BLM

# U.S. Department of the Interior
# Bureau of Land Management

**Raintrap Pasture Prescribed Fire Environmental Assessment**
**UMRBNM Tracking No. (*DOI-BLM-MT-L070-2011-0013-EA*)**
**ePlanning Tracking No. *(DOI-BLM-MT-L070-2011-0001-EA)***
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# CHAPTER 1
# PURPOSE AND NEED FOR ACTION

## INTRODUCTION

The Bureau of Land Management (BLM) is proposing to use prescribed fire to restore natural vegetation conditions in ponderosa pine and Douglas-fir timber types in the Upper Missouri River Breaks National Monument. Prescribed fire would be used to improve or maintain Fire Regime Condition Class (FRCC), reduce hazardous fuel loadings (vegetation that could burn in a fire), and improve vegetation conditions and wildlife habitat. Prescribed burning operations may commence in Spring 2014 depending on weather, personnel availability, and vegetation conditions.

The project area is located in southern Blaine County 15 miles west of Hays, Montana. The project includes portions of the following sections; T26N R21E Sec 13-14, 22-28, and 33-35. See vicinity map, pg. 39.

Prescribed fire, which is the planned, intentional application of fire to meet specific land management objectives, would be used to thin small-diameter timber and remove dead and down woody vegetation. Treatments would target juniper, small-diameter conifers, seedlings, and surface fuels. Additionally, reducing hazardous fuel loadings would improve public and firefighter safety, and decrease intensity and severity of future wildfires in the area.

## PURPOSE AND NEED FOR ACTION

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human intervention but including the possible influence of aboriginal fire use (Agee 1993; Brown 1995).

Within the past century in the project area, reduced fire frequency in forested settings and adjacent conifer-encroached sagebrush/grasslands has caused a departure from natural fire regimes. Possible causes of this departure include (but are not limited to) fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, and introduced insects and disease (Schmidt etal., 2002).

The purpose of the proposed action is to reintroduce fire into 3,333 acres of ponderosa pine woodland and savanna, a fire-adapted ecosystem where natural fire has not been allowed to function in the long-term role of creating a diverse vegetation community.

The project is needed to restore vegetation health and diversity, promote herbaceous regeneration in ponderosa pine/mixed-grass prairie communities, improve wildlife habitat, and reduce wildfire severity. Fire exclusion has created overstocked conditions that reduce productivity and create an increased risk of detrimental fire effects to natural plant communities and existing wildlife habitat. See the full description of FRCC below.

Treatment in forested vegetation types would target juniper, ladder fuels (including small-diameter conifers and seedlings), and dead and down woody fuels. Treatment in adjacent rangelands would reduce conifer encroachment and increase diversity in herbaceous cover. Conifer encroachment into Greater Sage-Grouse habitat and risk of an escaped wildfire into this habitat are major concerns.

Prescribed fire would be applied in a manner that creates low to moderate fire intensity which would burn understory fuels, with isolated torching and occasional crown runs into the forest canopy. Some areas would be left unburned so a mosaic of burned and unburned vegetation would be achieved. It is proposed to treat approximately 50-70 percent of the target fuels.

**Land Management Objectives of the Proposed Action**

1. Reintroduce the natural role of fire into a fire-adapted ecosystem.

2. Reduce heavy ladder fuels and closed forest canopies to lessen the risk of a large, severe wildfire, which could burn through this area into important breeding, nesting, and winter Greater Sage-Grouse habitat.

3. Create a mosaic of diverse plant communities (age, structure, successional levels).

4. Reduce conifer and juniper encroachment into shrub and grassland areas occupied by Greater Sage-Grouse.

5. Increase forage production and improve distribution of wildlife and livestock.

6. Reduce hazardous fuel loadings to improve public and firefighter safety, and lessen the risk of stand-replacing wildfires.

**Fire Regime Condition Class**

Vegetation conditions within the project area have been assessed using Fire Regime Condition Class (FRCC), which is an interagency, standardized tool

based on scientific and peer reviewed literature for determining degree of departure from a reference vegetative condition within a given biophysical setting (Bps). More information regarding this tool can be found at the following website http://www.frcc.gov. Assessing FRCC can help guide management objectives and set priorities for treatments. The classification is based on a relative measure describing degree of departure from the historical natural disturbance regime for a given biophysical setting. This departure is described as 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. insects and disease mortality, grazing and drought).

There are three FRCC classes used to describe departure from reference Bps conditions. The following table provides descriptions of the three FRCC classes:

**Table 1.1 Fire Regime Condition Class (FRCC) Characteristics**

| **Fire Regime Condition Class (FRCC) Characteristics** | |
|---|---|
| ***Condition Class*** | ***Description*** |
| 1 | Less than 33 percent departure from the central tendency of the historical range of variation (HRV): Fire regimes are within the natural or historical range and risk of losing key ecosystem components is low. Vegetation attributes (composition and structure) are well intact and functioning. |
| 2 | 33 to 66 percent departure: Fire regimes have been moderately altered. Risk of losing key ecosystem components is moderate. Fire frequencies may have departed by one or more return intervals (either increased or decreased). This departure may result in moderate changes in fire and vegetation attributes. |
| 3 | Greater than 66 percent departure: Fire regimes have been substantially altered. Risk of losing key ecosystem components is high. Fire frequencies may have departed by multiple return intervals. This may result in dramatic changes in fire size, fire intensity and severity, and landscape patterns. Vegetation attributes have been substantially altered. |

Biophysical setting (Bps) models have been developed for most major vegetation types. These models describe the vegetation, geography, biophysical characteristics, succession stages, disturbance regimes, and assumptions for each vegetation type (Havlina et al., 2010). Reference conditions described in the Bps models are compared to actual conditions for purposes of determining the current FRCC rating. An FRCC rating is determined for the entire project by determining the weighted average of all major vegetation FRCC ratings. FRCC 1 is desired for each Bps and for the entire project. A departure from FRCC 1 (reference condition) to FRCC 2 or FRCC 3 serves as an indicator that changes need to be affected.

Approximately 2,400 acres of the 3,333 acre project area are occupied by ponderosa pine. The forested settings within the project area have been assessed at Condition Class 3. When compared to reference conditions present in a properly functioning natural fire regime, open structured, middle-aged, and late stands, as well as early-succession stands, are under-represented or at trace levels on the landscape. Closed structure stands are overly abundant.

Current fire severity has increased compared to reference conditions; and about five fire cycles have likely been missed. Understory vegetation in closed stands is dominated by small-diameter, mixed-conifer regeneration and juniper, and species diversity and herbaceous biomass production is limited. Conifer encroachment is expanding into the edges of rangelands adjacent to forested sites

Implementing prescribed fire in the project area would decrease conifer encroachment and increase acres of open-structured forest stands to levels similar to reference conditions. With the reduction in natural fuel loadings and stand densities, fire severity would also become similar to reference conditions. This would change the project area FRCC rating from an FRCC 3 to an FRCC 2 or even an FRCC 1. Biomass and species diversity of herbaceous and deciduous understory vegetation would likely increase. Reducing natural fuel loadings and ladder fuels would decrease the severity of a wildfire in the future and improve firefighter and public safety.

**Prescribed Fire Objectives**

1. Treat 50-70 percent of target fuels with an underburn while leaving unburned patches.

2. Kill 40-60 percent of conifers less than 3" dbh (diameter at breast height)

3. Kill 50-70 percent of juniper.

4. Limit mortality in trees 8" dbh and larger to 30 percent.

## CONFORMANCE WITH BLM LAND USE PLAN(S)

This EA and the proposed action are in conformance with the Upper Missouri River Breaks National Monument (UMRBNM) Resource Management Plan (December 2008). Fire Management decisions are found in Chapter 2 of the approved plan. The plan identifies four fire management units (FMU): Wild and Scenic River, Wilderness Study Areas, North Monument and South Monument. The project area falls within the North Monument fire management unit. Prescribed fire would be used in the North Monument FMU based on achieving

the desired FRCC with the goal of returning fire to a natural role in the Monument landscape with very few constraints.

On page 45 the plan specifically allows for prescribed burning :

*"To achieve the vegetation goals outlined during site-specific planning, livestock grazing strategies (adjusting grazing or rest seasons, adjusting stocking rates or stocking densities and the location of supplements), prescribed burning, use of herbicides, and mechanical treatments could be used to manage vegetation communities."*

On page 59, Table 2.6 – Options for Wildland Fire Suppression and Prescribed Fire, the Description of Prescribed Fire Option more specifically identifies conditions where prescribed fire would be used:

1. *"Prescribed fire could be used based on public safety (fuel hazard reduction) and resource issues (range improvement, wildlife habitat); and*
2. *"Prescribed fire would be used based on FRCC and the goal to return fire to a natural role on the Monument landscape with very few constraints."*

**RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS**

The Fire/Fuels Management Plan Environmental Assessment/Plan Amendment for Montana and the Dakotas (July 2003) specifically supports the proposed action with the following guidance from the Description of Treatments on pages 24-25:

1. *"In some cases, prescribed fire could be used to thin small-diameter timber and remove dead and down woody vegetation."*
2. *"The primary objective of treating grasslands and shrublands with mechanical treatments and/or prescribed fire would be to remove encroaching conifers."*
3. *"Prescribed fire may also be used to meet resource objectives, such as restoring fire-adapted grass and shrublands, or increasing variation of age classes in shrublands."*
4. *"In general, fuels treatments would focus on improving FRCC 2 (Fire Regime Condition Class 2) or FRCC 3 (Fire Regime Condition Class 3) attributes, and would be refined for the project/watershed level."*

This EA and the proposed action are also in conformance with Instruction Memorandum (IM) 2011-138 Sage-Grouse Conservation Related to Wildland Fire and Fuels Management (June 2011), and IM 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures (December 2011).

# CHAPTER 2
# DESCRIPTION OF ALTERNATIVES

## INTRODUCTION

The Bureau of Land Management (BLM) is proposing to use prescribed fire to treat ponderosa pine and Douglas-fir timber types in the Upper Missouri River Breaks National Monument in north-central Montana. Two alternatives are analyzed: a no action, continuation of current management, and a proposed action alternative. The proposed treatment is a proactive management strategy to better manage forest and rangeland resources. The no-action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

### Description of Alternatives Analyzed in Detail

### Alternative 1 – No Action

Prescribed fire treatment would not be implemented in the project area under the no-action alternative. Indirect impacts would be expected by continuing current management.

### Alternative 2 – Proposed Action

The proposed action is prescribed fire implementation to improve or maintain Fire Regime Condition Class (FRCC), reduce hazardous fuel loadings, and improve vegetation conditions and wildlife habitat. Prescribed fire treatments would target juniper, small-diameter conifers and seedlings, and surface fuels in the 3,333 acre project area. Reducing hazardous fuel loads would decrease the intensity and severity of future wildfires in the area.

The fragmented landscape has resulted in a varied topography with natural barriers to slow unwanted fire spread in coulee bottoms and on open slopes and ridges. Natural barriers include bare, gumbo soils and light, sparse fuels within and adjacent to the project area and would aid in firing and holding operations. Control lines would be a combination of existing roads; bare, gumbo ridges; and hand line as needed in sparse fuels.

