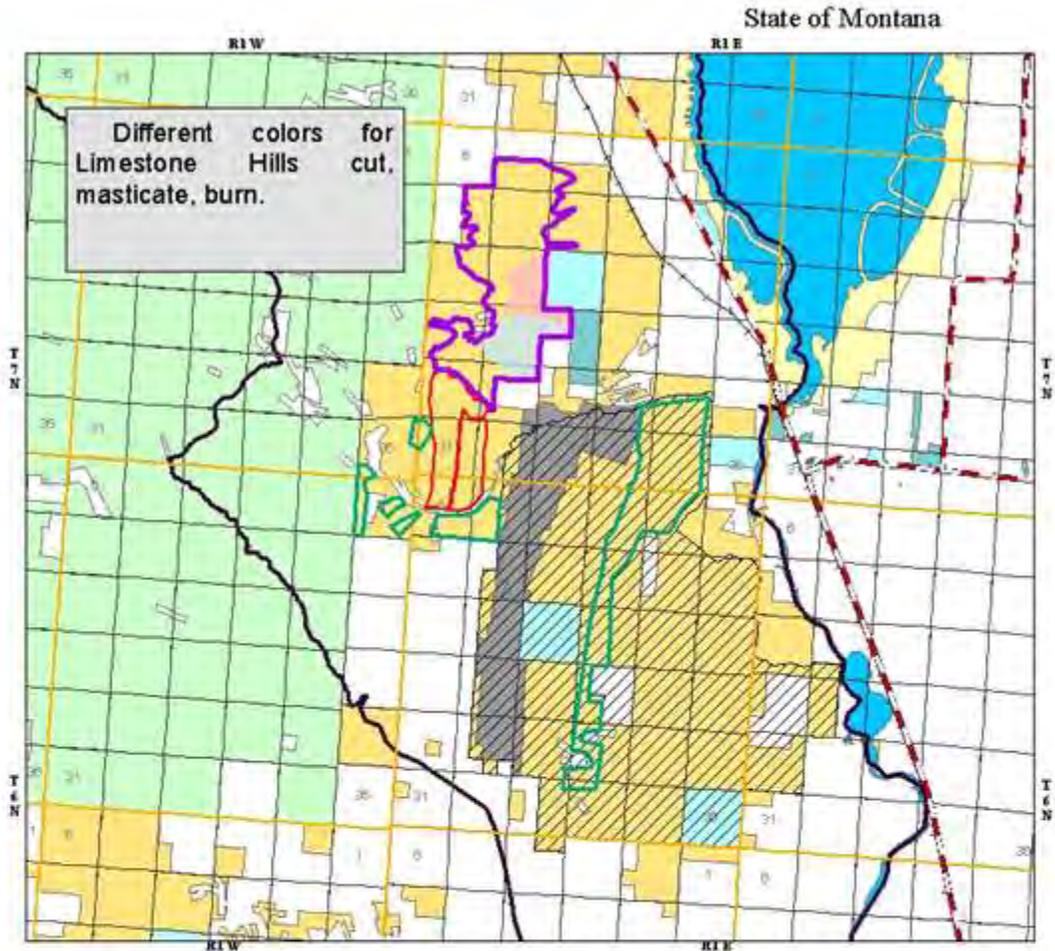
#### **2.4.4 Upland Vegetation Treatments**

The following projects are proposed to address the vegetative impacts from a lack of historic fire regime and improve the upland and riparian land health. Vegetation Treatment Objectives (VTOs) include:

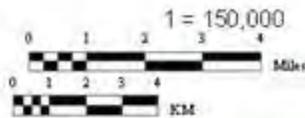
1. Maintaining or making progress towards meeting Land Health Standards.
2. Reducing conifer and colonization to open up vegetation areas for grasses and forbs that would be more prevalent on the landscape had fire been allowed to occur naturally.
3. Improving native habitat for wildlife including elk and mule deer by increasing herbaceous vegetation.
4. Reducing fuel loads and the risk of larger, hotter wildfires.
5. Promoting riparian health.
6. Moving vegetation communities toward pre-settlement conditions.

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**Map 5 Proposed Vegetation Treatment Areas (MTARG is not within BLM decision authority)**



- Limestone Hills treatment areas
- Forage Reserve treatment area
- Prescribed burn 1
- Prescribed burn 2
- Shep's Ridge treatment
- Planning area
- Railroads
- Limestone Hills withdrawal
- Graymont Mine



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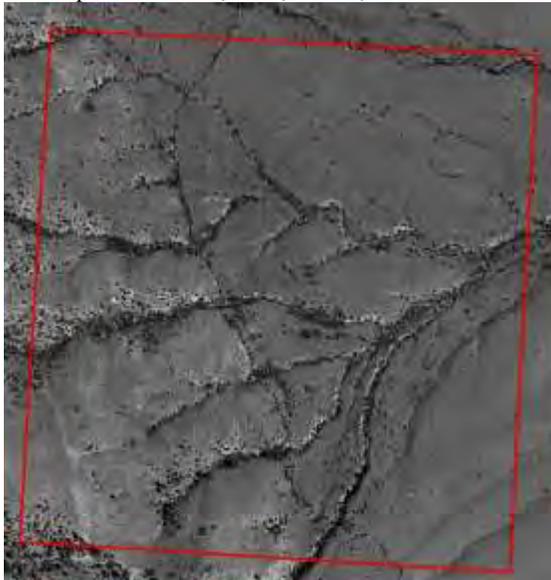


**CAUTION:**  
 Limestone Hills data is derived from basemap data that the 1:24000 scale base map. Therefore, Limestone Hills may not be shown (or possibly smaller than 10 acres) and Limestone Hills may have shifting borders due to basemap data.  
 No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

**Indian Creek Forage Reserve allotment:** Colonization of conifers, primarily juniper and Douglas-fir, has occurred to a great extent in this area primarily due to change in fire disturbance regime (see FRCC discussion, Chapter 3). The grassland/shrubland type habitat in this area is undergoing habitat type change towards woodland. (See cover photo and photos below.) Within a polygon of 3,547 acres that encompasses most of the conifer expansion in this area, up to approximately 978 acres would be treated with prescribed fire. These acres were determined by where burns could be safely controlled. Up to 2,591 acres could be treated by mechanical or hand-cutting means. Pockets of forest, especially on north-facing slopes would not be treated. Some conifer patches would be left for habitat diversity and big game hiding and thermal cover. Treatments would focus on restoring grassland/shrubland habitats, and reducing conifer expansion into aspen stands, especially in riparian areas.

Photos 1 and 2: Conifer expansion into grassland/shrubland from 1955 to 2011.

Aerial photo of T7N, R1E, Sec. 8, SW ¼ in 1955



Aerial photo of T7N, R1E, Sec. 8, SW ¼ in 2011



**Shep's Ridge treatment maintenance and aspen stand improvement:** In 2006, a 1,200-acre mastication and prescribed burn treatment was completed on Shep's Ridge to reduce conifer expansion and improve habitat, primarily for bighorn sheep. Since completion of that project, juniper and Douglas-fir seedlings have returned from the seed source that was in the soil at the time, with most of the density of the seedlings at the southern end of the treatment. Under this alternative, those seedlings would be cut to maintain the results of the 2006 treatment.

Photo 3: Small Douglas-fir and juniper reestablishment on Shep's Ridge



In the drainages to the east of the Whipcracker Road, aspen stands which were on the periphery of the 2006 treatment would be treated by either hand cutting or mechanical removal of colonizing conifers. Conifers up to 8" DBH would be removed, while more mature conifers over 8" DBH would be conserved.

**Whipcracker Treatment Area:** If the proposed Whipcracker fence is built, BLM proposes to treat up to 350 acres in this area to open up the tree canopy and promote an environment for a more historic forest savannah.

The proposed project in this area would benefit wildlife habitat and begin moving this upland toward a healthier condition by opening up the under- and overstories, and reducing competition between conifers. This treatment would also reduce the risk and severity of wildfire if it were to occur. Proposed treatments in this area would address VTOs 1-4 and 6.

By observing the larger diameter trees that formed old open savannah-type groups, then looking at the interspaces that are filled with small diameter trees, it can be determined that fire has not returned in regular intervals to keep the open savannah-like characteristics. There is also spruce budworm activity in this stand which can indicate that the stand condition is crowded, tree crowns are overlapping, and the trees are competing for sunlight and water.

Photo 4: Larger diameter tree groups compared to colonizing smaller diameter trees. (Red arrows indicate leave trees.)



BLM proposes to reduce the understory trees by 70% and the overstory by 40% to move this area towards more historic vegetative condition of open forest savannah. Hand cutting conifers, primarily juniper and Douglas-fir, would create open patches with large-diameter trees retained in groups. Cuttings would be arranged into piles for burning. Burn piles would be located at least 50 feet from live uncut trees.

A prescribed fire would also be considered for this area to open the understory and reduce the overstory. Again, the fire prescription objectives would be to create open groups of leave trees interspersed with small openings. Prescribed fire would not be conducted any closer to the Indian Creek drainage than 100 feet to reduce possible erosion into Indian Creek and provide a buffer along privately owned land along the creek.

Since many of the slopes in this area are greater than 40%, mechanical mastication would not be feasible. A commercial timber sale is also not practicable due to the low volume of marketable trees and numerous trees having too many stem branches to be considered commercial sawlogs.

**Spring Development Treatment Areas:** Six of the spring developments in the Limestone Hills allotment that provide water to cattle and wildlife are colonized by conifers. The spring developments are: Hassel, Schriener, Tough, Lower Indian, Upper Indian, and Fesida. In separate treatment areas with a combined total acreage of approximately 291 acres, BLM proposes to use prescribed fire, hand-cutting, or a combination of both to reduce colonizing conifers above and around these drainages to move these areas towards better upland health, lower the risk of severe wildfire, and reduce fuel loads. Cut conifers would be arranged in small, vertical piles and burned. Burn piles would be located a minimum of 50 feet from live aspen, ponderosa pine and limber pine trees.

Conifers up to 8" DBH could be removed. In the Hassel and Schriener Spring drainages, the reduction of conifers would also promote existing aspen stands by creating more sunlight and

less competition for water, providing a better environment for aspen seedlings and saplings to increase and flourish.

These separate but similar treatments would strive to reduce the smaller-sized conifers by 80-90%, which would also help promote regeneration of native grasses and forbs in important elk winter habitat area.

Treatments in these areas would address all of the VTOs.

**Cold Springs Treatment Area:** In the Cold Springs Pasture, the U.S. Forest Service conducted a prescribed fire several years ago adjacent to the west boundary to reduce conifer colonization and promote native grasses and forbs. BLM proposes hand-cutting or terra torching conifers along the west one-quarter of the Cold Springs pasture that would “bump up” alongside the Forest Service prescribed burn. This vegetation treatment would be approximately 125 acres in size and would reduce conifers that have colonized due to a lack of a natural fire regime (VTOs 1, 2, 5). This treatment would result in mosaic patterns throughout the treatment area but would strive to kill up to 80% of the conifers less than eight inches DBH.

#### 2.4.5 Riparian Treatments

**Indian Creek Headcut Restoration:** BLM proposes to stabilize this headcut to prevent further destabilization of the reclaimed stream channel. Specific designs for the headcut stabilization would be developed during 2014-15 and would likely include a combination of physically hardened grade control structures, slope reduction and revegetation with both riparian and upland species.

Photos 5 and 6: Indian Creek Headcut



**Whipcracker Gulch Restoration:** Whipcracker Gulch is the perennial interrupted stream that flows generally east-southeast towards Indian Creek below the abandoned Iron Mask Mine and Mill Site. The mine is proposed for reclamation under a separate effort under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) authority to clean up soil and sediment at the site that are contaminated with heavy metals. No alternative presented in the Expanded Engineering Evaluation/Cost Analysis (EEE/CA) (DOA 2009) to clean up the hazards has been selected at the time this EA is written. The proposed restoration

action is therefore included in this EA in case funding to conduct the restoration is not secured under CERCLA.

The stream source of Whipcracker Gulch is an adit at the Iron Mask mine site. If reclamation under CERCLA can clean up the source of the stream at the site for the surface water to meet water quality standards, then BLM proposes to enhance stream flow and function by rehabilitating up to approximately 1 mile of stream immediately below the site. A synthetic or grout groundwater sill would be constructed to increase surface flow where it currently disappears below the streambed due to mine altered channel morphology. Banks and incised and straightened sections of stream would be recontoured to reduce erosion, restore the floodplain, and channel morphology to improve stream water quality, stability and be able to more effectively dissipate stream energy. Conifer encroachment would be removed and riparian vegetation would be established, consistent with treatment proposals in the riparian section of this document.

If the CERCLA reclamation does not result in clean stream water and stream sediment, then BLM would not attempt to enhance stream connectivity between the surface water at the site and the channel below the site. The connectivity effort would not be undertaken to prevent contamination of downstream water.

**Kelly Spring Gulch:** Aerial photography from 1955 shows approximately eight forested acres in the gulch. In 1982, a 25-acre enclosure was built around the gulch to protect aspen. Conifers have increased in the immediate area and are now jeopardizing the aspen that the enclosure was built to protect, as well as possibly reducing water flow in the channel. Removal of approximately 60-90% of the conifers by hand cutting, focusing on the smaller size trees, in a 21-acre area on the west side of the Kimber Diorite allotment adjacent to USFS land is proposed to restore riparian vegetation and improve water flow and availability for wildlife.

**Indian Creek Riparian Vegetation Treatments:** All of Indian Creek and the West Fork of Indian Creek would receive treatments to improve riparian health. A total of 12 reaches exist on Indian Creek and its' West Fork where it goes through the DA: MIDR-20, 21, 22, 23, 24, 25, 38, 39, 43, 44, 45, 49 (please refer to the riparian reach table in Section 3.4.5 for statistics). In the last PFC evaluations, ten of these reaches were rated as FAR, three were NF, and only one was PFC. The primary reasons for the low ratings in these reaches were conifer colonization and aspen, cottonwood, willows, alder, and other riparian species that would be expected to occur in greater density and vigor under historical conditions before being out-competed by conifers. Reaches 20, 21, and 22, at the lower (eastern) end of Indian Creek in the DA, have been colonized by Russian olive trees in addition to conifer. Dense stands of Russian olive exist along the Missouri River and are spreading up Indian Creek. Species diversity is typically lower, and value to wildlife and livestock in Russian olive stands is generally lower than riparian areas dominated by native species (Zouhar 2005).

On the main stem of Indian Creek in reaches MIDR-23, 24, 25, 43, 44, 45, and on the West Fork of Indian Creek (MIDR-49), conifers less than 8" DBH would be hand-cut to decrease understory and overstory vegetation competition and promote the cover and vigor of riparian vegetation species. Conifers would be cut to a distance of no more than 50 feet on each side of the drainage.

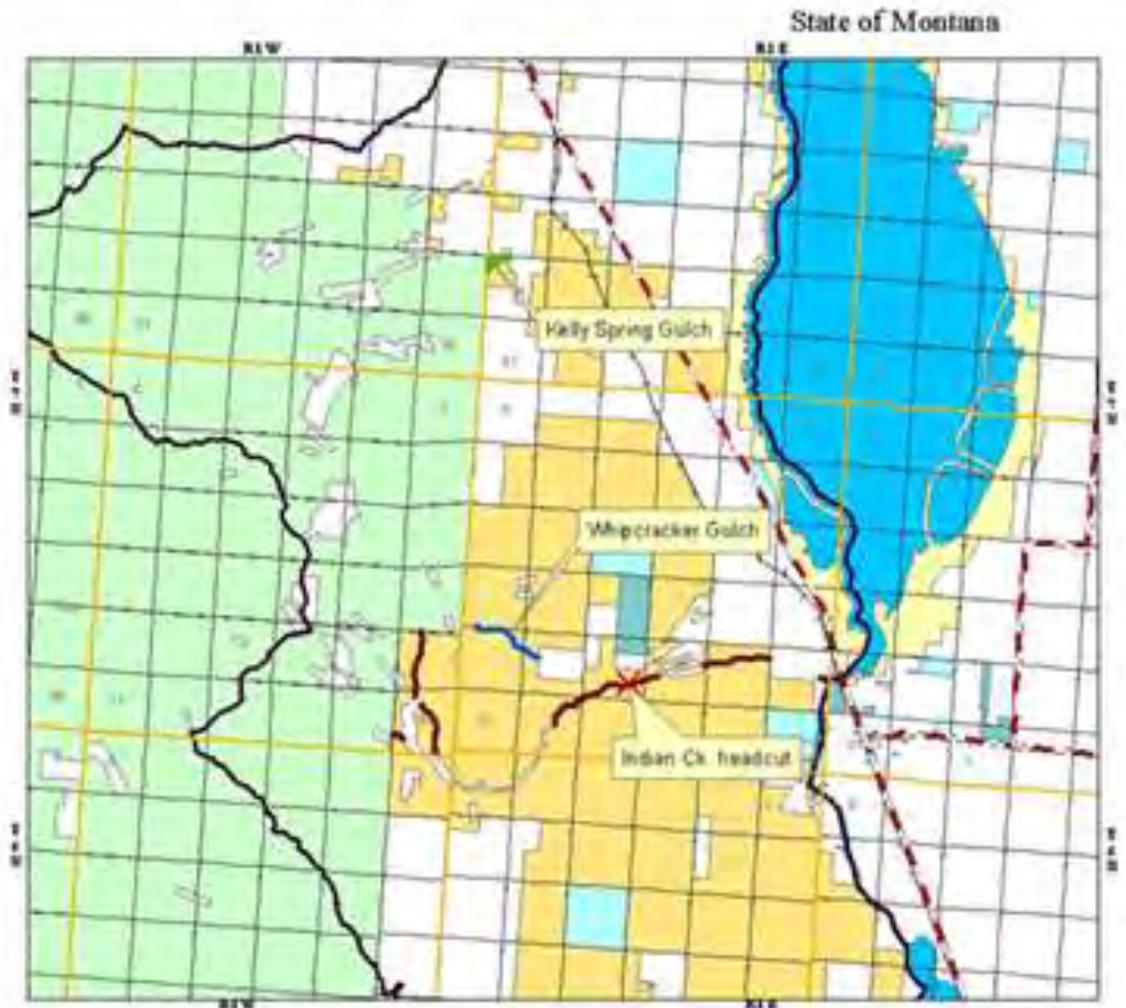
In reaches MIDR-38 and 39 understory junipers and Douglas-fir with a DBH up to 8 inches and up to 30 feet on each side of the stream would be hand-cut.

In reaches MIDR-20, 21, and 22 Russian olive trees would be removed by cutting and/or chemical application to eliminate resprouting. Any Russian olive trees spreading into the upper reaches would also be removed.

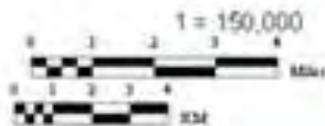
In all treatments of Indian Creek riparian reaches, felling would direct tree crowns away from open water in the creek. Cut conifers would be pulled back away from the immediate stream area to lessen impacts to fish from large amounts of conifer needles. (The addition of large amounts of decomposing needles into the creek would negatively impact fish by reducing available oxygen.) Large conifers that provide bank stabilization and shade to help keep cool water temperatures would be retained.

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# Map 6 Proposed Riparian Treatments



-  Indian Ck. vegetation restoration
-  Planning area



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## **2.4.6 Wildlife Friendly Fencing**

All new fences would be configured and maintained to wildlife-friendly specifications in accordance with BLM Handbook H-1741-1 (1989) or *A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind* (Paige 2012), with the exception of fences built specifically to keep ungulates out of an area or fences built to meet specific public safety or other administrative purposes. Existing fences not meeting standard BLM wildlife specifications or those that impede wildlife movement would be removed, modified, or reconstructed to BLM specifications (USDI-BLM 2009a).

## **2.5 Alternative C**

### **2.5.1 Travel & Recreation**

This alternative would be the same as Alternative B with the exception that Route segments 001, 004 and 007 (two miles) in the northern extremity of the area would be open to the public seasonally for wheeled motorized vehicles from May 16<sup>th</sup> to Dec 2<sup>nd</sup>. An additional trailhead would be established just before the junction of routes 005 and 006 with a locked gate and other amenities as described in Alternative B. This access route would concentrate motorized uses already occurring by two private landowners that have legal motorized access to their lands. These seasonally open routes (wheeled motorized vehicles) would also be available for their use from May 16<sup>th</sup> to Dec 2<sup>nd</sup>.

### **2.5.2 Forage Reserve Allotment**

This alternative is similar to Alternative B, with the exception that the pasture division fence would be moved to the east at the north end to where route 004 forks into routes 005 and 006. This alternative would be chosen if Alternative C is chosen for travel. Placing the pasture division at this location would aid in travel management enforcement, by having the pasture division fence and trailhead/parking area at the same location. This would add approximately ¼ mile of fence. Also this would move one coinciding fenceline tank location to the east. Approximately 640 acres and 86 AUMs would be transferred from the East pasture to the West pasture. The East pasture would consist of 2690 acres 362 AUMs. The West pasture would consist of 4245 acres and 575 AUMs.

### **2.5.3 Grazing Authorizations**

Alternative C was designed to provide an additional basis for comparison on ment, which did not meet four out of the five land health standards due, in part, to livestock grazing. Historic mining, munitions firing, noxious weeds, and conifer colonization were also contributing factors for not meeting the four land health standards.

Under Alternative C, no livestock grazing would be authorized on the Beaver, Beaver Creek, Dowdy Ditch, Kimber Diorite, Limestone Hills, and Whitehorse allotments. The existing range improvements (water developments and pasture fences) would be abandoned.

## 2.6 Alternatives Considered but Eliminated from Further Analysis

### 2.6.1 Travel and Recreation

Opening Route 008 from trailhead to trailhead was considered and dropped since it would not conform with RMP guidance mandates for the area, which include: Non-motorized recreation will be promoted and emphasized; and Management activities will have long-term benefits to wildlife and will minimize short-term impacts. It would not be beneficial to wildlife, nor would it promote non-motorized recreational uses.

## 2.7 Cumulative Actions

Cumulative Actions are actions occurring in the area, not proposed by BLM, but have the potential to contribute to cumulative impacts when considered in combination with the proposed action or alternatives. Impacts attributable to cumulative actions are described in the Cumulative Impacts section of Chapter 3.

### 2.7.1 Past Actions

**Settlement:** Lewis & Clark passed through the current PA on the voyage of discovery in 1805, although the first white settlers, homesteaders, and Civil War veterans in search of gold did not arrive until the late 1860's. In 1883, a rail stop was established as businesses became established supporting gold mining in the region (Townsend website 2014). Early mining caused a variety of detrimental localized impacts to uplands and waterways.

**Beaver reduction:** Over-trapping of beavers and unregulated livestock use during the late 1800s and early 1900s changed the character (hydrologically and vegetatively) of most mountain streams in the Intermountain West (Elmore and Kaufman 1994). No active beaver colonies are known to occur in the DA. However, during 2010 PFC surveys in the proposed Indian Creek Forage Reserve allotment, an old beaver skull was found in a drainage that now lacks riparian beaver habitat characteristics, indicating that they once occurred there and the site had more riparian characteristics to support beaver.

**Aspen decline:** Aspen has declined across the western U.S. This is a phenomenon that can be attributed primarily to a combination of successional processes including reduction (or elimination) of fire and long-term overuse by ungulates (Bartos and Campbell, 1998).

**Fire suppression:** Human-caused factors, primarily fire suppression, have resulted in ecosystem successional stages becoming more advanced than would occur under a natural fire regime.

**Mining:** Historic dredge and placer mining occurred along Indian Creek east of the current Graymont mine. Graphite and lead mining occurred at the inactive Iron Mask mine (USDI-BLM, MT DEQ 2010). Other small mining activity areas are scattered throughout the PA.

**Nonnative species:** Many nonnative species of plants and animals have been introduced both intentionally and unintentionally by humans and have a wide variety of impacts. Examples of nonnative plants include knapweed, cheatgrass, and thistle species; nonnative fish include brook

trout, rainbow trout, and brown trout; nonnative birds include house sparrow, European starling, pheasant, and grey partridge.

### **2.7.2 Present Actions**

**Indian Creek Mine:** Graymont or its' predecessor companies have been mining at the Indian Creek Mine since 1981. Impacts from ongoing mining operations were assessed in the 2010 Indian Creek Mine Final Environmental Impact Statement (USDI-BLM, MT DEQ 2010). The Record of Decision on this EIS expanded the mine permit area to 3,675 acres and extended the permit duration by 50 years.

**Various ownerships:** Land ownership across the PA includes BLM, USFS, BOR, state, county, and private. All the agencies have differing objectives and methods for managing the land under their jurisdiction. Private landowners have many differing uses and methods for management of their property. All of these land management methods include practices and barriers that the natural ecosystem did not have to cope with until the 1800s.

**Demographics:** The population of Broadwater County stood at 5612 residents in the 2010 census, a 28% increase over the 2000 census. The total land area of the county is 762,560 acres, with farms and ranches accounting for an estimated 474,892 (62.3%) of those acres as of 2007. From 2002-2007 the number of farms in the county increased but their size decreased (MT Dept. of Labor & Industry 2012).

**Agriculture:** Statistics for 2012 indicate that there were approximately 22,000 cows in Broadwater County, and approximately 68,800 acres of hay and barley harvested. Statistics for other types of livestock and crops were not available (USDA-NASS 2012). Most of BLM and USFS land within the PA is open to cattle grazing. Most of the cropland in Broadwater County lies outside of the PA; some cropland exists at the south end of the PA, however.

### **2.7.3 Reasonably Foreseeable Future Actions**

**Iron Mask Mine Reclamation:** Mine features at the Iron Mask include an adit portal, a large waste rock dump, a mill site, and tailings deposited at two locations below the mill. Water is discharging from the portal. Waste rock and tailings have four contaminants of concern, including arsenic, cadmium, lead, and manganese. The water emanating from the adit flows on the surface through the waste rock, and along the tailings in Whipcracker Gulch before vanishing to subsurface flow. The water meets Montana Department of Environmental Quality drinking water standards, but the sediment in the stream bed is contaminated.

An Intra-Governmental Order with the U.S. Army Corps of Engineers (USACE) for reclamation activities at this site was established in 2006 and resulted in closure of a hazardous mine opening, site characterization work, cultural resources/Potentially Responsible Party investigation and a Draft Final Expanded Engineering Evaluation/Cost Analysis under CERCLA authority. The USACE and/or their contractor(s) are responsible for completing the following tasks:

- Conduct pre-construction work including investigations, studies and engineering design.
- Conduct reclamation activities and provide construction oversight.
- Design and construct road and water improvement projects in the Iron Mask area.

