

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

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Tri-County Roadside Clearing

*Location: Roadways in Broadwater, Jefferson and Lewis and Clark
counties in the area of Helena, Montana.*

U.S. Department of the Interior
Bureau of Land Management
Butte Field Office
106 North Parkmont
Butte, Montana 59701
Phone: 406-533-7600
FAX: 406-533-7660



CHAPTER 1

INTRODUCTION AND PURPOSE AND NEED ACTION

INTRODUCTION

The Tri-County FireSafe Working Group (TRICO) is made up of local, state, and federal representatives including local citizens, private contractors, and local businesses from Lewis & Clark County, Jefferson County, and Broadwater County, Montana. TRICO focuses on fire mitigation and preparedness for wildland fires. One aspect of this focus is to ensure safe access and egress routes that would undergo optimal fire behavior in the area of the roads in the event that wildland fire occurs.

The TRICO group has identified over 450 miles of primary and secondary wildland fire evacuation routes through Population Protection Plans that were evaluated by the area fire departments of TRICO's member counties. As a member of TRICO, the BLM is proposing to reduce fuels along the portions of these evacuation routes that are located on BLM lands. These routes originate on private property and cross portions of BLM administered lands in Broadwater, Jefferson and Lewis & Clark counties near Helena, Montana. Within the boundaries of the Butte Field Office, these roads are dispersed throughout a total of approximately 2.75 million total acres, approximately 228,586 acres of which are BLM-administered public lands (Maps 1 and 2).

PURPOSE OF AND NEED FOR ACTION

The purpose of and need for action is to promote public and firefighter safety along access and egress routes in the TRICO area. The need for the project is driven by the current presence of excessive hazardous wildland fuels along these routes. High fuel concentrations along these routes pose a greater risk for large fire events with intense fire behavior that could threaten public evacuation along with reducing firefighter access into these highly populated areas. Potential fuel modifications could reduce the fire behavior along these routes by reducing the fuel loading and modifying the fuel arrangement in the area.

The opportunity for the BLM to modify fuel abundance and distribution on BLM administered lands would fortify the evacuation routes that would be used in the event of a wildfire. The removal of trees would reduce fuel accumulations along these routes, and would have a direct impact in minimizing the fire behavior along these routes in the event of a wildfire. By removing trees, it would also reduce the hazard of trees falling on roadways and blocking access and egress for the public and emergency resources responding to a wildfire.

The objective of the project includes the following:

- Reduce fuel loading through the removal of dead and dying trees and the modification of excessive live fuels along the identified access/egress routes to increase public and firefighter safety.

Decisions to be Made

The BLM will decide whether or not to remove fuels along portions of access and egress routes in the TRICO area on BLM lands. If fuels are to be removed, the BLM will also decide what methods, design features, and mitigation measures would be applied during project implementation.

CONFORMANCE WITH BLM LAND USE PLAN(S)

The proposed action identified in this EA conforms to the terms and conditions of the Butte Resource Management Plan (RMP) of April, 2009. This proposed action would promote meeting Goal FM1 in the RMP to “Provide an appropriate management response to all wildland fires, emphasizing firefighter and public safety”; as well as Goal FM4 to “Promote seamless fire management planning across jurisdictions within the boundaries of the BFO”.

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

This project is consistent with the Federal Land Policy and Management Act of 1976 as well as local government and state agency plans and policies. Potential decisions stemming from this Environmental Assessment would be made under the authority of 43 CFR §5003. Other pertinent laws and regulations with which this project is consistent are listed below.

- National Historic Preservation Act of 1966, as amended (1980)
- Carlson-Foley Act of 1968 (Weed Control on Public Lands)
- National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*)
- Federal Noxious Weed Act of 1974, as amended in 1988, 1994
- Fishery Conservation and Management Act of 1976
- Clean Air Act as amended (42 USC 7401 *et seq.*)
- Clean Air Act of Montana as amended (75-2-102, MCA).
- Safe Drinking Water Act, as amended (43 USC 300f *et seq.*)
- Clean Water Act of 1977 (33USC 1251 *et seq.*)
- Montana Clean Water Act (75-101 *et seq.*, MCA).
- E.O. 11990 Protection of Wetlands 5/24/77
- E.O. 11988, Floodplain Management, as amended.
- Farmland Protection Policy Act (7 USC 4202 *et seq.*)
- Resource Conservation and Recovery Act of 1976 (42 USC 6901 *et seq.*)

CHAPTER 2

DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This chapter details the following two alternatives: the Proposed Action and the No Action. The alternatives will be analyzed based on how they meet the objectives of the project and what impacts they may have on the human environment. The required No Action Alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action alternative. This chapter summarizes the objectives that the BLM intends to reach if the proposed action alternative is implemented and describes the steps that would be taken to minimize unnecessary environmental degradation.

NO ACTION

No vegetation treatments would occur in the proposed project area. Fuel reduction along the evacuation routes would not occur, and the risk of extreme fire behavior along these evacuation routes would continue and would provide minimal protection to responding fire resources and evacuating general public.

PROPOSED ACTION

Under the proposed action, the BLM would remove dead and dying trees along identified evacuation routes in the TRICO area (Maps 1 and 2). Mechanized and hand equipment would be used to meet the Purpose and Need and achieve the desired conditions of the project. Roadsides along a cumulative total of approximately 24 miles of BLM roads would be treated. Based on an assumption that approximately 200 feet on either side of the roadways would be thinned, the project would occur on approximately 972 acres of BLM land.

In order to meet the Purpose and Need of the project to provide for public and firefighter safety, substantial and contiguous roadside segments across a majority of land ownerships would need to be treated. BLM treatments would therefore be conducted in concert with treatments on adjacent non-BLM lands so as to facilitate fuels reduction on substantial contiguous lengths of access and egress routes. In some cases where adjacent majority landowners are not treating their lands, the BLM would refrain from treating BLM lands if such treatments would not contribute to meeting the Purpose and Need for the project. Whether or not BLM would treat along a particular road segment would be determined on a case-by-case basis.