**Design Features:**

Project Area Refinement
The proposed treatment area has been reduced from 4,900 acres to 3,333 acres to alleviate potential impacts to Greater Sage-Grouse habitat, as well as reducing the potential for excess loss of thermal and escape cover. The south side of the project boundary was revised to follow Timber Ridge road in order to provide for a safer control line, and reduce hazards to firefighters and the risk of an escape during prescribed fire implementation.

Cultural Resources
Any known cultural resources within the project area would be avoided to prevent direct impacts from burning during project implementation. Protective measures may include black/wet lining, hand removal of vegetation, or other protections around identified cultural sites.

Wildlife
Design features include completing active burn operations such as aerial ignition or hand lighting between the hours of 8:30 a.m. and 6:30 p.m. during the time period of March 1 through June 15 to avoid impacting breeding and nesting sage-grouse. Activities beyond those hours may include mopping up and limited actions intended to ensure containment of the burn area. In order to reduce stress to breeding Greater Sage-Grouse, traffic on Timber Ridge Road and Spencer Ridge Road will be limited to only those vehicles & personnel required to safely implement the prescribed fire. Whenever possible, traffic into the project area prior to prescribed fire implementation will occur mid-day to early afternoon and traffic will be directed to access the project area from the west on Cow Island Trail or the north on Birdtail Road. None of these actions would occur within sight of the lek unless necessary to prevent escape beyond the burn boundaries into Greater Sage-Grouse habitat.

Higher temperatures and lower soil moistures occur during summer wildfire season. The proposed action would take place in spring, fall or winter when fire effects would be less severe than those that occur during wildfire season in summer. This would minimize impacts to all wildlife species. Burning during these time periods would reduce potential impacts to young of the year, nesting species, and species such as short-horned lizards which are active and more susceptible to direct mortality during warmer weather. Big game winter restrictions are in place from December 1 until March 31 but potential impacts vary depending on species that respond to the effects of fire such as woodpeckers and other cavity nesters.

Grazing Administration and Livestock Grazing
Livestock grazing may be authorized for the project area based on monitoring of post-fire conditions and regeneration. Appropriate levels of rest or deferment from grazing may be needed for plant recovery.

Invasive/Non-native species
The native plant issue identified the need to utilize certified weed-free seed or plant material if reclamation of any sites (staging area, camp, and roads) is needed. Post-burn monitoring and treatment of infestations would mitigate the spread of invasive species. No new travel routes would be created during post-burn monitoring and treatment of infestations. Using clean vehicles and equipment during the proposed action would also help reduce potential spread.

Soils
All project associated operations would not be performed during periods when soils are too wet to adequately support equipment and/or vehicles. If equipment/vehicle use creates ruts in excess of 3 inches deep, operations must cease as the soil would be deemed too wet to adequately support equipment and vehicles. Limited prescribed burning of all areas would ensure low to low-end moderate severity. Suggested prescription conditions that would promote low to moderate severity include: implement prescribed fire at a time of year when litter, duff, and soil moisture conditions are favorable for minimizing loss of litter and duff, and reducing excess soil heating.

**Alternatives Considered but not Analyzed in Detail**

Mechanical/Hand Treatment

Mechanical and hand treatment methods were both considered as alternatives for the project but were eliminated from further analysis. Following is a description of each alternative method, an explanation of their advantages and disadvantages, and rationale for eliminating them from further consideration.

Mechanical and hand treatments are generally used to remove trees of a specific age class or size in order to promote species variability and reduce wildland fire spread and intensity. Mechanical treatment involves the use of wheeled and/or tracked machines with cutter or masticator attachments designed to cut down or grind individual trees. Hand treatment is the cutting of trees with chainsaws or brush cutters. In cutting units, trees are either cut, piled and burned on site or marketable timber is hauled from the project site and non-merchantable wood and debris is piled and burned. In grinding units, woody material is ground up and left in place to decay.

Mechanical or hand treatments are commonly used in areas where there are too many trees per acre to burn, resulting in undesirable tree mortality, or the treatment area is adjacent to homes or other improvements. These treatments can be labor intensive and may not be commercially viable due to lack of a market for small-diameter trees that have been removed. Such treatments are also limited by steep or rough terrain and remote locations.

# CHAPTER 3
# AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

## AFFECTED ENVIRONMENT:

### 3.1 Fire and Fuels Management

Fire Regime Condition Class of ponderosa pine and Douglas-fir stands in the project area has been assessed at Condition Class (FRCC) 3. Fire regimes have been substantially altered and the risk of losing key ecosystem components is high. Fire frequencies have departed by multiple return intervals. Vegetation attributes have been significantly altered from their historical range of variability. In the event of an unplanned wildland fire, current conditions could result in dramatic changes in fire size, fire severity, and landscape burn patterns.
Fire exclusion has resulted in dense, stagnant and declining conifer stands with suppressed and decadent hardwood shrubs.

### 3.2 Invasive/Non-native Species

Invasive plant inventory in 2008 found that the project area has a few small, sporadic infestations of Canada thistle, field bindweed, and bull thistle. Cheatgrass (bromus spp.) occurs in large patches in grassy areas outside of the timber. Many access roads to the project area are also lined with field bindweed

### 3.3 Grazing Administration and Livestock Grazing

All proposed treatment areas are available for livestock grazing. Grazing rotation is in conformance with the Standards and Guidelines for Grazing within the Monument. Allotment size in table below includes all ownerships.

**Table 3.1 BLM Allotments**

| Allotment Name/Number | Dates of Use | Size (Acres) | Acres in project area |
|---|---|---|---|
| Hay Coulee – 6182 | Reserve Allotment-Varies | 17,000 | 2883 |
| Timber Ridge – 6172 | 5/15-11/15 | 16,960 | 450 |

### 3.4 Cultural Resources

Archaeological fieldwork for the Raintrap prescribed fire was completed between September 8 and October 12 in late summer and early fall of 2010.

Sixteen (n=16) previously unknown cultural properties were discovered and recorded during Class III survey of the Raintrap project area. Eight of those properties are sites while eight are isolated artifact localities. Six of the sites only contain pre-contact archaeological materials. Two sites (24BL2259 and 24BL2265) are of historic age. All eight isolated artifact localities are of pre-contact age.

Within the analysis area, the six pre-contact sites consisted of cultural material scatters that included heat-altered rock and lithic artifacts, and in some instances bone. The two historic properties included one road and one likely hunting or wood-cutting camp. The eight isolated artifacts consisted of lithic artifacts and in one case one piece of heat-altered rock along with two lithic artifacts.

Several roads are depicted in the project area on the historic General Land Office (GLO) maps that encompass the study tract. However, only the Cow Creek to Landusky Road (site 24BL2265) was found to occupy its historic route, which is now known as the Timber Ridge Road or the Cow Creek Road. Other modern roads in the project area, including the Spencer Ridge Road and the Birdtail/Cow Island Trail Road, appear to include only parts of the historic routes of other roads depicted on the GLO maps and therefore they were not recorded.

**Table 3.4 Cultural properties discovered in the 2010 Raintrap project area.**

| Site # | Site Type | Age/Cultural Association | National Register Eligibility | Recommendation |
|---|---|---|---|---|
| 24BL2258 | Precontact Cultural Material Scatter & Cairn (age unknown) | Unknown Precontact | Unevaluated | Test & Avoid |
| 24BL2259 | Historic Hunting or Wood Cutting Camp | Unknown Historic | Not Eligible | None |
| 24BL2260 | Precontact Cultural Material Scatter | Unknown Precontact | Unevaluated | Test & Avoid |
| 24BL2261 | Precontact Cultural Material Scatter | Precontact; Possibly Late Precontact Period | Unevaluated | Test & Avoid |
| 24BL2262 | Precontact Cultural Material Scatter | Unknown Precontact | Unevaluated | Test & Avoid |
| 24BL2263 | Precontact Cultural Material Scatter | Unknown Precontact | Unevaluated | Test & Avoid |
| 24BL2264 | Precontact Cultural Material Scatter | Unknown Precontact | Unevaluated | Test & Avoid |
| 24BL2265 Cow Creek to Landusky Rd. | Historic Road | Historic: Pre-1917 | Recorded segment non-significant | None |
| IF-PF-2 | Isolate – flake & flake tool | Unknown Precontact | Not Eligible | None |
| IF-PF-3 | Isolate – core tool | Unknown Precontact | Not Eligible | None |
| IF-RM-1 | Isolate – flake, flake tool, & 1fcr | Unknown Precontact | Not Eligible | None |
| IF-RM-2 | Isolate – core tool | Unknown Precontact | Not Eligible | None |
| IF-RM-3 | Isolate – flake core | Unknown Precontact | Not Eligible | None |
| IF-RT-2 | Isolate – cobble core | Unknown Precontact | Not Eligible | None |
| IF-SA-1 | Isolate – chopper | Unknown – Precontact | Not Eligible | None |
| IF-SA-2 | Isolate – projectile point fragment | Unknown Precontact | Not Eligible | None |

A more thorough discussion of the history and pre-contact history can be found in the 2011 report for this project completed by Aaberg and Crofutt listed in the References section and on file at the BLM office in Lewistown (BLM Report #11-MT-070-001).

### 3.5 Recreation

Recreation in the project area is primarily big game and upland bird hunting. Commercial outfitters and local landowners hunt in this area and use the public lands during spring and summer for horseback riding and hiking. The general public uses county roads and other primitive routes within the proposed project area for touring and sightseeing.

### 3.6 Soils

Soils were identified from the Natural Resources Conservation Service's (NRCS) Soil Survey Geographic (SSURGO) dataset (Soil Survey Staff, 2012) and the Soil Data Mart (SDM) website http://soildatamart. nrcs.usda.gov. Soil surveys were performed by the NRCS according to National Cooperative Soil Survey (NCSS) standards. Pertinent information for review and analysis is from the SDM and the National Soils Information System (NASIS) database for the area.

Soils developed mostly from sedimentary residuum parent materials (sandstone, siltstone, and shale) and from lesser amounts of alluvium. Potential for damage to the soils by fire ranges from low to high; dependent on texture, slope, surface depth, and rock fragments. There are areas of exposed bedrock.

The primary Soil Map Units (SMUs), along with acreage amounts of each (trace amounts not included), are listed in Table 3.2. Appendix C (Soils) provides a description of major soils that occur in an SMU. Descriptions of non-soil (miscellaneous areas) and minor SMU components are not included.

**Table 3.2 Primary Soil Map**
Units and Acres.

| Soil Map Unit | Acres |
|---|---|
| 6 | 114 |
| 27 | 314 |
| 79 | 314 |
| 80 | 2,551 |

### 3.7 Rangeland Vegetation

Rangeland vegetation consists of sagebrush grasslands, ponderosa pine/Douglas-fir, and lightly vegetated badlands. Mixed-shrub communities occur in woody draws and flats. Common grasses and grass-like species are bluebunch wheatgrass, green needlegrass, western wheatgrass, prairie

junegrass, blue grama, prairie sandreed, Sandberg bluegrass, and thread leaf sedge. Shrubs include big sagebrush, silver sagebrush, saltbush, greasewood, and rabbitbrush. Prickly pear cactus is also present. Snowberry, sumac, current, chokecherry, rose, buffaloberry, and gooseberry are found in woody draws. There are no known occurrences of threatened, endangered, or special status plants in the project area.