**Limestone Hills Training Area:** Public lands in the Limestone Hills Training Area have been used since the 1950s for military training purposes. Uses include live firing of ammunition and explosives, helicopter training, infantry maneuvers, equipment maintenance and testing, construction and maintenance of facilities, and clearing UXO. Most recently it was used for about 140 days per year from mid-April through November. It has not normally been used from December 1 through mid-April as requested by FWP to protect big game wildlife habitat.

On December 26, 2013, some 18,000 acres of public land in the LHTA were withdrawn from the public domain to the Department of the Army. Under the withdrawal legislation, the BLM retains management responsibility only for livestock grazing and mining activity inside the LHTA. Under the Sikes Act, the military is required to prepare an Integrated Natural Resource Management Plan (INRMP) for the area. At the time of this writing, it is not known what management practices may differ under the INRMP from previous BLM management.

The following project proposals were developed before the LHTA withdrawal by the MTARNG to aid in fire suppression, vegetation management, and to control movement of livestock in the LHTA:

- Drill two wells and install storage and water tanks at each of the two locations,
- Rebuild and extend the boundary fence on the west side of the LHTA,
- Build gap fences around the perimeter of the active firing area,
- Remove redundant or unneeded fences around the Tank Range pasture,
- Annually spot-burn in the Tank Range Pasture, and
- Use hand-thinning and prescribed fire on the west side of the Marble Quarry pasture.

Decision-making authority to approve and implement these projects now rests with the Department of the Army, or MTARNG under license by the Army, and not with the BLM. Because these actions could still be implemented by either the Army or MTARNG, they have been included as cumulative actions for analysis purposes.

**Abandoned Mine Lands:** The Abandoned Mine Lands (AML) program will continue to inventory and assess the impacts of abandoned mines on BLM lands as mandated by the RMP, the Surface Mining Control and Reclamation Act (1997), the Montana Strip and Underground Mine Reclamation Act (2008), and two Internal Memorandums to reduce or eliminate risks to human health from hazardous mine openings, and to implement immediate temporary or permanent measures to mitigate known dangerous sites. Once mines have been evaluated, the appropriate closures, reclamation, or mitigation would be conducted as funding and/or staffing allow. Closure methods would be determined on individual basis in future environmental analyses, as appropriate.

**Increasing population:** Human population, development, and subdivision of private land within the PA are likely to increase. The Highway 287 corridor between Townsend and Helena

has been becoming more developed as the population and economic opportunities of Helena increase.

**Increasing recreation:** Outdoor recreation of all types; motorized and nonmotorized, consumptive and nonconsumptive, are expected to increase.

**Restoration treatments:** Vegetation restoration treatments on non-BLM lands are expected to continue. These treatments are promoted by citizen groups and agencies to return earlier successional stages to the landscape and reduce the likelihood of catastrophic fire events.

**Invasive species control:** Invasive and non-native weed treatments have a high likelihood to continue.

## 2.8 Preferred Alternative Identification

Alternative B, the Proposed Action is the BLM’s Preferred Alternative for management actions in the Iron Mask Planning Area. The identification of a preferred alternative does not constitute a decision but is intended to inform the public which way the agency is leaning at this point in time so they can focus their review and comment. The preferred alternative may change based upon information submitted by the public, other agencies, or upon reconsideration by the BLM authorized officer. Upon completion of a public review and comment period, the EA will be finalized and a preferred alternative will be selected in a Decision Record.

## 2.9 Summary Comparison of Alternatives

Table 2

	Alternative A	Alternative B	Alternative C
<b>Travel, Recreation</b>	<p>Acquisition area remains closed to motorized use.</p> <p>Roads in the acquisition area necessary for administrative use would be maintained in primitive condition. Areas where roads could be causing stream channel alteration, erosion, or other resource damage would be improved to mitigate the damage.</p> <p>In the rest of the DA, the 1995 Elkhorns Travel Plan remains in effect.</p>	<p>Current trailheads improved and open yearlong. Motorized use restricted to administrative purposes in acquisition area.</p> <p>(Same as A): Roads in the acquisition area necessary for administrative use and authorized use of the forage reserve allotment would be maintained in primitive condition. Areas where roads could be causing stream channel alteration, erosion, or other resource damage would be improved to mitigate the damage.</p> <p>In the rest of the DA, the 1995 Elkhorns Travel Plan remains in effect.</p> <p>Old cisterns in the</p>	<p>Approximately two miles of routes in the north end of the acquisition area would be open from 5/16 – 12/2.</p> <p>(Same as A): Roads in the acquisition area necessary for administrative use and authorized use of the forage reserve allotment would be maintained in primitive condition. Areas where roads could be causing stream channel alteration, erosion, or other resource damage would be improved to mitigate the damage.</p> <p>In the rest of the DA, the 1995 Elkhorns Travel Plan remains in effect.</p> <p>Old cisterns in the acquisition area that pose a</p>

		acquisition area that pose a safety hazard to visitors would be filled.	safety hazard to visitors would be filled.
<b>Indian Ck. Forage Reserve allotment configuration</b>	Infrastructure necessary for grazing to occur would not be constructed.	East and west pastures created. Seven water developments constructed. Exclosures around spring sources and wet meadows constructed. Use season is 5/15-10/15. Use RMP criteria to assess applications.	Same as B except pasture division fence is moved if Alt. C for travel is chosen.
<b>Beaver allotment authorization #2507857</b>			
Season of use	6/1 – 10/30	Same as A but with added terms and conditions	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	21 C		
Active BLM AUMs	105		
Grazing system	Deferred		
<b>Beaver Creek allotment authorization #2507866</b>			
Season of use	5/15 – 10/31	Same as A, but with added terms and conditions.	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	2 C		
Active BLM AUMs	11		
Grazing system	Custodial		
<b>Dowdy Ditch allotment authorization #2504527</b>			
Season of use	5/1 – 6/15	Same as A, but with added terms and conditions.	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	7 C		
Active BLM AUMs	11		
Grazing system	Custodial		
<b>Dowdy Ditch allotment authorization #2504487</b>			
Season of use	5/1 – 6/15	6/1 – 8/15	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	13 C	80 C	
Active BLM AUMs	20	20	
Grazing system	Custodial	Custodial	

<b>Kimber Diorite allotment authorization #2507866</b>			
Season of use	6/1 – 10/15	Same as A, but with added terms and conditions.	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	221 C		
Active BLM AUMs	221		
Grazing system	Rest rotation		
<b>Limestone Hills allotment authorizations #2500155, 2500156, 2507897</b>			
Season of use	5/31 – 9/30	6/1 – 9/30	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	486 C	486 C	
Active BLM AUMs	1944	1365 (Relinquished 579 AUMs would be reallocated to wildlife use.)	
Grazing system	Rest rotation	Rest rotation	
Grazing-related projects	none	Two new pasture boundary fences. Springs outside of the LHTA rebuilt. Install a new pipeline and water tank in Whipcracker pasture.	
<b>Whitehorse allotment authorization #2507587</b>			
Season of use	6/10 – 10/15	Same as A, but with added terms and conditions.	No grazing would be permitted. Existing water developments and pasture fences would be abandoned and removed.
Livestock number & kind	62 C		
Active BLM AUMs	87		
Grazing system	Deferred		
<b>Upland vegetation treatments</b>	No vegetation treatments would occur.	A total of approximately 7935 acres are proposed for treatments. A maximum of 4468 acres could be subject to prescribed burns. The rest would be hand-cut, masticated, or terra-torched.	Same as B.
<b>Riparian treatments</b>	Up to one mile of Whipcracker Gulch below the Iron Mask mine could be restored to increase surface flow and function. Restoration would only occur if adequate funding were secured under CERCLA.	Whipcracker Gulch restoration could be accomplished under NEPA if not accomplished under CERCLA.  A large headcut on Indian Creek would be stabilized.  Juniper, Douglas-fir, and	Same as B.

	No restoration would occur on the Indian Creek headcut.  No vegetation treatments would occur.	Russian olive removal would take place along all of Indian Creek in the DA.  Conifer removal would occur on 21 acres of Kelly Spring Gulch.	
<b>Wildlife-friendly fencing</b>	Fence modification could be accomplished under Categorical Exclusions.	All fences in the DA would be configured to wildlife-friendly specifications.	Same as Livestock C.

### 3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

#### 3.1 Introduction

Chapter 3 describes the potentially affected existing environment of the PA as identified by the agency during public scoping. Chapter 3 then describes the changes, or potential impacts, to those resources that could occur as a result of each alternative.

#### 3.2 General Setting

The Iron Mask DA consists of 19 separate BLM-owned land parcels totaling 26,605 acres. Elevations range from approximately 3850' just west of Canyon Ferry Reservoir to 6700' east of Indian Creek. Habitat types are generally grasslands in the lower, eastern portions of the planning area, transitioning into shrublands/woodlands as elevation rises to the west. The highest, westernmost portions are generally coniferous forest. Several aspen stands are also included in the area.

The DA consists of a variety of land uses and classifications:

**Elkhorns Cooperative Management Area:** All of the DA west of Highway 287 is within the Elkhorns Cooperative Management Area (ECMA). All National Forest lands in the Elkhorn Mountains were designated in 1981 as a Wildlife Management Unit, the only one of its' kind in the National Forest system. In 1992, the BLM and FWP joined into a Memorandum of Understanding (MOU) with the Helena and Deerlodge National Forests to manage the Elkhorns as a contiguous ecosystem across administrative boundaries with an emphasis on healthy wildlife and fish habitats.

**Elkhorn Mountains ACEC:** Most of the DA was designated in the Butte RMP as part of the Elkhorn Mountains ACEC. ACEC designations highlight areas where special management attention is needed to protect important historic, cultural, and scenic values, fish or wildlife resources or other natural systems or processes. ACEC designation indicates to the public that an area has significant values and has established special management measures to protect those values. In addition, designation serves as a reminder that significant value(s) or resource(s) exist which must be accommodated when future management actions and land use proposals are considered within or near an ACEC (USDI-BLM 1988).

**Limestone Hills Training Area:** The MTARNG has trained in the Limestone Hills south of Indian Creek since 1959 under a BLM Special Use Permit and a Right of Way issued in 1984. In December 2013, Congress approved the withdrawal of this area from the public domain to the military. The legislation provides for BLM to continue to manage the grazing and mining activity under its current regulations. This withdrawal is set to expire in 2039. The training area is used for maneuver and live fire training for infantry, armored, artillery, engineer, aviation, and special operations units. Over the years, military training has resulted in unexploded ordnance contamination in the Limestone Hills. Two grazing allotments within the training area are analyzed for grazing permit renewal in this EA. Two other allotments within the training area will be analyzed in future EAs due to the length of time left in their current grazing authorizations.

**Indian Creek Mine:** The Indian Creek Mine, operated by Graymont Western U.S., Inc. has been in operation in the Limestone Hills since 1981 and is a major local employer and producer of lime. In 2010 a modified Plan of Operations was approved by BLM increasing the mine permit area from 1735 acres to 3675 acres. All but about 230 of those acres are also within the LHTA withdrawal.

**Iron Mask Property Acquisition:** The Iron Mask property, named after an old mine site, was acquired by BLM in 2007 with assistance from the Rocky Mountain Elk Foundation (RMEF), The Conservation Fund (TCF), and other entities. Prior to that, it had been held by various private owners. The property covers 5566 acres and has been open to nonmotorized recreational use since 2005.

**Iron Mask Mine:** The old Iron Mask mine site, located in the southwest portion of the acquired property, was a historic producer of lead and zinc. Mine features include an adit, waste rock dumps, a mill site, and tailings below the mill. Heavy metals have been identified and documented as contaminants of concern. Alternatives for reclamation have been developed in an EEE/CA prepared for BLM by the Corp of Engineers (DOA 2009). Reclamation and removal actions would be conducted under the authority of the CERCLA, outside the scope of this EA.

Acreage figures summary:

Planning area acres: 124,933

Decision area acres: 26,235

BLM acres in ECMA: 25,902

BLM acres in ACEC: 15,019

LHTA withdrawal acres in PA: 18,644

LHTA withdrawal acres in DA: 10,573 (8441 acres are in the Limestone East and Section 33 allotments that will not be analyzed in this EA).

Indian Creek Mine permit area acres: 3,675

Acres of disturbance allowed in mine permit boundary area: 2,048

Indian Creek Mine permit acres on BLM land outside LHTA withdrawal area: 230

Iron Mask property 2007 acquisition acres: 5,566

### 3.3 Critical Elements of the Human Environment

Table 3

Determination*	Resource	Rationale for Determination*
PI	Air Quality	Wildland or prescribed fire may temporarily affect air quality.
PI	Areas of Critical Environmental Concern	Most of the Decision Area is within the Elkhorns ACEC. The alternatives presented in this EA are designed to protect the values of this area.
NI	Cultural Resources	A Class III inventory will be performed prior to all ground-disturbing activities and vegetation treatments. All sites recorded in activity areas will be avoided.
NI	Environmental Justice	No alternative considered in the course of this analysis resulted in any identifiable effects or issues specific to any minority or low income population or community as defined in Executive Order 12898.
NI	Farmlands (Prime or Unique)	Prime farmlands are present, but there is no impact by the proposed action. Design features and BMPs would be employed to prevent degradation of soil properties, thereby preserving farmland designations. Loss of Prime Farmland designation would be possible due to erosion resulting from potential catastrophic wildfire in the No Action Alternative.
NI	Floodplains	No treatments are proposed in floodplains. Effects from treatments upslope of floodplains would not impact or impede floodplain function.
PI	Invasive, Non-native Species	Invasive, non-native plant species are present in the project area, and are contributing to the Limestone Hills allotment not meeting Land Health Standards. Annual weed control efforts plus mitigation measures will be implemented to reduce the potential spread of noxious weeds during pre and post project implementation.
NI	Native American Religious Concerns	Class III cultural resource inventories will be performed prior to ground-disturbing activities and vegetation treatments. All known sites will be avoided. Vegetation treatments intended to restore historic conditions would, over time, improve Traditional Religious experiences.
NI	Socioeconomics	Socioeconomics is eliminated from further consideration. Although some of the alternatives may affect individuals, none of the alternatives would change the socioeconomics of the region or the PA.
NP	Threatened, Endangered or Candidate Plant Species	There are no plants listed under the ESA in the Decision Area. Whitebark pine (Candidate) could occur on USFS land within the Planning Area but would not be affected by any alternative.
NI	Threatened, Endangered or Candidate Animal Species	Grizzly bears (Threatened), lynx (Threatened), or wolverines (Proposed) could travel or disperse through the Planning Area. However, favored habitat for these species does not occur and no Federally listed animal species are known to be permanent residents in the Planning Area.
NI	Wastes (hazardous or solid)	Abandoned mine waste removal is outside the scope of this EA. Abandoned mines are discussed separately in Sections 2.7.2 and 3.4.12. No other hazardous wastes have been identified in the DA.
PI	Water Quality (drinking/ground)	Alternative A would cause water quality to remain static, and in some instances may become more impaired. Alternatives B and C would improve water quality by reducing sediment loading of streams.
PI	Wetlands/Riparian Zones	Alternative A would be expected to cause riparian conditions to remain static in some areas, and in other areas conditions may decline. Alternatives B and C would improve riparian areas and wetlands.
NP	Wild and Scenic Rivers	There are no rivers with this designation in the Planning Area.
NP	Wilderness	There is no designated wilderness or lands under wilderness review in the Planning Area.

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present and may be impacted to some degree. Will be analyzed in affected environment and environmental impacts. (NOTE: PI does not mean impacts are likely to be significant in any way).

### 3.4 Issues/Resources Brought Forward For Analysis

#### 3.4.1 Travel & Recreation

##### Existing Condition

**Special Designations:** There are no existing Wilderness, Wilderness Study Areas, Lands With Wilderness Characteristics, or Wild & Scenic Rivers in the DA. The Lewis and Clark National Historic Trail and the Missouri River border BLM lands along the southeast portion of the PA for about one mile. These resources will be dropped from further analysis since they will not be affected by alternative actions in the planning effort.

**Special Recreation Management Areas (SRMAs):** The PA does not contain any administratively designated SRMAs. These areas were administratively established by the BFO while Special Designations are nationally designated by Congress.

**Areas of Critical and Environmental Concern:** The existing Elkhorn Mountains ACEC is discussed in Section 3.4.7.

**Recreation Sites:** Crimson Bluffs is the only established recreation site within the PA boundary, but is not within the DA. This site is located off the River Frontage Road on the Missouri River west of Townsend. This interpretative site consists of a parking area, interpretive displays, a boundary fence and trails leading down to the river and the Crimson Cliffs, which were recorded in the Lewis & Clark Expedition. Management of this site is not within the DA for this analysis and will be considered in the Broadwater County South EA, which is currently scheduled for 2016. There are also two non-developed trailheads on the east and south boundaries of the Iron Mask area where visitors currently park vehicles and access the area via non-motorized means. These access sites are located in the northeast and southwest extremities via public routes (Whitehorse Lane and the Iron Mask Road off the Indian Creek Road respectively). No recreation sites other than the potential establishment of two trailheads to access the acquisition area under Alternative B, and three trailheads under Alternative C, will be considered in this analysis.

**Recreation Opportunity Spectrum (ROS):** The entire Iron Mask acquisition area is classified as **Semi-Primitive Motorized** in the Butte RMP. The remainder of the PA is primarily Roded Natural with a few small tracts classified as Rural. The ROS classification system identifies varying outdoor recreation environments, activities and experience opportunities that are divided into six different classifications that range from Primitive to Urban settings to guide future management.

Management guidance for **Semi-Primitive Motorized** areas is described as follows: Some opportunity for isolation from man-made sights, sounds and management controls in a predominantly unmodified environment. Opportunities exist for visitors to have a high degree of interaction with the natural environment and to experience moderate challenges in conducting dispersed activities. Concentration of visitors is low, but evidence of other area users is present. On-site managerial controls are subtle. Facilities are provided for resource protection, management and the safety of users. Motorized use is permitted.

Roaded Natural settings provide more limited opportunities for visitors to enjoy isolated settings. The landscape is generally natural with some modifications evident. Visitor concentrations are low to moderate. Opportunities for both motorized and non-motorized uses are present. Rural settings are characterized as areas where the sights and sounds of man are readily evident and the natural environment is substantially modified. These areas are relatively small in acreage and located near Highway 12.

Current recreation uses and opportunities in the PA are dispersed in nature and include hiking, horseback riding, mountain biking, scenic viewing, wildlife observation and hunting. Primary hunting opportunities exist for upland bird and big-game (elk, deer and antelope). Motorized recreation opportunities are available throughout the PA with the exception of the Iron Mask acquisition area, where uses are unavailable due to the temporary closure currently in place.

The effects on recreation uses and opportunities will be evaluated by alternative.

### **Visual Resources**

The visual resource inventory process is a systematic process used to determine visual values. The inventory consists of a scenic quality evaluation, viewer sensitivity level analysis, and a delineation of distance zones. Considering these three factors, BLM lands are placed into one of four visual resource inventory classifications that represent the relative value of the visual resources. Lands placed in Class I and Class II are the most valued, while lands in Class III are of moderate value. Lands in Class IV are of least value.

The Visual Resource Management (VRM) classification for the Iron Mask acquisition area is Class II. This classification was established under the Butte RMP. The remainder of the planning area north of Indian Creek is primarily VRM Class III while the Limestone Hills area is primarily Class IV.

VRM management objectives for Class II areas are to retain the existing character of the landscape. The level of change to the landscape should be low and must not attract attention. Management activities may be seen but must not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found within the predominant natural features of the characteristic landscape.

The objective for Class III areas is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The objective for Class IV areas is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

All alternative actions in this planning effort meet the VRM objectives for the area. Mitigation efforts to minimize visual contrasts within the affected landscapes would be utilized for all management actions. Changes would repeat the basic elements of form, line, color, and texture found within the predominant natural features of the characteristic landscape. No new roads

would be created; trailhead improvements would not be located in seldom seen locations as viewed from highways and communities; range improvements would be dark in color and low gloss finishes would be used so they do not attract attention; and vegetative improvement projects although slightly visible the first year would not be apparent thereafter as the area revegetates naturally.

### **Travel Management**

The Iron Mask acquisition area is categorized as a **Limited Area** and no site specific travel plan or route designation has been completed for this area. This classification means that some types of motorized travel may be appropriate during all or some periods of the year, subject to resource constraints, social use conditions and public safety.

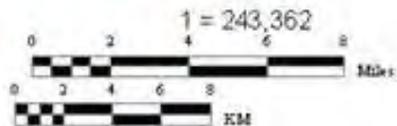
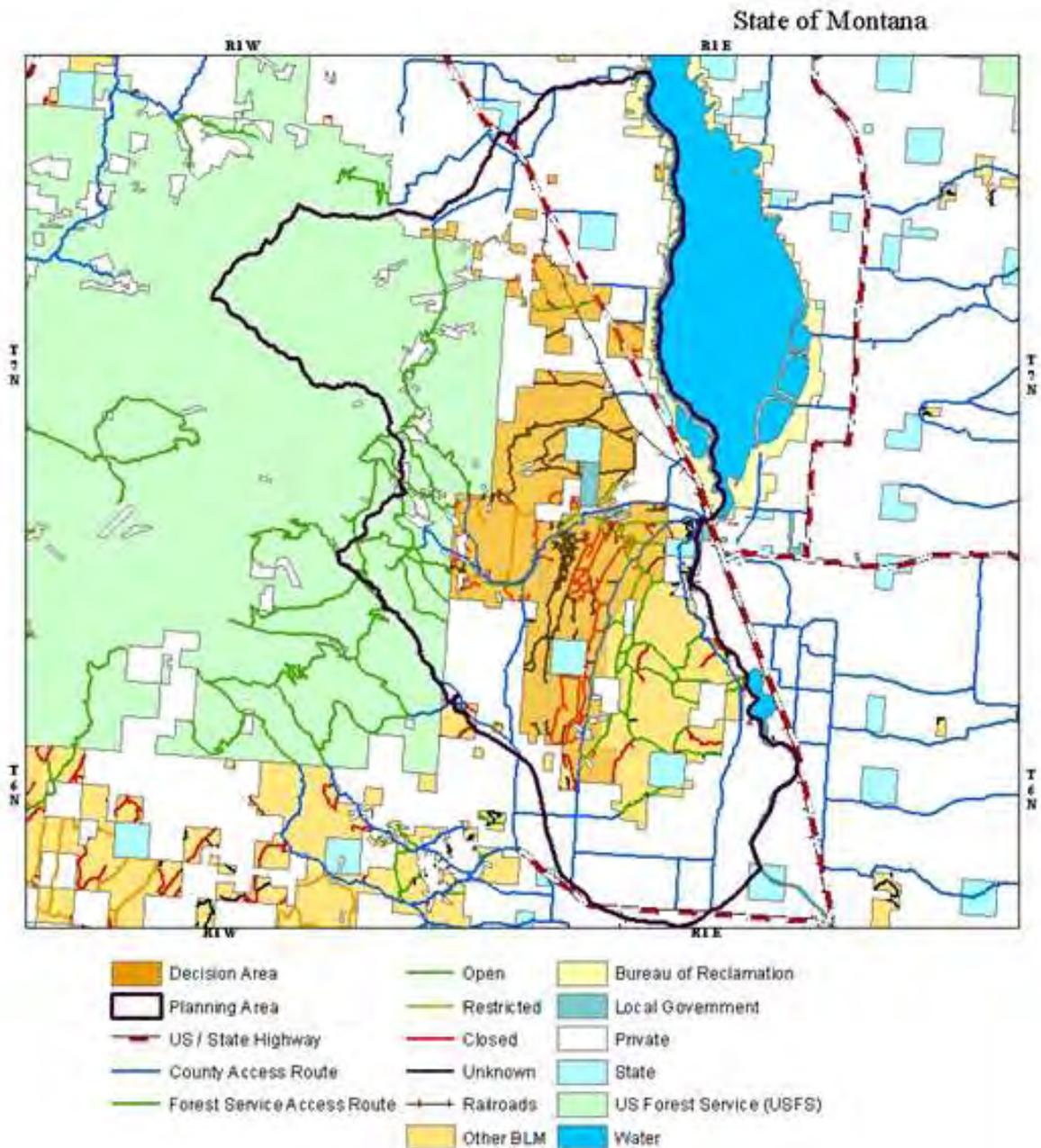
The existing travel route inventory map identifies 19 miles of primitive roads in the area that are not maintained or used by the public currently, due to the temporary closure currently in place. The only road within the area that is consistently traveled occasionally by private landowners is the northernmost route that extends off Whitehorse Lane through sections 4 and 5 to private lands in sections 6 and 7 near the USFS boundary. These two landowners have legal Right-of-Ways on this route to access their property.

The Iron Mask property first became available to the public during the big-game hunting season in 2005, when the private lands were managed as a Block Management Area through FWP. Under this program motorized access to the area was limited to two boundary trailheads that were gated. These access points are located on the southwest and northeast boundaries of the Iron Mask acquisition area. The northeast entrance point is located along the lower bench lands off Highway 287 via Whitehorse Lane while the southwest entrance provides access into the higher elevations of the area from which visitors can easily disperse. This upper trailhead is accessible via the Indian Creek Road and then along BLM route 2588 east of Shep's Ridge, which leads to the old mine. This dead-end route is closed from December 2<sup>nd</sup> through May 14<sup>th</sup>.

A temporary area closure order was implemented shortly after the Iron Mask area was acquired. This order closed all travel routes in the area to motorized uses yearlong in order to protect public health and safety, prevent the spread of noxious weeds, protect cultural and historic values until resource inventories are completed, and a management plan is developed. The two undeveloped parking lots/trailheads are currently provided at the northeast and southwest extremities for public access in a manner that was similar under the Block Management Program. Recreation use within the area is provided for non-motorized activities only.

The Elkhorns Travel Management Plan was completed for the remainder of the PA in 1995 and no designation changes are proposed for the area outside Iron Mask. The Elkhorn Mountains Travel and Recreation Map, available at USFS offices and online, contains route information for the entire ECMA.

# Map 7 Current Travel Routes




United States Department of the Interior  
Bureau of Land Management  
Montana/Dakotas State Office  
Map created on Apr 13, 2009



**CAUTION:**  
Land ownership data is derived from BLM records data from the 1:25000 scale map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have shifting corners due to survey date.

No warranty is made by the Bureau of Land Management for the use of this data for purposes not intended by the BLM.

### **Alternative A Direct & Indirect Effects**

Under this alternative the Iron Mask acquisition area would continue to be closed to all motorized uses and the remainder of the planning area would be managed as specified under the Elkhorns Travel Management Plan of 1995. The two primitive trailheads off Whitehorse Lane and Shep's Ridge would not be upgraded and as a result no visitor information or safety enhancements would be provided. Motorized access to the historic Iron Mask Mine would be allowed and no interpretive information would be provided.

This alternative would continue to have the greatest impacts to motorized users since no routes in the acquisition area would be open for motorized use. These users would continue to experience a lack of recreation and access opportunities in the area. Non-motorized users would benefit under this alternative, since potential conflicts with motorized users would be absent and opportunities for hiking, horseback riding and mountain biking within a natural setting would be available.