In forested areas, live trees would be removed to achieve tree spacing up to 2 ½ times the crown diameter, depending on species. The width of the treatment areas would be dictated by the fuels and topography along the identified routes. A variation in areas would occur depending on route location (mid-slope, ridge top, or drainage bottom). In forested areas, the general project description for this proposal would be to treat land up to 2 ½ tree lengths (up to 200 feet hillslope distance, based on 80 foot tree height) on both sides of road ways. Site-specific modifications in those distances may be made depending on fuel type or where tree fall distance would dictate further spacing on the uphill side of these identified routes. This would occur in these areas to open up the timber stands to reduce crown fire potential from occurring along these routes. The proposed action also calls for the removal of up to 80 percent of all non-saw logs (under 8" dbh) in these forested areas.

In shrubland areas where conifer encroachment has occurred and is eliminating the historic sagebrush community, all dead and dying trees would be removed as well as up to 95 percent of non-saw logs (under 8" dbh).

Along riparian areas that have conifers uncharacteristic of the habitat type, conifers would be removed while following stipulations listed below and complying with the Stream Management Zone Laws and the Butte Resource Management Plan (2009). Riparian areas that do contain conifers as part of the habitat type would also comply with the same laws and design features, while maintaining that public safety would be the first priority regardless of the riparian habitat type. Prior to implementing the project, site specific field visits would be conducted as needed to identify which design features, as well as the riparian habitat types present, in order to meet field office objectives and comply with applicable laws and regulations.

Design features that would be incorporated into the proposed action include the following:

- The *Montana/Idaho Airshed Group Operating Guide* would be followed.
- Slash burning on site would be used to dispose of the slash and adhere to Ambient Air Quality Standards.
- All actions of tree removal would contain guidance for protection of any cultural remains and/or Native American Religious Concerns discovered during the survey process.
- Monitor (pre and post treatment) for invasive, non-native species. If monitoring shows an increase the treatment of invasive, non-native species would occur as outlined in the Butte Field Office Weed Management Plan Revision (May 2009).
- Treatment areas would be surveyed for places with excessive mechanical disturbance. Large areas of one acre or more would be seeded with native grasses.
- Flag and avoid BLM sensitive plant species populations within the units.
- Mechanized equipment would be limited to operating on those areas within the treatment area that are 40 percent, or less, slope and are outside any designated streamside management zone.
- Operation of the mechanized equipment would only be permitted when the soils are dry, frozen or sufficiently covered by snow to reduce soil impacts and disturbances.
- Priority would be to utilize stewardship contracting authorities (if possible) to complete the project.
- All existing improvements (i.e. cattle guards, fences and the main road) would be maintained during the course of the operation.
- Road maintenance, heavy equipment use, tree removal practices and slash disposal would follow all the applicable State of Montana Streamside Management Zone (SMZ) laws as well as Best Management Practices (BMPs).
- Any determined user-created roads within the units may be decommissioned.
- A Class III cultural resource inventory would be required to determine if there are historic properties in the project area.
- Mechanized activity on hydric soils, Prime Farmlands and soils at high risk of compaction would occur when frozen to preserve soil function or be hand cut. Generally, wetter, fine textured soils have higher risk of compaction (NRCS, 2004)
- Soils at high risk of erosion would be hand cut. Moderately erosive soils would be hand cut, be mechanically treated on frozen, or dry ground, or require other mitigations, such as use of specialized equipment to mitigate impacts. Generally, coarse textured soils on steep slopes are at high risk of erosion (NRCS, 2004).

Project implementation would ideally occur over an approximately three year period beginning in mid to late 2011.

CHAPTER 3

AFFECTED ENVIRONMENT/ENVIRONMENTAL IMPACTS

INTRODUCTION AND GENERAL SETTING

This chapter summarizes current conditions and provides a baseline against which to measure the features of the alternatives. It also describes how conditions might be affected under each of the alternatives.

The Tri County Roadside Clearing project is designed to reduce fire behavior along designated public evacuation routes by reducing the amount of fuels available to burn in the event of a wildfire. These routes originate on private property and cross portions of BLM administered lands in Broadwater, Jefferson and Lewis & Clark counties near Helena Montana. There has been more than 450 miles of identified routes by the Tri-County Working group in the 3 county areas. BLM administered lands lie along these identified routes. Fire suppression over the years has resulted in a large amount of Douglas-fir, lodgepole and ponderosa pine to accumulate along these routes resulting in ladder fuels and heavy fuel loading that will contribute to unmanageable fire behavior along these routes. Mountain pine beetle, Douglas-fir bark beetle and spruce bud worm have also impacted the forested areas along these routes by killing large stands of Douglas fir, lodgepole and ponderosa pine.

CRITICAL ELEMENTS:

The critical elements have been considered and impacts to each element as a result of the proposed project have been analyzed. The following chart lists the critical elements and shows whether or not each element will be affected by the proposed action.

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
PI	Air Quality	Burning of slash may occur. Temporary effects would conform to state air quality standards
NI	Areas of Critical Environmental Concern (ACEC)	Will not be impacted, RMP allows timber harvest to occur in the Elkhorn Mountains ACEC, when completed for public safety
PI	Cultural Resources	A Class III cultural resource inventory would be required to determine if there are historic properties in the project area.
NI	Environmental Justice	Would Not Impact Low Income or Minority Populations
NI	Farmlands (Prime or Unique)	Prime farmlands are present, but no ground disturbing activities are proposed on designated farmlands. Design

		Features and BMPs would be employed to prevent degradation of soil properties which could affect farmland designations..
NP	Floodplains	Project would not encroach on floodplains
NI	Invasive, Non-native Species	Invasive weeds are found in the area but annual spraying and monitoring by county spray crews are expected to keep noxious weeds under control.
PI	Native American Religious Concerns	A Class III cultural resource inventory would be required to determine if there are historic properties in the project area.
NI	Threatened, Endangered or Candidate Plant or Animal Species	Gray wolves (Threatened) may occasionally pass through some of the proposed tree removal routes. However, there are currently no resident packs in the vicinity of the routes. No other threatened, endangered or candidate animal species are known to occupy habitat within 200' of the proposed evacuation routes.
NP	Wastes (hazardous or solid)	No known dumps or hazmat sites are present in project area
PI	Water Quality (drinking/ground)	Some road corridors are present within, or adjacent to Streamside Management Zones. BMP's would mitigate negative impacts
PI	Wetlands/Riparian Zones	Wetlands/Riparian areas occur within the project area, but implementing riparian BMPs and management direction in the Butte RMP for Riparian Management Zones would reduce any potential negative impacts.
NP	Wild and Scenic Rivers	No Wild and Scenic Rivers within project area
NP	Wilderness	No Wilderness areas within project area

*Possible determinations:

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

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

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

Critical Elements Not Present, or Not Affected

The following elements are not present or will not be affected by this project: Area of Critical Environmental Concern (ACEs); environmental justice; threatened or endangered species (plant or animal) or their critical habitat; invasive, non-native species; prime and unique farmlands; floodplains; wilderness areas; and wild and scenic rivers.