### 3.8 Visual Resource Management

The proposed project area is managed to retain the existing character of the landscape, in accordance with class II Visual Resource Management (VRM) objectives. The level of change to the visual environment should be low or weak to the casual observer within 5 years following project implementation. The proposed action would meet VRM objectives after revegetation.

### 3.9 Wildlife

**Threatened, Endangered (T&E), and Species Proposed for Listing; BLM Designated Sensitive Species; Migratory Birds and Fisheries**

**Wildlife - General**

The project area is considered important habitat for elk and other ungulate species. Populations of key ungulate species in the area have been growing according to Montana Fish, Wildlife & Parks (FWP) counts (MFWP, 2013). Habitat within the project area supports a diverse range of wildlife, including mule deer, elk, raptors, furbearers, reptiles and amphibians. The project area is within an area that is considered important elk and mule deer winter range and encompasses a small amount of bighorn sheep year-round habitat. Areas of cliffs bands and open, highly-eroded badlands associated with the Cow Creek drainage are considered suitable bighorn sheep habitat. Distribution ranges of big game and other species are updated regularly with new information as it becomes available. The project area is important on the regional scale to sustaining important game and non-game species.

Domestic sheep and goats in the vicinity of the project are a continued threat to wild sheep. Wild sheep have been sighted by FWP personnel less than ½ mile from domestic sheep on the north side of the project area.

For a complete listing of species which could occur within the project area, refer to the Upper Missouri River Breaks National Monument (UMRBNM) Resource Management Plan (RMP) (December 2008).

**Threatened, Endangered and Species Proposed for Listing**

There are no threatened, endangered, or wildlife species proposed for listing present in the area of the proposed action. There is no designated critical habitat for any species within the project area. Important Greater Sage-Grouse habitat

identified as breeding, nesting, and winter habitat occurs adjacent to the project area. An active lek is located less than one mile south of the proposed burn unit and two other active leks are within three miles of the proposed treatment. Mechanical removal of encroaching conifers has and will continue to occur within this adjacent area.

**Designated Sensitive Species**
Northern goshawk, golden eagle, long-legged and long-eared myotis and Townsends big-eared bats all have habitat and could occur within available habitat; however, there are no documented roosting or nesting sites within the project area. The greater short-horned lizard occupies open, sagebrush/ grassland habitat, and badland habitat, and is likely present within the project area. Important Greater Sage-Grouse habitat identified as breeding, nesting, and winter habitat occurs adjacent to the project area. Mechanical removal of encroaching conifers has and will continue to occur within this adjacent area.

**Migratory Birds**
Sagebrush/grassland and ponderosa pine/Douglas-fir habitats are minor components of larger adjacent habitat for Neotropical Migratory Birds. Species present are those common to these habitat types within north-central Montana.

**Fisheries**
There are no fisheries present in the area of the proposed action. However Cow Creek, an ephemeral stream, is adjacent to the western project boundary.

**3.10 Riparian/Water Resources**
The proposed action is primarily located within unnamed tributaries of Cow Creek, which is a tributary of the Missouri River. Given the ephemeral characteristics of these streams, they flow only in response to snowmelt or intense precipitation events. Their immediate receiving water is the Missouri River, which is listed by Montana Department of Environmental Quality (MDEQ, 2008) as water quality impaired because of alteration in streamside or littoral vegetative covers, copper, lead, and physical substrate habitat alterations. Probable sources include agriculture, grazing in riparian or shoreline zones, and unknown for copper and lead. Riparian conditions and water resources through this reach of the Missouri are affected by flow regulation from upstream dams, invasive species such as leafy spurge and knapweed, and livestock grazing. Ephemeral tributaries in the project area do not exhibit riparian-wetland conditions; however, season fluctuation in water availability may lead to microsites of hydrophytic vegetation. Water yield in these smaller-order drainages may be reduced by increased canopy cover, patch size, and density of ponderosa pine and Douglas-fir relative to historic conditions.

### 3.11 Air Quality

Air quality in the project area is good to excellent. The Upper Missouri River Breaks National Monument is part of an area designated as a Prevention of Significant Deterioration (PSD) Class II area by the State of Montana under the 1977 Amendments to the Clean Air Act. Class II limits allow for moderate, well-controlled growth. The BLM's goal is to maintain the Monument as a Class II airshed. Management will minimize or prevent air quality degradation. The BLM will comply with National Ambient Air Quality Standards and Montana Ambient Air Quality Standards.

All prescribed burning operations conducted by the BLM are under a Montana Air Quality Open Burning permit issued from the Montana Department of Environmental Quality with support of the Montana/Idaho Airshed Group.

The project area is sparsely populated with few smoke receptors. County roads exist within the project area boundary.

The climate of Central Montana is classified as continental semi-arid, with low annual precipitation (13.5 inches), hot summers and cold winters. There is typically a large variation between day and night temperatures. Vegetation is mostly grassland but includes rangeland plants such as sagebrush, yucca and cactus. Along the Upper Missouri, the riverbank ecosystem supports groves of towering cottonwood trees.

Summer weather is typically hot and sunny; temperatures in the 90's are common with very low humidity. Evening temperatures are normally in the 40's and 50's. Afternoon thunderstorms - sometimes quite violent with strong, gusty winds - are fairly common, but are usually short-lived.

## ALTERNATIVE 1 – NO ACTION

### 3.1.1 Fire and Fuels Management

If no action is undertaken risk of wildfire to surrounding native vegetation would remain high due to the amount of available small-diameter timber, dead and down woody vegetation, and surface fuels. With continued fire suppression and lack of prescribed fire, vegetation health in the project area would continue to decline due to excessive fuel buildup and departure from historical conditions. Conifer stands would continue increasing in density and encroaching into sage/grassland areas, and would be at risk of high-severity wildfire. Risk of losing key ecosystem components would increase and vegetation species and age class diversity would decline. Continued grazing would help mitigate fine fuel buildup but would not address conifer encroachment into sage/grassland areas.

### 3.2.1 Invasive/Non-native Species

There would be little to no short-term impact to the area from invasive plants unless natural fire or other events create a disturbance to the soil or vegetation component. These species would persist and spread more slowly in the absence of a disturbance. However, in the long term, the vegetative community would trend toward undesirable species and production.

There is anecdotal evidence that cheatgrass is invading intact vegetative communities in this area of Montana. Given these observations, there is some potential for the current populations to expand.

### 3.3.1 Grazing Administration and Livestock Grazing

Livestock grazing would continue as currently permitted. Available forage could possibly decrease over time as more areas become occupied with trees and shrubs.

### 3.4.1 Cultural Resources

Not introducing prescribed fire in the analysis area would have no direct effect on cultural resources. Indirect effects could include a change in the setting (i.e. change in vegetation patterns). In the long term, fuel buildups and vegetation changes can lead to higher intensity and longer duration fires than what may have occurred historically. Sites that have withstood naturally-occurring fires may be more affected by fires outside the norm.

### 3.5.1 Recreation

There would be no direct impacts to recreation from the no-action alternative. However, long-term benefits to primitive hunting opportunities would be foregone through the eventual loss of habitat and big game hunting opportunities that could be provided through habitat improvement.

### 3.6.1 Soils

If the proposed unit and surrounding areas were to be burned by wildfire in the future, a mix of burn severities would be anticipated depending on topography, fuels and climatic conditions. High and moderate soil burn severities would likely result where there is heavy fuel buildup. This would result in an increased amount of bare soil, accelerated erosion, slow recovery of effective vegetative cover and loss of soil nutrients and soil microbes. Areas of low soil burn severity may benefit from a short-term release of nutrients available to plant growth and a change in types and amounts of vegetation.

### 3.7.1 Rangeland Vegetation

Vegetation would continue to progress toward a mature conifer and juniper overstory with a decrease in understory species. Ponderosa pine and juniper would continue to encroach on Greater Sage-Grouse habitat, reducing its value

to this species. Potential for wildfire would increase over time, with potential to impact Wyoming big sagebrush habitat to the south and east of proposed burn units.

### 3.8.1 Visual Resource Management

There would be no impact to the visual resource if the no-action alternative was selected. However, occurrence of a large, high-severity wildfire in the area due to the current excess of fuels could impact the scenery.

### 3.9.1 Wildlife

There would be no impact to any T&E Species, proposed species, or any designated critical habitat or prey species.

Greater Sage-Grouse could be impacted if a wildfire occurs within the project area and carries into adjacent sagebrush habitat. Wyoming big sagebrush is intolerant to fire and very slow to become reestablished in large areas burned by wildfire. Over time, pine and juniper species would continue to encroach into sagebrush habitat, reducing the quality of this habitat for Greater Sage-Grouse.

Depending on seasonal weather, naturally-occurring wildfires during dry conditions could have greater impacts on designated sensitive species due to the amount of understory and ladder fuels. These fires could have long-term impacts to wildlife habitat, especially big game winter range, by removing all cover and possibly sterilizing soils due to high fire temperatures. Some species would lose habitat while habitat would be created for other species preferring earlier seral stages, more open habitat, or post-fire habitat (burned trees or snags).

Without removal of accumulated litter, production of new grasses and forbs would continue to decline in quality and diversity, and in the future could be limited for mule deer, elk, and bighorn sheep. Winter browse would also be negatively impacted by not allowing rejuvenation of species important to sustaining big game on winter range. Available forage is not currently limiting any big game populations within the project area. Migratory bird species could be impacted in the event of a high-severity wildfire which destroys large blocks of habitat.

### 3.10.1 Riparian/Water Resources

No immediate increases in quantity of runoff and sediment would occur. Wildfire burning through larger fuel loads would have greater burn intensity. This would lead to a temporary, larger increase in runoff and sediment as compared to a lower-intensity prescribed fire. However, even a greater intensity prescribed fire would not adversely affect water resources within the project area as both river physical processes and riparian-wetland areas are dependent upon periodic disturbance by flow and sediment pulses to function.

### 3.11.1 Air Quality
The no-action alternative would have no impact on air quality.

## ALTERNATIVE 2 – PROPOSED ACTION

### 3.1.2 Fire and Fuels Management
The proposed action of prescribed fire would mimic the natural role of fire in the project area by creating a mosaic of burned and unburned vegetation. Prescribed burning would improve FRCC ratings in forest settings from an FRCC 3 to an FRCC 2 or even an FRCC 1. Treatment would reduce fuel loadings in the forest understory by removing small-diameter conifer seedlings, juniper, dead and down woody fuels, and conifer needle accumulations. Treated sites would experience increased herbaceous and deciduous species diversity, biomass production, and structural variation; and would become similar to reference vegetation characteristics. Reducing fuel loadings would lower the risk of high-severity wildfire, improve fire fighter and public safety, and benefit native range vegetation.