Cisterns which pose a safety hazard to recreationists would not be filled and remain a hazard.

### **Alternative B Direct & Indirect Effects**

This alternative would close Routes 012 and 013 east of the shooting range and north of Indian Creek Road to motorized use yearlong. The impacts of these closures would have no measurable effects on recreation users given that these routes have no public access. Cisterns which pose a safety hazard to recreationists would be filled to mitigate the hazard.

This alternative would keep Routes 012 and 013 (east of the shooting range and north of Indian Creek Road) closed to motorized use yearlong for members of the public. The impacts of these closures would have minor effects on motorized users, given that access to these routes is currently only available by obtaining adjacent landowner permissions.

Routes open to wheeled motorized use in the acquisition area would change from 0 to 0.6 miles. Opening Route 019 seasonally from 5/16 to 12/1 to the historic Iron Mask Mine site would enhance motorized access to this attraction. A trailhead at this site and the existing 2 primitive trailheads off Whitehorse Lane and Shep's Ridge (BLM route 2588) roads would be improved. Visitor opportunities to park at these facilities would be enhanced since maps and area information would be displayed, safer parking provided and small gates installed to allow easier entrance to the area.

The vegetation treatments, implementation of the forage grazing reserve and range improvements identified under this alternative would have a minimal effect on recreation opportunities over the long-term. Some limited conflicts during implementation may occur due to temporary uses of motorized vehicles, sights and sounds interruptions from construction activities and smoke conditions during active burning periods. Periodic grazing under the mandated forage reserve system and occasional authorized vehicle uses in the Iron Mask acquisition area may impact natural setting experiences and use conflicts during active periods of cattle grazing. Direct impacts on hunting experiences from these new grazing activities would be non-existent since no grazing would be authorized during this season.

### **Alternative C Direct & Indirect Effects**

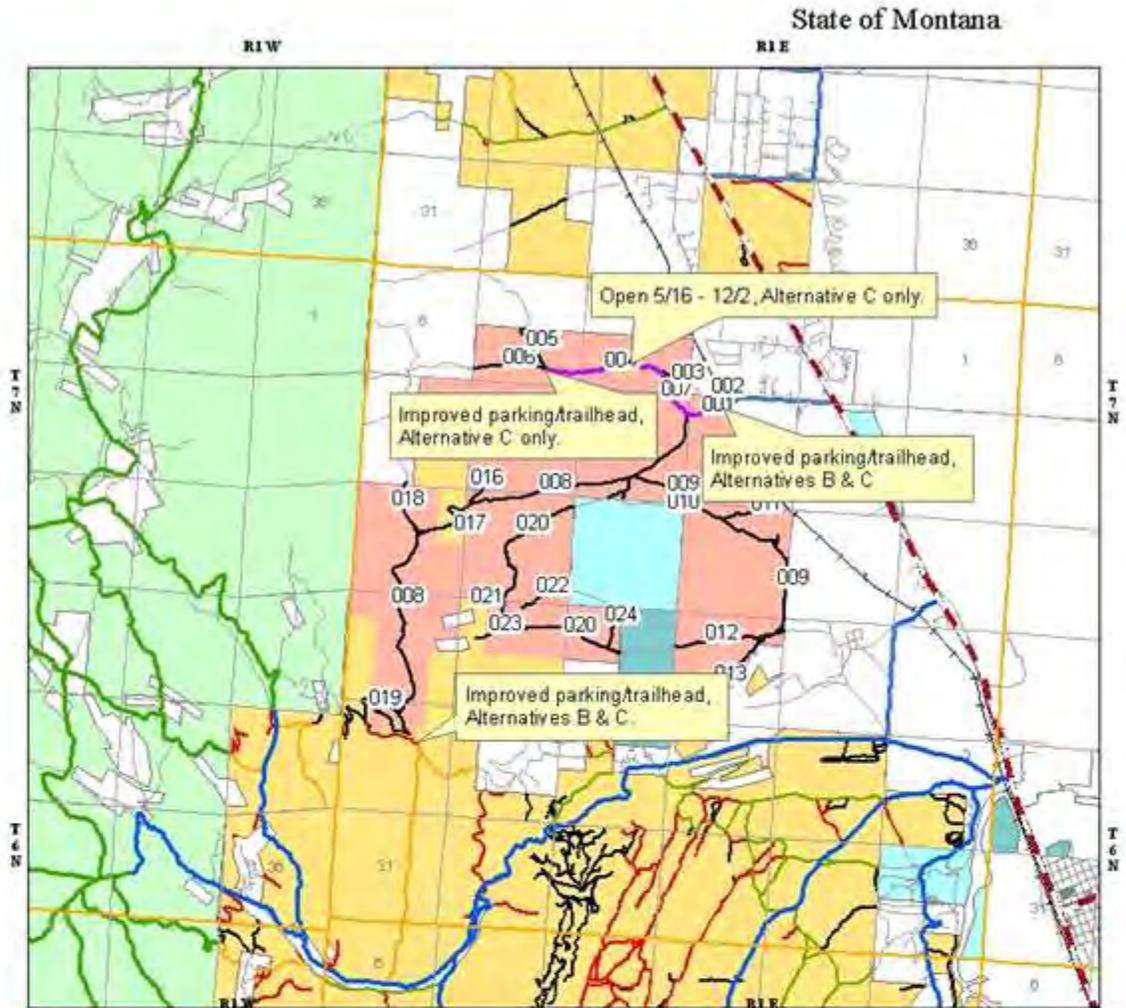
Travel management changes to the existing Elkhorns Travel Plan for areas outside the Iron Mask acquisition would be the same as Alternative B.

This alternative would seasonally open an additional 2 miles of roads (001, 004 and 007) to wheeled motorized uses in the northern extremity of the Iron Mask area from 5/16 to 12/1 and additional trailhead facility would be installed at the end of Route 004. This alternative would benefit motorized users the most since it would provide the most routes open. Seasonally opening these northern routes would reduce potential conflicts with authorized private landowner uses since everyone would be allowed to drive motorized vehicles on these routes. Hunters and other recreationists seeking access to the upper foothills of the area would be provided greater access. Impacts to non-motorized users would be limited given the northern extremity location of these routes. The potential for travel violations into the remaining area would increase given the lack of physical barriers along these open terrain routes. Moving the N-S running pasture fence for the forage reserve so it crosses Route 004 at its end point would reduce travel violations on routes 005 and 006 since it would create a good barrier with a locked gate.

All other recreation impacts would be similar to Alternative B.

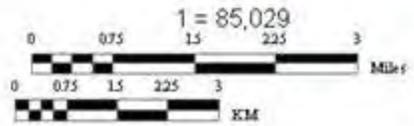
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# Map 8 Travel Routes all Alternatives



Numbered routes remain closed under Alternative A, open to administrative use only under Alternative B; under Alternative C routes 001, 007, and 004 would be open from 5/16 - 12/2.

US / State Highway	<b>STATUS</b>	<b>Land Ownership</b>
County Access Route	Open	Bureau of Land Management (BLM)
Forest Service Access Route	Restricted	Local Government
Non-BLM Route	Closed	Private
<b>blm_routes arc</b>	Unknown	State
	<b>land status</b>	US Forest Service (USFS)
		2007 Ironmask Acquisition Area



 United States Department of the Interior  
Bureau of Land Management  
Montana/Dakotas State Office  
Map created on Apr 13, 2009



**CAUTION:**  
Land ownership data is derived from tax account data from the 1:24000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have shifting around due to source data.  
No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

### 3.4.2 Indian Creek Forage Reserve Allotment

#### Existing Condition

The Indian Creek allotment consists of approximately 7,932 acres of federal land, 1,513 acres of private, 643 acres of state land, and 481 acres of local government. Elevation on BLM land ranges from approximately 4000 to 6500 feet. The eastern half of Indian Creek allotment is characterized by level to moderately sloping terrain. Recent allotment use has been limited. Non-use was taken for 11 of the 19 years prior to the acquisition. Drought, persistence of locoweed, limited water availability, and changes in property ownership contributed to the limited amount of livestock use prior to 2003. Since 2003 the entire area has been rested from livestock grazing.

A rangeland health assessment was conducted during 2010, and the interdisciplinary team (IDT) found that the Upland, Riparian, Water Quality, and Diversity standards were not being met (see Land Health Summary Table, Section 3.4.3). The higher elevation uplands were in good condition, however the majority of the uplands located on the lower elevation were not as expected compared to the Web Soil Survey report (NRCS 2010). The amount of litter and annual production were not as expected because bluebunch wheatgrass was not present at the levels expected compared to the ecological site guide. Cheatgrass was noted in several areas on the site, and as a result of the cheatgrass and lack of bluebunch wheatgrass, the functional structural plant groups have shifted away from a dominance of deep-rooted perennials towards more shallow rooted species. The lower elevation portion of the allotment had similar characteristics throughout. Dalmation toadflax was prevalent throughout most drainages and scattered throughout the uplands, which was also a contributing factor of the Diversity Standard not being met. Douglas-fir and juniper expansion into upland sites was also identified as contributing factor.

The forested portions of the allotment were located on the hillslope that divided the allotment into higher and lower elevation areas. Dominant species included Douglas-fir, Rocky Mountain juniper, ponderosa pine, and some patches of mountain mahogany. Ponderosa pine is very decadent and there is also some decadence in the Douglas-fir. Both Rocky Mountain juniper and Douglas-fir have expanded into upland sites, and in some areas have formed very dense patches.

Table 4

<i>Summary of Indian Creek Allotment Monitoring Studies and Land Health Assessment Results</i>				
<b>Study Plot</b>	<b>Study Type</b>	<b>Years Read</b>	<b>Changes Detected</b>	<b>Determination</b>
T.007N R.001E Sec. 18	Rangeland Health Assessment	2010	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- None to Slight	Meeting Standards for Rangeland Health
T.007N R.001E Sec. 9	Rangeland Health Assessment	2010	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- Slight to Moderate	Not Meeting Standards for Rangeland Health
T.007N R.001E Sec. 20	Rangeland Health Assessment	2002*	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- Slight to Moderate	Meeting Standards for Rangeland Health

<i>Summary of Indian Creek Allotment Monitoring Studies and Land Health Assessment Results</i>				
<b>Study Plot</b>	<b>Study Type</b>	<b>Years Read</b>	<b>Changes Detected</b>	<b>Determination</b>
			Biotic Integrity- Slight to Moderate	
T.007N R.001E Sec. 30	Rangeland Health Assessment	2002*	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- None to Slight	Meeting Standards for Rangeland Health
T.007N R.001E Sec. 19	IC Daub #1	1988, 2008, 2010	Increase in litter, Decrease in sagebrush, Increase/Decrease in cool season grasses dependent on species.	Static to slightly downward

### **Alternative A Direct & Indirect Effects**

The No Action alternative would not provide the necessary infrastructure for the Indian Creek allotment to be operated as a forage reserve. Herbaceous plants would continue to produce minimal seed heads and would not attempt to expand as vigorously. Club moss would continue to operate as a seed and water barrier. Cheatgrass would continue to expand and utilize resources before native plants. Plants would become decadent and overall production could decline.

### **Alternative B Direct & Indirect Effects**

Alternative B would allow for other lands within ECMA to be rested before, during, or after treatments or natural disturbances. With the terms and conditions set forth the livestock would be a source of controlled disturbance that could increase vigor and reproduction of native plants. By removing no more than 40% of the plant's vegetative material prior to the seed head elevating, the plant will direct more energy to seed production. This would increase the amount of seeds available to germinate in the microsites produced by the hoof action of the livestock. This hoof action disturbance creates microsites by breaking up the club moss and prickly pear mat. Removal of decadent vegetative cover could increase plant productivity by allowing more resources; sunlight, water, and other nutrients, to be intercepted by actively photosynthesizing leaves (Zlatnik 1999). Removing cattle prior to plant senescence provides the opportunity for fall regrowth. Properly timed grazing could also reduce the amount of cheatgrass seeds viable to complete the annual lifecycle if plants are impacted prior to seed ripening. Seeds that are consumed at this stage have a reduced viability of 38-71% (Zouhar 2003). The two-pasture rotation along with multiple water sources would help spread use more evenly across the pastures and with less concentration on the natural water sources in the area.

The existing condition of some of the lower elevation areas are in a relatively stable yet undesirable state. These areas may have crossed a threshold in plant communities from that expected for the area. Although some areas have crossed a threshold, the new community is still capable of producing forage adequate to support livestock operations on an annually prescribed basis. Available forage would not only be consumed by livestock but the disturbance associated with the livestock operations would be utilized as a tool to help increase vigor and reproductive opportunities for plants.

No lasting effects from installation of water pipelines are anticipated. A total of less than four acres would be disturbed; trenches would be reseeded with native seed mix after being backfilled. Pipeline routes and installation procedures would adhere to the *Montana Stockwater Pipeline Manual* (USDA-NRCS 1992, edited 2004).

### **Alternative C Direct & Indirect Effects**

Alternative C would be similar to Alternative B. The different location of the fence and corresponding water developments would slightly adjust the amount of forage available in each pasture and therefore adjust the number of cattle and/or duration in each pasture to ensure the available AUMs are not exceeded. All other effects would be the same.

### **3.4.3 Livestock Grazing**

#### **Existing Condition**

Grazing allotments within the DA provide an important source of late spring, summer, and fall livestock forage. Nine individual operators have grazing permits/leases on six different allotments covering approximately 18,381 acres of public lands administered by the BFO within the Iron Mask DA. The BFO currently authorizes 1,819 active AUMs on the allotments included in the DA. The current authorized stocking rate in the DA averages approximately 10 acres per AUM, and varies from 3.3 to 59.6 acres per AUM. The variation in stocking rate is a result of the differing capabilities of various sites to support grazing animals due to soils, vegetation, topography and distance from water.

From 1999 to 2012, Land Health Assessments have been conducted on the grazing allotments within the DA to assess the existing resource conditions on BLM lands. Eight grazing allotments were assessed to determine whether or not the five Land Health Standards were met. The five Standards that apply to BLM lands in Montana are (USDI-BLM 1997):

- Standard #1: Uplands are in Proper Functioning Condition
- Standard #2: Riparian and Wetland Areas are in Proper Functioning Condition
- Standard #3: Water Quality Meets State Standards
- Standard #4: Air Quality Meets State Air Quality Standards
- Standard #5: Provide habitat as necessary, to maintain a viable and diverse population of native plant and animal species, including Special Status Species

Table 5

<i>Standards for Rangeland Health Summary by Allotment</i>							
Allotment Name & Number	Year Assessed (Previous year assessed)	Are Land Health Standards Being Met?					Significant Factors in Failing to Achieve Standards From Most Recent Assessment
		Uplands	Riparian Areas & Wetlands	Water Quality	Air Quality	Providing Habitat	
<b>Beaver 20223</b>	2008 (none)	Y	NA	Y	Y	Y	Some small seeps were not considered riparian areas and not evaluated as such.
<b>Beaver Creek 10229</b>	2008 (none)	Y	N	N	Y	Y	Weasel Creek was rated FAR up. The FAR status was caused by historic mining activity and sedimentation from an access road, not grazing. Beaver Creek is designated as impaired on the Montana 303(d) list.
<b>Dowdy Ditch 20209</b>	2006 (none)	Y	NA	NA	Y	Y	No riparian areas or water exist on BFO land in this allotment.
<b>Indian Creek 20233</b>	2010 (2002 <sup>4</sup> )	N (Y)	N (N)	N (Y)	Y (Y)	N (Y)	Soil surface loss, plant composition shift, invasive weeds, stream bank instability, stream sedimentation in two locations.
<b>Kimber Diorite 20227</b>	2012 (1999)	Y (Y)	Y (Y)	Y (Y)	Y (Y)	Y (Y)	N/A
<b>Limestone Hills 20273</b>	2010 (2002)	N (N <sup>1</sup> )	N (N)	N <sup>2</sup> (N)	Y (Y)	N (Y <sup>3</sup> )	Munitions firing, past grazing management, past and current mining, noxious weeds, current livestock grazing out of compliance with annual grazing schedules
<b>Whitehorse 20222</b>	2012 (1999)	Y (Y)	NA (NA)	NA (NA)	Y (Y)	Y (Y)	No riparian areas or water exist on BFO land in this allotment.

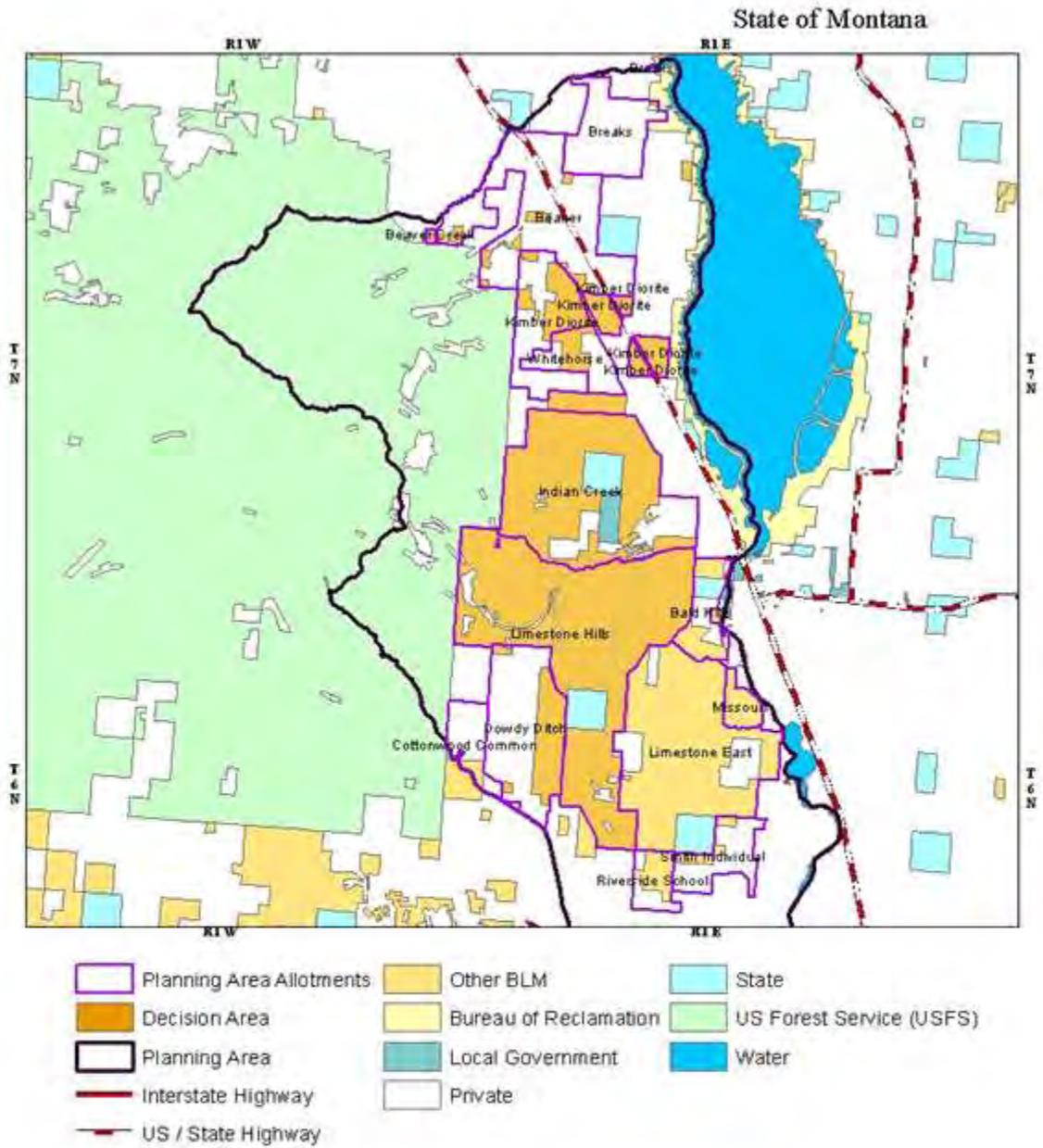
<sup>1</sup> Iron Mask, Cold springs and Whipcracker Pastures met Upland Health in 2002, but the Tank Range, Compound and Marble Quarry Pastures did not.

<sup>2</sup> The Montana Department of Environmental Quality (DEQ) has the responsibility for making water quality determinations and has completed its evaluation of 303(d)-listed streams.

<sup>3</sup> In 2002, the allotment as a whole met the Biodiversity Standard, but the Compound and Marble Quarry Pastures would require management changes to ensure that the habitat in these two pastures does not degrade further.

<sup>4</sup>Assesment was done prior to acquisition of additional private lands.

# Map 9 Livestock Grazing Allotments



United States Department of the Interior  
 Bureau of Land Management  
 Montana/Dakotas State Office  
 Map dated on Apr 13, 2009



**CAUTION:**  
 Land ownership data is derived from tax account data that is 1:24000 scale. See map. Transactions and ownership may not be correct for parcels smaller than 40 acres, and land ownership lines may have shifting around due to source data.  
 No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

**Beaver allotment:** The Beaver allotment contains about 39 federal acres and 19 private acres. Elevation on BLM land ranges from approximately 4,200 to 6,000 feet. Plant communities are primarily a mix of grasslands and big sagebrush-steppe in the lower elevations and Douglas-fir or mixed conifer forest/woodland in the higher elevations.

The Beaver allotment is grazed during the authorized dates in conjunction with a ranching operation that controls the private intermingled lands. This allotment is generally grazed in conjunction with the Whitehorse allotment, and allotments on the Helena National Forest (HNF). One year, Whitehorse is used in mid-June as cattle are being moved from private lands up to the HNF, then cattle are moved down from the HNF to the Beaver allotment in early October. The next year the rotation is reversed.

Montana Standards for Rangeland Health were assessed on the Beaver allotment in 2008. The upland, water quality, air quality, and habitat standards were met. The riparian standard was not applicable as there are no riparian areas identified within the allotment. Some small seeps, not evaluated as riparian areas, were determined to have acceptable water quality.

Table 6

<i>Summary of Beaver Allotment Monitoring Studies and Land Health Assessment Results</i>				
<b>Study Plot</b>	<b>Study Type</b>	<b>Years Read</b>	<b>Changes Detected</b>	<b>Determination</b>
T.008N R.001E Sec. 18	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- Slight to Moderate Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health
T.008N R.001W Sec. 24	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health
T.008N R.001W Sec. 13	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- Slight to Moderate Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health
T.008N R.001E Sec. 20	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- Slight to Moderate Hydrologic function- Slight to Moderate Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health

**Beaver Creek allotment:** The Beaver Creek allotment contains about 559 federal acres and 6570 private acres. Elevation on BLM land ranges from approximately 5,000 to 5,400 feet. Plant communities are primarily a mix of foothill/valley grassland, riparian, and Douglas-fir/mixed conifer forest.

The Beaver Creek allotment is grazed during the authorized dates in conjunction with a ranching operation that controls the private intermingled lands.

Montana Standards for Rangeland Health were assessed on the Beaver Creek Allotment in 2008. The upland, air quality, and habitat standards were met. The water quality standard was not met because Beaver Creek is designated as impaired on the Montana 303(d) list. The riparian standard was not met but significant progress was being made as a result of the functioning-at-

risk, upward trend, rating for Reach B-07 (Weasel Creek). Livestock grazing on the allotment was not considered a contributing factor for the water quality or riparian standards rating.

Table 7

<i>Summary of Beaver Creek Allotment Monitoring Studies and Land Health Assessment Results</i>				
Study Plot	Study Type	Years Read	Changes Detected	Determination
T.008N R.001W Sec. 15	Rangeland Health Assessment	2008	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- None to Slight	Meeting Standards for Rangeland Health

**Dowdy Ditch allotment:** The Dowdy Ditch allotment contains about 1,547 federal acres and 3,509 private acres. Elevation on BLM land ranges from approximately 4,600 to 5,800 feet. Plant communities consist primarily of juniper encroached sagebrush-steppe.

This allotment is divided into six pastures and is grazed by two permittees. The BLM lands are grazed in conjunction with the permittees' intermingled private land during the authorized dates. The permittee with Authorization # 2504487 grazes the north two pastures of the allotment. These pastures total 4,073 acres, 2,810 of which are private and 1,263 are BLM. Compliance with the existing grazing dates of 5/1 - 6/15 on BFO land has been difficult for the permittee since BLM land is not fenced separately from private land in this allotment. The cattle tend to use the private land to a greater extent due to vegetation types and topography, however.

The permittee with Authorization # 2504527 uses the south four pastures. These pastures contain a total of 699 private acres and 284 BLM acres.

Montana Standards for Rangeland Health were assessed on the Dowdy Ditch allotment in 2006. The upland, air quality, and habitat standards were met. The riparian and water quality standards were not applicable because no riparian areas or water exist on public land within the allotment.

Table 8

<i>Summary of Dowdy Ditch Allotment Monitoring Studies and Land Health Assessment Results</i>				
Study Plot	Study Type	Years Read	Changes Detected	Determination
T.006N R.001E Sec. 17	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- Slight to Moderate Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health
T.006N R.001E Sec. 29	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- None to Slight	Meeting Standards for Rangeland Health
T.006N R.001E Sec. 30	Rangeland Health Assessment	2006	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- None to Slight	Meeting Standards for Rangeland Health

**Kimber Diorite allotment:** This allotment contains about 2,366 BLM acres, 1,920 USFS acres, and 2,069 State conservation easement acres. Elevation on BLM land ranges from approximately 3,900 to 5,200 feet. Plant communities consist primarily of big sagebrush-steppe and shrublands.

Grazing in the Kimber Diorite allotment is managed under a 2001 AMP. The AMP outlines a set 3-year rest rotation grazing schedule for six pastures; however there are actually 11 pastures associated with the allotment. Unfortunately, the grazing schedule has never been followed to date because of problems with locoweed infestations in the spring, which prevent use of one or all of the lower elevation pastures. A provision in the AMP, however, allows for changes to the scheduled rotation due to locoweed. As a result, the grazing system has evolved into a variable pasture rotation with grazed pastures usually being rested or used at different times the following year until the weed issue is successfully addressed.

There are three established vegetation utilization monitoring transects located throughout Kimber Diorite Allotment. The transect data is from the 1980s through 2008. The primary forage species are bluebunch wheatgrass, western wheatgrass and needle-and-thread. Use has varied widely between years and species from 0-75%; however, the majority of use from year to year appears to average less than 40% for all species. The heaviest use was recorded on western wheatgrass at Lower Kimber Pasture with use averaging 64-75% from 1984 to 1991. Random vegetation utilization monitoring at Section 34 pasture recorded 5-32% use in 2005 and 44-75% use in 2008.