Cultural Resources Affected Environment

Due to the geographically widespread nature of the Proposed Action for this project, there is a wide range of cultural resources that could potentially be affected. Cultural resources in the Butte Field Office include prehistoric sites (lithic scatters, habitations, stone cairns and alignments, tool stone quarries, hunting sites, and rock art and ceremonial sites) as well as historic sites. These resources are described on pages 268-270 of the Butte Proposed RMP/Final EIS (USDI-BLM 2008).

Impacts of No Action

The project would have no adverse effect on cultural resource sites with the no action alternative.

Impacts of Proposed Action

One of the project design features under the Proposed Action is that a Class III cultural resource inventory would be conducted prior to project implementation activities. Class III inventories entail a complete (or 100 percent) survey of all project areas. Any sites found during inventories would be excluded from the project area. Therefore, the project would have no adverse effect on cultural resources due to the fact that sites would be marked for avoidance.

Native American Religious Concerns

Affected Environment

Due to the geographically widespread nature of the Proposed Action for this project, there is a wide range of cultural resources that could potentially be affected. Cultural resources in the Butte Field Office include prehistoric sites (lithic scatters, habitations, stone cairns and alignments, tool stone quarries, hunting sites, and rock art and ceremonial sites) as well as historic sites. These resources are described on pages 268-270 of the Butte Proposed RMP/Final EIS (USDI-BLM 2008).

Impacts of No Action

The project would have no adverse effect on Native American Religious sites with the no action alternative.

Impacts of Proposed Action

The project would have no adverse effect on Native American Religious sites due to the fact that sites discovered during Class III cultural resource inventories would be marked for avoidance.

Wetlands and Riparian Areas

Affected Environment

Wetlands and riparian areas occur along some of the proposed routes within the Tri-county area and many have been impacted by urban development, historic and active mining, livestock grazing, and road construction at varying degrees. Approximately, 12 miles of riparian reaches and 122 acres (calculated with a 100 ft riparian zone width) occur along proposed evacuation routes within the project area. Riparian species typical of most riparian areas within the project boundaries include: willows (including but not limited to Bebb, booth, coyote, and Geyer), aspen, black cottonwood, dogwood, alder, sedges, rushes, riparian grasses and forbs, and non-native less desirable riparian species including Kentucky bluegrass and noxious weeds.

Stream reaches throughout the project area are classified as perennial, intermittent and ephemeral streams and all stream reaches were qualitatively assessed by an interdisciplinary team. Streams throughout the project area are rated as proper functioning, functional at risk, or non functioning condition.

Many of the riparian and wetland areas have conifers growing within the riparian zone that in many cases are not characteristic of the riparian habitat type; however some riparian habitat types within the project area naturally contain conifers with the habitat type. Ponderosa pine and Douglas fir are the most prominent conifers that have colonized into the riparian sites. These species often shade out more desirable riparian vegetation in riparian habitats that do not naturally have a conifer component, and if extensive enough may impact the water table and reduce the water holding capacity of the riparian area.

Impacts of No Action

Existing conditions would persist along riparian areas within the project area regardless of the riparian habitat type and whether or not conifers are characteristic of the habitat type. No additional disturbance would occur within the riparian areas within the project area to provide openings for desirable or undesirable herbaceous and woody riparian vegetation to expand above the current extent.

Impacts of Proposed Action

No riparian woody or herbaceous riparian vegetation would be removed; therefore quantities and types of existing riparian vegetation would not be reduced as a result of the proposed action in riparian habitat types that do characteristically contain conifers. Because Riparian BMP's and management direction in the Butte RMP for Riparian Management Zones would be followed, potential negative impacts would be mitigated at each site and considerations for riparian dependant wildlife species would also be given detailed consideration, while at the same time recognizing that public safety is the primary objective of the proposed action (see Wildlife/Threatened and Endangered Species).

The removal of conifers, such as Douglas fir, would have positive impacts on riparian areas that have conifer encroachment uncharacteristic of the riparian habitat type. Removing encroaching conifers within these habitat types would reduce competition for resources including water, nutrients, and sunlight, and provide the opportunity for more desirable woody and riparian species to expand. Reducing or thinning conifers within riparian habitats that do characteristically contain some conifers as part of the riparian habitat would also promote healthy riparian conditions if density of conifers is higher than would be expected for the habitat type. In some areas where streams were rated as functional at risk or non-functional, removing conifers may allow progress to be made towards proper functioning condition which also helps meet RMP goals RV1 and RV2 (Butte RMP, pg 20). Site visits would occur prior to project implantation to further examine the riparian habitat present as well as how to best implement project design features to protect resources while at the same time increasing public safety along evacuation routes.

In some cases, retention of snags and down wood may be desirable in some riparian areas, particularly those located in naturally forested areas, however public safety is the primary objective of this project and would be the first consideration given. Conversely, in riparian areas that contain less desirable or non-riparian species, such as Kentucky bluegrass or noxious weeds, removing conifers that have encroached into the riparian zone also provides additional openings for expansion of those less desirable species.

Reductions in the fuel loads within any of the riparian areas in the project area would reduce the fire intensity. Reducing fire intensity would help ensure that fire effects to riparian vegetation would be similar to those effects that could be expected under natural fire regime conditions, should a fire occur.