Eichorn and Watts (1984) studied plant succession over a period of 10 years following wildfires as old as 28 years in the Missouri River Breaks of central Montana. For ponderosa pine with an understory of juniper, following fire they found that: canopy cover of grasses steadily increased; forbs increased and then peaked at 3 or 4 years; burning eliminated juniper; and shrub coverage steadily increased.

### 3.2.2 Invasive/Non-native Species
Invasive plants usually expand their populations when they occur in areas where the soil and/or vegetative components of an area are disturbed. The proposed action would cause a short-term disturbance to the current vegetative community and increase the potential for existing invasive species to spread.

Post-burn monitoring and treatment of infestations would mitigate the spread of invasive species. No new travel routes would be created during post-burn monitoring and treatment of infestations. Using clean vehicles and equipment during the proposed action would also help reduce potential spread. Assuming the proposed action meets its objectives and all mitigation is successful, the long-term vegetative community in the area would be improved and less susceptible to further invasion.

### 3.3.2 Grazing Administration and Livestock Grazing
Livestock use following prescribed fire would be adjusted depending on climatic factors, burn severity, and vegetative response. Generally, use would be deferred until after the first growing season. At minimum, grazing use could be deferred following prescribed fire until after seed ripe of perennial bunchgrasses

(bluebunch wheatgrass and green needlegrass). To accommodate prescribed fire, allotments and pastures could be used outside their current dates of use and with more or less livestock numbers, but the total permitted animal unit months would not be exceeded. The majority of the project area (2883 acres) is in the Hay Coulee reserve allotment requiring annual approval so resting it would not affect any permittees. The project also includes 450 acres in the Timber Ridge allotment which is less than 3% of the total allotment so anticipated impacts would be minimal. Immediately after prescribed fire the treated area would be lacking in forage until there is opportunity for plants to colonize and produce biomass. In the future, there would be increased forage for livestock and other ungulates.

### 3.4.2 Cultural Resources

Sites 24BL2258, 24BL2260, 24BL2261, 24BL2262, 24BL2263, and 24BL2264 documented in the Raintrap project area are all pre-contact cultural material scatters. Determinations of National Register eligibility cannot be made for these sites until subsurface testing is carried out. These sites are of potential significance and therefore must not be damaged or adversely affected by the proposed Raintrap prescribed fire. All six of these sites contain artifacts that are exposed on the surface and those artifacts could be damaged or destroyed by burning. These sites could also contain shallowly buried significant cultural deposits that could be damaged or disturbed by use of wheeled or track vehicles. Therefore, use of vehicles associated with the proposed Raintrap project should not occur within the boundaries of these sites. Since the proposed action does not call for 100% removal of vegetation in the analysis area, known sites can be avoided through project redesign.

### 3.5.2 Recreation

Prescribed fire would have no immediate impacts to recreation use in the project area or on adjacent Monument lands. Short-term impacts would be expected during project implementation and due to the charred appearance of the landscape created during and following prescribed fire operations. However, long-term improvement of the natural environment and habitat for large game would ultimately benefit the majority of recreation users.

River recreationists, including commercial users, would not likely be affected due to the rugged terrain between the river and the project area. River users' environment may be enhanced through increased viewing or hunting opportunities.

Primary users, including hunters, may avoid treated areas until after revegetation begins to restore natural cover and vegetation appearance. In the long-term, the clearing/thinning of dense timber stands through the use of prescribed fire would improve hunter opportunity for mule deer and elk by increasing foraging habitat

and quality of large game available for harvest. Improving the natural condition of the forest and rangelands will have a long-term benefit for both consumptive and non-consumptive users.

### 3.6.2 Soils

Prescribed fire would expose mineral soil and have the potential to alter chemical and biological soil properties, disrupt nutrient cycles, and displace soil. In time, organic matter would gradually re-accumulate from litter, woody debris, forbs, and grasses. Nutrients would gradually accumulate due to inputs (precipitation, dry deposition, weathering of parent material, and nitrogen fixation) and retention.

Prescribed fire has not only physical effects on soils, but also chemical and biological effects (Hungerford et al. 1991). Physical changes include reduction in soil cover, loss of duff and litter layers, loss of organic matter from mineral soil, and erosion. These changes influence texture, bulk density, and porosity of soils. Chemical changes occur as nutrients are volatilized (nitrogen, phosphorus, and sulfur), ashed, and redistributed. Some nutrients are lost or reformed, pH is changed (typically increased due to ash), cation exchange capacity is changed (generally the greater the heating, the greater the chances of ion deficiencies), and displaced hydrocarbons may coat soil particles causing water repellency. Biological effects include microorganism population increases or decreases (typically a decrease due to heating, loss of moisture, and reduced gas exchange followed by an increase attributed to an improved environment with respect to soil physical characteristics over time) and changes in activity which can influence nutrient cycling. Generally, the greater the burn severity the greater the negative impacts to soils. Low intensity burning, as proposed, may cause short-term increases in availability of plant nutrients, reduction in disease or pathogens, and thinning of over-crowded stands of trees, all of which can promote healthy systems (Neary et al. 1999).

Estimated post-prescribed fire erosion for years one and five are shown in Table 3.3 below and compared to baseline erosion. Wildfire erosion values for year one and five after a wildfire are also shown. Erosion potential is greatest the 1st year after a fire. The amount of erosion would decrease as vegetation recovers. Erosion modeling using the Forest Service Water Erosion Prediction Project (FSWEPP) Interface (Erosion Risk Management Tool (ERMiT) and Disturbed WEPP) was used to predict the shown estimated erosion. ERMiT is a web-based application that uses WEPP technology to estimate erosion, in probabilistic terms, on burned and recovering forest, range, and chaparral lands with and without the application of erosion mitigation treatments. User inputs for ERMiT are: climate, soil texture, soil rock content, vegetation type, hillslope gradient and horizontal length, and soil burn severity class (Robichaud and other, 2007). Model output is in tons per acre on a storm event basis, not average

annual. Disturbed WEPP is an interface to the WEPP soil erosion model to allow users to easily describe numerous disturbed forest erosion conditions. Disturbed WEPP allows the user to specify characteristics of the site in terms of climate, soil texture, local topography (slope gradient and length), plant community, and surface residue cover (Elliot and others, 2000).

**Table 3.3 WEPP results for each treatment unit.**

| Baseline Erosion[1] (ton/acre/year) | Prescribed Fire | | Wildfire | |
|---|---|---|---|---|
| | Event Sediment Delivery Range (tons/acre)[1] | | | |
| | Year Following Fire | | | |
| | 1st year | 5th year | 1st year | 5th year |
| <0.1 | 0.1 - 2.6 | <0.1- 0.6 | 0.7 - 5.65 | <0.1- 0.6 |

1. At best, any predicted runoff or erosion value, by any model, would be within only plus or minus 50 percent of the true value. Erosion rates are highly variable, and most models can predict only a single value. Replicated research has shown that observed values vary widely for identical plots, or the same plot from year to year (Elliot and others, 1994; Elliot and others, 1995; Tysdal and others, 1999). Also, spatial variability and variability of soil properties add to the complexity of erosion prediction (Robichaud, 1996).

### 3.6.2.1 Mitigation Measures

All project associated operations shall not be performed during periods when the soil is too wet to adequately support equipment/vehicles. If such equipment/vehicles create ruts in excess of 3 inches deep, operations must cease as the soil will be deemed too wet to adequately support equipment/vehicles.

Limit prescribed burning of all areas to ensure low to low-end moderate severity. Suggested prescription conditions that would promote low to moderate severity include:

> Implement burning at a time of year when litter, duff, and soil moisture conditions are favorable for minimizing loss of litter and duff, and excess soil heating.

### 3.7.2 Rangeland Vegetation

In treated areas, grasses and forbs would increase following prescribed fire. Perennial grasses would increase but some may take a year or more to fully establish. Over time, shrubs such as chokecherry, rabbitbrush, sumac, current, and sagebrush should increase in areas where trees and juniper are burned. Shrub recovery would be dependent on wildlife and livestock browse, burn severity and climatic conditions.

### 3.8.2 Visual Resource Management

A VRM contrast rating was performed on-site for this project and it was determined that the primary contrast to the visual environment would be short-term changes in vegetation color and structure due to charring/discoloration or removal of vegetation from the landscape. Short-term contrasts could also be

expected from any linear disturbances associated with fire lines or any temporary vehicle routes.

Project design includes limiting mortality of mature conifer trees, and leaving large existing snags within this area to minimize visual contrasts in the short and long-term. A moderate change in color would be noticeable immediately after treatment, but this contrast would become weak to unnoticeable as the vegetation recovers. Natural revegetation of shrubs, sagebrush, and grasses would begin to occur immediately after the prescribed fire, and because a mosaic pattern of burning would be implemented under this alternative, the viewshed of the project area and surrounding areas would remain seamless and unbroken to the casual observer.

Another factor to be included is the public sensitivity level of the proposed project area. The fact the project area is in a lightly visited part of the national monument and is not visible from the Upper Missouri River Wild and Scenic River or adjacent Cow Creek Wilderness Study area reduces the potential public sensitivity to short-term visual change. Long-term objectives for retaining or improving the visual setting would be maintained under this alternative.

**3.8.2.1 Mitigation Measures** Temporary routes, fire lines, safety zones, or other disturbances created during project implementation would be rehabilitated as needed following burn operations.

**3.9.2 Wildlife**

While big game habitat improvement is not the primary purpose and need of the proposed action, deer, elk, and bighorn sheep would benefit from the use of prescribed fire. Eichorn and Watts (1984) studied historic fire frequency and plant succession following wildfires in the Missouri River Breaks. Returning fire to a fire-adapted ecosystem may make habitat more suitable for species which occupied that habitat historically. Wildlife will occupy suitable habitat and abandon unsuitable habitat regardless of the successional stage. Forage would increase in burned areas by removing accumulated duff and litter which is currently inhibiting new growth of grasses and forbs. Removal of litter would stimulate early spring "green-up." The proposed action would rejuvenate shrub species which are important for winter range browse for elk, bighorn sheep, and mule deer. Winter browse is not currently limiting populations of any big game species within the project area. Additionally, travel corridors used by bighorn sheep would be opened up following prescribed fire.

In the past there have been concerns with fire treatments on big game winter range and temporary loss of thermal cover. Because the intent is to conduct burning in the spring or fall when temperatures are cooler and fuel moistures are higher, it is anticipated only 50 to 70 percent of the project area would be burned

at low to moderate fire intensities. This would create a mosaic of burn intensities and some forested cover would be maintained after treatment. It is also important to realize the prescribed burn would only temporarily impact a small percentage of existing winter range in the Missouri River Breaks. Winter habitat is not a limiting factor for any big game species within the project area.