There are three vegetation trend monitoring transects (Daubenmire) at Kimber Diorite allotment, located in the Railroad, Section 34, and Lower Kimber pastures. The trend seems to be static, but the cover has increased since 1999. Some small shifts in vegetation, such as reduction in broom snakeweed in conjunction with an increase of bluebunch wheatgrass and blue grama has reduced the amount of bare ground. These are signs that the range is not being over-utilized.

Also, heavy grazing indicators such as fringed sagewort have declined. Climate change and other influences such as early spring use by elk are considerations but specific data is lacking to quantify their influence in the reduction of bluebunch wheatgrass.

A reclaimed gravel pit exists in the Section 34 West pasture of the allotment. The pit has not been used since 2008, and was reclaimed with available topsoil at the site.

Table 9

Montana Standards for Rangeland Health were assessed on the Kimber Diorite allotment in 2012. The upland, riparian, water quality, air quality, and habitat standards were all met. <i>Summary of Kimber Diorite Allotment Monitoring Studies and Land Health Assessment Results</i>				
Study Plot	Study Type	Years Read	Changes Detected	Determination
T.008N R.001E Sec. 15	Rangeland Health Assessment	2012	Departure from Expected Rating: Soil and Site Stability- Slight to Moderate Hydrologic function- Slight to Moderate Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health
T.008N R.001E Sec. 29	Rangeland Health Assessment	2012	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health
T.008N R.001E Sec. 30	Rangeland Health Assessment	2012	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- Slight to Moderate	Meeting Standards for Rangeland Health

Montana Standards for Rangeland Health were assessed on the Kimber Diorite allotment in 2012. The upland, riparian, water quality, air quality, and habitat standards were all met. <i>Summary of Kimber Diorite Allotment Monitoring Studies and Land Health Assessment Results</i>				
Study Plot	Study Type	Years Read	Changes Detected	Determination
T.008N R.001E Sec. 34	Rangeland Health Assessment	2012	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- Slight to Moderate Biotic Integrity- Moderate	Meeting Standards for Rangeland Health
T.008N R.001E Sec. 29	Rangeland Health Assessment	1999	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- Moderate	Meeting Standards for Rangeland Health
T.008N R.001E Sec. 28	KD Daub #1	1980,1984 1988,1999 2008,2012	Decrease in bare ground, static cool season grasses	Static to Slightly upward
T.008N R.001E Sec. 34	KD Daub #2	1980,1983 1987,1991 2008,2012	Static cool season grasses, increase in warm season, decrease in bare ground	Static
T.008N R.001E Sec. 29	KD Daub #3	1988,1999 2008,2012	Increase in cool season grasses, decrease in bare ground	Upward
T.008N R.001E Sec. 29	KD Util #3	1984,1985 1986,1988 1991,2009 2010	Use levels exceeded 40% once in 1985 for one species	Within grazing guidelines
T.008N R.001E Sec. 28	KD Util #4	1983,1984 1988,1994 2010	Use levels exceeded 40% once in 1988 for one species	Within grazing guidelines
T.008N R.001E Sec. 20	KD Util #5	1980,1981 1982,1983 1986,1993 , 2009	Use levels never exceeded 40%.	Within grazing guidelines

**Limestone Hills Allotment:** The Limestone Hills Allotment consists of approximately 13,118 acres. These public lands are fenced in with approximately 640 acres of state land and 484 acres of private lands. Elevations on BLM lands range from 4300 to 6700 feet. Plant communities include grasslands, sagebrush steppes, conifer savannahs and rocky shrublands, all of which contain conifer colonization resulting from interrupted historic fire regimes.

Prior to 2012, four operators grazed this allotment in common with approximately 300 yearlings or dry cows from 05/15 to 09/30 for a combined total of 1944 AUMS. In 2012, one operator relinquished their grazing preference for 579 AUMS on this allotment. The remaining three grazing permits expired February 28, 2013, but were re-issued under the Appropriations Act.

The current permitted AUMS are:

Authorization #s	Number of Livestock	Season of Use	% Public Land	Permitted AUMS
2500156	132	6/01 – 9/30	100	529
2500155	132	6/01 – 9/30	100	529
2507897	76	5/31 – 9/30	100	307
Total				1,365

The Limestone Hills allotment is managed with a rest rotational grazing system that was established in the mid-1980s and is comprised of six pastures: Whipcracker, Cold Springs, Iron Mask, Marble Quarry, Tank Range, and Compound. The Whipcracker and Cold Springs Pastures are not separated by fencing. There is an approximate ¼ mile opening in the boundary fence between the Cold Springs and Whipcracker Pastures where private land lies along Indian Creek. Currently, these two pastures are grazed together and rested together, though cattle are initially turned out into one or the other.

Three pastures (Whipcracker, Cold Springs and Iron Mask) lie within the Elkhorn ACEC.

Approximately 9,200 acres of BLM-administered land in this allotment lie within the LHTA. The Iron Mask and Cold Springs pastures lie outside the LHTA boundary. A portion of the Whipcracker pasture is within its boundaries, but most of the pasture lies outside the LHTA. The Tank Range, Compound and Marble Quarry pastures are all within the LHTA boundaries.

Actual use reports submitted annually by the permittees to the BLM indicate that most often, the rest rotation system has not been followed. This has been due, at least partially, to:

- Lack of sufficient dispersed water, especially in dry years,
- MTARNG's intensive use of the LHTA during the grazing season,
- Recurring drought conditions, and
- Lack of adequate fencing between the Iron Mask, Cold Springs, Tank Range and Whipcracker Pastures.

For the past eight years, the grazing operators have not fully stocked the allotment with the authorized numbers of livestock on their authorizations. In fact, they have only used an 8-year average of 52% to 77% of their AUMS. To promote better cattle distribution, the operators also graze the allotment with yearlings and dry cows.

The 2010 land health assessment conducted by the BLM found that although the uplands didn't meet the upland, riparian and habitat standards, "...the uplands show signs of improvement." Seventeen of the 27 riparian reaches improved as compared to the 2002 assessments, while eight remained the same and two went down in their ratings. For details on those reaches please refer to the *Riparian (lotic) Resources in the Iron Mask PA* table in Section 3.4.5.

The allotment did not meet four out of the five Land Health Standards in the 2010 assessment. The only Standard met was Air Quality. The lower elevation pastures (Tank Range, Compound, and Marble Quarry) were reassessed in 2010 because they did not meet the Upland Health Standard in a 2002 assessment. The upper elevation pastures, Iron Mask, Whipcracker and Cold Springs, were not assessed for upland health in 2010 because they met that standard in 2002. The 2010 assessment states, "As compared to the past evaluation in 2002, study information, and observations, the uplands show signs of improvement." In fact, the trend studies showed upland health to be either static or slightly improving on the three pastures that didn't meet the upland standard in 2010:

- In the Tank Range pasture, invasive species such as fringed sagewort and broom snakeweed were found to be decreasing in composition, while beneficial species like bluebunch wheatgrass and black sage were increasing in composition.
- In the Marble Quarry pasture, trend was found to be static to slightly upward as blue grama (which increases with overgrazing) and fringed sagewort are decreasing in composition and black sage is increasing.
- Land-healthy species such as needle and thread and bluebunch wheatgrass in the Compound pasture are increasing in composition. Both blue grama grass and fringed sagewort are decreasing in composition.

One contributing factor for not meeting the Upland Health Standards in both the 2002 and 2010 assessments was livestock grazing out of compliance with the current grazing schedule (which is difficult to follow). Other factors include conifer colonization into sagebrush meadows and grasslands due to the approximate 100-year interruption of historic fire regimes and noxious weed infestations. Below is a table summarizing monitoring study and Rangeland Health Assessment results:

Table 10

<i>Summary of Limestone Hills Monitoring Studies and Land Health Assessment Results</i>				
<b>Study Plot</b>	<b>Study Type</b>	<b>Years Read</b>	<b>Results of Study</b>	<b>Determination</b>
Marble Quarry Pasture	Daubenmire	1979, 1983, 1989, 2009	Increase in cool-season grasses and ground cover	Slight Upward Trend
	Utilization #2	2007, 2008, 2010, 2011, 2013	Use Levels: Grass #1: 44%, 9%, 13%, 19%, 54% Grass #2: 27%, 19%, 10%, 10%, 40%	Near or Within grazing guidelines
	Rangeland Health Assessment	2010	Departure from Expected Rating: Soil and Site Stability-None to Slight Hydrologic function-None to Slight Biotic Integrity-Slight to Moderate	*Not Meeting Standards for Rangeland Health, but Improvement since 2002
Tank Range Pasture (Location is in the Active MTARNG Firing Area)	Daubenmire	1983, 1988, 2002, 2008, 2013	Cool season grasses static; increase in black sage	Static
	Utilization #7	2003	Use Level: 19%	Within grazing guidelines
	Utilization #8	2003	Use Level: 46%	Within grazing guidelines
	Utilization #9	2003	Use Level: 44%	Within grazing guidelines

<i>Summary of Limestone Hills Monitoring Studies and Land Health Assessment Results</i>				
Study Plot	Study Type	Years Read	Results of Study	Determination
	Rangeland Health Assessment	2010	Departure from Expected Rating: Soil and Site Stability-Slight to Moderate Hydrologic function-Slight to Moderate Biotic Integrity-Slight to Moderate	*Not Meeting Standards for Rangeland Health, but Improvement since 2002
Compound Pasture	Utilization #6	2006, 2007, 2008, 2009, 2010	Use levels: 52%, 40%, 6%, 8%, and 15%	Within grazing guidelines
	Utilization #10	2007, 2008, 2010	Use levels: Grass #1 - 7%, 0%, 10% Grass #2 - 13%, 0%, 6%	Within grazing guidelines
	Rangeland Health Assessment	2010	Departure from Expected Rating: Soil and Site Stability- Slight to Moderate Hydrologic function-Slight to Moderate Biotic Integrity-Slight to Moderate	*Not Meeting Standards for Rangeland Health, but Improvement since 2002

\* The factors contributing to not meeting Standards for Land Health are stated in the 2010 Land Health Evaluation Report: Munitions Firing, Historic Mining, Historic Livestock Management, and Current Livestock out of Compliance with Annual Grazing Schedules. The first three factors are beyond the control of the BLM. The fourth factor has been addressed in this EA by proposing to: 1) reallocate 579 cattle grazing AUMS to wildlife use, 2) establish a more workable grazing schedule, and 3) build solid pasture boundary fences and constructing a new water development. The 2010 Land Health Evaluation Report is available at: [http://www.blm.gov/mt/st/en/fo/butte\\_field\\_office/landhealth.html](http://www.blm.gov/mt/st/en/fo/butte_field_office/landhealth.html)

**Whitehorse allotment:** This allotment contains about 547 federal acres and 970 private acres. Elevation on BLM land ranges from approximately 4,100 to 4,500 feet. The plant community consists primarily of big sagebrush-steppe.

The Whitehorse allotment is grazed during the authorized dates in conjunction with a ranching operation that controls the private intermingled lands. This allotment is generally grazed in conjunction with the Beaver allotment, and allotments on the HNF. One year, Whitehorse is used in mid-June as cattle are being moved from private lands up to the HNF, then cattle are moved down from the HNF to the Beaver allotment in early October. The next year the rotation is reversed.

Montana Standards for Rangeland Health were assessed on the Whitehorse allotment in 2012. The upland, air quality, and habitat standards were met. The riparian and water quality standards were not applicable as there are no riparian areas or surface water identified within the allotment on public land.

Table 11

<i>Summary of Whitehorse Allotment Monitoring Studies and Land Health Assessment Results</i>				
<b>Study Plot</b>	<b>Study Type</b>	<b>Years Read</b>	<b>Changes Detected</b>	<b>Determination</b>
T.008N R.001E Sec. 32	Rangeland Health Assessment	2012	Departure from Expected Rating: Soil and Site Stability- None to Slight Hydrologic function- None to Slight Biotic Integrity- None to Slight	Meeting Standards for Rangeland Health
T.008N R.001E Sec. 32	Standards Checklist	1999	Met all applicable standards	Meeting Standards for Rangeland Health

### **Alternative A Direct & Indirect Effects**

**Beaver, Beaver Creek, Dowdy Ditch, Kimber Diorite, and Whitehorse allotments:** All applicable Standards for Rangeland Health were met on these allotments, except for the riparian and water quality standards on Beaver Creek. Those Standards not being met were not due to livestock grazing; Beaver Creek is designated as impaired on the Montana 303(d) list, and the FAR determination for Weasel Creek was determined to be due to historic mining activity and sedimentation from an access road. Existing conditions in these allotments have been fostered by current grazing management; therefore livestock utilization at current levels would likely continue to display the characteristics and provide the same environmental quality as were observed during Land Health Evaluations. On the Dowdy Ditch allotment under this alternative, the permittee with Authorization # 2504487, who uses the north two pastures, would likely need to construct approximately 2.5 miles of fence to comply with the grazing dates on BLM land.

**Limestone Hills allotment:** The current livestock grazing schedule does not take into consideration that moving cattle from a lower-elevation pasture to a higher-elevation pasture and then back down to a lower elevation pasture through the rugged terrain is difficult at best. Such long-distance pasture rotations (some as long as 6 miles) are also hard on the cattle on summer days when the temperatures get above 90° F.

If the existing grazing schedule is not modified to improve pasture rotations, noncompliance with the schedule would continue and upland health would either not improve, or would improve at a much slower rate. Livestock utilization levels would be expected to continue to contribute to negative impacts on native vegetation.

Another cause of noncompliance with the grazing schedule is that there is inadequate fencing between the pastures. If adequate pasture fencing is not built, cattle would continue to leak into other pastures, furthering the risk of overgrazing on native vegetation and reduction of forage for wildlife.

If the 579 relinquished AUMS were permitted to another operator, upland health may stop improving altogether from the extra grazing pressure on native grasses. In previous years, the remaining three operators have reduced their cattle numbers to match the native vegetation growth of that year. Permitting the 579 AUMS to another operator would not ensure that operator would reduce their cattle numbers to correspond to yearly vegetation availability. Such a situation would pose a risk for upland health to halt improvement and/or begin degrading from additional cattle utilization on native vegetation.

## **Alternative B Direct & Indirect Effects**

**Beaver, Beaver Creek, Kimber Diorite and Whitehorse allotments:** Effects to these allotments would be similar to Alternative A. Under Alternative B a term and condition is added that would allow seven days flexibility of the On and Off dates due to annual weather variability and plant phenology. Another term and condition that would be added allows for flexibility of the number of cattle to fluctuate from what is on the permit so long as the use does not exceed the available AUMs identified on the permit/lease. Both of the stipulations require BLM coordination and approval prior to turnout and would only be utilized to tailor annual grazing with annual plant phenology and permittees' livestock operations.

Building in seven days of flexibility would enable the authorized officer to tailor grazing times to the annual phenological stages of the desired plant populations. A BLM vegetation monitoring study within the PA showed that over a 14-year span the flowering stage of bluebunch wheatgrass varied from May 26 to June 21. At that same site the seed dissemination varied from July 5 to August 18. Use dates have been previously identified and allotments have been managed under these steadfast dates and have met Land Health Standards. Building in flexibility would allow greater specific tailoring of grazing within an allotment to current year phenology and more consistently achieving the desired grazing effect. Total grazing time would not be greater than that identified on the permit/lease.

Allowing for fluctuation of cattle numbers would aid in tailoring grazing use of BLM lands with annual variations and the permittees' livestock operation while achieving Land Health Standards and the desired condition of the BLM lands. "Continuous and short-duration grazing systems differ little in their effects upon range condition..." (Holechek 1989). Applying this principal would allow for variation of cattle numbers within a range of use dates with the same effects as initially analyzed so long as stocking rates are not exceeded. Many studies have shown that stocking rate as opposed to grazing system have the greatest effect on vegetation responses (Derner and Hart 2007). This would also allow for BLM lands to be more effectively utilized within a livestock operation.

**Dowdy Ditch allotment:** Changing the use dates on Authorization #2504487 from 5/1 - 6/15 to 6/1 - 8/15 would not be expected to have effects on BLM lands as grazing use of these lands is minimal in comparison to use of private land in the pastures used by this permittee. This is due to distance from water, topography, and vegetation types on BLM land in these pastures. This permittee would use their private and BLM lands during these dates with approximately 80 cow/calf pairs or yearlings. By adjusting the use dates on this allotment approximately 2.5 miles of fence would not need to be built on private land to fence cows off of BLM and keep them on private portions of the allotment, and overall management conflicts will be reduced. Additionally, moving the Turn Out date to one month later would give plants on the range more time to establish and reach initial range readiness before grazing. It is expected that the allotment would continue to meet Land Health Standards with the new dates. The adjustment from 100% to 10% Public Land is based off of original range adjudications, historic use, and data from the NRCS.

No changes are proposed for Authorization # 2504527 in this allotment. Therefore effects would be the same as Alternative A for the south four pastures of the allotment.

**Limestone Hills allotment:**

**Grazing Schedule:** Modifying the existing pasture rotation schedule as proposed under Alternative B would aid the permittees' ability to comply with the schedule. With better compliance to a workable pasture rotation schedule, it is a reasonable expectation that upland health would continue to improve as livestock utilization would be better controlled.

Prior to 2012 there were 1944 active AUMS on the allotment. Reallocating the 579 relinquished AUMS for wildlife use would also provide a decrease in cattle grazing pressure on native plant species and lessen other possible cattle impacts such as trampling in riparian areas.

**Fences:** The proposed new pasture fences would assist the grazing operators in following the proposed grazing schedule. The fences would better ensure that cattle would not leak into pastures that are to be rested or used during a different time period, resulting in less grazing use.

The let-down sections of the Shep's Ridge and Whipcracker fences would allow easier wildlife movement during the fall, winter, and spring, when cattle grazing is not present. If the proposed Whipcracker fence was built approximately 400 fenced-out acres of the Whipcracker Pasture south of Indian Creek would be designated for trailing purposes only. This fenced-out area to be used for trailing only, would allow transient grazing to occur predominantly along the Mud Springs Road. Such "pass-through" livestock grazing during cattle movement would not pose significant negative impacts on native vegetation.

**Springs:** Digging up headboxes, old pipelines, and drain lines disturbs grasses, shrubs and small trees that have grown over the original footprint of a spring development. Care would be used to disturb only the amount of vegetation necessary to accomplish the reworking of the development. Native seed mix would be applied after the rework is complete to assist the restoration of grasses and reduce the opportunity of noxious weeds establishing thereafter.

Replacing water tanks could include installing new bases, larger tanks and replacement of the protective posts and rails. Replacing a tank with a larger one would mean an expansion of a maximum of five feet in one direction or another, resulting in a small area of disturbance to grasses and small shrubs. The loss of vegetation associated with installing a larger tank would be minimal; about 5 to 8 square feet at each location.

The disturbance of native vegetation to rework these springs would be temporary. The long-term benefit of reworking these springs would be to provide water for cattle and many species of wildlife that thrive in the nearby areas, and promote more even distribution of herbivore use.

Once the Whipcracker fence is constructed and the Whipcracker Pasture becomes a truly separate pasture, the proposed Iron Mask Pipeline and Tank would provide another important water supply for both cattle and wildlife. Its' location in the north end of the pasture would promote better distribution of cattle.

## **Alternative C Direct & Indirect Effects**

### **Beaver, Beaver Creek, Dowdy Ditch, Kimber Diorite, and Whitehorse allotments:**

No grazing on these allotments could result in desired plant communities becoming decadent and reproductively stagnant. With little to no disturbance large perennial bunch grasses will place more resources into vegetative material as opposed to reproductive material. With a reduction in reproductive material, microsites in which desired native seeds could have been deposited to germinate under an annual or biennial disturbance regime, may become occupied by undesirable and non-native species.

The increase of decadent above ground biomass could also alter the wildfire occurrence rate and behavior. Dependent on the intensity, severity, and timing of said wildfires, the plant communities could be altered to a much less desirable state filled with undesirable, non-native vegetation over a larger area than currently observed.

**Limestone Hills allotment:** Alternative C was designed to provide an additional basis for comparison on the Limestone Hills allotment. Under Alternative C, no livestock grazing would be authorized on the Limestone Hills allotment.

The existing range improvements (water developments and pasture fences outside of the LHTA) would be abandoned and removed, with the exception of fencing necessary for management of the LHTA, Graymont Mine permit area, and adjacent land ownership. Abandonment and removal of the water developments would eliminate some readily available water sources for wildlife. These water developments are currently being maintained by the grazing permittees and do provide water to wildlife as well as cattle.

Eliminating cattle grazing on the Limestone Hills allotment may have the long-term adverse effect of grasses becoming “wolfy” (many cured stems from past years’ growth) and thus less palatable to wildlife ungulates. As mentioned under the effects of Alternative B (which reallocates 579 AUMs to wildlife use), removing cattle grazing from the Limestone Hills allotment to improve upland health is generally not supported by the BLM’s vegetation trend studies. The composition of less desirable species (fringed sagewort, blue grama and broom snakeweed) is on a slightly downward trend. Key species for upland health (bluebunch wheatgrass and black sage) are either trending static or on an upward trend.

These vegetation trends demonstrate that the annual permittee self-imposed AUM reductions are allowing improvements to upland and wildlife habitat health. In addition, the reallocation of the 579 AUMS to wildlife use (as proposed in Alternative B) would ensure a permanent reduction of livestock grazing, providing further opportunity for steady land health recovery.

### **3.4.4 Vegetation**

#### **3.4.4.1 Special Status Plants**

##### **Existing condition**

Lesser rushy milkvetch is the only known occurrence of a BLM sensitive plant species within the PA. There are only two known populations of this species in Montana (the Helena Valley vicinity and extreme southwest Montana in Beaverhead County). The known population in this PA is thought to be healthy and a couple of the occurrences are considered large. Threats to populations of this species include urbanization and noxious weeds that degrade the habitat. “[The lesser rushy milkvetch] occupies grasslands and open ponderosa pine woodlands in the valleys and foothills.” (Mincemoyer 2005).

Two species of riparian plants may occur but have not been documented on PA lands that are designated as sensitive by the BLM. These species are annual Indian paintbrush and mealy primrose. Annual Indian paintbrush is associated with moist alkaline meadows in the valley zone. In Montana, mealy primrose appears to be restricted to wet meadow habitats with relatively stable water tables.

Ute Ladies’ Tresses, listed as Threatened under the ESA, are known to occur east of the PA on the opposite side of the Missouri River. No populations or occurrences are known or suspected to exist within the PA. This species occupies alkaline wetlands, swales and old meander channels, often on the edge of the wetland or in areas that are dry by mid-summer. Habitat is limited to areas within major river drainages. There would be no effect under any alternative on this species.

##### **Alternative A Direct & Indirect Effects**

Under the No Action alternative, sensitive plant populations and occurrences are expected to continue to survive under current conditions. Since there would be no new planned activities in the vicinity of any known sensitive plant occurrences there are not expected to be any adverse or beneficial effects.

##### **Alternative B Direct & Indirect Effects**

Alternative B activities would be implemented in a way to minimize any direct impacts to known occurrences of sensitive plants. As stated in Section 2.2.1, all projects would have special status plant clearances completed prior to implementation. If special status plants are present, the project would be redesigned or abandoned to reduce impacts to the species. Disturbance activities adjacent to known occurrences of sensitive plants could possibly create microsites or favorable conditions for the known occurrences to expand. Also project implementation could provide circumstances for unknown or new occurrences to be discovered.

##### **Alternative C Direct & Indirect Effects**

Alternative C is similar to Alternative B except for the removal of livestock disturbance in the grazing allotments being considered for authorization renewal, and the addition of disturbance

from the open route in the Indian Creek allotment. Neither of these actions would occur near any known sensitive plant populations; therefore effects to sensitive plants would be the same as Alternative B.

#### **3.4.4.2 Invasive, Non-native Species**

##### **Existing Condition**

Invasive plants are defined by the Federal Interagency Committee for Management of Noxious and Exotic Weeds as “plants that have been introduced into an environment in which they did not evolve and thus usually have no natural enemies to limit their reproduction and spread.” Currently there are 35 weeds on the statewide noxious weed list and of these 35, many are found in the Iron Mask PA. The Iron Mask PA was surveyed for noxious weeds and non-native invasive species in 2005, 2009, 2010, and 2011. Montana State Noxious Weed species known to occur in the PA are dalmatian toadflax, spotted knapweed, hoary alyssum, leafy spurge, and houndstongue. Canada thistle, another state declared noxious weed, is also found along riparian areas in the Iron Mask PA. Due to its location in riparian areas, it is difficult to effectively treat. Some of the non-native invasive species present are common mullein, musk and bull thistle, cheatgrass, locoweed, black henbane, Russian olive, and kochia. Cheatgrass and Russian olive, which are present in the area, are regulated plants on the Montana Noxious Weed List. This means these regulated plants have the potential to have significant negative impacts. The plant may not be intentionally spread or sold other than as a contaminant in agricultural products. The state recommends research, education and prevention to minimize the spread of the regulated plant.

Spotted knapweed, a biennial or short lived perennial, is found scattered throughout the Iron Mask PA. Most infestations are found along roads and trails but the larger infestations are found around past disturbance sites and old mining claims. The Indian Creek and Limestone Hills allotments have the most noxious weed infestations, largely because of past mining disturbances on private and federal lands, and the difficult terrain, which makes chemical treatments of those infestations challenging. Noxious weeds were a contributing factor for Limestone Hills and Indian Creek not meeting Land Health Standards. The National Guard conducts spraying/inventory/monitoring in the LHTA.

##### **Alternative A Direct & Indirect Effects, and Effects Common to All Alternatives**

Human activities, such as road maintenance activities, recreation, mining, and other disturbances, as well as livestock, wildlife, wind, water and fire will continue to spread weeds into and within the planning area. Targeting new noxious weed infestations would help stop the spread of existing populations within and out of the planning area as well as stop any new species from becoming established.

Noxious weeds will continue to be treated as resources allow through the existing cooperative effort between the BLM, Broadwater County, private landowners and other partners. Spread of noxious and invasive species outside of known infestations would be prevented or mitigated to the degree that resources allow. This will likely maintain noxious weed infestations at current levels or result in a slow decrease in plant densities. If there are resource constraints, density and/or size of current infestations may not be reduced. Noxious and invasive species would

continue to affect vegetative composition and cover, causing increased run-off and soil erosion, reducing forage and affecting upland and riparian health in localized areas within the PA.

Biological control insects that feed exclusively on the target species are expected to reduce the seed production, vigor and competitiveness of existing populations of these species. There would be fewer seeds to expand the infestation and reduced vigor would allow native vegetation to compete better with these aggressive invaders and mitigate further spread within and adjacent to existing infestations.

The Limestone Hills and Indian Creek allotments did not meet land health standards partially as the result of noxious weed expansion. Treatments will be implemented to reduce the spread of weeds within these allotments independently of Decisions made based on this EA. Over time, treatments would reduce or eliminate weeds within these allotments and allow significant progress to be made towards meeting standards.