Fire Management Affected Environment

This project is proposing to treat fuels along routes that have been designated as evacuation routes through the Tri County Working Group's efforts in the three county areas. These routes, originating on private property and crossing portions of BLM administered lands, would be used by the public and firefighting resources in the event of a wildfire. The fuels along these routes consist of mixed conifer encroached sage/grass parks, open sagebrush/grass parks, and heavy forested areas that contain a mix of Douglas-fir, lodgepole and ponderosa pine.

For the past century, fire suppression actions and other factors have resulted in the accumulation of fuels across these landscapes. The recent disease and insect mortality in the pine and fir stands will continue to add materials, specifically 100-hour (1-3 inch diameter) and 1,000-hour fuels (greater than 3 inches diameter) to the ground. Over time, these added fuels may aid in the transition from a ground fire to a crown fire in these conifer stands. The potential for crown fire occurrence does not depend on any single element of the fuel complex, nor on any one element of the fire environment. Rather, crown fires result from certain combinations of fuels, weather and topography that lead to the development and continuous spread of a crown fire (Scott and Reinhardt, 2001). The only factor that the BLM could potentially modify in this equation is the fuels.

The objectives for the study *A Strategic Assessment of Fire Hazard in Montana* (Fiedler et al. 2001), were to profile the forest conditions in Montana, assess fire hazard, and evaluate the effectiveness of hazard reduction treatments. The report states that fire hazard can be quantified in terms of crowning index which is "the wind speed necessary to sustain a crown fire once a fire has reached the main canopy." Crowning index values less than 25 miles per hour (mph) are rated high hazard, 25-50 mph as moderate hazard, and greater than 50 mph as low hazard.

The report stated by using a prescription to reduce the Basal Area (BA) of ponderosa pine stands to less than 40 BA would represent a low level, resulting in an increase in the crowning index (i.e. hazard decrease). The Basal Area value for ponderosa pine (PP), Douglas-fir (DF) and Dry Lower Mixed Conifer (DLMC), that are common in the project area, are shown in Table 1.

The prescription for this project would be to treat areas that have BA value that are moderate to high, depending on forest types and location. The treatment would lower fire hazard by increasing Crowning Index values which would in turn create safer travel opportunities for the public and

responding resources. The prescription would also remove dead and dying trees within 2 ½ tree lengths hillslope distance, which could fall toward roadway, regardless of the BA for that particular stand.

Table 1. Basal area ranges for Low, Moderate, and High density classes, by fire-adapted forest type (i.e., PP, DF, and DLMC types) and geographic region in Montana.

West of the Continental Divide				East of the Continental Divide			
Forest Type	Basal Area (ft ² /ac)			Forest Type	Basal Area (ft ² /ac)		
	Low	Mod.	High		Low	Mod.	High
PP	<50	50-100	>100	PP	<40	40-75	>75
DF	<90	90-150	>150	DF	<80	80-130	>130
DLMC	<80	80-130	>130	DLMC	<60	60-130	>130

Impacts of No Action

With the no action alternative, no treatment would occur. The amount of dead and dying trees, small diameter encroachment and ladder fuels would continue to increase along the identified evacuation routes. The BA of these stands would maintain or increase, which would drive the Crowning Index lower (i.e. hazard increase.) In the years to come, the dead trees would start to fall, impacting road access and contributing to an increase in the fuel loading. As a result, forested stands would move into less than desirable conditions. Ladder fuels would continue to increase, presenting more opportunities for fires to move from the ground into the canopies of the timber stands. The forest insect infestation would continue to progress with the No Action alternative, as the enclosed timber stands are ideal environments for the survivability and progression of the insects. In shrublands, small diameter conifers would continue to encroach into the sagebrush habitats, slowly out-competing the sagebrush/grass community in these areas.

The continuing buildup of fuels under the No Action alternative would not promote improving public and firefighter safety along access and egress routes in the TRICO area.

Impacts of Proposed Action

Implementation of the Proposed Action would alleviate hazardous fuel conditions expected under the No Action alternative in both the short and long-term by removing dead and dying lodgepole pine, ponderosa pine and Douglas-fir. The Proposed Action would remove the dead and dying trees, which over time would contribute to future fuel loading. The removal of these trees would also result in travel routes with fewer opportunities to be blocked from falling trees, limiting access and egress for the public and responding firefighting resources.

The proposed action also calls to reduce canopy density (1 to 2 ½ times canopy diameter) that would increase crowning index (i.e. lower fire hazard). This would reduce the opportunity for a sustained crown fire from occurring along these routes. Another aspect of the proposed action would also remove the small diameter conifer (< 8 in d.b.h.) from the sagebrush shrublands. This would return the shrublands to a more natural setting, when fire readily burned the small diameter trees and retained the pre-suppression open, park-like setting. Treatment that removes some to

many of the trees from the main canopy reduces bulk density and the crown fire potential in a stand. (Arno and Fielder, 2005). The focus with treatment would be to reduce the bulk density and open up the canopy cover in these forest areas.

The goal of the Proposed Action would be to strengthen the evacuations routes that were designated through the Tri County Working Group's Population Protection Plans. The proposed treatment would add to the existing work private property owners are currently completing to solidify the evacuation routes and create a fuels complex that, in the event of a wildfire, would burn at lower intensities.

Soils

Affected Environment

The project affects a wide variety of soil types, approximately 40 soil map units, as inventoried in SSURGO soil surveys (NRCS, 2010). Soils are residual, colluvial and lacustrine, formed from argillite, limestone and igneous rocks, predominantly quartzite. The variety of soil types, in combination with slopes ranging from 0 to 80 percent and dry to wet conditions; result in a range of potential risks of erosion and compaction, from low to high. Compaction can negatively affect productivity and decrease potential for water infiltration into the soil profile and erosion can result in decreased productivity and negatively impact water quality of adjacent streams (NRCS 2004; Carr et al. 1991). Generally, soils at greatest risk of compaction are found in moister, low lying areas with finer textures. Highly erosive soils are generally derived from granite, are coarse textured, or are found on slopes greater than 30 percent.

Hydric (wet) soils and Prime Farmlands are present within portions of the project area. Hydric soils are frequently flooded, or saturated, and are wetland indicators. Prime Farmlands are valued for their ability to produce feed and fiber (NRCS, 2011).