Resident wildlife species would be displaced during implementation of this project and there may be individual mortality among smaller species. If the proposed action occurs later in the spring, additional impact through stress to young of year or pregnant bighorn sheep, elk, or mule deer could result from project implementation. Through use of vehicles, aircraft, and people on the ground, some young of year may be abandoned or directly killed by the proposed prescribed fire. Detrimental impacts could be mitigated by long-term benefits to species using and drawn to habitat created by prescribed fire.

Several smaller species would benefit directly from the proposed action which would leave standing-dead or fire-weakened trees in some areas. Remaining dead or weakened trees would benefit many insect species and the bird and bat species which may utilize the insects, including several species of sapsucker, woodpecker, and other cavity nesting birds.

The project would set back conifer encroachment into Greater Sage-Grouse habitat and reduce the threat of a high-intensity wildfire escaping into this important habitat. An active lek is located less than one mile south of the proposed burn unit. Design features include completing active burn operations such as aerial ignition or hand lighting between the hours of 8:30 a.m. and 6:30 p.m. during the time period of March 1 through June 15 to avoid impacting breeding and nesting Greater Sage-Grouse. Activities beyond those hours may include mopping up and limited actions intended to ensure containment of the burn area. In order to reduce stress to breeding Greater Sage-Grouse, traffic on Timber Ridge Road and Spencer Ridge Road will be limited to only those vehicles & personnel required to safely implement the prescribed fire. Whenever possible, traffic into the project area prior to prescribed fire implementation will occur mid-day to early afternoon and traffic will be directed to access the project area from the west on Cow Island Trail or the north on Birdtail Road. None of these actions would occur within sight of the lek unless necessary to prevent escape beyond the burn boundaries into Greater Sage-Grouse habitat. Two other active leks are within three miles of the proposed treatment. Distance, topography (ridges), and forest separate these two leks from the project area. As a result, the project area is separated from sight and sound of the lek locations. It is highly improbable that activity in and adjacent to the project area will have any impact on Greater Sage-Grouse associated with these distant leks.
All nesting habitat is located south and east of the project area (see maps in EA). While nesting could occur in any of the sagebrush habitat adjacent to the project

area, it is much less likely to occur adjacent to ridgetops and tall pine trees associated with Timber Ridge road located north of the lek, or Spencer Ridge road and adjacent forest located west of the lek. It has been well documented that nesting Greater Sage-Grouse and other sagebrush obligate birds (Ingelfinger, 2001), (Trombulak and Frissel - 2000, in Montana Sage Grouse Work Group, 2005), will avoid established roads regardless of use levels and will avoid areas with raptor perching opportunities (tall conifers and ridges). Using ¼ - ½ mile minimal disturbance distance from the county road is likely less than the actual distance needed for nesting activity. Roads in the general area experience traffic most of the year. Minimizing traffic on these roads is an effort to limit visual disturbance to nesting areas south and east of the project area. Prescribed fire objectives include reducing the risk to Greater Sage-Grouse habitat from wildfire and reducing conifer encroachment into Greater Sage-Grouse habitat.

Birds and bats could be temporarily displaced during spring burning operations and for that year's nesting season. There may be mortality of less mobile individuals. Detrimental impacts would be mitigated by long-term benefits to species using and drawn to habitat created by prescribed fire (remaining snags). This alternative would help prevent excessive loss beyond project objectives of this habitat due to more severe burning conditions which could be present with a summer wildfire. Some greater short-horned lizard individuals would be subject to loss during burning operations if the fire were to burn into sagebrush/grassland plant communities. Losses could also occur due to incidental mortality from vehicle use during follow-up monitoring. The proposed action would remove and open up more of the timber habitat providing minor increases in habitat for this species. This project would not cause any species to be considered for listing under the Endangered Species Act.

Migratory birds could be temporarily displaced during spring burning operations and for that year's nesting season. Detrimental impacts would be mitigated by long-term benefits to species using and drawn to habitat created by prescribed fire (remaining snags). This alternative would help prevent excessive loss beyond project objectives of this habitat due to more severe burning conditions which could be present with a summer wildfire. Several smaller species would benefit directly from the proposed action which would leave standing-dead or fire-weakened trees in some areas. This would benefit birds and insect species which may utilize these trees, including several species of sapsucker, woodpecker, and other cavity nesting birds. If the proposed action were to occur later in spring, nesting birds may abandon the nest and some young may be lost. Any spring burning has potential to impact breeding or nesting birds and cause disruption of the activity or loss of individual young. Species present within the project area are common throughout the area and region, and populations would not be affected by this alternative.

### 3.10.2 Riparian/Water Resources

Potential would exist for increases in runoff and sediment following implementation of the prescribed fire. Increases would be small, temporary, and cease following revegetation. Hydrologic response from the decrease in canopy cover and density of trees following implementation of the proposed action would have potential for a small, positive effect on the rehabilitation of riparian processes of small order drainages within the project area. Increases in groundwater and relative abundance of wetland indicators were evident following prescribed burning in other areas of the Missouri River Breaks in central Montana (Marlow et al., 2006).

The proposed action would unlikely affect the cause of impairment on the Missouri River. Through the project area, the reach of the Missouri has a decreased sediment yield because of upstream storage. The Missouri easily has the hydraulic transport capacity to process a minor pulse if sediment were to reach the Missouri. The riparian-wetland areas on the constrained reach of the Missouri are dependent upon dynamic flow and sediment pulses at tributary junctions for the establishment and recruitment of preferred woody species and functionality of physical river processes.

### 3.11.2 Air Quality

Emissions from prescribed burning under the proposed action would be greater than the no-action alternative. However, impacts from prescribed burning would be short term due to size of the project area and number of acres treated in a given year. Burning would be conducted during favorable weather conditions that increase smoke dispersion.

## CUMULATIVE IMPACTS

### 3.1.3 Fire and Fuels Management

Historically, the project area was likely open, short-grass prairie and sagebrush rangelands with scattered areas of ponderosa pine savannah or woodland (FRCC 1). Open pine stands would have been maintained by naturally occurring wildfires and conifer encroachment of rangelands would have been suppressed. Implementation of the proposed action would reduce fuel loadings and improve or maintain condition class of conifer stands. Existing pine savannah would be maintained and pine encroachment of open rangelands would be reduced. Large-scale wildfires have occurred in the recent past in adjacent watersheds and resulted in unnatural fire severity and vegetation mortality. Reduced fuel loadings would result in a lowered risk of high-severity wildfire.

By restoring the natural range of forest stand structure across the landscape and removing conifers in rangeland sites, the proposed action would improve FRCC ratings. Species composition and age class diversity would increase for

understory grass, forb, and shrub species. The reduction in fuel loadings and ladder fuels would reduce the risk of high-severity wildfire and improve firefighter and public safety.

### 3.2.3 Invasive/Non-native Species

Invasive species may expand and/or disperse because of the disturbance in the short term. Establishment would not occur if mitigation measures are followed. There would be no negative cumulative effect from invasive species. The project would theoretically enhance native plant populations making this area more resistant to invasion and would not contribute to the proliferation and dispersal of invasive plants.

### 3.3.3 Grazing Administration and Livestock Grazing

Ungulate (wildlife) grazing has been occurring for centuries in the project area. Livestock grazing has been occurring for many decades. Impacts to livestock grazing would be short term to accommodate prescribed fire. Over time the treatment would provide increased herbaceous species and may contribute to increased distribution of ungulate grazing.

### 3.4.3 Cultural Resources

Road and trails pass through six pre-contact sites (24BL2253, 24BL2254, 24BL2257, 24BL2258, 24BL2261, and 24BL2262) whose significance is undetermined. It appears that only those sites that occur along the Timber Ridge/Cow Creek Road (24BL2258 and 24BL2261) and along the Spencer Ridge Road have been damaged by road use and/or maintenance. Damage has occurred in the form of blading through maintenance and deep rutting through recreational and ranch use. Interestingly, sites that are traversed by two-track trails do not appear to have been seriously damaged by road use. These two-track roads are not maintained through blading and ruts were not observed on them. Since rutting occurs during wet weather, we suspect that the hazards of central Montana's "gumbo" clay keep recreational users on the maintained roads during wet weather within the Upper Missouri River Breaks National Monument.

All sites in the Raintrap project area have a low threshold of visibility and are not likely seriously threatened from collecting by users of the Upper Missouri River Breaks National Monument. Erosion at these sites ranges from light to moderate. It appears that on occasion, Monument users camp within the boundaries of a few of the sites. Site location and coordination with the archaeologist would assist in determining control points and areas of ignition, driving/patrol routes, staging, and camping associated with project implementation.

### 3.5.3 Recreation

Cumulative effects to recreational resources have resulted from human activities and development that has occurred, affecting activities such as fishing, hunting, and wildlife viewing. Wildfires and the introduction and spread of noxious weeds and non-native plants have led to the cumulative loss of recreational resources, although these losses are not permanent. Wildfires are capable of causing substantial damage to large areas of recreational resources and could require long periods of time for recovery.

Use of prescribed fire under the proposed action would create short-term effects through temporary loss of recreational activities in the immediate area, ranging from a full growing season or slightly longer. In the event of a large, uncontrolled wildfire under the no-action alternative, there could be long-term impacts to scenic quality and potential for permanent loss of recreation sites and facilities. These impacts would add to the cumulative effect associated with a loss of a particular recreational activity or a reduction in the quality of scenic values.

### 3.6.3 Soils

It is not expected that the proposed action and, past, present and reasonably foreseeable actions would have consequential cumulative impacts due to anticipated short-term effects from prescribed fire and implementation of stipulations, mitigation measures, best management practices (BMPs), and adherence to standards and guidelines for livestock grazing.

Soils within the proposed burn area experienced disturbance impacts during the construction of a water-saver, pipeline, and primitive two-track roads. These disturbances resulted in short-term soil erosion, loss of topsoil productivity, soil mixing, and compaction. Soils within and adjacent to the water-saver and pipeline disturbance areas have been reclaimed and are stable and productive. Soils on the primitive two-track roads remain compacted and non-productive. Limited soil impacts from other uses within and adjacent to the proposed burn area have been identified.

The reduction in fuel loading and ladder fuels would reduce the risk of future high- severity wildfires and associated long-term negative soil effects.

### 3.7.3 Rangeland Vegetation

This project occupies a small portion of the breaks landscape. There would be increased herbaceous species in the project area which would provide forage and habitat for species within an area larger than the project itself.

### 3.8.3 Visual Resource Management

There would be no adverse cumulative impacts foreseen to the visual resource if the proposed action were initiated.

### 3.9.3 Wildlife

The proposed action may contribute several direct and indirect impacts to wildlife and wildlife habitat and when combined with other past and planned future management actions in the area contributes to cumulative impacts on wildlife habitat in the project area. Cumulative impacts may be either beneficial or detrimental. Other actions in the area include; mechanical removal of conifer encroachment, previous prescribed burns in the area, reduced livestock grazing through establishment of a grazing reserve allotment, road closures and seasonal use stipulations, removal of a livestock raintrap water system, and modification and/or removal of fences to facilitate safe wildlife passage. Other impacts such as existing roads, past grazing practices and range improvements, and removal of fire are all past actions being modified or removed to benefit wildlife within the project area and are expected to continue in the future and contribute further to beneficial cumulative impacts.