Noxious weeds will continue to be treated as resources allow through the existing cooperative effort between the BLM, Broadwater County, private landowners and other partners. Spread of noxious and invasive species outside of known infestations would be prevented or mitigated to the degree that resources allow. This will likely maintain noxious weed infestations at current levels or result in a slow decrease in plant densities. If there are resource constraints, density and/or size of current infestations may not be reduced. Noxious and invasive species would continue to affect vegetative composition and cover, causing increased run-off and soil erosion, reducing forage and affecting upland and riparian health in localized areas within the PA.

#### **Alternative B Direct & Indirect Effects**

Design features for conifer treatments and construction of structural projects are expected to mitigate cheatgrass and noxious weed spread resulting from soil disturbance during treatment/project implementation. All BLM ground disturbing projects would be pretreated, post treated, and reseeded with a suitable seed mix decided on by the BLM. Areas where Land Health Standards are not being met because of invasive and non-native species would be treated until an upward trend is noticed during monitoring, and then become areas where yearly maintenance treatments occur.

Enhanced grazing management that maintains and promotes healthy upland and riparian habitats, or improves the vigor, cover and composition of upland and riparian habitats in areas that are not meeting standards would increase the resilience of these habitats and reduce the invasion and/or expansion of noxious weeds.

#### **Alternative C Direct & Indirect Effects**

Approximately two miles of routes in the north end of the acquisition area would be open from 5/16 – 12/2, and may pose the risk of being a vector for transport and spread of noxious weeds.

The allotments being considered for authorization renewal would not be grazed by livestock, which would eliminate one vector known to transport some species of noxious weeds in fur and waste. By not allowing livestock grazing under this alternative, one of the vectors for

transporting weed seeds would be removed; however wildlife would still remain a vector for seed transport in addition to human-related vectors previously mentioned.

### **3.4.4.3 Fire & Fuels**

#### **Existing condition**

The analysis for vegetation focuses on Fire Regime Condition Class (FRCC). FRCC is determined for the existing condition and the effects of each alternative are analyzed in terms of percentage change of FRCC to determine if project objectives are being met.

Following coarse scale definitions developed by Hardy et al. (2001) and Schmidt et al. (2002), the natural (historic) fire regimes of these major vegetative communities have been classified based on average number of years between fires (fire frequency) as well fire severity (amount of replacement) on dominant overstory vegetation.

The five fire regime classifications commonly interpreted for fire and fuels management purposes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);

V – 200+ year frequency and high (stand replacement) severity.

The FRCC is a classification of the amount of departure from the natural fire regime (Hann and Bunnell 2001; Hardy et al. 2001). Coarse-Scale FRCC classes have been defined and mapped by Schmidt et al. (2002). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historic natural fire regime.

This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g., insect and disease mortality, grazing, and drought). There are no wildland vegetation and fuel conditions that do not fit within one of the three classes.

A simplified description of the FRCCs and associated potential risks is presented below.

Table 12

<i>Fire Regime Condition Classes (from Hann and Bunnell 2001)</i>		
<b>FRCC</b>	<b>DESCRIPTION</b>	<b>POTENTIAL RISKS</b>
<b>Condition Class 1</b>	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime.
<b>Condition Class 2</b>	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Risk of loss of key ecosystem components (e.g., native species, large trees, and soil) are low. Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate; risk of loss of key ecosystem components is moderate.
<b>Condition Class 3</b>	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components are high.

To determine the current FRCC, the PA and DA landscapes were delineated using both BLM Forest Vegetation Information System (FORVIS) stand data and USFS Region One Vegetation Classification Mapping (USDA 2011).

The BLM did not have any current vegetation data on the Iron Mask acquisition area. Therefore, the BLM borrowed the USFS Region One Vegetation Classification Mapping, which had not yet been ground-truthed. In 2012, the BLM conducted ground-truthing in an acre sample of the acquisition area that included lower and upper elevations. To begin, 200 random GPS points were generated within the sample area. BLM personnel conducted 100 vegetation samplings of the random GPS points to determine the accuracy of the USFS Region One Vegetation Classification Mapping. The ground-truthing results showed an accuracy level of 81% to the USFS mapping, as follows:

Table 13

No. of BLM Ground - Truthing Samples	No. of Matches to USFS Veg. Classification Map
Conifer 15	Conifer 11
High Sage 9	High Sage 2
Juniper 4	Juniper 4
Low Sage 2	Low Sage 0
Grass 70	Grass 64
Total: 100	Total: 81

A potential/historical reference condition was determined for the landscape by using FRCC Guidebook Biophysical Setting (BpS) Descriptions (USGS 2007). It is important to determine reference condition for the landscape, to see if the treatments are effective in moving the current condition toward the reference condition following implementation and monitoring that would occur under proposed actions. The landscape area is divided into nine major BpSs for analysis of FRCC.

### Summary

Departure of the historical/reference conditions was determined by comparing the current condition to the historical/ reference condition for both the analysis and project areas.

Table 14

<i>Current Departure from Historical/Reference Conditions</i>							
BpS		Planning Area		Departure	Decision Area		Departure
		Current	Reference		Current	Reference	
<b>Douglas-fir Interior (DFIR2)</b>	%	17	6	+11	33	5	+28
	acres	20,860	7,843	+13,017	8,765	1,238	+7,527
<b>Ponderosa Pine Douglas-fir Inland Northwest (PPDF1)</b>	%	5	4	+1	10	7	+3
	acres	6,266	4,923	+1,343	2,669	1,879	+790
<b>Mountain Grassland with Shrubs (MGRA3)</b>	%	57	65	-8	44	69	-25
	acres	70,246	80,445	-10,199	11,863	18,515	-6,652
<b>Sagebrush Cool (SCAG1)</b>	%	10	14	-4	11	17	-6
	acres	12,933	17,094	-4,161	2,857	4,522	-1,665
<b>Riparian (RIPA)</b>	%	1	1	0	1	1	0
	acres	1,429	1,429	0	187	187	0
<b>Interior Lower Subalpine Forest #1 (SPFI1)</b>	%	6	6	0	0	0	0
	acres	7,614	7,614	0	0	0	0
<b>Deciduous woodland-Oak/Aspen (DWOA)</b>	%	1	1	0	0	0	0
	acres	834	834	0	0	0	0
<b>Interior West Upper Subalpine Forest (SPFI2)</b>	%	1	1	0	0	0	0
	acres	1,502	1,502	0	0	0	0

<b>Current Departure from Historical/Reference Conditions</b>							
<b>BpS</b>		<b>Planning Area</b>		<b>Departure</b>	<b>Decision Area</b>		<b>Departure</b>
		<b>Current</b>	<b>Reference</b>		<b>Current</b>	<b>Reference</b>	
<b>Barren, Water, and Urban</b>	<b>%</b>	3	3	0	1	1	0
	<b>acres</b>	3,249	3,249	0	346	346	0
<b>Total Departure</b>	<b>%</b>			-12 +12			-31 +31
<b>Total Departure</b>	<b>acres</b>			-14,360 +14,360			-8,317 +8,317
*A negative % represents a shortage of the BpS on the landscape. A positive % represents an abundance of the BpS on the Landscape % were rounded to the nearest whole percent so they will not match acres verbatim							

With the use of the LANDFIRE FRCC Software Application, 3.0, the current vegetation condition was compared to the reference condition of the landscape. The landscape was calculated to have an overall departure of 34 percent which equated to a rating of Condition Class 2, a condition that is moderately departed from historic reference values. A complete FRCC report can be found in the Project Administration Record.

The Iron Mask PA has more acres of DFIR2 and PPDF-1 BpS across the area than the reference conditions would have had, which leaves a shortage of acres in the MGRA3 and CSAG1 BpS. The Iron Mask PA consists of fire regime one, two, three and four and with the use of the LANDFIRE FRCC Software Application, 3.0, the current vegetation condition was compared to the reference condition of the landscape. The landscape was calculated to have an overall departure of 34 percent which equated to a rating of Condition Class 2, a condition that is moderately departed from historic reference values. A complete FRCC report can be found in the Project Administration Record.

#### **Alternative A Direct & Indirect Effects**

With the No Action Alternative, no vegetative treatments would occur on the Iron Mask DA landscape. Sagebrush meadows and open grasslands would continue to be colonized by conifers and/or sagebrush, and the acres of sagebrush meadows and open grasslands could continue to decline in the absence of disturbance. This alternative would not treat any of the eight vegetated BpS's identified in Chapter 3. The FRCC on this landscape was rated at Condition Class 2 - a condition moderately departed from historic reference values. With the No Action Alternative, these conditions would continue to degrade and could potentially reach a Condition Class 3, indicating the land is not very similar to its' natural regime in terms of vegetation, disturbance or both.

#### **Alternatives B and C Direct & Indirect Effects**

Effects to fire and fuels would be the same for both Alternatives B and C.

Vegetation treatment in six of the eleven identified BpS's would occur under Alternatives B and C. The proposed action would treat approximately 8,102 acres of vegetation in the PA; approximately 4,538 of mechanical and or prescribed fire and approximately 3,564 of mechanical vegetation treatment. Approximately 7,064 acres of the total treatments acres would treat the overabundance acres in the DFIR2 and PPDF1 and thus restoring the under abundance

of acres in MGRA3 and SCAG1 BpS (see current condition Table 6). Treatment on approximately 70 acres would occur in the RIPA and DOWA BpS maintain and moving them toward the reference condition. Approximately 350 acres of DFIR2 and 218 acres of PPDF1 would be treated to move toward reference condition.

**Summary.** Departure from the historical/reference was determined by comparing the expected outcome of condition after treatment implementation of Alternative B to the historical/reference condition for both the DA and PA.

Table 15

<i>Departure From Historical/Reference Conditions With Implementation of Alternative B</i>							
BpS		Planning Area		Departure	Decision Area		Departure
		Alternative B	Reference		Alternative B	Reference	
Douglas-fir Interior (DFIR2)	%	11	6	+5	10	5	+5
	acres	14,586	7,843	+6,743	2,491	1,238	+1,253
Ponderosa Pine Douglas-fir Inland Northwest (PPDF1)	%	4	4	+1	7	7	0
	acres	5,476	4,923	+553	1,879	1,879	+0
Mountain Grassland with Shrubs (MGRA3)	%	61	65	-4	64	69	-5
	acres	76,645	80,445	-4,800	17,262	18,515	-1,253
Sagebrush Cool (SCAG1)	%	12	14	-2	17	17	0
	acres	14,598	17,094	-2,496	4,522	4,522	-0
Riparian (RIPA)	%	1	1	0	1	1	0
	acres	1,429	1,429	0	187	187	0
Interior Lower Subalpine Forest #1 (SPFI1)	%	6	6	0	0	0	0
	acres	7,614	7,614	0	0	0	0
Deciduous woodland-Oak/Aspen (DWOA)	%	1	1	0	0	0	0
	acres	834	834	0	0	0	0
Interior West Upper Subalpine Forest (SPFI2)	%	1	1	0	0	0	0
	acres	1,502	1,502	0	0	0	0
Barren, Water, and Urban	%	3	3	0	1	1	0
	acres	3,249	3,249	0	346	346	0
Total Departure	%			-6 +6			-5 +5
	acres			-7,269 +7,269			-1,253 +1,253

*\*A negative % represents a shortage of the BpS on the landscape. A positive % represents an abundance of the BpS on the Landscape  
% were rounded to the nearest whole percent so they will no match acres verbatim*

Alternatives B and C would treat up to approximately 8,102 acres of vegetation and move the BpSs toward the reference condition which would change the overall FRCC rating for the PA. By using LANDFIRE FRCC Software Application 3.0, the expected vegetation condition from implementation of Alternative B or C was compared to the reference condition of the landscape. The landscape was calculated to have an overall departure of 31 percent which equated to a

rating of Condition Class 1, a condition that is within the natural (historical) range of variability for vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances. A complete FRCC report can be found in the Project Administration Record.

#### **3.4.4.4 Forestry**

##### **Existing Condition**

In broad terms, a healthy forest is one that maintains desirable ecosystem functions and processes. Aspects of forest health include biological diversity, soil productivity, air and water quality, ability to withstand natural disturbances, and the capacity of the forest to provide a sustaining flow of goods and services for people. Due to the slow growth and limited productivity of the forest types within the BLM portions of the Iron Mask PA, the BLM forests are unable to provide what some describe as traditional forest resources, such as lumber and other wood products, but they do provide critical habitat and structure that support many ecosystem functions and processes.

The Butte RMP separates forests and woodlands into two main types, Dry Forest Types and Cool and Moist Forest Types. Both types occur throughout the Iron Mask PA, but the Dry Forest Types are the most prevalent. For this assessment, the forest and woodland types were further divided into five BpSs (see Fire/Fuels Section 3.4.4.3 for more clarification). These five BpSs comprise approximately 30% of current vegetation in the PA, and would comprise approximately 18% of the PA in reference conditions. Only two of these BpSs are found on BLM land within the PA, DFIR2 and PPDF1. These BpSs comprise approximately 43% of the current vegetation in the PA and would comprise only 12% of the PA in reference conditions.

The DFIR2 and PPDF1 BpSs found within the Iron Mask PA generally are composed of the low-elevation and mid-elevation forest/woodlands which contain predominately Douglas-fir, limber pine, ponderosa pine, and Rocky Mountain juniper. There has been a large amount of departure within the DFIR2 and PPDF1 BpSs. Departures are mainly attributed to conifer expansion into openings and sagebrush/grassland which is most evident at the low to mid-elevations of the assessment area. Douglas-fir and Rocky Mountain juniper colonization has affected much of the PA.

At higher elevations, the Dry Forest Types transition into more Cool and Moist Forest Types (SPFI1 and SPFI2 BpSs). These forested habitats are limited within the PA and mainly found on USFS ground. They contain mixed conifer communities of subalpine fir, Engelmann spruce, Douglas-fir, and lodgepole pine.

Most of the forest stands within the PA are uneven-aged and multi-layered with individual and small groups of old growth trees scattered throughout. Trees with “old growth” characteristics are limited throughout the PA and most commonly found in rock outcrops or along riparian areas, due to the historic mixed-severity fire regime of the area.

As a result of fire exclusion, conifer expansion and stand density have increased within forested stands. The recent drought and increased densities have resulted in forest susceptibility to insect and/or disease infestations and subsequent mortality.

Spruce budworm activity is present throughout most areas of the Iron Mask PA. Defoliation caused by spruce budworm is most evident on Douglas-fir, but also affects subalpine fir and spruce species. While spruce budworm does not usually cause direct tree mortality, 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 high risk to budworm infestation (Bulaon and Sturdevant 2006). Defoliation from spruce budworm was noted throughout the PA, but is at endemic levels.

Mountain pine beetle is present throughout the watershed and is causing mortality in lodgepole, ponderosa, and limber pine. During low beetle population levels, attacks are primarily on trees under stress due to injury, drought, overcrowding, etc. However, as beetle populations increase, attacks may involve most trees eight inches diameter at breast height (DBH) or greater, regardless of their apparent health (Bulaon and Sturdevant 2006). Mountain pine beetle activity is highly variable throughout the Iron Mask PA due to a wide range of suitability in stand conditions. Nearly all of the conifer stands within the PA that have a pine component are experiencing some level of mortality.

#### **Alternative A Direct & Indirect Effects**

This alternative would not reduce the conifer colonization or stand densities throughout the PA. Forests would continue to expand and stand densities would continue increasing. Forest susceptibility to insects and/or disease would also continue to increase. Trees with “old growth” characteristics would continue to be at risk.

#### **Alternative B and C Direct & Indirect Effects**

Fire, hand thinning, and mastication would reduce conifer colonization and forest stand densities throughout the DA. By reducing conifer expansion and stand densities, forest susceptibility to insects and/or disease would be reduced and trees with “old growth” characteristics would be protected.

### **3.4.4.5 Grasslands & Shrublands**

#### **Existing Condition**

Most of the PA (79%) and DA (86%) would be categorized as grassland/shrubland under historical reference conditions. Currently, only 67% of the PA and 55% of the DA are considered grassland/shrubland. Common native grasses in the area include bluebunch wheatgrass, Idaho fescue, needle-and-thread grass, and blue grama. The most common native shrub is big sagebrush.

Much of the grassland/shrubland habitat type in the DA has been undergoing conversion to woodland/coniferous habitat due to fire intervals that have lengthened considerably since European settlement. The historical mean fire intervals (MFI) for the Mountain Grassland and Sagebrush Cool BpS types are 16 and 17 years, respectively. The current MFIs for these types are 251 and 302 years, respectively (Barrett 2005). These BpS types are currently reduced in the

DA by a combined 31% from what would be expected under reference condition. And these figures only represent the areas in which conversion has already crossed the threshold of being classified as a different BpS type. Much of the area still classified in the grassland/shrubland BpS types is in the process of undergoing conversion due to conifer colonization. The Elkhorn Implementation Group (2011) defined conifer colonization as:

- Conifers that occupy areas where they are not desirable from a wildlife habitat management objective;
- Conifers that exist where they historically were not present in grass and/or shrublands under stand-replacing, mixed-severity fire regimes, or low-severity fire regimes;
- Where natural disturbance processes such as fire have been altered from the historic (pre-1900) disturbance regime (e.g. interrupted by grazing pressure or suppression activities or intensified by increased fuel loads that result from increased stem densities).
- Where trees exist in an area that compromises non-forested landscapes.

Grassland-dependent wildlife species such as pronghorn antelope and long-billed curlew have already lost much habitat locally and across their range to human development and agriculture on private lands, and are losing more to conifer colonization. Other threats to grassland/shrubland habitat are increased club moss which prevents infiltration of precipitation, and increased nonnative species such as cheatgrass.

#### **Alternative A Direct & Indirect Effects**

The No Action Alternative would not remove conifer colonization from grassland and sagebrush habitats. These habitats would continue to be colonized by conifers and the acres of sagebrush meadows and grassland would continue to decline in the absence of conifer treatments. Declines in these habitats would reduce food, cover, and nesting sites for wildlife species dependent on sagebrush and grasslands.

#### **Alternatives B & C Direct & Indirect Effects**

Effects to grasslands and shrublands from vegetation treatments would be the same under Alternatives B and C.

Alternative B and C would remove conifer colonization from grassland and sagebrush habitats and allow for increases in grasses, forbs and shrubs that are currently being replaced by conifers. Several methods of conifer reduction are proposed these include: prescribed fire, mastication, and hand cutting. Ideally, a combination of all these methods could be used, which would provide BLM with an opportunity to monitor successful conifer kill rates and sagebrush/grass regeneration among the different methods of treatment.

The photo below depicts conifer colonization that can be found in grassland/shrublands in the Iron Mask PA.

Photo 7: Progression of conifer colonization into open grassland/shrublands in the DA



Prescribed fire can be the most efficient way to remove conifers, especially small seedlings. Unlike mechanical treatments, prescribed fire also removes a portion of the conifer seed source, ensuring less time between re-treatments. Since some sagebrush would be lost with prescribed burning, it is recognized that sagebrush cover could be lower than preferred in the short-term (up to 10 years) after burning. All burns would be designed to create a mosaic of sagebrush cover. Due to differences in conifer density and size, topography, and holding lines, more sagebrush could be removed than desired in the short term. In the long-term, opening up space previously occupied by conifers would encourage greater sagebrush cover and establishment by reducing competition for water and soil nutrients.

Prescribed fire has been effectively used in the past on the Iron Mask and Whipcracker pastures of the Limestone Hills allotment to reduce conifer colonization, increase herbaceous cover, and enhance wildlife habitat.

Mastication would be applied in areas where the conifer cover is 10-30%. A study done on conifer colonization reduction through mastication in Utah (Roundy 2013) indicates that to best maintain shrub cover, trees should be masticated before tree cover exceeds 20 percent. This study was conducted on pinyon pine and juniper colonization using “extensive and detailed controlled experiments and measured soil and plant responses for tree and interspace microsites on three sites in 2007 through 2011.” By using mastication in areas of less conifer density, less woody debris would remain on the ground. A solid mat of woody debris would inhibit the regeneration of sagebrush and herbaceous species. Mastication in less dense conifer colonization areas would be lower in cost than in a densely conifer-populated area. Some short-term damage to sagebrush and grasses may occur from the mastication machinery’s movement. Roundy’s study suggests that tree mortality and woody debris can increase soil water and nutrient availability to plants both in the interspaces and understories of masticated trees. An additional finding from that study is that shredding can maintain shrubs and increase herbaceous cover on colonized sites.

The same study also indicates that a risk exists for weedy species to become dominant in masticated areas where few perennial grasses exist or where weedy species are prevalent due to increased soil water and nutrient availability. Any method of conifer removal would allow for a

short-term increase in noxious weeds that are already present in some of the treatment areas. Weed-spraying prior to and after treatments would be accomplished by the BLM outside the LHTA and by the MTARNG on lands within the LHTA. Successful weed spraying has greatly reduced the occurrence of noxious species in the Whipcracker Pasture after past prescribed burns.

Hand-thinning (sawing, lopping) of conifers in grassland/shrublands and riparian areas would have less immediately impacts on vegetation than mastication as no large vehicles would be moving over the landscape. Impacts of hand-thinning would include opening the conifer overstory to permit more light to the understory grasses, forbs and shrubs, as well as lessen the competition for water and nutrients these species vie for with conifers.

Tree stump-inhibitor chemicals such as Garlon would have an impact on understory grass and shrubs by ensuring complete conifer kill after mastication. Sometimes these removal methods leave the lowest branches which can then resprout. Garlon can be toxic to fish and would not be used near fish-bearing streams or aquatic areas.

Garlon, undiluted, can be toxic to birds. Dilution of the stump-inhibitor would be done according to the manufacturer's directions, which would reduce the risk of impacts to birds. A stump-inhibitor chemical would be applied during time periods when moisture stress is the least, i.e. winter, and it can be used when snow is present. Spraying conifer stumps in the winter when migratory birds are not present would reduce the risk of accidental ingestion.

Removing conifer from uplands could result in an increase in the water production that supplies the many springs used by wildlife and livestock. This effect is not certain to occur, but water yield inspections would help determine if removal of the colonizing conifers has any effect on water production. Increased water yield would also be dependent on a myriad of other factors at different sites; factors such as types of soils, depth of bedrock, re-emergence and/or increase in wetland/riparian species, decreased annual precipitation/drought, etc.

### **3.4.5 Riparian Habitat**

#### **Existing Condition**

The condition of riparian areas on BLM land is primarily evaluated by PFC Assessment Methodologies (Prichard et al. 1998, 2003). PFC is a methodology for assessing the physical functioning of riparian-wetland areas. The term PFC is used to describe both the assessment process, and a defined, on the ground condition of the riparian-wetland area. In either case, PFC defines a minimum level or starting point for assessing riparian-wetland areas.

The PFC assessment provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. The PFC assessment synthesizes information that is foundational to determining the overall health of a riparian-wetland area.

The on-the-ground condition term "PFC" 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 a high flow event, sustaining that system's ability to produce values related to both physical and biological attributes.

BLM personnel reviewed existing data, re-read established transects, and established monitoring in several areas that were identified prior to and during the 2010 and 2012 evaluations. All available data were evaluated and considered by the BLM IDT prior to a functionality call being made on each reach.

The planning area contains primarily lotic (e.g., streams) systems. However there was one lentic (e.g., wet meadow) system inventoried and assessed during a portion of the 2012 land health assessment.

Riparian condition of streams, springs, ponds, potholes and wet meadows were placed into one of five categories: Proper Functioning Condition (PFC), Functioning At Risk with an upward trend (FAR Up), Functioning At Risk with a static trend or no apparent trend (FAR), Functioning At Risk with a downward trend (FAR Down), or Non Functional (NF) using the lentic and lotic methodologies described above. Standards are met when conditions are at PFC or FAR with an upward trend.

There were approximately 17.4 miles of perennial, intermittent and ephemeral stream reaches identified and inventoried during the 2010 and 2012 land health assessments. These reaches are identified in the table below. In addition to the name and unique identification number associated with each reach, the table includes which BLM grazing allotment the reach is located in; approximate length; most recent PFC rating; and the previous rating if there was one.