A large percentage of the affected area is located within existing road rights-of-ways, which have been disturbed for road construction and maintenance, and installation and maintenance of utilities, or dispersed recreation. Some of these soils are compacted and may have localized erosion. Ditches, or other design features may be in place at some locations to reduce potential for erosion and sedimentation.

The range of soil types and localized impacts and mitigations require evaluation of soil types, and application of Design Features and Best Management Practices (BMPs) on a site specific basis to mitigate effects of ground disturbing operations to reduce potential impacts of compaction, erosion and degrading soil productivity.

Impacts of No Action

Current trends and processes would continue. Soil quality, with respect to nutrient cycling and dynamic soil properties, including biologic activity, chemical and physical properties would continue along current trends. Conifer encroachment into riparian areas and hydric soils would continue, which could reduce the extent of hydric soils and wetlands, given sufficient soil moisture uptake by confers. Current risk of wildfire would continue, resulting in potential for soil erosion in burned areas (Neary et al. 2005).

Impacts of Proposed Action

The greatest potential for erosion, compaction and impacts to soil productivity would result from mechanized treatments. Mechanized treatment would be implemented on a site specific basis to minimize negative impacts to soils. Sufficient slash, below criteria to reduce fuel loading, would be left to promote nutrient cycling and soil development. Slash deposited on the soil surface ahead of mechanized equipment would minimize impacts.

The complexity of soils types, existing disturbance and presence or absence of existing mitigation measures requires determination and implementation of Design Features and BMPs be made on a site specific basis, in response to localized conditions and soil types.

Removal of conifers in uplands where encroachment has occurred would restore soil productivity to trends consistent with native grasslands and/or shrublands.

Removing trees can remove competition for soil moisture, thereby improving the function of hydric soils and widening riparian areas, where moisture is sufficient. These vegetative filter strips trap sediment and plant roots stabilize stream banks. Thinning also promotes growth of understory vegetation, which helps stabilize steep slopes.

High intensity wildfire can consume organic matter on the soil surface, which negatively impacts nutrient cycling, killing soil microorganisms and releasing carbon dioxide into the air. This negatively impacts soil productivity (Smith et al. 2005, Smith 2000). Impacts from the proposed action would preserve soil productivity by minimizing potential for high intensity wildfire. Use of BMPs and mitigations related to proposed treatments would minimize impacts to soil productivity.

Soil erosion and negative impacts to soil productivity beneath pile burns is likely, in response to fire consumption of protective vegetation and organic matter. These effects would be localized and minimal due to implementation of BMPs.

Hazardous substances and petroleum products, which could impair soil quality would not be stored near hydric soils and requires secondary containment. Equipment would be refueled away from pathways to streams.

Water Quality Affected Environment

Roads adjacent to streams can pose a risk to water quality and riparian health from sedimentation. Fourteen out of 21 routes proposed for treatment are within ¼ mile of riparian reaches included in the BLM Riparian Database. Seven routes are within 100' of riparian reaches and sections of five streams within the project area have impaired water quality, as listed on the State of Montana, Department of Environmental Quality 303d/305b list (DEQ, 2010a). These include portions of Crow Creek, Indian Creek, Sevenmile Creek, Little Prickly Pear Creek and Skelly Gulch.

Crow Creek fully supports drinking water, but does not support agriculture, cold water fisheries, aquatic life, industrial use and primary contact recreation. Sedimentation, agricultural discharge, stream bed modification, flow alteration and grazing are noted as likely sources of impairment. Indian Creek is listed as fully supporting industrial uses, but not supporting use for agriculture or

drinking water due to metals contamination produced by mining. Sevenmile Creek is listed as fully supporting agricultural, drinking water, industrial and primary contact recreational uses. It is listed as partially supporting aquatic life and cold water fisheries, due to agricultural contamination, stream bank alteration, metals contamination from mining, sedimentation from agriculture and grazing and riparian vegetation removal due to agriculture and channelization. Channel alteration, loss of riparian vegetation and flow alteration related to agriculture, highways and bridges are primary causes of this creek not supporting aquatic life and cold water fisheries. It does support agriculture, drinking water, industry and primary contact recreation. Skelly Gulch fully supports agriculture, drinking water, industry and primary contact recreation, but does not fully support aquatic life and cold water fisheries. Arsenic contamination from mining and sedimentation from roads are primary contaminants.

Sedimentation and compliance with Montana Streamside Management Zone Law and Rules, as well as Riparian Management Zone management direction in the Butte RMP are considerations for treatment and mitigation design. Four routes, including two in the Wolf Creek-Craig Fire District and two in Broadwater County overlap soils that rate as poorly suited for mechanical treatment, which would require special mitigation, or non-mechanical treatment. All other routes are located on soils that rate as moderately or well suited to mechanical treatment, which would require less intensive mitigation design.

No mapped and published floodplains are present within the proposed treatment area; however, treatments near roads located along streams must consider the fluvial, soil and geomorphic position of the treatment to identify potential floodplains. Mitigations in potential floodplains will minimize impacts to floodplain function and sediment contributions.

Conifer encroachment into riparian areas can decrease water yield and reduce understory vegetation and aspen through competition for available soil moisture (Shepperd et al. 2006; Gifford et al. 1984). Loss of native understory vegetation results in loss of vegetative buffer strips that protect surface water from sedimentation and overland flow of debris and other contaminants. Treatment design should mitigate impacts to understory vegetation.

There is no known groundwater infrastructure in the project area.

Impacts of No Action

Water quality would continue along current trends. Understory vegetation creates a buffer between streams and uplands and roads. Should conifer encroachment in and along riparian areas result in less understory vegetation, risk of sedimentation and degrading water quality from contaminants are possible.

Impacts of Proposed Action

Equipment should be positioned to consider the presence of, and proximity to culverts, streams, and soil types, to minimize soil loss, sedimentation and contamination of surface water. The site specific nature of potential impacts requires site specific application of design features and mitigation to protect water quality.