### 3.10.3 Riparian/Water Resources

Two significant dams regulate flows on the upper Missouri River through the Wild and Scenic reach; Canyon Ferry Dam on the Missouri and Tiber Dam on the Marias. Although frequency of flood pulses and timing of a snowmelt-dominated hydrograph have not changed, the magnitude of large peak flows has been reduced from 40 to 50 percent as a result of regulation (Bovee and Scott, 2001). Examination of post-dam recruitment patterns of cottonwood identified that all stands originating in the post-dam period occurred within unconstrained channel reaches (Scott and Auble, 2002). A small improvement would be expected from restoring dynamic function of sediment and water yield on side tributaries which create the unconstrained conditions necessary for woody riparian species recruitment in the post-dam period.

Within the past century, reduced fire frequency in forested settings and adjacent conifer-encroached sagebrush/grasslands has caused a departure from natural fire regimes. Possible causes of this departure include (but are not limited to) fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, and introduced insects and disease (Schmidt and others 2002). Decreased fire frequency has decreased water yield and water availability in side tributaries due to the increased patch size and canopy cover of conifers. A small improvement in water yield and water availability would be expected from the proposed action. Increases in groundwater and relative abundance of wetland indicators were evident following prescribed burning in other areas of the Missouri River Breaks in central Montana (Marlow et al., 2006).

Livestock grazing affects water resources and riparian areas within the project area. Livestock grazing decreases the densities and amounts of cottonwood seedling survival; and intense livestock grazing can effectively block recruitment

into older age classes of riparian vegetation. Increased open space associated with the proposed action would lead to a small decrease in concentrated livestock use in riparian and streamside zones as livestock use previously burned areas.

### 3.11.3 Air Quality

Air quality is primarily affected by external sources such as dust from tillage and smoke from wildfires in other western states and Canada. This project may contribute short-term negative impacts to local air quality but cumulative negative impacts would be immeasurably small or would not occur.

# CHAPTER 4
# PERSONS, GROUPS, AND AGENCIES CONSULTED

Initial scoping for the Raintrap Pasture prescribed fire project was completed in April of 2012. A summary of the proposed action was mailed to solicit input from individuals and entities that had previously expressed interest in the project area. Additional public scoping was completed through media sources as well. Two written responses were received. One letter expressed concern for livestock grazing in the project area and the other proposed an area within the project boundary which should not be burned.

Additional public scoping was completed in December of 2013. The preliminary EA was posted to the Lewistown Field Office website and letters soliciting input regarding the EA were mailed to individuals and entities that had previously expressed interest in the project. Public scoping for the EA was completed through media sources as well. Two written responses were received. One letter expressed support for prescribed fire. The other letter expressed concern for Greater Sage-Grouse habitat and big game habitat near the project area.

The following issues and public comments were considered when developing the proposed action and analysis within this EA:

Issue 1: Historic properties/archaeological sites present within the analysis area could be affected by administrative activity associated with prescribed fire or by prescribed fire itself.

Response: Class III pedestrian cultural surveys were conducted to identify the locality of cultural resources. Any known cultural sites within the project area would be protected through identification and avoidance of sites during prescribed fire implementation.

Issue 2: The potential exists to stress breeding and nesting Greater Sage-Grouse. An active lek is located less than 1 mile south of the proposed burn unit.

Response: The Upper Missouri River Breaks National Monument (UMRBNM) Resource Management Plan (December 2008) states the Monument will utilize the 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana for overall guidance and direction. On pages 40-41 the plan identifies mitigating measures which will be applied on a case-by-case basis during activity level planning and after on-site evaluation of the project indicates the presence of a species. Exceptions to these mitigation measures may be granted by the authorized officer if an environmental review demonstrates there would be no adverse impacts, habitat for the species is not present in the area, or portions of the area can be occupied without affecting a particular species. Page 61 of the plan proposes mitigation for activities in breeding/complexes to restrict activities from March 1 through June 15 between the hours of 4–8 a.m. and 7–10 p.m.

Mitigations proposed to address wildlife issues include completing active burn operations such as aerial ignition or hand lighting between the hours of 8:30 a.m. and 6:30 p.m. during the time period of March 1 through June 15 to avoid impacting breeding and nesting Greater Sage-Grouse. Activities beyond those hours may include mopping up and limited actions intended to ensure containment of the burn area. In order to reduce stress to breeding Greater Sage-Grouse, traffic on Timber Ridge Road and Spencer Ridge Road will be limited to only those vehicles and personnel required to safely implement the prescribed fire. None of these actions would occur within sight of the lek unless necessary to prevent escape beyond the burn boundaries into Greater Sage-Grouse habitat.

Issue 3: The effect and response of native plant communities: sagebrush/grassland, ponderosa pine timber types and deciduous shrubs (rose, skunkbrush, chokecherry and snowberry)

Response: The native plant issue identified the need to utilize certified weed-free seed or plant material if reclamation of any sites (staging area, camp, and roads) is needed. Planned grazing of burned areas following a prescribed fire treatment would be based on monitoring of post-fire conditions and appropriate levels of rest or deferment from grazing which may be needed for plant recovery.

Issue 4: Short-term soil erosion, nutrient cycling, and hydrophobicity of soils.

Response: All project associated operations would not be performed during periods when soils are too wet to adequately support equipment and/or vehicles. If equipment/vehicle use creates ruts in excess of 3 inches deep, operations must cease as the soil would be deemed too wet to adequately support equipment and vehicles. Limited prescribed burning of all areas would ensure low to low-end moderate severity. Suggested prescription conditions that would promote low to moderate severity include: implement prescribed fire at a time of year when litter, duff, and soil moisture conditions are favorable for minimizing loss of litter and duff, and reducing excess soil heating.

Issue 5: Prescribed burning of sagebrush parks and excess loss of thermal and hiding cover for big game winter range.

Response: The proposed treatment area was reduced from 4,900 acres to 3,333 acres. The south side of the project boundary follows Timber Ridge road in order to provide for a safer control line and reduce risks to firefighters during prescribed fire implementation. The intent of the project is to apply prescribed fire to forested areas and intermixed rangelands to reduce conifer encroachment. Large sagebrush parks outside of forested areas would not be intentionally ignited. Project objectives include under-burning 50-70 percent of the project area while leaving some areas unburned in order to create a mosaic of burned and unburned patches, stimulate vegetation response, and increase plant

diversity (species, age class, successional levels, etc.). Big game cover would remain after treatment. Prescribed fire would only temporarily impact a small percentage of existing winter range in the Missouri River Breaks. Winter habitat is not a limiting factor for any big game species within the project area.

Comment 1: Why was the lek within 1 mile of the proposed project analyzed, but not two other active leks that are within 3 miles of the proposed treatment?

Response: See section 3.9.2 for discussion on Greater Sage-Grouse habitat beginning on page 22 of the EA.

Comment 2: I was not able to find in the EA how "limit traffic" was included. Spencer Ridge Road is outside the project area and within Greater Sage-Grouse nesting habitat and should not be incorporated in the project plan.

Response: See Chapter 2 – Design Features beginning on page 8 for discussion on limiting traffic in the project area and section 3.9.2 for discussion on Greater Sage-Grouse habitat beginning on page 22 of the EA.

Comment 3: I have concerns with impacts to nesting Greater Sage-Grouse. An active lek is located less than 1 mile south of the proposed burn unit.

Response: See section 3.9.2 for discussion on Greater Sage-Grouse habitat beginning on page 22 of the EA.

Comment 4: I think the temporary nature of the impacts from the treatment would be a better indicator of visual impacts than time spent driving along the treatment boundary.

Response: We agree. See section 3.8.2 Visual Resource Management discussion beginning on page 21 of the EA.

Comment 5: The proposed treatment area is not within elk winter range or bighorn sheep distribution. In the future it could possibly support a small number of bighorn sheep seasonally. Current conditions with domestic sheep in the proposed treatment area would be a major concern for disease transmission for bighorn sheep HD 680 and 642.

Response: See section 3.9 beginning on page 13 of the EA for discussion on big game habitat and distribution ranges.

Comment 6: The project area does not currently include bighorn sheep distribution, nor should BLM attempt to "create" bighorn sheep habitat.

Response: See section 3.9 beginning on page 13 of the EA for discussion on big game habitat and distribution ranges. Creating bighorn sheep habitat is not the

purpose and need of the proposed action. The purpose of the proposed action is to reintroduce fire into a fire-adapted ecosystem where natural fire has not been allowed to function in the long-term role of creating a diverse vegetation community. The need for this project is to restore vegetation health and diversity, promote herbaceous regeneration in ponderosa pine/mixed-grass prairie communities, improve wildlife habitat, and reduce wildfire severity. Fire exclusion has led to an increased risk of detrimental fire effects to natural plant communities and existing wildlife habitat. Returning fire to a fire-adapted ecosystem may make habitat more suitable for species which occupied that habitat historically. Therefore, the proposed action would be considered restoring historic habitat as opposed to creating habitat.

Comment 7: Cumulative impacts for wildlife are discussed in section 3.9.3. These are direct and indirect impacts, not cumulative impacts.

Response: The cumulative impacts section for wildlife in section 3.9.3 beginning on page 28 of the EA has been revised.

**List of Persons, Agencies and Organizations Consulted**

1. Alvin Windy Boy Sr., THPO – Chippewa Cree Tribe
2. Anchor Ranch
3. Blaine County Commissioners
4. Carolyn Ann Liddle
5. Clive Rooney, Area Manager – Montana DNRC, NELO
6. David Weaver
7. Dyrck Van Hyning
8. Floyd Frey
9. Friends of the Missouri Breaks Monument
10. Ina Nez Perce, Environ. Protection Mgr. – Fort Belknap Indian Community
11. JD Tall Holdings, LLC
12. John Allen Jr. – Assiniboine Tribe
13. John Murray, THPO – Blackfeet Nation
14. Mark Baumler – MT State Historic Preservation Officer
15. Mark Good – Montana Wilderness Association, Island Range Chapter
16. Montana DNRC – Havre Field Office
17. Montana Fish, Wildlife, and Parks (FWP) – Headquarters
18. Montana FWP – Havre Resource Area
19. Montana FWP – Lewistown Resource Area
20. Morris Belgard, THPO – Fort Belknap Indian Community
21. Richard Morsette, Chairman – Chippewa Cree Tribe
22. Scott Thompson – Montana FWP, Malta Resource Area
23. Square Butte Grazing Association
24. The Wilderness Society – Northern Rockies Regional Office
25. Tom Woodbury, Montana Director – Western Watersheds Project
26. Tracy King, President – Fort Belknap Indian Community
27. Travis Liddle
28. William and Olive Robinson
29. William and Sherri Merriwether
30. Willie A. Sharp Jr., Chairman – Blackfeet Nation
31. Zane and Jeannie Powell