Table 16

<i>Riparian (lotic) Resources in the Iron Mask DA</i>						
<b>Reach ID</b>	<b>Reach Name</b>	<b>Allotment</b>	<b>Approx. Length (miles)</b>	<b>Flow</b>	<b>Most Recent Rating</b>	<b>Previous Rating</b>
MICC-2	unnamed	Limestone Hills	0.51	<i>ephemeral</i>	<i>PFC</i>	<i>NF</i>
MICC-16	Cold Springs	Limestone Hills	0.14	<i>perennial</i>	<i>FAR up</i>	*
MIDR-13	unnamed	Limestone Hills	0.46	<i>ephemeral</i>	<i>PFC</i>	<i>NF up</i>
MIDR-14	unnamed	Limestone Hills	0.34	<i>ephemeral</i>	<i>PFC</i>	<i>NF up</i>
MIDR-15	unnamed	Limestone Hills	0.61	<i>ephemeral</i>	<i>PFC</i>	<i>FAR</i>
MIDR-16	unnamed	Limestone Hills	0.46	<i>ephemeral</i>	<i>PFC</i>	<i>NF up</i>
MIDR-17	Limestone Spring	Limestone Hills	0.71	<i>intermittent</i>	<i>PFC</i>	<i>NF up</i>
MIDR-18	Limestone Spring	Limestone Hills	0.10	<i>intermittent</i>	<i>PFC</i>	<i>FAR</i>
MIDR-19	Tank Range Spring	Limestone Hills	0.19	<i>intermittent</i>	<i>NF</i>	<i>FAR</i>
MIDR-20	Indian Creek	Limestone Hills	0.46	<i>ephemeral</i>	<i>NF up</i>	*
MIDR-21	Indian Creek	Limestone Hills	0.38	<i>ephemeral</i>	<i>NF up</i>	*

<i>Riparian (lotic) Resources in the Iron Mask DA</i>						
<b>Reach ID</b>	<b>Reach Name</b>	<b>Allotment</b>	<b>Approx. Length (miles)</b>	<b>Flow</b>	<b>Most Recent Rating</b>	<b>Previous Rating</b>
MIDR-22	Indian Creek	Limestone Hills	0.29	<i>ephemeral</i>	<i>NF up</i>	*
MIDR-23	Indian Creek	Limestone Hills	0.46	<i>ephemeral</i>	<i>FAR</i>	<i>FAR</i>
MIDR-24	Indian Creek	Limestone Hills	0.92	<i>perennial</i>	<i>FAR</i>	<i>FAR</i>
MIDR-25	Indian Creek	Limestone Hills	0.80	<i>intermittent</i>	<i>PFC</i>	*
MIDR-26	unnamed Whipcracker trib.	Limestone Hills	0.34	<i>intermittent</i>	<i>PFC</i>	<i>PFC</i>
MIDR-27	unnamed	Limestone Hills	0.15	<i>intermittent</i>	<i>PFC</i>	<i>NF</i>
MIDR-28	unnamed	Limestone Hills	0.47	<i>intermittent</i>	<i>FAR</i>	<i>FAR</i>
MIDR-29	unnamed	Limestone Hills	0.45	<i>intermittent</i>	<i>FAR</i>	<i>NF</i>
MIDR-31	Whiplash	Limestone Hills	0.37	<i>intermittent</i>	<i>FAR up</i>	<i>NF up</i>
MIDR-32	Whiplash	Limestone Hills	0.29	<i>intermittent</i>	<i>FAR up</i>	<i>FAR</i>
MIDR-33	Whiplash	Limestone Hills	0.17	<i>intermittent</i>	<i>FAR up</i>	<i>NF up</i>
MIDR-34	Whiplash	Limestone Hills	0.40	<i>intermittent</i>	<i>PFC</i>	<i>PFC</i>
MIDR-36	Hassel	Limestone Hills	0.14	<i>perennial</i>	<i>PFC</i>	*
MIDR-38	Indian Creek	Limestone Hills	0.49	<i>perennial</i>	<i>NF</i>	<i>NF</i>
MIDR-39	Indian Creek	Limestone Hills	0.44	<i>perennial</i>	<i>NF</i>	<i>NF</i>
MIDR-40	Indian Creek trib.	Limestone Hills	0.50	<i>perennial</i>	<i>PFC</i>	<i>NF</i>
MIDR-41	Indian Creek trib.	Limestone Hills	0.39	<i>intermittent</i>	<i>PFC</i>	<i>NF</i>
MIDR-42	Indian Creek trib.	Limestone Hills	0.30	<i>intermittent</i>	<i>PFC</i>	<i>NF</i>
MIDR-43	Indian Creek	Limestone Hills	0.49	<i>perennial</i>	<i>FAR up</i>	<i>FAR</i>
MIDR-44	Indian Creek	Limestone Hills	0.49	<i>perennial</i>	<i>FAR up</i>	<i>NF up</i>
MIDR-45	Indian Creek	Limestone Hills	0.19	<i>perennial</i>	<i>FAR up</i>	<i>FAR</i>
MIDR-46	Badger Gulch	Limestone Hills	0.38	<i>perennial</i>	<i>FAR</i>	<i>FAR</i>
MIDR-48	W.F. Indian Creek	Limestone Hills	0.20	<i>perennial</i>	<i>FAR</i>	<i>FAR</i>
MIDR-49	W.F. Indian Creek	Limestone Hills	0.21	<i>perennial</i>	<i>FAR</i>	<i>FAR</i>
MIMC-3	Kelly Spring Gulch Trib.	Kimber Diorite	0.33	<i>intermittent</i>	<i>PFC</i>	<i>FAR</i>

<i>Riparian (lotic) Resources in the Iron Mask DA</i>						
Reach ID	Reach Name	Allotment	Approx. Length (miles)	Flow	Most Recent Rating	Previous Rating
MIMC-4	Kelly Spring Gulch	Kimber Diorite	0.37	<i>perennial</i>	<i>PFC</i>	<i>FAR</i>
MIMC-5	Chartum Gulch	Beaver	0.31	<i>intermittent</i>	<i>FAR</i>	*
MIMC-6	Chartum Side Draw	Beaver	0.22	<i>intermittent</i>	<i>FAR</i>	*
MIMC-21	Weasel Creek	Beaver	0.26	<i>perennial</i>	<i>PFC</i>	<i>FAR up</i>
MIMC-22	Beaver Creek	Beaver Creek	0.24	<i>perennial</i>	<i>PFC</i>	<i>PFC</i>
MIUC-1	Whipcracker Gulch	Limestone Hills	0.37	<i>intermittent</i>	<i>FAR</i>	<i>PFC</i>
MIUC-2	Whipcracker Gulch	Limestone Hills	0.30	<i>intermittent</i>	<i>FAR</i>	<i>PFC</i>
MIUC-3	Fesida Spring	Limestone Hills	0.06	<i>intermittent</i>	<i>PFC</i>	*
MIUC-4	unnamed	Indian Creek	0.18	<i>perennial</i>	<i>FAR</i>	<i>PFC</i>
MIUC-5	unnamed	Indian Creek	0.37	<i>intermittent</i>	<i>FAR</i>	<i>PFC</i>
MIUC-6	unnamed	Indian Creek	0.20	<i>intermittent</i>	<i>FAR</i>	<i>NF up</i>
MIUC-7	unnamed	Indian Creek	0.25	<i>ephemeral</i>	<i>FAR up</i>	<i>PFC</i>
MIUC-8	unnamed	Indian Creek	0.25	<i>ephemeral</i>	<i>FAR</i>	<i>FAR</i>

*PFC = Proper Functioning Condition; FAR = Functioning at Risk; FAR up = FAR with an upward trend; NF = Non-functioning; NF up = NF with an upward trend; \* = No rating is available*  
 (NOTE: *NF up* designates that although the reach was determined by the ID team to be non-functioning; indicators such as riparian plant communities and stream morphology show that the overall health of the reach may be improving.)

One lentic (e.g. wetland) system was identified and assessed in 2012. The PFC rating as well as the location and size of the wetland is listed in the table below.

Table 17

<i>Riparian (lentic) Resources in the Iron Mask DA</i>					
Reach ID	Reach Name	Allotment	Approx. Size (acres)	Most Recent Rating	Previous Rating
MIMC-2	Kimber Gulch	Kimber Diorite	1.00	<i>PFC</i>	*

*PFC = Proper Functioning Condition; \* = No rating is available*

MIMC-2 is a series of three small lentic areas that are adjacent to one another. The area appears to be a relict beaver dam complex. The three areas were grouped together as one unit and rated accordingly.

Across the PA, 43% (7.47 miles) of the lotic resources were rated PFC, 30% (5.29 miles) were rated FAR, 14% (2.39 miles) were rated FAR up, 5% (0.93 miles) were rated NF, and 8% (1.32 miles) were rated NF up.

100% of the lentic resources that were assessed were rated PFC.

Many of the reaches within the planning area have been directly and/or indirectly affected by placer and/or hard-rock mining. Portions of Indian Creek and its' tributaries lie within the LHTA. Gold was discovered in Indian Creek in 1870 near the Hassel townsite at the junction of the West and North Forks of Indian Creek. The lower portions of the creek were dredged from 1937 through the early 1950s, with a pause during the war years from 1942-1946.

In 1998 the BLM undertook reclamation of a 2,400 foot stretch of Indian Creek just east of the limestone canyon known as the Willison site. Reclamation involved reconstruction of a stream channel and revegetation of approximately five acres. In 2011 high streamflows started a headcut at the east end of the project area where it joined the unreclaimed valley. This headcut extends back into the reclaimed area approximately 25 feet with banks as much as four feet high.

Tank Range Spring was rated NF, due to heavy bank disturbance partially associated with the firing range along the banks and within the reach. A road crossing occurs in the middle of the reach that had a plugged culvert. The spring had limited water in the system, which is not sufficient enough to maintain hydric soils. Limited water capacity further limits riparian vegetation vigor and composition.

The following is not an all-encompassing list of conditions found by the IDT during the assessments, but describes some of the issues and general resource concerns that prevented certain reaches from meeting Western Montana Standard #2.

- Alteration of stream morphology which includes; channel shape, gradient, sinuosity and width-to-depth ratio.
- Excessive erosion or deposition in at least a portion of the reach.
- Composition, cover, structure and vigor of riparian vegetation differing from what is expected for the reach.
- Noxious weeds present throughout at least a portion of the reach.

Many of the resources within the BFO stream and wetland database have been identified based upon mapped information, aerial photos, and USGS quadrangle maps. As part of the planning area assessment process, the resource inventory has been updated based upon field notes, photographs and ground surveys.

Intentionally Left Blank



## **Alternative A Direct & Indirect Effects**

Riparian reaches that were assessed in 2010 and 2012, and determined to be PFC, would be expected to remain PFC under current management.

Existing conditions on reaches that were determined to be FAR or NF would not be expected to improve without some change(s) in management and/or the implementation of management action(s).

## **Alternative B Direct & Indirect Effects**

Thinning conifers could lead to an expansion of riparian vegetation across the landscape, and increase desired riparian species and vigor of plants. More favorable growing conditions would be created to allow for recruitment of early seral aspen, willow and other desired riparian species. Thinning conifers would increase the opportunity for precipitation to reach the soil surface. This may lead to an increase in available water if the soil surface is protected and infiltration occurs. An increase in plant available water would be expected to help improve riparian reaches if net gains occur.

Vegetation management activities may affect vegetation stand age, structure, or species composition. Actions with potential for direct effects on riparian habitat include thinning and/or burning of conifers from riparian areas. Indirect effects after project implementation include changes in vegetation structure over time.

Burning and ground-based thinning of conifers could expose mineral soil and create localized surface erosion. There would be potential for sediment generated from management actions to reach streams. This could be especially true if a prescribed fire is lost and more acres are burned during implementation. Adequate buffers, however, would be retained on perennial streams to prevent excess sediment from reaching streams.

Although thinning of conifers would occur in riparian zones, it would be done to release desired riparian species and promote an increase in riparian vegetation. No bank rooted trees would be removed and no trees would be removed from the area unless adequate in-stream and down woody material in the riparian zone was available. Mechanical treatments in riparian zones would only be allowed if the protection of the stream and riparian structure could be guaranteed.

Prescribed fire is often recommended as an alternative for ungulate (both wildlife and livestock) control because it stimulates prolific suckering and provides optimal growing conditions for young aspen (Shepperd 2001). Aspen stand vigor, soil, fuel loads, and fire severity must be taken into account before using prescribed fire for aspen restoration (Kilpatrick and Abendroth 2001).

In some situations the combination of fire and severe ungulate use has eliminated stands, prompting researchers to suggest that in some areas of the west prescribed fire could hasten aspen decline (White et al. 1998, Kay 2001, Durham et al. 2010). However, the Whitetail Watershed Restoration Project on BFO lands, which used prescribed fire in 2005 and 2006, showed that fire can effectively restore aspen when livestock/wildlife management goals produce low to moderate browsing pressures (Durham and Marlow 2010).

Vegetation treatments for riparian areas within Indian Creek, Kimber Diorite and Limestone Hills allotments would be expected to address the VTO of promoting riparian health as stated in Section 2.4.4.

**Indian Creek Forage Reserve allotment:** Implementing a minimum stubble height of 6” (approx. 15 cm) on key riparian species within the West pasture of the Indian Creek allotment would provide an easily communicated management benchmark.

When stubble heights are reduced to less than 10 cm (approx. 4”), the ability of cattle to forage becomes less effective and efficient. This can result in increased livestock trailing and increased browsing of woody species such as willows. Data indicates that when considering a number of riparian issues such as: maintaining forage vigor; entrapping and stabilizing sediment under inundated flow; trampling of stream banks; sustaining forage intake and cattle gain; and diversion of willow browsing; that a stubble height of 10 cm on streamside graminoids may be the best compromise in many situations (Clary et al. 2000).

The construction of exclosures around spring sources for stock water developments would help to reduce the amount of livestock trailing and trampling in and around the springs. Constructing exclosures around spring sources may also help to reduce the amount of browsing on desirable woody species such as willows and aspen where present. The use of a let-down fence around the wet meadow in the West pasture of the Indian Creek allotment would help to reduce livestock trailing and trampling within the wet meadow.

**Kelly Gulch:** Hand thinning of conifers in the area of the Kelly Spring Gulch exclosure could improve up to 21 acres of riparian habitat within the Kimber Diorite allotment. Thinning conifers would be expected to create more favorable growing conditions which would allow for recruitment of early seral aspen, willow and other desired riparian species.

**Indian Creek:** Stabilizing the Indian Creek headcut would help to reduce stream bank erosion and allow for the recruitment and recovery of desirable riparian species.

Approximately 70 acres of riparian habitat adjacent to Indian Creek could be improved through the hand thinning of conifers and Russian olive. Conifer treatments elsewhere throughout the Limestone Hills allotment could improve up to an additional 291 acres of riparian habitat.

Russian olive treatment along Indian Creek and its tributaries may help reduce the competition for available resources between Russian olive and desirable riparian species such as aspen, willow and cottonwood. The resulting effect that removing Russian olive would have on increased water flow within Indian Creek is not known.

When existing dense stands of nonnative vegetation are replaced with other vegetation, soil shading may be reduced and hence direct evaporation from the ground may increase, partly or completely offsetting any reduction in vegetation transpiration. Consequently, expected increases in stream flow or groundwater following removal of Russian olive from the flood plain may not be realized (Shafroth et al. 2009).

Cut-stump methods are an effective way to control Russian olive. Wilson (2008) reported 95-100% control of Russian olive using cut-stump methods with herbicides at Scottsbluff, Neb.,

during 2006 – 2008 (Shafroth et al. 2009). However, even with a successful kill of live trees, a seed bank remains in the soil. Research has shown that Russian olive seeds may stay viable for up to three years. Russian olives within Indian Creek would not be eliminated by a single treatment. Annual follow-up treatments would be necessary to ensure that Russian olive trees that were not successfully killed in previous attempts are subsequently treated.

### **Alternative C Direct & Indirect Effects**

Riparian reaches impacted by livestock trailing or trampling may possibly improve over time with the removal of livestock.

#### **3.4.6 Wildlife & Fish**

##### **Existing Condition**

Wildlife in the PA is typical of southwestern Montana. Basic life history and habitat requirement information on all species mentioned in this document can be found in the Montana Field Guide (<http://fieldguide.mt.gov/>), and numerous other sources.

**Mammals:** The planning area provides important big game habitat. Antelope are common in the lower elevation, grassy habitat in summer. Elk winter in the upper and middle elevations, and generally move to upper elevations in summer. A regulation requiring a special permit to hunt mature elk bulls or cows in the Elkhorns has resulted in a healthy age class mix of males and highly regarded hunting opportunities. Mule deer are common, and whitetail deer mostly occupy the Missouri River, Crow Creek, and Beaver Creek corridor areas. Bighorn sheep were reintroduced to the area in 1996 and reached a population near 200 individuals but experienced a pneumonia die-off in 2008. Their current population is about 30-40 individuals.

Grey wolves have moved into the area in recent years. Other predators include coyote, mountain lion, bobcat, black bear, and badger. Numerous small mammals are present in the area as well, including shrew species, many rodent species, and several bat species.

**Birds:** Many species of migratory and non-migratory birds are found in the project area. Species commonly seen in the lower elevation grassy habitats include horned lark, vesper sparrow, western meadowlark. Many birds are more general in habitat preferences and may be found in shrub and coniferous habitats including the American robin, chipping sparrow, dark-eyed junco, mountain chickadee, pine siskin, Clark's nutcracker, and quite a few others. Raptors recorded in the area include bald eagle, kestrel, prairie falcon, red-tailed hawk, northern harrier. Several species designated "sensitive" by BLM may occur in the area (see table below). Species requiring special management consideration to promote their conservation and reduce the likelihood of future Endangered Species Act (ESA) listing are designated "sensitive" by BLM State Directors.

**Reptiles and Amphibians:** Reptiles that could occur in the project area include the gopher snake, terrestrial and common garter snakes, eastern racer, rubber boa, and western rattlesnake. Amphibians that could occur in the project area are Columbia spotted frog, western toad, and plains spadefoot. Other reptiles and amphibians are unlikely to occupy the area, although the

northern leopard frog and painted turtle could occur on one 80-acre BLM parcel with a small riparian area connected to Canyon Ferry Lake.

**Fish:** Perennial streams known to support fish are Beaver Creek, Weasel Creek, Indian Creek and its' tributaries, and Crow Creek. Other intermittent or ephemeral water bodies in the area do not support fish. Westslope cutthroat trout are the only special status fish species that may occur in the area. Westslope cutthroat trout are a BLM sensitive species and a Montana species of concern. They occur only in Beaver Creek and have mostly hybridized with rainbow trout where the creek runs through BLM land (Montana Fisheries Information System 2012).

Table 18

<i>Fish Species Present on PA Stream Segments</i>		
<b>Waterbody name</b>	<b>Length on BLM</b>	<b>Fish species present on project area segments</b>
Beaver Creek	0.24 mi.	brook trout - common brown trout - rare mottled sculpin - common rainbow trout - common westslope cutthroat trout - unknown westslope-rainbow trout hybrid - common
Weasel Creek	0.26 mi.	No surveys have been conducted. This is a tributary to Beaver Creek and fish species are likely to be similar.
Indian Creek	3.18 mi. (includes tributaries)	brook trout - abundant
Crow Creek	1.05 mi.	brook trout - common brown trout - rare mottled sculpin - abundant rainbow trout - abundant

Table 19

<i>Endangered Species Act Listed Species With Potential to Occur in the PA.</i>		
<b>Species</b>	<b>Status</b>	<b>Notes</b>
Grizzly bear	Threatened	Unlikely to occur; may occasionally disperse through the area. The planning area is between the Yellowstone and Northern Continental Divide populations.
Lynx	Threatened	BLM land in the planning area is not considered suitable habitat for lynx. There is suitable habitat on National Forest lands adjacent to the west but surveys have not found lynx in the Elkhorns to date.
Wolverine	Proposed	Unlikely to occur; may occasionally disperse through the area. Wolverines prefer higher elevations but are wide-ranging.
Sprague's Pipit	Candidate	Could occur but has not been documented in the area. MT NHP habitat suitability mapping shows some areas of moderate habitat for this species in the planning area. Planning area is at the western edge of the range for this species.

<i>BLM-listed Sensitive Species With Potential to Occur in the PA.</i>		
<b>Species</b>	<b>Documented in area?</b>	<b>Notes</b>
Fringed myotis	no	Roosts in caves, mines and rock crevices. Undocumented but could

		occur in the area.
Gray wolf	yes	Wolves are known to now occur in the Elkhorn Mountains.
Long-eared myotis	no	Undocumented in the area but could occur. Associated with forested stands with old-growth characteristics.
Long-legged myotis	no	Uses tree bark or caves for summer roost sites. Could occur in the area. Occurs in aspen and mixed conifer forests.
Townsend's big-eared bat	yes	Prefers caves and abandoned mines for roosting. Known to overwinter in one gated abandoned mine in the area.
Bald eagle	yes	Typically stays near the Missouri River and Canyon Ferry Lake.
Black-backed woodpecker	no	Unlikely to occur in project area. Prefers recently burned forests.
Bobolink	no	Prefers tall and mixed prairie grass.
Brewer's sparrow	yes	Has been documented in sage habitat in the LHTA.
Ferruginous Hawk	no	Likely to occur in open country in the PA.
Flammulated owl	no	Nests in cavities excavated by woodpeckers. Could occur in mature forest habitat.
Golden eagle	no	Not documented in the area but is highly likely to occur. Hunts over open country.
Great gray owl	no	Has not been documented but could occur in the area. Prefers dense forest and has large home range.
Long-billed curlew	yes	Frequently seen in lower grassland portions of the PA.
McCown's longspur	yes	Documented in the northern part of the PA. Prefers short grass habitat.
Mountain plover	no	Usually associated with prairie dog towns. There are no prairie dog towns in the PA.
Northern goshawk	yes	Occurs in forested habitat types.
Sage sparrow	no	Could occur but the area is at the northern end of the range of this species.
Sage thrasher	yes	Has been documented in the LHTA.
Swainson's hawk	no	Has not been documented but is likely to occur. Hunts primarily in agricultural land and grasslands.
Three-toed woodpecker	no	Could occur in the area. Nests in cavities, often near water.
Milksnake	no	Area is on the western edge of species' range, preferred grassland habitat is present.
Northern Leopard frog	no	Has been documented on the Missouri River and Canyon Ferry Lake. Could occur on BLM land adjacent to the lake.
Plains spadefoot toad	no	Could occur in riparian areas with soft or gravelly soils.
Western toad	no	Likely to occur in or near riparian areas.
Westslope cutthroat trout	yes	Known to occur in Beaver Creek and may occur in Weasel Creek but have hybridized with rainbow trout. Genetically pure individuals may not exist in the PA.

### Alternative A Direct & Indirect Effects

**Travel:** Effects of roads on vertebrate wildlife populations act along three lines: Direct effects such as habitat loss and fragmentation; road use effects, such as traffic causing vertebrate avoidance or road kill; and additional facilitation effects, such as overhunting or overtrapping, which can increase with road access (Gucinski et al. 2001). High speed, high traffic, wide roads such as highways do have more effect on wildlife and ecosystems than low speed, low traffic, narrow roads. Highways can have impacts on wildlife up to a half mile or more from the actual roadway. Alternatives in this EA cover only roads in the Iron Mask acquisition area, and these

roads are low-speed, two-track roads. One objective in the Butte RMP is, “Open road densities in big game winter and calving ranges, and within the current distribution of grizzly bear will be reduced where they currently exceed 1 mi./square mi. (*Goals WF2, WF4, WF5, SE4*)”. The PA is not within the current grizzly bear distribution area but elk and mule deer winter range cover the majority of the acquisition area.

Under all travel alternatives there would be no new road construction, but two spring developments would involve cross country travel, additional habitat loss and fragmentation would not occur. Road kills would not be expected to occur due to the low-speed nature of routes. The road density objective would be met. Other historic roads in the area would continue to re-vegetate by natural processes.

Under Alternative A, no travel improvements or facilities would be constructed. No additional impacts to wildlife beyond current conditions would occur.

**Indian Creek Forage Reserve allotment:** The availability of grazing proposed for the Indian Creek Forage Reserve allotment would not occur due to lack of infrastructure. Use levels of the allotment by wildlife would be expected to remain the same as recent use levels.

**Grazing authorizations:** For the Beaver, Beaver Creek, Dowdy Ditch, Kimber Diorite, and Whitehorse allotments, no changes to existing grazing would occur. These allotments have met land health standards (except for riparian and water quality on Beaver Creek; grazing was not determined to be a causal factor). Current grazing regimes on these allotments have been in place for many years, and wildlife in the area has become habituated to it. No effects to wildlife are foreseen by renewing authorizations on these allotments.

On the Limestone Hills allotment, the reallocation of 579 AUMs to wildlife use would not occur. Livestock was one causal factor in this allotment not meeting land health standards, and this causal factor would remain as is. Improvement in land health and wildlife habitat conditions would not be expected to occur.

**Upland vegetation treatments:** Conifer colonization of grassland/shrubland areas would continue. This would result in further loss of habitat for species preferring open areas such as pronghorn antelope, and further distancing of the DA from reference or historical habitat conditions. Forested stands would continue to thicken and lose important understory plants. Successional stages of the DA would continue to advance beyond what would occur under a natural fire disturbance regime. In their current state, most areas proposed for treatments provide some additional hiding and thermal cover for elk and deer; however, if colonization continues, these areas would eventually grow too thick with juniper and Douglas-fir to be optimal habitat for these species.

**Riparian treatments:** Waterflow and channel morphology of Whipcracker Gulch could be restored under a separate CERCLA action. However, if funding is not obtained for this work under the CERCLA action, the loss of riparian habitat would not be given a chance to reverse.

The Indian Creek headcut would continue to grow and deteriorate the stream channel habitat characteristics of the site.

Indian Creek and Kelly Spring Gulch riparian vegetation treatments would not occur. Conifer colonization of the riparian zone would continue. Russian olive trees would continue to increase in density and move upstream on Indian Creek. Native willow, aspen, and cottonwood would continue to diminish, and habitat for native wildlife species that depend on or prefer these types would continue to decrease.

**Fencing:** Fence modifications could be considered under separate later actions on a case by case basis. However, until such approvals are in place, the modifications would not be implemented and current impacts to wildlife would continue.

### **Alternative B Direct & Indirect Effects**

**Travel:** Trailheads and parking would be constructed and improved. This could remove up to two acres of wildlife habitat. It would also likely facilitate greater public use of the area and result in some increased disturbance to wildlife from increased nonmotorized recreational use.

**Indian Creek Forage Reserve allotment:** Other than two miles of seasonally open road tied to the forage reserve proposals, discussed separately, the only difference between Alternatives B is placement of one fence and one water tank, so these alternatives would have identical effects on wildlife. One effect could be that some level of competition for forage would be expected to occur between cattle and big game, if and when livestock are authorized on temporary annual authorizations. A recent study concluded that spring grazing by cattle in a bluebunch wheatgrass community reduced plant biomass available to mule deer but did not increase the nutritional value of remaining plant biomass as was expected (Wagoner et al. 2013). A beneficial effect would be increased water availability to big game from the construction of water developments. These water developments would help disperse use by cattle and big game across the allotment, and partially compensate for lack of access to the Missouri River for big game that has been largely cut off by human development on private lands.

**Grazing authorizations:** For the Beaver, Beaver Creek, Kimber Diorite, and Whitehorse allotments, no changes to existing management are proposed other than four additional terms and conditions on the authorizations allowing for some minor flexibility in grazing dates. Current grazing regimes on these allotments have been in place for many years, and wildlife in the area has become habituated to it. The utilization objective of 45% use on native herbaceous forage and 55% on nonnative seedlings includes a combination of use by cattle and herbivorous wildlife, ensuring adequate forage for wildlife. No significant effects to wildlife are foreseen by renewing authorizations with the additional terms and conditions on these allotments.

On the Dowdy Ditch allotment, there would be no change to authorization #2504527. This permittee uses the south pastures in the allotment and effects to this area would be the same as Alternative A. In the northern portion of the allotment, authorization # 2504487 use dates would be changed from 5/1-6/15 to 6/1-8/15. This change effectively lengthens grazing use in the north portion of the allotment by one month and shifts it to two months later in the year. It is not anticipated that this change would have effects to upland health or result in increased forage competition between cattle and wildlife. Monitoring of forage use would be performed to detect adverse effects of the change and corrective actions would be taken if necessary.

On the Limestone Hills allotment, the reallocation of 579 AUMs to wildlife use would result in 30% less cattle being on the allotment. This would result in less competition for forage between livestock and wildlife. Livestock was one causal factor in this allotment not meeting land health standards, and the allotment could move toward meeting standards. Under Alternative B, construction of fences and improvements to springs and water developments would enhance management and distribution of cattle, resulting in improved land health and water availability for wildlife.

**Upland vegetation treatments:** Under Alternatives B and C, conifer colonization of grasslands/shrublands would be reduced, increasing habitat for grassland-dependent species. Species such as pronghorn antelope could return to using habitat areas that they currently avoid. The successional stage of these treatment areas would be pushed back toward reference conditions.

**Riparian treatments:** Under Alternatives B and C, restoration of Whipcracker Gulch would likely improve water flow, resulting in increased quality of riparian habitat, wildlife and plant diversity, and water availability to wildlife. The Indian Creek headcut would be stabilized and stream channel habitat characteristics would improve. Indian Creek vegetation treatments would reverse or at a minimum set back the trend of Russian olive and conifer replacing native riparian species such as willow, aspen and cottonwood. Native wildlife species that depend on or prefer these types would have an increase in habitat quality.