Thinning trees to reduce the threat of wildfire will reduce the probability of excessive erosion and sedimentation caused by potential wildfires. Severe intensity wildfire could produce hydrophobic (water repellent) soils that would increase water yield to streams (Neary et al. 2005; MacDonald

& Huffman 2004; Robichaud 2000; Wondzell & King 2003) and potentially increase risk of sediment and debris flows into streams.

Compaction from operation of mechanized equipment can reduce infiltration of surface water into the soil profile. This reduces groundwater recharge and increases surface runoff. Use of BMPs and treatment design to minimize compaction will result in localized, temporary or no negative impacts to infiltration potential. Localized compaction would be temporary and would improve over time due to tree roots, organisms and weathering breaking up the compacted level.

Pile burning will expose the soil surface beneath the piles to erosion. Piles would be localized, and BMPs employed, to prevent sedimentation from reaching streams.

Water quality should improve resulting from understory vegetation establishing in response to thinning. This would improve the function of vegetative filter strips by increasing plant density, resulting in reduced risk of sedimentation into streams

Hazardous substances and petroleum products, which could impair water quality, would not be stored near streams. Equipment would be refueled away from pathways to streams.

Air Quality Affected Environment

The state of Montana is divided into ten airsheds by the Montana Air Quality Bureau (DEQ 2010b) and monitored by the Idaho/Montana Airshed Group. Each airshed in Montana is designated with a “Class 1” or a “Class 2” depending on air quality standards for the particular airshed. “Class 1” designations are the strictest. Air Quality Standards are set by the state.

The project lies within a Class 6 air shed. The Class 1 Gates of the Mountains airshed is located approximately 1.8 miles east of the nearest proposed treatment area. An area in East Helena was mapped for non-attainment for sulfur dioxide and lead, associated with a smelter. Proposed treatments are found on all sides of the non attainment area, the closest measures approximately 3.7 miles to the west. The smelter is no longer in operation.

Existing air quality within the airshed and project area is affected by smoke, dust and motor vehicle exhaust. Smoke is produced from wildland fires, prescribed burning, residential wood burning and agricultural field burning. Additional smoke is blown into the area from fires outside the area, including western Montana, Idaho, the Pacific Northwest and Canada. Sources of dust primarily result from wind erosion of cropland and vehicle traffic on gravel roads.

Impacts of No Action

No impacts to air quality are expected with the no action alternative.

Impacts of Proposed Action

Mechanical and pile burn treatments would expose the soil surface, subjecting it to wind erosion. Fugitive dust would be temporary, lasting for the duration of operations and natural recovery of burned areas. Exhaust from equipment would also be temporary. Pile burning would release carbon dioxide (CO₂) into the atmosphere; this gas is considered by the BLM and State of Montana, among other agencies, to be a greenhouse gas. CO₂ emissions from exhaust and pile

burning would be temporary and, given the comparative acreage of fuels consumed, would be less than what would be emitted in the case of wildfire.

Invasive, Non-native Species Affected Environment

Many types of invasive, non-native terrestrial noxious weeds occur in, and along, the routes within the Tri-county area. Montana State listed noxious weeds most common and impacted may be: dalmatian toadflax, spotted knapweed, houndstongue, hoary alyssum, Canada thistle, leafy spurge. There are many types of county listed noxious weeds that may also be affected, these include: common mullein, musk thistle, bull thistle, and black henbane.

Impacts of No Action

No fuel reduction treatments would occur in the proposed project area with the assumption that no new disturbance besides annual road maintenance would occur. Invasive, non-native terrestrial plants would continue to grow at established rates and would continue to be treated along roadsides. If a wild fire was to occur in the project area, invasive species that have been known to establish in ponderosa/ Douglas-fir stands after wildfires include, but are not limited to: bull thistle, common mullein, dalmatian toadflax, downy brome, field bindweed, and western salsify (Barclay et al. 2004).

Impacts of Proposed Action

The greatest potential disturbances would be from the mechanized treatments and pile burning. Any disturbed ground could become weed habitat. Conversely, removing trees also provides additional openings for expansion of invasive, non-natives. Reductions in the fuels within the project area would reduce the fire intensity. Reducing fire intensity would help ensure that fire effects to vegetation would be similar to those effects that could be expected under natural fire regime conditions, should a fire occur.

Forestry Affected Environment

Within the project area proposed there are five main forest cover types encountered: ponderosa pine savanna, ponderosa pine, Douglas-fir, lodgepole pine, and hardwood riparian. In these cover types there are approximately 257 acres of mixed ponderosa pine, Douglas-fir, and lodgepole pine, 617 acres of ponderosa pine savanna, and 98 acres of hardwood riparian. The most prominent are the ponderosa pine and Douglas-fir forest cover types. Many of the forested stands throughout the project area appear to be slightly too highly departed from their historic natural range of variability. Species composition, stand structure, and basal area (BA) have changed in many areas. These changes have caused stand health to decrease, making them highly susceptible to fire, insect infestations, and disease.

Also, the exclusion of fire in areas whose historic fire regimes included frequent, low to mixed severity fire has allowed increased regeneration and encroachment of small

diameter Douglas-fir and ponderosa pine. Increased density of trees puts stress on the resources required for the ecosystems to remain healthy, and increases the risk for unnaturally high, severity/intensity wildfire to occur. Conifer regeneration can also negatively affect preferred species of plants, especially in riparian areas.

In addition, these stands are being affected by outbreaks of mountain pine beetle, spruce budworm, and Douglas-fir beetle. Mortality due to these insect infestations is variable throughout the project area but high levels of mortality, up to 100 percent, can be seen in the mature stands of timber. The standing, dead trees within the project area pose a safety risk for users of any of these areas.

Impacts of No Action

With the no action alternative, no treatment would occur. The overall health of the forested areas would continue to decrease. Forested stands would continue to grow farther away from their natural ranges of variability. The likelihood of unnatural/detrimental wildfire would increase. The overall health of individual stands would continue to decrease, making them more susceptible to fire, insect infestations, and disease. Insect infested trees would not be removed and thus insect populations would not be reduced, perpetuating the loss of timber resources in these areas. Hazardous trees would also not be removed. Riparian and shrubland cover types would continue to be overtopped and encroached upon by conifer species.