**List of Preparers/Reviewers/Consultants:**
John Seemann – Fuels Specialist/Team Leader
Cathy Barta – Fire Ecologist/Team Leader
Dan Brunkhorst – NEPA Coordination
Ben Hileman – Rangeland Management Specialist
Mitch Forsyth – Rangeland Management Specialist (retired 1/2013)
Jody Peters – Wildlife Biologist
Zane Fulbright – Archeologist
Mark Schaefer – Supervisory Recreation Planner
Chad Krause – Hydrologist
Brian Woolf – Park Ranger
Josh Sorlie – Soil Scientist
Mike Kania – UMRBNM Manager
Dave Lefevre – Acting UMRBNM Manager

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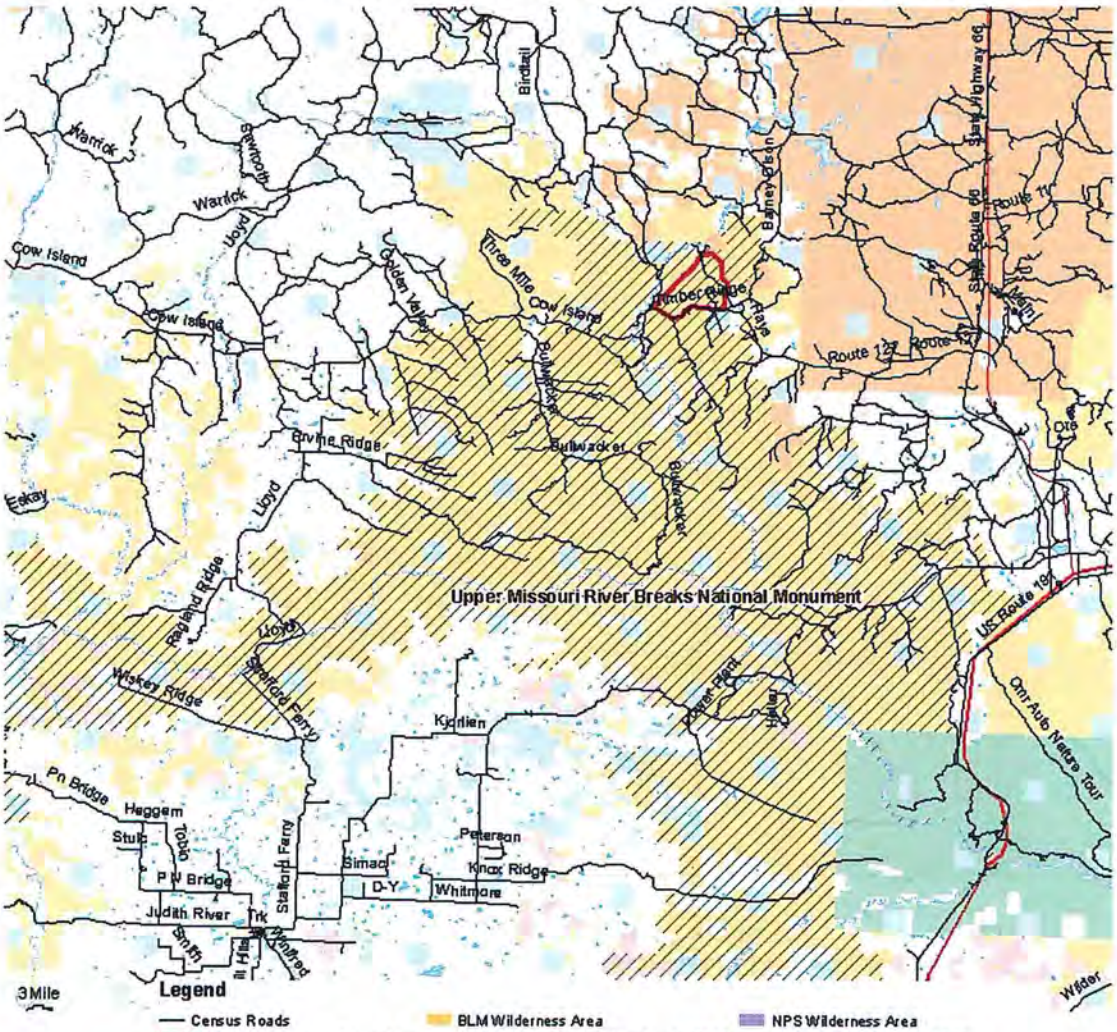
# APPENDIX A – Maps of the Project Area
## Vicinity Map

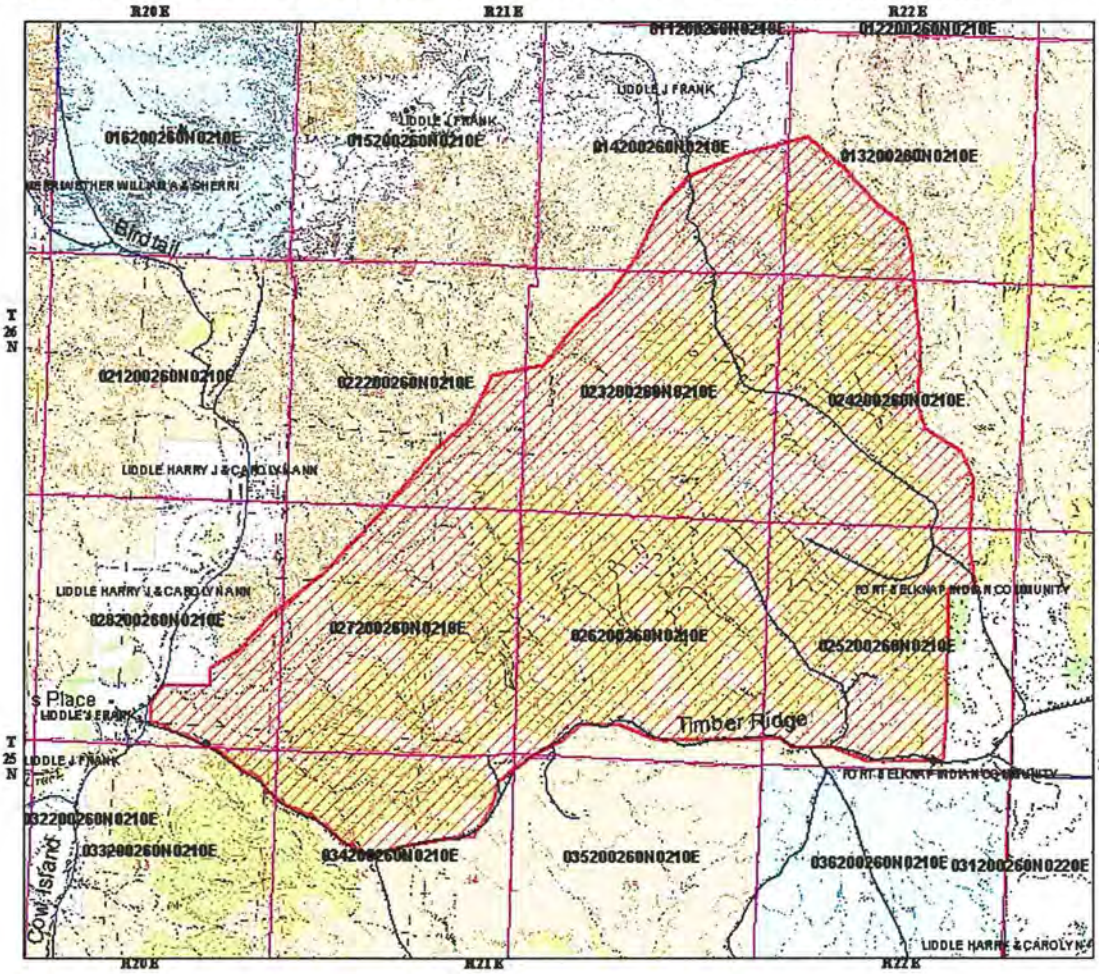
**Central Montana District - Raintrap Pasture Proposed Prescribed Fire**



# APPENDIX A - Project Map

Proposed (Revised 11/05/2012) Raintrap Pasture Prescribed Fire - 3,333 acres

State of Montana




## Legend

- BLM Wilderness Area
- Bankhead-Jones Land Use Lands (BLM)
- Bureau of Reclamation (BOR)
- Bureau of Land Management (BLM)
- County and City Lands
- Forest Service Wilderness Area
- IR Wilderness Area
- Indian Lands or Reservations
- Intermittent Water
- Lands in Litigation
- Other Federal Lands
- NPS Wilderness Area
- National Forest Lands (USFS)
- National Grasslands (USFS)
- National Park Service (NPS)
- State Lands
- Private Lands
- State Fish, Wildlife and Parks
- USFW Service Wilderness Area
- USFW Service, National Wildlife Refuges
- Military Reservations/Corps of Engineers
- Wildlife Protective Area (WPA-County Administered)
- Water

1 = 37,563

0 0.08 0.16 0.32 Miles

0 0.3 0.6 0.9 1.2 KM

United States Department of the Interior
Bureau of Land Management
Montana/Dakotas State Office