**Fencing:** Fence modifications, where necessary to meet BLM fencing standards, would reduce the chances of individual animals getting entangled in wires and perishing. It would also increase the ability of wildlife, especially ungulates, to move freely on the landscape to access forage, water, and seasonal habitat areas.

### **Alternative C Direct & Indirect Effects**

**Travel:** Under Alternative C, the two miles of seasonally open road from May 16-Dec. 2 could cause wildlife avoidance of the northern part of the acquisition area, depending on frequency and volume of use. Hunting season pressure would be expected to increase slightly in the vicinity of this road and cause some additional wildlife avoidance.

**Indian Creek Forage Reserve allotment:** The repositioning of one fence and water tank to coincide with the endpoint of the two miles of seasonally open road described above would have no additional effects on wildlife.

**Grazing authorizations:** Livestock grazing would no longer be a factor in land health standards or in competition with wildlife. Monitoring over time would be required to determine if forage availability were increased for herbivorous wildlife or if plants would become “wolfy” without cattle grazing. Other causal factors in allotments not meeting standards such as historic mining and munitions firing would remain the same as Alternatives A and B.

**Riparian treatments, upland vegetation treatments, fencing:** Effects to wildlife would be the same as Alternative B.

### **3.4.7 Area of Critical Environmental Concern**

## **Existing Condition**

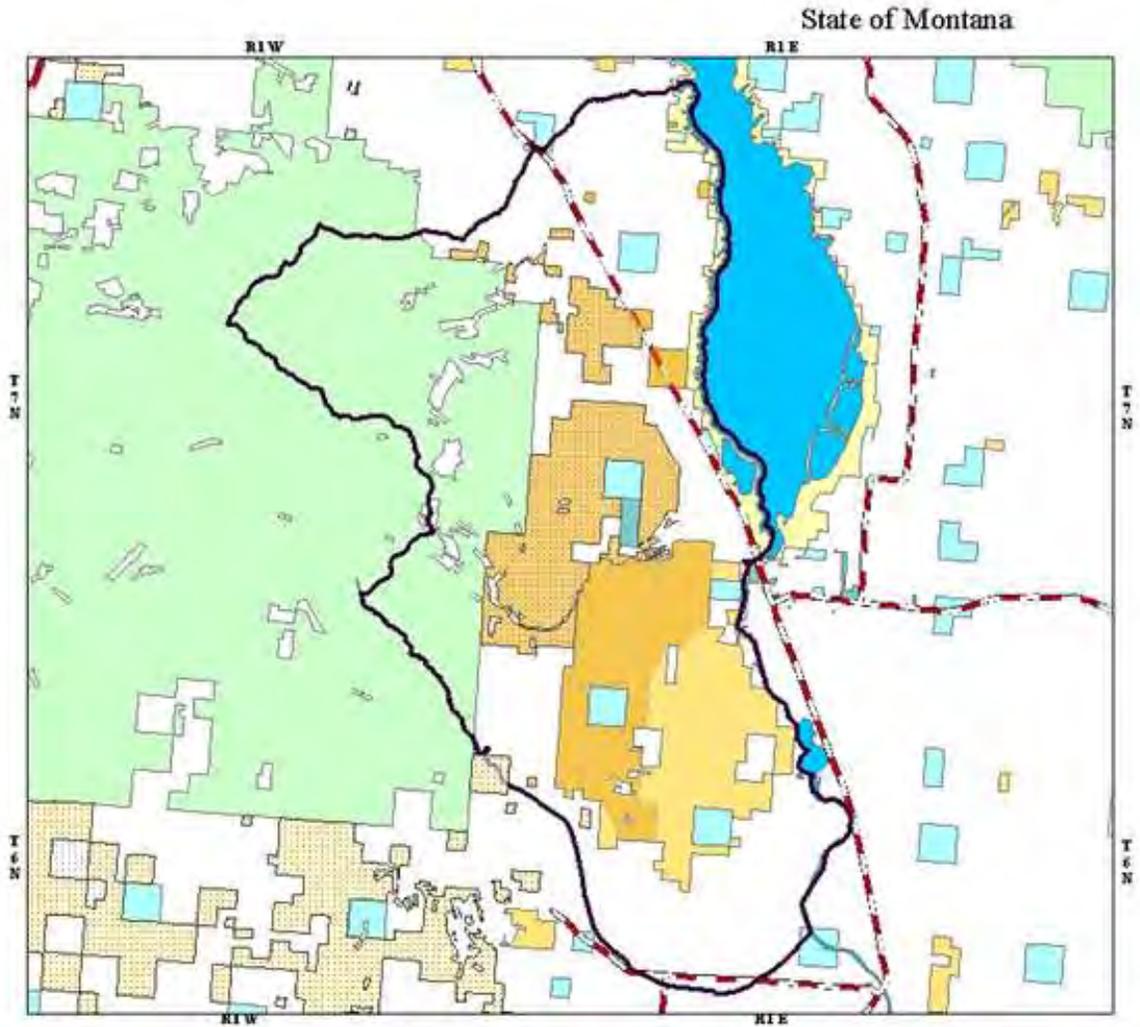
Within the PA, approximately 15,019 acres are designated as the Elkhorns ACEC. The parcels not included in the ACEC are those east of Highway 287, the LHTA, and the Section 34 pasture of the Kimber Diorite allotment adjacent to Highway 287. As stated in the General Setting Section 3.2, ACEC designations highlight areas where special management attention is needed to protect important historic, cultural, and scenic values, fish or wildlife resources or other natural systems or processes. Management of the Elkhorn Mountains ACEC is focused primarily on the following values as described on pages 54-55 of the Butte RMP:

- Important cultural/historic sites
- Diverse upland and aquatic habitat for wildlife and fish
- Unique national management area (referring to USFS lands being designated as a Wildlife Management Unit and cooperative management of the area with BLM, USFS, and FWP).

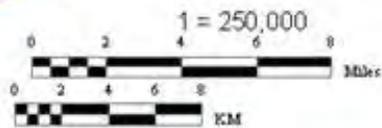
For the Iron Mask DA, wildlife, habitat, and unique management area are the primary values; most important cultural sites occur in other areas of the ACEC. The ACEC designation dovetails with ECMA designation. The MOU with the USFS and FWP emphasizes management as an ecological unit across political boundaries. Within the agencies, there is an Elkhorn Steering Committee made up of USFS Regional Supervisors, the BFO Manager, and the FWP Regional Supervisor. There is an Elkhorn Implementation Group composed of agency specialists. And there are two citizen's groups, the Elkhorn Working Group and the Elkhorn Restoration Committee, dedicated to the ecological health of this mountain range.

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## **Map 11 Elkhorn ACEC**



- |                    |                       |
|--------------------|-----------------------|
| Decision Area      | Bureau of Reclamation |
| Planning Area      | Local Government      |
| Elkhorns ACEC      | Private               |
| Interstate Highway | State                 |
| US / State Highway | US Forest Service     |
| Other BLM          | Water                 |



United States Department of the Interior  
Bureau of Land Management  
Montana/Dakotas State Office  
Map created on Apr 13, 2009



**CAUTION:**  
Land ownership data is derived from less accurate data than the 1:250,000 scale map. Therefore, land ownership may not be accurate for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.  
No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

## No Action Direct & Indirect Effects

Under this alternative, the ACEC portion of the DA would continue to be managed as it is currently. Visitor use would likely remain the same. Cattle grazing on the Indian Creek allotment would not occur due to lack of infrastructure. Grazing management on other allotments would also remain as is.

The primary effect of this alternative on the ACEC would be that no vegetation treatments would take place other than ongoing noxious weed eradication efforts. Conifer colonization of shrublands and grasslands would continue, and the ACEC would slowly become further removed from what would be its' vegetative state under a natural fire regime.

### **Alternatives B & C Direct & Indirect Effects**

Under all action alternatives, visitor use would be expected to increase due to improved parking, trailheads, and signage. This use would be nonmotorized, however, with the exception of the seasonally open road segments in Alternative C. The additional use would result in some disturbance to wildlife, but would not be expected to displace any species from the area.

Cattle grazing could occur on the Indian Creek allotment. This would likely result in some competition for forage between cows and herbivorous wildlife. However, water developments would improve water availability for wildlife and increase dispersal throughout the allotment of wildlife and cows.

On other allotments being considered for authorization renewal, grazing would be permitted under Alternative B but not Alternative C. Grazing across the PA has been permitted for many years. Monitoring over time would be required to determine the effects of grazing elimination under Alternative C on the ACEC value of diverse upland and aquatic habitat for wildlife and fish.

Vegetation treatments proposed under the action alternatives would restore those areas to a more natural state and improve habitat for grassland and shrubland dependent species.

The relevance and importance criteria for which the ACEC was designated are not anticipated to be impacted by either alternative.

### **3.4.8 Water Quality**

#### **Existing Condition**

The State of Montana Department of Environmental Quality (DEQ) has responsibility for implementing the Federal Clean Water Act and the Montana Water Quality Act. This responsibility includes establishing Total Maximum Daily Loads (TMDL) of sediment and contaminants affecting water quality for beneficial uses.

The DEQ is responsible for making Beneficial Use Support determinations through a formal process known as Sufficient Credible Data. The BLM does not make Beneficial Use determinations. BLM watershed assessment data and information is routinely shared with the DEQ.

All Montana streams and wetlands are covered under the Clean Water Act and the Montana Water Quality Act. Streams and wetlands that are considered impaired by the DEQ are covered under section 303(d) of the Federal Clean Water Act. All other streams and wetlands are covered under the anti-degradation provisions of both the Clean Water Act and the Montana Water Quality Act. Federal and State legislation passed for water quality protection and restoration require the use of BMPs. BMPs are intended to conserve and restore riparian, wetland, aquatic, upland, forest and woodland health; and meet the 303(d) and anti-degradation provisions of State and Federal water quality legislation. The alternatives developed in Chapter 2 include implementation and/or maintenance of a variety of BMPs.

The following table lists the stream reaches located within the planning area that are listed as impaired by the State of Montana and are on the EPA’s 303(d) list

Table 21

<i>Stream Reaches Listed as Impaired by Montana</i>		
<b>Reach ID</b>	<b>Reach Name</b>	<b>303(d) listed</b>
MIDR-20	Indian Creek	Yes
MIDR-21	Indian Creek	Yes
MIDR-22	Indian Creek	Yes
MIDR-23	Indian Creek	Yes
MIDR-24	Indian Creek	Yes
MIDR-25	Indian Creek	Yes
MIDR-38	Indian Creek	Yes
MIDR-39	Indian Creek	Yes
MIDR-43	Indian Creek	Yes
MIDR-44	Indian Creek	Yes
MIDR-45	Indian Creek	Yes
MIMC-22	Beaver Creek	Yes

The following reaches are not considered impaired by the State of Montana, but were determined by the IDT to not be meeting BLM’s water quality standard for land health due to the presence of excessive amounts of sediment.

Table 22

<i>Stream Reaches Not Meeting Water Quality Standard</i>		
<b>Reach ID</b>	<b>Reach Name</b>	<b>303(d) listed</b>
MIDR-17	Limestone Spring	No
MIDR-18	Limestone Spring	No
MIDR-19	Tank Range Spring	No
MIUC-3	Fesida Spring	No
MIUC-8	unnamed	No

Beaver Creek allotment:

*Finding:* Standard is not met.

*Rationale:* Beaver Creek (MIMC-22) is on the 303(d) list due to; cadmium, lead, low flow alterations, nitrate/nitrite, phosphorus, silver, and zinc. The point source has not been identified, because the Total Maximum Daily Load (TMDL) assessment has not been completed for the area. Beaver Creek does not meet state water quality standards, and therefore the allotment does not meet the BLM water quality standard.

Indian Creek allotment:

*Finding:* Standard is not met.

*Rationale:* No streams within the allotment are on the 303(d) list. Streams within the allotment are interrupted and do not flow to the Missouri River. Two reaches were determined to not be meeting water quality standards by the IDT during the field portions of this planning process.

Reach MIUC-3 (*known as Whipcracker Gulch*), flows out of an adit at the Iron Mask abandoned mine site. Water flows over waste rock and mine tailings. Water quality was tested as part of a toxicology risk assessment in the characterization study and draft Iron Mask Mine and Mill Site EEE/CA, and found to be exceeding Montana DEQ drinking water standards. Sediment in the stream bed was found to contain high metal content. Further analysis and proposals for treatment or cleanup will be addressed as part of a CERCLA action, and is outside the scope of this assessment.

Reach MIUC-8 which flows onto and down an unimproved road, was determined by the IDT to contain excessive amounts of sediments associated with run-off from the road.

Kimber Diorite allotment:

*Finding:* Standard is met.

*Rationale:* Kelly Spring Gulch and Kimber Gulch are not currently listed as impaired water bodies.

Within the Kimber Diorite allotment there are no known mines (abandoned or active) on BLM lands which may contribute sediment or metals to streams. The only known mine within the allotment is the abandoned Kelly Mine. The Kelly Mine is located approximately 400 feet north of Kelly Spring Gulch, but does not discharge water to a water body.

Livestock grazing occurs on the allotment, but is not contributing to erosion or sedimentation of Kelly Spring Gulch, Kimber Gulch, or any of their tributaries. All stream banks within the allotment are stable and well-vegetated with plant communities that have root masses capable of withstanding high flow events. Erosion is not apparent on the roads within the allotment.

Limestone Hills allotment:

*Finding:* Standard is not met.

*Rationale:* Within the allotment, Indian Creek is on the State of Montana's 303(d). Water quality in Indian Creek is impaired due to the amount of arsenic, cadmium, lead, and mercury found in the stream. A TMDL assessment has not been completed for the area and a point source has not been identified. Indian Creek does not meet state water quality standards, and therefore the allotment does not meet the BLM water quality standard.

The stream morphology of Indian Creek is extremely altered from historic placer mining. The BLM AML program has reclaimed and restored as much of the channel as possible and monitors

reclamation efforts towards meeting PFC. Indian Creek historically flowed to the Missouri River, but flow is presently interrupted with water flowing subsurface.

The AML program has tried to for several years to restore the historic flow. In 2010, another phase of reclamation was initiated. The intent was to install a ground water sill to force subsurface flow back to the surface. Subsequent investigations into the creek bed revealed that deep, cobbly alluvium associated with historic placer operations prohibited the successful installation of a ground water sill. The reclamation project was abandoned.

Groundwater wells which are located downslope of the Graymont Mine are monitored and sampled for nitrates associated with blasting. This testing is part of the conditions of mine operations. Testing is overseen by the state Department of Environmental Quality (DEQ), the state regulatory agency. To date, excessive nitrates have not been reported.

MIDR-17, 18, and 19 are located within the active portion of the firing range. Limestone Spring (MIDR-17 & 18) and Tank Range Spring (MIDR-19) are categorized as intermittent streams and determined by the IDT to have excessive amounts of sediments. Tank Range Spring was rated NF, due to heavy bank disturbance partially associated with the firing range. A road crossing is located near the middle of the reach. A culvert located at that crossing was determined to be plugged which prevented the culvert from working properly.

Whitehorse allotment:

*Finding:* Not Applicable.

*Rationale:* No surface water is present on BLM land within the allotment.

**Alternative A Direct & Indirect Effects**

Under this alternative no changes in water quality would be expected. Streams that are currently considered to be impaired would remain as such.

**Alternative B Direct & Indirect Effects**

Water quality under this alternative would be expected to improve. Proposed vegetation treatments and projects designed to promote healthy upland and riparian habitats would be expected to help increase water infiltration, and reduce run-off and erosion. Water quality on the following reaches; MIDR 17, 18, 19, MIUC 3 and 8, would be expected to improve with the implementation of the management actions proposed under this alternative.

While water quality within the planning area may be improved under this alternative, the water quality of Indian Creek would be not improved enough to be removed from the 303(d) list.

**Alternative C Direct & Indirect Effects**

This alternative would be expected to have similar direct and indirect effects on water quality as those that were identified under Alternative B. The reduction of sediment contributed by livestock disturbance would not be expected to bring levels to a different management state.

**3.4.9 Air Quality**

## **Existing Condition**

The state of Montana is divided into ten airsheds by the Montana Air Quality Bureau (<http://www.smokemu.org/map.cfm>) and monitored by the Idaho/Montana Airshed Group. Each airshed in Montana is designated with a “Class 1” or a “Class 2” depending on air quality standards for the particular airshed. “Class 1” designations are the strictest. Air Quality Standards are set by the state.

The PA lies within Airshed 6, having a “Class 2” air quality designation. The Gates of The Mountains Wilderness Area, which has a “Class 1” designation, is located approximately 35 miles north-northwest of the Iron Mask area. In addition to monitoring, the ID/MT Airshed Group has established Smoke Impact Zones. These zones surround cities where prescribed burning emissions could adversely affect air quality. Butte is the closest Smoke Impact Zone and is located approximately 52 miles southwest of the project area. This Smoke Impact Zone coincides with a State and Environmental Protection Agency (EPA) designation for Butte as a particulate nonattainment zone.

Mining-related activities at the Indian Creek Mine are a source of particulate and gaseous air pollutants. These emissions are minimized by proper equipment maintenance and operation and are covered under an existing air quality permit. They do not generally impact air quality to the north and west of the mine due to the prevailing winds.

Existing air quality within the airshed and project area is affected by smoke, dust and motor vehicle exhaust. Smoke is produced from wildland fires, prescribed burning, residential wood burning and agricultural field burning. Additional smoke is blown into the area from wildland fires outside the area, including western Montana, Idaho, the Pacific Northwest, and Canada. Sources of dust primarily result from wind erosion of cropland and vehicle traffic on gravel roads. Land Health Assessments found no adverse impacts to air quality. Dust from roads is localized and temporary.

### **Alternative A Direct & Indirect Effects**

Current uses would continue, and undisturbed sites would continue to function as they are presently. Current trends and processes would continue. Open road mileage would be the same under Alternatives A and B; the acquisition area roads would not be open to public use. Therefore fugitive dust from roads would be minimal.

### **Alternative B Direct & Indirect Effects**

Mechanical and burn treatments would expose the soil surface, subjecting it to wind erosion. Fugitive dust would be temporary, lasting for the duration of operations and ceasing upon reclamation of roads and natural recovery of burned areas. Exhaust from equipment would also be temporary. Prescribed burning would release carbon dioxide (CO<sub>2</sub>) into the atmosphere; this gas is considered by the BLM and State of Montana, among other agencies, to be a greenhouse gas. CO<sub>2</sub> emissions from exhaust and prescribed burning resulting from treatment implementation would be temporary. Open road mileage would be the same under Alternatives A and B; the acquisition area roads would not be open to public use. Therefore fugitive dust from roads would be minimal under both Alternatives A and B.

## Alternative C Direct & Indirect Effects

Dust and CO<sub>2</sub> emissions from treatments would be similar to Alternative B. Fugitive dust from open roads would be slightly more than Alternatives A and B, corresponding to the additional two miles of open road.

### 3.4.10 Climate Change

Climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and persist for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.” (IPCC 2007). Climate change and climate science are discussed in detail in the Climate Change Supplementary Information Report for Montana, North Dakota, and South Dakota, Bureau of Land Management (USDI-BLM 2010). This document is incorporated by reference into this EA.

Global average temperature has increased approximately 1.4°F since the early 20<sup>th</sup> century (USDI-BLM 2010). Warming has occurred on land surfaces, oceans and other water bodies, and in the troposphere (lowest layer of earth’s atmosphere, up to 4-12 miles above the earth). Other indications of global climate change described by IPCC 2007 include:

- Rates of surface warming increased in the mid-1970s and the global land surface has been warming at about double the rate of ocean surface warming since then;
- Eleven of the last 12 years rank among the 12 warmest years on record since 1850;
- Lower-tropospheric temperatures have slightly greater warming rates than the earth’s surface from 1958-2005.

A number of activities contribute to the phenomenon of climate change, including large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity, or albedo.

Montana ranks as the 42<sup>nd</sup> highest greenhouse gas (GHG)-emitting state by volume (Ramseur 2007). Montana’s GHG inventory shows that activities within the state contribute 0.6 percent of U.S and 0.076 percent of global GHG emissions (based on 2004 global GHG emission data from the IPCC, summarized in USDI-BLM 2010).

Potential effects of climate change in Montana (USDI-BLM 2010) include:

- Temperature increases between 3 to 5°F at mid-21<sup>st</sup> century and between 5 to 9°F at the end of the 21<sup>st</sup> century, resulting in more heat waves.
- Precipitation increases in winter and spring up to 25 percent in some areas. Precipitation decreases of up to 20 percent may occur during summer, with potential increases or decreases in the fall. In the fall western Montana may see little change in precipitation while the northwestern portion of the state may experience 5 to 10 percent increases.
- Annual median runoff is expected to decrease between 2 and 5 percent, but northwestern Montana may see little change in annual runoff. Mountain snowpack is expected to decline, reducing water availability in localities supplied by meltwater.

- Conditions in Montana wetlands across much of the northern part of the state are predicted to remain relatively stable.
- Water temperatures are expected to increase in lakes, reservoirs, rivers, and streams. Fish populations are expected to decline due to warmer temperatures.
- Wildland fire risk is predicted to continue to increase due to climate change effects on temperature, precipitation, and wind.

**Climate Change Impacts/Effects:** Determining the effect on climate change from alternatives considered is difficult at the project scale. Currently, regional climate models are not sufficiently advanced to be able to analyze effects of management actions on climate change at a local scale. Should such models or tools become available, they would be adopted. However, improving/restoring riparian and wetland areas, improving age class diversity, health and resiliency of forests, mitigating the size and intensity of wildfires, and maintaining/improving livestock grazing management increase the ability of vegetation and soil to sequester carbon and can help to mitigate the effects of climate change (USDI-BLM 2010).

While it is not possible to quantify the specific differences between the alternatives, it is nonetheless possible to compare the various alternatives. Those alternatives that maximize a diverse vegetative cover and limit areas susceptible to erosion would be more capable of maintaining a stable and diverse vegetative cover that would be both more adaptable to changes and more resistant to erosion in more intense precipitation events.

**Travel Management (as it relates to Climate Change):** Changes in the quantity and type of route designations do not necessarily correlate to changes in GHG emissions from vehicles because use can shift to other routes. It cannot be assumed that route closures equate to fewer vehicle hours used, and lower GHG emissions. However, to the extent travel routes are selected that either eliminate or limit routes in steeper or more erosive soils, this would increase and maintain the ability of soil and vegetation to sequester carbon as noted above.

#### **Alternative A Direct & Indirect Effects**

There would be no change in the current conditions.

#### **Alternative B Direct & Indirect Effects**

There would a temporary increase in greenhouse gas emissions during any proposed treatments involving prescribed fire as also noted under air quality. This can be expected to be offset by longer term improved habitat restoration. To the extent this alternative eliminates travel in areas that may be susceptible to erosion this alternative would be the most likely to increase and maintain the ability of soil and vegetation to sequester carbon.

#### **Alternative C Direct & Indirect Effects**

There would a temporary increase in greenhouse gas emissions during any proposed treatments involving prescribed fire as also noted under air quality. This can be expected to be offset by longer term improved habitat restoration. This alternative is less likely to increase and maintain the ability of soil and vegetation to sequester carbon compared to the Proposed Action.

### **3.4.11 Soils**

#### **Existing Condition**

Predominantly, soils on BLM lands within the Iron Mask Planning area range from cobbly loams on the lower, eastern portions with relatively flat slopes to very-stony rock outcrops in the south and western portions with slopes up to 60%. The precipitation zones generally coincide with changes in elevation. The lower elevations lie within the 10-14” zone and the higher elevations generally lie within 15-19” zone. Annual production on cobbly-loams within the planning area ranges from 600 lbs/acre on dry years up to 1,300 lbs/acre in favorable years. Risk of erosion is low to moderate and increases with increased slopes.

Land Health Assessments made throughout the PA indicated that Soil and Site Disturbance ranges from a moderate departure from expected to no departure. The majority of the area was identified to have “None to Slight” departure from expected, which means that overall the soil loss/accumulation and other soil factors are close to what would be expected under a normal disturbance regime.

Soils along the east edge of the Indian Creek allotment, in the “Musselshell gravelly loam, 2 to 5 percent slopes” map unit are classified as Farmlands of Statewide Importance. These Prime Farmlands are valued for their ability to produce feed and fiber (NRCS 2013) at the statewide level. As such, an objective of proposed actions is to avoid altering the chemical and physical properties of Farmland soils to a degree that they lose their designations.

#### **Alternative A Direct & Indirect Effects**

The No Action Alternative could have negative impacts on some soil resources. Existing areas of erosion would go uncontrolled and continue to degrade. Soil could still enter streams at a rate greater than the capacity of that stream. Also in areas where it was identified that past livestock management was a causal factor in not meeting the upland health standards, and Soil Loss or Degradation was a reason for that, the conditions could reoccur if no actions are taken to reassure those practices are not resumed. Increase of conifer in sage/grass areas could reduce the soil surface resistance to erosion in the un-vegetated under spaces of those conifers.

In areas that met standards, or if soil site stability was not a factor, conditions are expected to stay the same as observed during Land Health Evaluations. An increasing presence of conifers in grass/shrub lands would not generate the same level of organic matter in the soil as grasses would, thereby reducing soil productivity and the aggregate stability of the soil and resultant resistance to erosion from overland flow. Should conifer reduction treatments not be implemented, susceptibility to large scale wildfire and subsequent erosion and sedimentation could result.

#### **Alternative B Direct & Indirect Effects**

Alternative B would ensure that grazing practices stayed within allowable disturbances to meet the MT/DAK Standards and Guidelines for Rangeland Health. This would conserve the soil in its current state and reduce loss or degradation. The proper management of livestock grazing would create small disturbances and microsites for water infiltration and seed germination. The

increase in vegetation could increase the organic matter within the soil and protect it from wind loss or overland flow, erosion and sedimentation.

Implementing treatments to reduce conifers could create a short duration of susceptibility to overland flow which could result in erosion. BMPs and design features would be employed to mitigate these effects.

### **Alternative C Direct & Indirect Effects**

Alternative C would be very similar to Alternative B. The only difference is no livestock grazing would be authorized, the vegetative cover would increase resulting in a larger increase in organic matter than Alternatives A and B. Livestock hoof action would not be a disturbance to create microsites for plant germination. So long as vegetative cover is sufficient enough to guard from wind scour, the loss in microsites for seed germination would be negligible for soil and site stability. Also forage plants would become decadent or “wooly” and eventually exist in an unhealthy state as many of these grasses evolved with large ungulate use.