Impacts of Proposed Action

Implementation of the Proposed Action would alleviate the undesirable effects expected under the No Action alternative. Proposed logging operations are not anticipated to have any adverse effects on forest health, integrity, sustainability, structure, or function. The thinning of these areas to increase crown spacing and reduce basal area would bring the stands closer to their natural range of variability and increase overall forest health. The removal of small diameter (<8" DBH) trees would decrease ladder fuels, thus reducing the chances for catastrophic wildfires, which could cause high mortality in our old growth overstory and negatively affect seed beds critical for adequate regeneration. Vigor of individual stands would increase, making them less susceptible to fire, insect infestations, and disease. Insect infested trees would be removed and thus insect populations would be reduced, possibly helping to protect residual trees. Hazardous trees would be removed. An effort would also be made to reduce conifer encroachment into both hardwood riparian and shrubland cover types. In doing so, the preferred vegetation communities in these cover types could be promoted.

Thinning would focus on meeting the projects goals of reducing fuels and removing all dead and dying trees along identified evacuation routes. Maintaining the characteristics of each forest type encountered would also be promoted. In areas where individual forest characteristics can't be met, due to mortality from insect infestations, stands would be moved back towards a more seral stage.

In addition, if implemented, treatments should promote adequate regeneration on all sites. Therefore, replanting of seedlings is not being proposed.

The treatments proposed follow RMP direction under Goals FW1, FW3, and FW4. In addition to following these goals, the treatment proposed follows RMP direction under Vegetation Communities: Forest and Woodlands (including Forest Products): Forest Products: Management Action- 1. Vegetation structure, density, species composition, patch size, pattern, and distribution will be managed in a manner to reduce the occurrence of unnaturally large and severe wildland fires and forest insect outbreaks. Natural disturbance regimes will be maintained or mimicked so that plant communities are resilient when periodic outbreaks of insects, disease, and wildland fire occur.

Wildlife

Affected Environment

Of the more than 450 miles of primary and secondary roads identified as evacuation routes in Jefferson, Broadwater, and Lewis and Clark Counties, approximately 24 miles are located on BLM administered lands. It is estimated that the project could directly affect approximately 972 acres of BLM land, based on an assumption that 200 feet on either side of the roadways would be thinned (200' is estimated to be near the maximum distance that 2 ½ tree lengths from the road would be, based on 80' tree heights).

Roads on BLM administered lands are found in a variety of wildlife habitats, including dry conifer forest types, riparian, and sagebrush/grasslands.

Conifer Forests

Approximately 257 total acres of dry forest habitat of Douglas-fir, ponderosa pine, lodgepole pine, juniper or a mix of these species is also found along the proposed road segments on BLM land. The quality of wildlife habitat within 2 ½ tree lengths of these roads would be lower due to disturbance from the road. However, these forest types could provide habitat for several BLM sensitive species including flammulated owl, northern goshawk, three-toed woodpecker, fringed myotis, long-eared myotis, long-legged myotis, northern myotis, and Townsend's big-eared bat. The grey wolf, a habitat generalist, could also be found near any of the potential road segments.

These forests also provide habitat for a wide variety of wildlife species including but not limited to (not including BLM special status or big game species); black bear, mountain lion, least weasel, porcupine, raccoon, coyote, red fox, pine marten, badger, striped skunk, bobcat, mountain cottontail, northern flying squirrel, and a variety of other small mammals.

Resident bird species found in dry forest include great horned owl, northern pygmy owl, northern saw-whet owl, blue grouse, Cooper's hawk, sharp-shinned hawk, merlin, downy woodpecker, hairy woodpecker, pileated woodpecker, black-capped chickadee, mountain chickadee, red-breasted nuthatch, brown creeper, golden-crowned kinglet, Townsend's solitaire, cedar waxwing, Cassin's finch, Clark's nutcracker, and northern flicker.

The conifer forest stands found along the proposed road segments are dense and would be expected to be a high priority for thinning under the proposed action. Approximately 257 acres along 26 road segments could be heavily thinned to reduce the risk of fire.

Sagebrush/Grassland Habitats

Wildlife habitat along the proposed road segments is dominated by sagebrush/grasslands, grasslands or sagebrush/grasslands with varying amounts of conifer colonization (approximately 617 acres total on BLM land). All the proposed road segments are “open” and would provide lower quality habitat to nearly all wildlife species due to disturbance from use of roads. However, sagebrush/grassland habitat adjacent to these roads could potentially provide habitat for BLM sensitive species that prefer or depend on grassland or sagebrush including Brewer’s sparrow, burrowing owl, ferruginous hawk, golden eagle, long-billed curlew, and sage thrasher.

Sagebrush has been demonstrated to be a critical food source for several wildlife species during various seasons of the year, particularly fall, winter and spring. Big sagebrush is a highly nutritious and digestible food source for big game animals such as mule deer. Sagebrush also provides cover (nesting, resting and escape) for a wide variety of game and non-game species (i.e. protective cover for fawns, calves, nesting birds, grouse broods, etc.) including Brewer’s sparrows that nest off the ground in the foliage of big sagebrush plants.

Of the 972 acres potentially treated through this project, 57 percent (551 acres) of the sagebrush/grassland habitats appear to have low densities of conifer colonization (less than 20 percent conifers). These acres would likely be a low priority for thinning along the evacuation routes. Roughly 151 acres of these habitat types have moderate to high conifer colonization and would likely be thinned to reduce the risk of fire along these routes.

Streams and Riparian Habitat

Approximately 98 acres of riparian habitats are suspected to be located within 200’ of the proposed roads. Stream and/or riparian habitats found in or near the lease parcels could provide habitat for BLM sensitive species such as the westslope cutthroat trout, boreal toad, northern leopard frog, and bald eagle. There are active bald eagle nests within one mile of four separate road segments.

Westslope cutthroat trout, a BLM sensitive species, is found or suspected in three streams adjacent to roads along Hi Ore Creek, Greenhorn Creek, and Duck Creek. Habitat along the proposed road segments provides roughly 52 acres of riparian habitat in the riparian management zone for genetically pure westslope cutthroat trout. Riparian Management Zones (RMZs) are areas where riparian values will receive primary emphasis with all activities to the extent possible (USDI-BLM 2009).