Map created on Apr 06, 2012

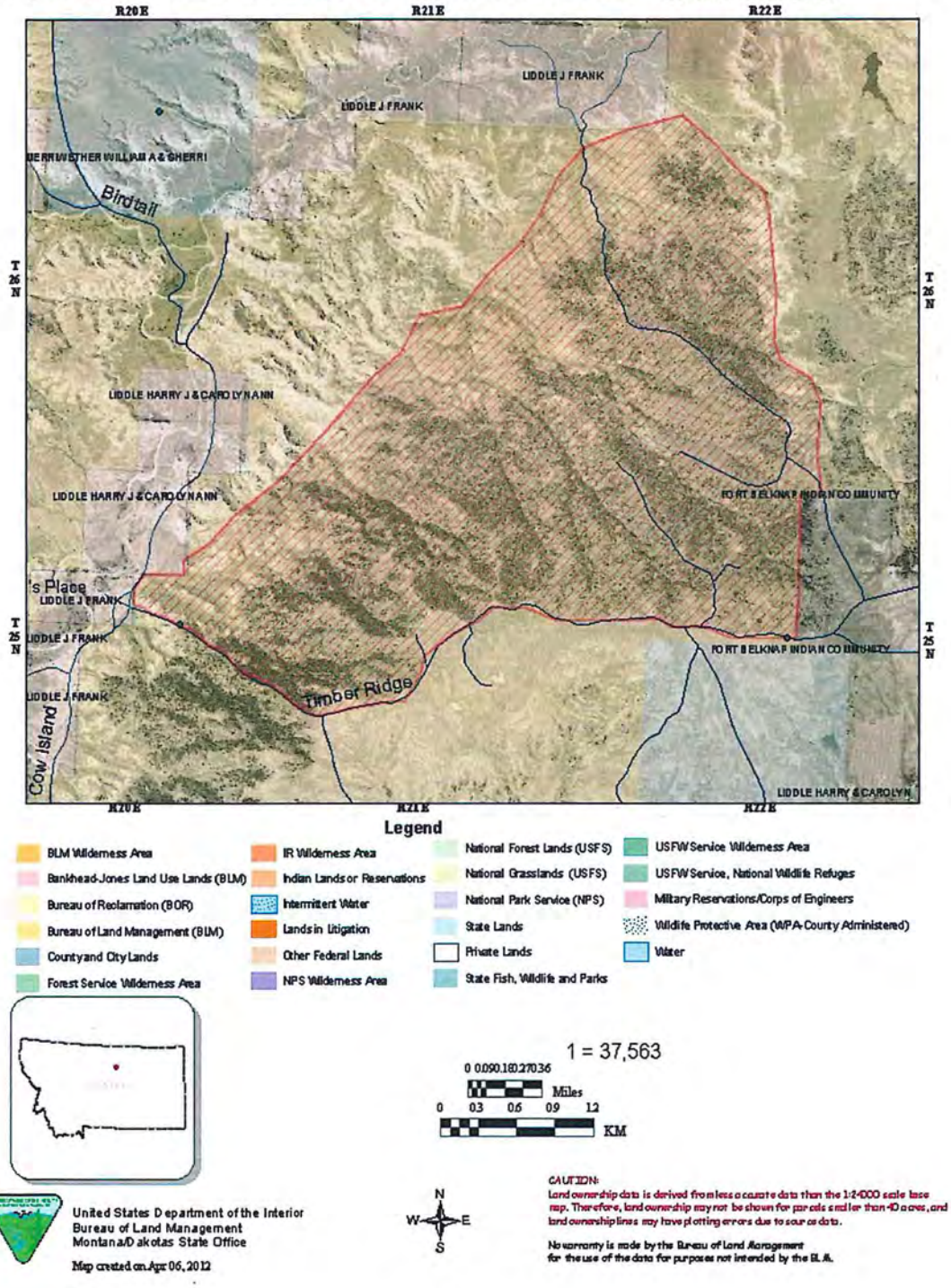
N W E S

CAUTION:
Land ownership data is derived from less accurate data than 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 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.

# APPENDIX A - Project Map, Aerial View

Proposed (Revised 11/05/2012) Raintrap Pasture Prescribed Fire - 3,333 acres State of Montana




United States Department of the Interior
Bureau of Land Management
Montana/Dakotas State Office

Map created on Apr 06, 2012

CAUTION:
Land ownership data is derived from less accurate data than 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 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.

# APPENDIX B – Fire Regime Condition Class Assessment

## Fire Regime Condition Class
## Landscape Report

version 3.0.3.0

### Landscape

Registration Code: BLMR  Landscape Code: Raintrap  Characterization Date: 8/14/2010

Examiner: cbarta@blm.gov  Landscape Name: Raintrap Pasture  Area: 5000 Acres

Lat: 47.888833  Lon: -109.023000  Datum: WGS84

Comment:

### Biophysical Stratification

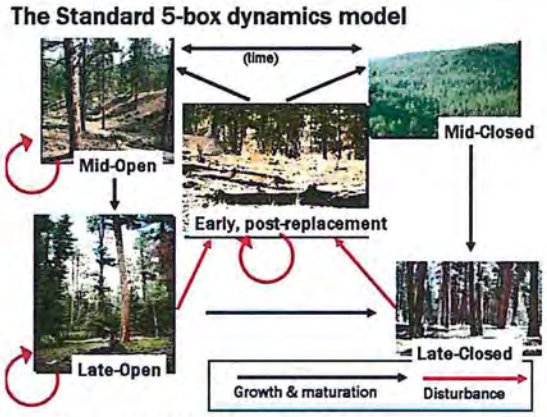
| Num | Life-form | BpS | Species | | Land-form | Slope Class | Insol Class | Elevation Low | Elevation High | Stratum Comp (%) | Ref Freq | Curr Freq | Ref Sev | Curr Sev | Strata Depart | Strata FRCC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CF | R0PPDF | PIPO | PSEUD7 SPBE | BRK | STEEP | HIGH | 2000 | 3300 | 30 | 25 | 90 | 10 | 60 | 69 | 3 |
| 2 | WD | R0PIPOnp | PIPO | | BRK | GENTL | LOW | 2000 | 3300 | 40 | 15 | 90 | 5 | 15 | 73 | 3 |
| 3 | SU | R0SBWYwy | ARTRW8 | | BRK | GENTL | LOW | 2000 | 3300 | 30 | 92 | 100 | 63 | 100 | 44 | 2 |
| | | | | | | | | | | 100 | | | | | | |

CF = Coniferous upland forest – pine, Douglas-fir, spruce, or hemlock.
WD = Woodland
SU = Shrub-dominated upland – sagebrush, bitterbrush.

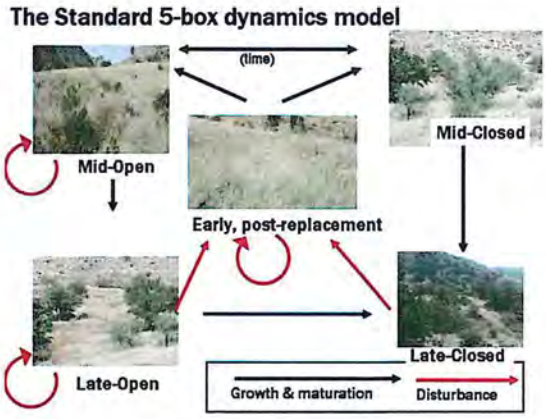
R0PPDF = Landfire map zone 20/Ponderosa Pine – Douglas-fir
R0PIPOnp = Landfire map zone 20/Ponderosa Pine – Northern Great Plains
R0SBWYwy = Landfire map zone 20/ Wyoming Big Sagebrush

***Raintrap Project Composition***

Ponderosa Pine – Douglas-fir (RA – 2008: R0PPDF) 30%
Ponderosa Pine – Northern Great Plains (RA – 2008: R0PIPOnp) 40%
Wyoming Big Sagebrush (RA – 2008: R0SBWYwy) 30%




**Succession Classes - Forests**




**Succession Classes – Range**

| Bps | | Project % Composition | Reference Conditions | Current Values |
|---|---|---|---|---|
| **RA – R0PPDF** | **Ponderosa Pine – Douglas-fir** | **30%** | % | % |
| | AESP: Early, post-replacement | | 10 | **10** |
| | BMSC: Mid-development, closed | | 15 | **75** |
| | CMSO: Mid-development, open | | 20 | **5** |
| | DLSO: Late-development, open | | 40 | **5** |
| | ELSC: Late-development, closed | | 15 | **5** |
| | | | 100 | **100** |
| **RA – R0PIPOnp** | **Ponderosa Pine – Northern Great Plains** | **40%** | | |
| | AESP: Early, post-replacement | | 10 | **0** |
| | BMSC: Mid-development, closed | | 5 | **40** |
| | CMSO: Mid-development, open | | 15 | **30** |
| | DLSO: Late-development, open | | 65 | **5** |
| | ELSC: Late-development, closed | | 5 | **25** |
| | | | 100 | **100** |
| **RA - SBWYwy** | **Wyoming Big Sagebrush** | **30%** | | |
| | AESP: Early, post-replacement | | 35 | **5** |
| | BMSC: Mid-development, closed | | 35 | **5** |
| | CMSO: Mid-development, open | | 30 | **85** |
| | DLSO: Late-development, open | | 0 | **0** |
| | ELSC: Late-development, closed | | 0 | **0** |
| | ***Uncharacteristic/invasive*** | | 0 | **5** |
| | *(Yellow sweetclover - MEOF)* | | 100 | **100** |

# Appendix C – Soils

## Map Unit Description (Brief, Generated)

Blaine County and Part of Phillips County Area, Montana

(Minor map unit components are excluded from this report)

**Map unit:** 6 - Badland

**Component:** Badland (75%)

Generated brief soil descriptions are created for major soil components. The Badland is a miscellaneous area.

**Component:** Cabbart (15%)

The Cabbart component makes up 15 percent of the map unit. Slopes are 15 to 60 percent. This component is on escarpments. The parent material consists of residuum weathered from sandstone and siltstone. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R058AC057MT Shallow (sw) Rru 58a-c 11-14" P.z. ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 20 percent. The soil has a slightly saline horizon within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

**Map unit:** 27 - Cabbart-Rock outcrop, shale complex, 25 to 60 percent slopes

**Component:** Cabbart (50%)

The Cabbart component makes up 50 percent of the map unit. Slopes are 25 to 60 percent. This component is on escarpments. The parent material consists of residuum weathered from sandstone and siltstone. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R058AC057MT Shallow (sw) Rru 58a-c 11-14" P.z. ecological site. Nonirrigated land capability

classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 20 percent. The soil has a slightly saline horizon within 30 inches of the soil surface. The soil has a slightly sodic horizon within 30 inches of the soil surface.

**Component:** Rock outcrop (30%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

**Map unit:** 79 - Lisam-Dilts clays, 8 to 35 percent slopes

**Component:** Lisam (45%)

The Lisam component makes up 45 percent of the map unit. Slopes are 8 to 35 percent. This component is on hills. The parent material consists of residuum weathered from shale. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R058AC059MT Shallow Clay (swc) Rru 58a-c 11-14" P.z. ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

**Component:** Dilts (35%)

The Dilts component makes up 35 percent of the map unit. Slopes are 8 to 35 percent. This component is on hill slopes. The parent material consists of residuum weathered from acid shale. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R058AC059MT Shallow Clay (swc) Rru 58a-c 11-14" P.z. ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

**Map unit:** 80 - Lisam-Dilts-Rock outcrop, shale complex, 25 to 60 percent slopes

**Component:** Dilts (30%)

The Dilts component makes up 30 percent of the map unit. Slopes are 25 to 45 percent. This component is on hill slopes. The parent material consists of residuum weathered from acid shale. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R058AC059MT Shallow Clay (swc) Rru 58a-c 11-14" P.z. ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

**Component:** Lisam (30%)

The Lisam component makes up 30 percent of the map unit. Slopes are 25 to 45 percent. This component is on hills. The parent material consists of residuum weathered from shale. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R058AC059MT Shallow Clay (swc) Rru 58a-c 11-14" P.z. ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 3 percent.

**Component:** Rock outcrop (30%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop is a miscellaneous area.

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class.

Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

**U. S. Department of the Interior**
**Bureau of Land Management**
**Upper Missouri River Breaks National Monument**

# FINDING OF NO SIGNIFICANT IMPACT
# for
# Raintrap Pasture Prescribed Fire

**EA NUMBER: DOI-BLM-MT-L070-2011-0013-EA**

## Finding of No Significant Impact

Based on the analysis of potential environmental impacts contained in the Raintrap Pasture Prescribed Fire environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that the action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

This finding is based on the following reasons: Any known cultural resources within the project area will be avoided during project implementation; fuel loadings will be reduced and the potential for high severity wildfire will be lowered; the permitted use for livestock grazing will not change; changes to the visual landscape would not attract the attention of the casual observer after green-up and revegetation occurs; there will be no significant or long-term effect to recreation values; and wildlife habitat will be enhanced.

David Lefevre – Acting Upper Missouri River Breaks National Monument Manager

2/20/2014
Date