### **3.4.12 Geology & Abandoned Mine Lands**

#### **Existing Condition – Geology**

The east side of the Elkhorn Mountains, including the Limestone Hills, consists of sedimentary rocks ranging in age from Precambrian through Cretaceous. In the Limestone Hills and to the north of Indian Creek these rocks form an anticline with the west limb of the anticline overlain by the Cretaceous Elkhorn Mountain Volcanics. Dikes and small sills related to the Elkhorn Mountain Volcanics and possibly to younger Tertiary intrusive rocks are common throughout the west limb of the anticline. The east flank of the Elkhorn Mountains has produced approximately \$17 million in metals, chiefly gold with lesser amounts of silver, lead copper and zinc. The Limestone Hills are an important source of chemical grade calcium carbonate (CaCO<sub>3</sub>) and mining is likely to continue there for several decades. The Park-Winston Mining Districts, north and west of the Iron Mask mine, noted below, had several small mine producers including the Park-Marietta, Vossburg, Kleinschmidt and East Pacific mines. Potential for continued exploration for mineral resources, mostly metals, is high throughout the east flank of the Elkhorn Mountains.

#### **Existing Condition – Abandoned Mine Lands**

Due to the presence of mineralization in the Elkhorn Mountains and Limestone Hills, the area has experienced a significant amount of mining and exploration. Because reclamation was not required until 1979 there remain a fair number of abandoned mines throughout the area. Evaluation and closures of these abandoned mines has been ongoing since the late 1990’s. Several of the mines in the Park-Winston Mining districts have had remediation work done in the past several years.

The Iron Mask mine is the most significant mine in the area because it contains elevated metals in related mine dumps and tailings. Environmental and safety issues associated with the Iron Mask Mine have been addressed with the help of the USACE and a private contractor. Reclamation under BLM’s CERCLA authority is scheduled to begin in 2014 and should be

completed by 2015. Reclamation will consist of consolidating the tailings in a repository near the minesite and capping the repository with nonmineralized soil.

A relatively large adit, north and east of the Iron Mask site, locally known as the Light Bulb adit, was gated to protect the Townsend's big-eared bat, which has been found to hibernate within it.

Several other small open adits and pits have been identified to date. These mines, as well as any additional mines discovered, would be evaluated for their resource significance. Closure methods would be designed to maximize safety while minimizing or mitigating impacts to their existing resources.

The objectives of the BLM AML program are to:

- Mitigate environmental and physical safety issues associated with abandoned mines through inventorying, assessing, and reclaiming mines on a prioritized basis.
- Continue the inventory and closure of abandoned mines on BLM lands, including the Iron Mask DA.

Reclamation of many known physical safety sites have been completed in the Iron Mask PA, and several more would be addressed in the near future.

### **Alternatives A, B, C Direct & Indirect Effects**

There would be no direct or indirect effects to geology and AML under any of the alternatives.

### **3.4.13 Cultural & Native American Resources**

#### **Existing Condition**

Prehistoric sites are present in the DA, and consist mainly of small scatters of rock chips flaked off from small tool manufacturing. One Old Woman's phase (1300-250 years ago) projectile point has been reported in the PA. Larger camp locations, game spotting sites and other specialized prehistoric sites are located in the eastern slopes of the Elkhorn range, but none have been recorded within the planning area itself.

The close proximity of the Iron Mask DA to the Missouri River suggests that the location was important in prehistory. This is mainly due to the fact that the land under consideration occupies the first benches above the river corridor and riparian area, and would provide excellent opportunities to view and hunt big game. Private land near the acquisition area has exhibited evidence of bison hunting, utilizing the natural outcrops lining the smaller drainages. The animals would have been driven into these drainages, presumably where there was deeper snow, and killed by hunters concealed behind these outcrops. However, the Class III inventories conducted so far have failed to yield positive results with regard to prehistoric use in the acquisition area. The reason for this might have something to do with the proximity to historic mining. The process of mining, especially in the 19<sup>th</sup> century, would have erased prehistoric features and most of the artifacts would have been collected, or destroyed.

A Class III cultural resource inventory on all roads in the acquisition area was conducted by the BLM archeologist in August and September of 2013. No prehistoric sites were recorded during

this survey. This coverage was determined necessary, as the acquisition area is immediately adjacent to Indian Creek on the south side, where numerous historic mining sites are located.

The known historic sites in the PA are mostly related to historic mining. Several remnant domiciles have been recorded within the acquisition area. Some of these have standing structures, and two others have open cisterns.

The upper regions of the Indian Creek system (located farther west on the HNF) were manipulated by placer miners who dug out a series of ponds and ditches which fed into one large water-gathering system which, when released, would send a single rush of water downhill to the miners waiting at the end of the flume. The Indian Creek flume does not exist anymore, but a few shreds still cling to the canyon wall west of the Graymont mine. Evidence of these “runs” (as the releases were called by the miners) is present in the Iron Mask acquisition area along Kalamazoo and lower Whipcracker creeks (MT DEQ Historic Mine Narrative). Artifacts in these areas consist of a few scattered pieces of broken glass, center-solder cans (most likely containing milk), and scrap metal. There are two depressions on the benches above Kalamazoo Creek, but the presence of a modern, poured concrete-lined cistern suggest that the domicile was occupied in the 1930’s, and not associated with the significant period of historic mining. There are purple glass shards at the site, but they are quite dark, suggesting that the color is manufactured, rather than a patina acquired with aging.

On the north end of the acquisition, there are three lode mining features - the Iron Mask mine and mill site, the Look Out, and the Light Bulb adit. These historic mining sites were opened in the late 1880’s after the placer mines in the Indian Creek drainage gave out. The Iron Mask mine itself was first owned by two men, J.N. Thompson and George Kerwin. They soon sold out to a third party, and shipped only a few tons of silver-lead ore between 1887 and 1888. It was sold again and reopened in 1895 and worked intermittently for the next three years. From there, the mine was in production in 1906, 1917, and sporadically until 1929, when it was closed for good (Rossillon, 2008).

The Look Out mine was opened in 1887 by three men: L.A. Vawter, John Neville and Oscar A. Sparta. There are no reliable sources for production information. The mine was sold to Frank Wells, who sold it again 1904 to two men, Edward Ryan and William V. Myers, after making several improvements. Mr. Ryan and Mr. Myers patented the claim in 1904. There is no production information. At some point, the claim was sold to a Dr. Bayliss, who had acquired several claims in the area. Dr. Bayliss and a few investors attempted to open a shallow shaft during World War II, but the results must not have been adequate, since there was no further work done at the site (Rossillon, 2008).

There is no ownership or production information for the Light Bulb (Rossillon, 2008).

The Elkhorn Mountains and the Missouri River have been, and continue to be, very important landscape features. However, no specific sites in the PA have been identified as important by tribal governments.

The Section 106 process under the National Historic Preservation Act, is currently underway regarding the Iron Mask mine and mill site reclamation as part of a CERCLA action, and so is not considered within the scope of this planning process.

## **Alternatives A, B, and C Direct & Indirect Effects**

It is the determination of BLM that known sites in the DA are not eligible for listing on the National Register of Historic Places. Therefore, there would be no effects to cultural resources under any alternative, other than normal passage-of-time-related deterioration.

Known relict domiciles or other structures can be easily marked for avoidance in advance of every project considered in this EA. Vegetation treatments and grazing management projects would be designed to avoid all known cultural resources. Therefore, the most likely “effect” would be continuing visitor use of these structures, as well as the possibility of some type of accident; either inside one of the structures, or in one of the cisterns. (Cistern hazard mitigation is discussed in the recreation section.) While none of these sites is located near the seasonally open road proposed in Alternative C, hiking and other types of non-motorized recreation would likely increase and have the potential to attract curious visitors to these sites.

### **3.5 Cumulative Effects**

Cumulative effects are those effects resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. The cumulative effects area is defined as all land, regardless of ownership, in the PA for all issues and resource concerns except socioeconomics, for which the cumulative impacts area is Broadwater County.

#### **Cumulative Effects Common to all Alternatives**

**Iron Mask Mine Reclamation:** The highest risk at the abandoned mine site is posed by sediments in the bed of Whipcracker Gulch, to animals and people who disturb the sediment and drink the water. Lesser risk is posed by tailings, should they be disturbed.

Reclamation of the mine, conducted under a separate action, would remove heavy metal contaminants from the Iron Mask site, thereby protecting the environment and the health of people and animals that use the site. Should mine reclamation not occur, risk posed to the environment, animals and people would remain. A range of risk reduction alternatives, including a no action alternative, is conducted in a separate action under the CERCLA.

**Limestone Hills Training Area:** The new wells and water tanks would provide a quick and available water source for MTARNG to suppress fires started by frequent live firing exercises; improve livestock distribution within the pastures that did not meet upland health due, in part, to livestock grazing; and provide better water availability for both wildlife and cattle. Not drilling the wells to provide on-site water would pose a greater risk of uncontrollable wildfires started by yearly MTARNG firing exercises.

The construction of fences would prevent drift in or out of the Tank Range pasture, and would enable the grazing operators to more closely follow the proposed grazing system, thereby reducing the risk of future overuse in the Tank Range, Compound and Marble Quarry pastures. Preventing drift would promote improvement or maintenance of rangeland health.

Removing unneeded fences would eliminate what basically amounts to litter from the landscape and prevent wildlife from becoming entangled in unmaintained fencelines.

Vegetation treatments in the Tank Range and Marble Quarry areas would primarily reduce the risk of uncontrolled wildfire that could result from live firing exercises and the use of tracers. The treatments would also go towards meeting BLM VTOs 1, 2, 3, 4, and 6.

**Development:** Comparison of 1955 and 2011 aerial photography shows over 2000 acres of road and building development along the Highway 287 corridor within the PA during that time period. Development on private land is likely to continue, which would remove habitat for wildlife and possibly impede movement and migration routes.

**Recreation:** As the human population of the area increases, all forms of outdoor recreation and pressure on the ecosystem to accommodate recreation increase.

**Economics:** The economic situation of the permittees is affected by changes in cattle prices, hay prices, fuel prices, interest rates, land prices, labor costs, labor inputs, equipment costs, equipment maintenance costs, facilities maintenance costs, costs of feed supplements, irrigation costs and availability of irrigation water, livestock loss, private land lease rates, veterinary costs, local weather and other miscellaneous factors. Cumulative economic impacts to permittees could add pressure to permittees to subdivide private land to maintain a cash flow.

**Invasive species:** Invasive and non-native weed treatments are likely to continue to occur within the PA by the Helena National Forest, Broadwater County Weed District, Montana Department of Transportation, and private land owners. Ground disturbing activities that happen on private land in Broadwater County may not have weed control activities or may not be reseeded with weed-free certified seed mix. Weed spread would likely occur along roadways if left untreated along all roadways in Broadwater County. The incremental effect of weeds treatments throughout the PA would continue to reduce the spread and rate of spread of noxious weeds across all ownerships.

### **Cumulative Effects of Alternative A**

Without travel management implementation in the acquisition area, pressure for motorized use of the area would be likely to increase. Some recreationists would likely shift use to other areas, concentrating use in those areas presently open.

Without implementation of vegetation and riparian treatments, the advancing successional stage across the PA beyond what would occur under a natural fire regime would continue to increase. This would be detrimental to overall wildlife habitat and increase the probability of catastrophic or stand-replacing fire events.

Without modification of the Limestone Hills grazing authorization, land health in this allotment would not be expected to improve, and be an additive environmental impact to other locations in various land ownerships across the PA that are not currently functioning properly.

### **Cumulative Effects of Alternative B**

Establishment of infrastructure to operate the proposed Indian Creek Forage Reserve allotment would aid the local livestock operators by providing a place for permittees of other ECMA allotments to place their cattle if their own allotment was not useable due to drought, wildfire, or other reasons. Also, under the RMP, when a prescribed burn is implemented, the area of the burn is to be rested from grazing for up to one growing season prior to treatment and a minimum of two growing seasons following treatment. So the forage reserve allotment would also benefit overall ecosystem health by allowing prescribed burns on other allotments to move forward without the complication of having to remove those cattle from public land entirely.

Vegetation and riparian restoration treatments on BLM lands would complement and increase the overall landscape health when combined with past and future treatments on non-BLM land.

Fencing in need of modification or maintenance on other land ownerships may lessen the benefit of fence modification efforts on DA lands to improve wildlife movements.

Reduction of AUMs and project work in the Limestone Hills allotment are expected to improve land health and be incremental to overall ecosystem health in the PA.

### Cumulative Effects of Alternative C

Eliminating livestock grazing in allotments being considered for authorization renewal could lessen the risk of weed distribution in these areas; however, wildlife and other forces such as wind would continue to transport weeds. Also permittees are required to report weeds, without the authorizations detection of new weed locations would be reduced and thusly not treated.

The extra two miles of road that would be open seasonally and the adjusted Indian Creek Forage Reserve allotment fence under this alternative are not anticipated to have effects cumulative to other actions.

Other cumulative impacts under Alternative C would be the same as Alternative B.

### 3.6 Effects Summary Comparison

Table 23

Resource/Issue	Existing Condition	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
<b>Travel &amp; Recreation</b>	Acquisition area closed to motorized use; no designated parking, trailhead, or information kiosks. Remainder of the PA is under Elkhorns Travel Plan.	In the acquisition area, no parking areas, trailheads, or information would be provided. In the remainder of the PA there would be no changes to current visitor uses.	In the acquisition area, parking areas, trailheads, and information would be provided, likely increasing visitor use.  Periodic grazing in the forage reserve allotment and associated authorized vehicle uses in the	Greatest access for motorized users from 5/16 to 12/1 with two miles of route open to access higher areas more easily in the acquisition area.  Periodic grazing in the forage reserve allotment and associated

Resource/Issue	Existing Condition	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
			<p>Iron Mask acquisition area may impact natural setting experiences.</p> <p>In the remainder of the PA there would be no changes to current visitor uses.</p> <p>Vegetation treatments could have short-term impacts to visitors.</p>	<p>authorized vehicle uses in the Iron Mask acquisition area may impact natural setting experiences.</p> <p>In the remainder of the PA there would be no changes to current visitor uses.</p> <p>Vegetation treatments could have short-term impacts to visitors.</p>
<b>Forage Reserve</b>	Four of five Land Health Standards are not being met. Infrastructure to operate the allotment as a forage reserve does not exist.	<p>The forage reserve would not be available when needed by permittees of other Elkhorn allotments.</p> <p>Vegetation would likely persist in an unfavorable condition.</p>	<p>The forage reserve would provide a place for permittees of other Elkhorn allotments to graze cattle when needed due to drought, fire, or treatments on their own allotment.</p> <p>Condition of vegetation could improve with grazing.</p>	Same as B.
<b>Livestock Grazing</b>	Beaver, Beaver Ck., Dowdy Ditch, Kimber-Diorite, Whitehorse allotments meet Land Health Standards, except for two standards on Beaver Ck. that were not due to grazing. Three pastures in the Limestone Hills allotment do not meet four of the standards but improved between 2002 and 2010.	Beaver, Beaver Ck., Dowdy Ditch, Kimber-Diorite, Whitehorse allotments would likely continue to meet standards. Limestone Hills allotment could reverse its' improvement trend if relinquished AUMs were permitted to another operator.	Added flexibility in terms and conditions for Beaver, Beaver Ck., Dowdy Ditch, Kimber-Diorite, Whitehorse allotments would allow tailoring of grazing times to annual weather and plant development. Changing one permittee's grazing dates on the Dowdy Ditch allotment would eliminate the need for extra fencing and allow plants more time to develop in the early season. Proposals for the Limestone Hills allotment would aid the permittees' ability to	Elimination of grazing from allotments being considered for authorization renewal could alter current vegetation trends. Grasses could become "wolfy", but more forage could become available for wildlife. Monitoring over time would be required to determine trends in wildlife habitat conditions.

Resource/Issue	Existing Condition	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
			comply with the schedule; reallocate 579 AUMS to wildlife use, better control cattle use and aid wildlife movement; result in better distribution across the allotment for cattle and wildlife.	
<b>Vegetation</b>	Lack of fire has resulted in conifer colonization and density that would not occur under a natural disturbance regime. Nonnative plants have colonized the area. Under all alternatives, current weed treatments would continue. Special status plant populations are unlikely to be affected.	Conifer colonization and density would continue to increase, resulting in a decrease in the natural vegetative composition in the DA.	Conifer colonization and density would be reduced, resulting in increased shrub/grassland habitat and land health. Ground-disturbing projects would be treated for weeds.	The two miles of additional open road could be a vector for spread of weeds. Elimination of grazing on six allotments would require monitoring over time to determine effects to vegetation.
<b>Riparian Habitat</b>	Of riparian reaches that were assessed in 2010 and 2012, 43% (7.47 miles) of the lotic resources were rated PFC, 30% (5.29 miles) were rated FAR, 14% (2.39 miles) were rated FAR up, 5% (0.93 miles) were rated NF, and 8% (1.32 miles) were rated NF up. Factors that caused reaches to not be in PFC included:	Reaches in PFC condition would likely remain PFC. Reaches that were FAR or NF would not be expected to improve.	Thinning conifers and Russian olive in riparian areas would promote an increase in riparian vegetation and vigor of riparian plants.  Implementing a minimum stubble height of 6" and constructing exclosures in the West pasture of the forage reserve allotment would protect wetland vegetation.  Stabilizing the Indian Creek headcut would help to reduce stream	Same as B, except that elimination of grazing in the Limestone Hills allotment could improve reaches that were identified as being negatively impacted by cattle. In other allotments where grazing would be eliminated, grazing was not a causal factor in riparian reaches not meeting the standard.

Resource/Issue	Existing Condition	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
	<p>alteration of stream morphology, excessive erosion, vegetation composition not as expected, and weeds.</p> <p>All three of the lentic sites that were assessed were rated PFC.</p>		<p>bank erosion and allow for the recruitment and recovery of desirable riparian species.</p>	
<b>Wildlife &amp; Fish</b>	<p>Numerous native wildlife species occur in the PA. Wolves have recently returned in small numbers to the Elkhorns. Native cutthroat trout have decreased due to introduction of nonnative trout species.</p>	<p>Wildlife use of the acquisition area would not be affected by travel or the forage reserve allotment.</p> <p>Grazing authorization renewal would not be expected to affect wildlife, except in the Limestone Hills allotment, where AUMs would not be reduced, and habitat conditions would not improve.</p> <p>Without vegetation and riparian treatments, species dependent on grassland/shrubland and riparian habitats would decline.</p> <p>Fences currently hindering wildlife movement or creating entanglement hazards would continue to do so.</p>	<p>In the acquisition area, wildlife could experience added disturbance by increased visitation and forage competition with cattle. However, water developments could benefit wildlife in this area.</p> <p>Grazing authorization renewal would not be expected to have significant effects on wildlife, except in the Limestone Hills allotment, where the reallocation of 579 AUMs to wildlife use and proposed projects are expected to improve habitat conditions.</p> <p>Vegetation and riparian treatments would improve conditions for species that prefer grassland/shrubland and riparian habitats.</p> <p>Fences currently hindering wildlife movement or creating hazards would be reconfigured to</p>	<p>The two miles of seasonally open road in the acquisition area could cause some additional disturbance to wildlife and avoidance of that area.</p> <p>Elimination of grazing on six allotments would not be expected to improve habitat conditions in the Limestone Hills allotment. In other allotments, monitoring over time would be required to determine effects on wildlife habitat.</p> <p>Fences currently hindering wildlife movement or creating hazards would be reconfigured to wildlife-friendly specifications.</p>

Resource/Issue	Existing Condition	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
			wildlife-friendly specifications.	
<b>Area of Critical Environmental Concern</b>	15,019 acres of the PA are included in the Elkhorns ACEC. Wildlife, habitat quality, and unique management of the area are the primary values.	Vegetation treatments would not occur, and habitat would continue to become further removed from what would exist under a natural disturbance regime.	Vegetation treatments would occur, and habitat would be restored to a more natural state.	Same as B for vegetation treatments. Future monitoring would be required to determine the effects to upland and aquatic habitat from elimination of grazing.
<b>Water Quality</b>	Twelve reaches within the DA are on the MT 303(d) list. Five other reaches do not meet the water quality standard due to excessive sediment.	No changes to water quality would be expected. Streams that are currently impaired would remain so.	Proposed vegetation treatments and projects designed to promote healthy upland and riparian habitats would be expected to help increase water infiltration, and reduce run-off and erosion.	Same as B for vegetation treatments. Elimination of grazing on six allotments would not be expected to affect sediment levels and water quality.
<b>Air Quality</b>	The PA is in a "Class 2" air quality designated area. Sources of pollutants include the Indian Creek mine, smoke, dust, and vehicle exhaust.	No change to air quality is anticipated.	Temporary smoke and dust would occur from vegetation treatments.	Same as B, plus fugitive dust from open roads would increase correspondingly to the additional two miles of open road.
<b>Climate Change</b>	Global average temperature has increased and continues to do so.	No change to climate is anticipated.	There would a temporary increase in greenhouse gas emissions during any proposed treatments involving prescribed fire. However, this would be offset in the long term by improved habitat conditions.	Same as B.
<b>Soils</b>	Soils consist primarily of cobbly loams in lower elevations to very-stony rock outcrops in higher elevations.	Current areas where erosion is occurring would continue to degrade. Continued increase of conifers in sage/grass areas could reduce resistance to erosion.	Vegetation treatments could result in an increase in short term erosion; in the long term, however, susceptibility to erosion would decrease.	Same as B, except that removal of livestock could result in increased vegetative soil cover.

<b>Resource/Issue</b>	<b>Existing Condition</b>	<b>Alternative A (No Action)</b>	<b>Alternative B (Proposed Action)</b>	<b>Alternative C</b>
<b>Geology &amp; Abandoned Mine Lands</b>	<p>The Limestone Hills are an important source of chemical grade calcium carbonate. Potential for mineral resources is high throughout the east flank of the Elkhorns.</p> <p>The Iron Mask mine is the most significant AML in the area. Other small adits and pits have been discovered.</p>	There would be no direct or indirect effects to geology and AML under any of the alternatives.	Same as A.	Same as A.
<b>Cultural &amp; Native American Resources</b>	Prehistoric sites in the DA mainly consist of small scatters of rock chips from tool manufacturing. Known historic sites are mostly related to historic mining.	There would be no effects to cultural resources under any alternative, other than normal passage-of-time-related deterioration.	Same as A.	Same as A.

## **4.0 CONSULTATION AND COORDINATION**

### **4.1 Introduction**

In December 2012, a scoping letter and maps of the PA were sent to recipients listed in Section 4.2. Twelve responses were received that included comments on: travel and access; public involvement; recreation; wildlife, habitat, and vegetation restoration; noxious weeds; livestock and forage reserve allotment; cultural resources; and the local economy. These responses were taken into account in the preparing the EA. Informational public presentations were given for the Rocky Mountain Elk Foundation, the Elkhorns Restoration Committee, and the Townsend Rod and Gun Club. Following the release of this EA, there will be a 60-day public comment period and an open house to answer questions prior to completing the EA. A summary of comments and responses received will appear in the completed EA.

### **4.2 Persons, Groups, & Agencies Consulted**

Broadwater County Commissioners

Broadwater County Museum  
 Elkhorn Restoration Committee – Tom Williams  
 Elkhorn Working Group – David Brown  
 Grazing permittees who utilize grazing allotments in the Decision Area  
 Graymont Mine – Jason Ellis  
 MT Fish & Wildlife Conservation Trust – Deb Lane  
 MT Army National Guard – Sundi West  
 MT Department of Environmental Quality  
 MT Department of Fish, Wildlife, and Parks – Pat Flowers, Ron Spoon  
 MT Department of Natural Resources and Conservation  
 Rocky Mountain Elk Foundation – Scott Westphal  
 The Independent Record (Helena newspaper)  
 The Townsend Star  
 Western Watersheds Project – Summer Nelson  
 USDA Natural Resources Conservation Service – Justin Meiser  
 U.S. Forest Service – Kevin Reardon, Heather DeGeest, Denise Pengeroth  
 U.S. Fish and Wildlife Service – Mark Wilson

### 4.3 List of Preparers

Vickie Anderson	Range
Eric Broeder	Riparian, Water Quality
Brad Colin	Travel Management, Recreation, VRM
Lacy Decker	Noxious Weeds
Scot Franklin	Wildlife, Fish, Team Lead
Joan Gabelman	Abandoned Mines
Carrie Kiely	Cultural, Native American
Bradlee Matthews	Geographic Information System
Michael O'Brien	Forestry
Roger Olsen	Range, Soils
Brad Rixford	Travel Management, Recreation, VRM
Charles Tuss	Fuels
Dave Williams	Geology, Air Quality, Climate Change
Mike Wyatt	Realty

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## 5.2 List of Acronyms

ACEC: Area of Critical Environmental Concern  
AML: Abandoned Mine Lands  
AMP: Allotment Management Plan  
AUM: Animal Unit Month  
BFO: Butte Field Office  
BMP: Best Management Practice  
BpS: Biophysical Setting  
BOR: Bureau of Reclamation  
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act  
CFR: Code of Federal Regulations  
CWPP: Community Wildfire Protection Plan  
DA: Decision Area  
DBH: Diameter at Breast Height  
DEQ: Department of Environmental Quality  
DNRC: Montana Department of Natural Resources  
DR: Decision Record  
EA: Environmental Analysis  
ECMA: Elkhorn Cooperative Management Area  
EEE/CA: Expanded Engineering Evaluation/Cost Analysis  
EIS: Environmental Impact Statement  
EPA: Environmental Protection Agency  
ESA: Endangered Species Act  
FAR: Functioning at Risk  
FONSI: Finding of No Significant Impact  
FORVIS: Forest Vegetation Information System  
FRCC: Fire Regime Condition Class  
FWP: Montana Fish, Wildlife, and Parks Department  
GHG: Greenhouse Gas  
HNF: Helena National Forest  
HUC: Hydrologic Unit Code  
IDT: Interdisciplinary Team  
INRMP: Integrated Natural Resources Management Plan  
IPCC: Intergovernmental Panel on Climate Change  
LHTA: Limestone Hills Training Area  
LWCF: Land and Water Conservation Fund  
MFI: Mean Fire Interval  
MOU: Memorandum of Understanding  
MTARNG: Montana Army National Guard  
NEPA: National Environmental Policy Act  
NF: Nonfunctioning  
NHP: Natural Heritage Program  
PA: Planning Area  
PFC: Proper Functioning Condition  
RMEF: Rocky Mountain Elk Foundation  
RMP: Resource Management Plan  
RMZ: Riparian Management Zone

ROD: Record of Decision  
ROS: Recreational Opportunity Spectrum  
SMZ: Streamside Management Zone  
SRMA: Special Recreation Management Area  
TCF: The Conservation Fund  
TMDL: Total Maximum Daily Load  
USACE: U.S. Army Corps of Engineers  
USDI: United States Department of Interior  
USFS: United States Forest Service  
USGS: United States Geological Survey  
UXO: Unexploded Ordinance  
VRM: Visual Resources Management  
WUI: Wildland-Urban Interface