Non-native fish species are also found within 160’ (average width of the RMZ for fish bearing streams) of road segments along Little Prickly Pear Creek, Crow Creek, Sevenmile Creek and Indian Creek. The Indian Creek RMZ contains the most acres of any stream (61). These sections of Indian Creek may or may not support fish and would need further field review. Acres would be approximately 7.5 acres in the RMZ for Little Prickly Pear, 11 acres along Crow Creek, 1.5 acres adjacent to Sevenmile Creek and less than 1 acre along Trout Creek under the proposed action. Fish presence/species data is not available for Big Timber Gulch, Comet Creek, and Beavertown Creek.

Riparian Management Zones are intended to: maintain and restore riparian structures and functions; benefit fish and riparian-dependent resources; enhance conservation of organisms that depend on the transition zone between upslope and aquatic habitats; and improve connectivity of travel and dispersal corridors for terrestrial animals and plants, and aquatic organisms (USDI

2009). At the Field Office scale, projects in RMZs will generally be designed to protect or restore the ecological function of riparian areas and streams.

Riparian habitats provide a diversity of vegetation including shrubs, grasses, forbs and trees that supply habitat for many wildlife species. A riparian zone is the swath of land adjacent to a river or stream and is the transition area between terrestrial uplands and the stream. Riparian areas are important because they generally have better quality soils than the surrounding hillslopes and, because of their position lower in the landscape, often retain moisture over a longer period. Riparian areas support a higher diversity of plants and animals than non-riparian land. This is a result of the wider range of habitats and food types present as well as the proximity to water, microclimate and refuge. Many native plants are found only, or primarily, in riparian areas, and these areas are essential to many animals for all or part of their lifecycle. Riparian lands also provide a refuge for native plants and animals in times of stress, such as drought or fire, and play a large role in providing corridors for wildlife movement.

Riparian habitats cover less than 1 percent of the landscape in western North America, yet they support a disproportionately large number of bird species and greater densities of birds than other forested habitats (Skagen et al. 2005). Nearly 50 percent of breeding birds in the west nest only in riparian vegetation, including 45 percent of 235 known breeding bird species in Montana (Skagen et al. 2005).

Although thinning could occur to reduce fuel loading and dense stands within the RMZs, no riparian dependent vegetation species (such as cottonwood, aspen, willow or dogwood) would be removed. Before material is removed from the RMZ, it will be determined that: 1) habitat for wildlife is maintained or improved; 2) water quality, appropriate woody material, and nutrient routing to aquatic habitats is maintained or improved; and 3) appropriate stream channel morphology is maintained or improved.

Big Game Species

Nearly all proposed evacuation routes are located in habitat for big games species. However, open roads can reduce the quality of habitat for big game, and other wildlife species, through disturbance and loss of habitat. Open roads typically increase the level of recreation adjacent to roads, which can result in additional disturbance and displacement of wildlife species. Roads can cause direct mortality to wildlife through road kill, prevent wildlife movement, create disturbance to wildlife via vehicular use, cause the spread of noxious weeds, reduce or eliminate habitat and cause habitat fragmentation on the landscape. The quality of habitat immediately adjacent to all of the proposed evacuation routes would be expected to be lower than habitat greater than 0.5 miles away from the roads.

Although areas along the proposed evacuation routes could provide lower quality habitat for big game species, these areas do still provide some habitat for elk, mule deer, bighorn sheep, white-tail deer and antelope.

Of the 972 project acres on BLM land, big game species habitat acres are:

- Elk winter – 628 acres
- Mule deer winter – 895 acres
- Bighorn sheep winter – 480 acres
- Whitetail deer yearlong – 678 acres
- Pronghorn antelope yearlong – 665 acres

Roughly 628 acres of the project are in occupied elk habitat and elk winter range. Of this 628 acres, up to 214 acres of dense dry forest could be thinned and 98 acres of sagebrush/grassland with moderate to high conifer colonization would be a high priority for treatments although up to 233 acres of this habitat type in elk winter range could be thinned.

Nearly all habitats adjacent to the proposed evacuation routes are located within mule deer winter range, approximately 895 acres. Up to 256 acres of dense dry forest could be thinned and 151 acres of sagebrush/grassland with moderate to high conifer colonization would be a high priority for treatments although up to 527 acres of this habitat type in mule deer winter range could be thinned.

Approximately 480 acres of bighorn sheep habitat could be thinned through implementation of the proposed action. A small number of high density conifers stands (roughly 32) would be expected to be thinned and 102 acres of sagebrush/grassland with moderate to high conifer colonization would also be a high priority for treatment. However, up to 400 acres of sagebrush/grassland in bighorn sheep winter range could be treated under the proposed action.

Roughly 678 acres of year-round habitat for white-tail deer is found within 200 feet of the proposed evacuation routes. Approximately 177 acres of dense forest stands could be thinned and up to 458 acres of sagebrush/grassland could be treated under the proposed action.

Pronghorn antelope habitat is found within 665 acres along the proposed evacuation routes.

Migratory Birds

Migratory Birds can be classified as canopy nesters, shrub nesters and cavity nesters. The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC. 703-711) states that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg or product, manufactured or not. Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (2001), addresses the need to “minimize...adverse impacts.” This order also requires that each agency shall “restore and enhance habitat for migratory birds.”

Specific surveys for neotropical birds were not done along the proposed evacuation routes. However, based on the habitats found in nearby, it is reasonable to expect the following birds to occur (this does not include BLM sensitive bird species); downy, hairy and pileated woodpecker, western flycatcher, dusky flycatcher, Hammond’s flycatcher, willow flycatcher, black-headed grosbeak, common nighthawk, killdeer, ruby-crowned kinglet, red-naped sapsucker, warbling vireo, Cassin’s vireo, western tanager, mountain bluebird, western bluebird, grey jay, robin, Clark’s nutcracker, Townsend’s solitaire, Swainson’s thrush, hermit thrush, spotted towhee, white-throated swift, yellow warbler, yellow-rumped warbler, orange-crowed warbler, pine siskin, dark-eyed junco, tree swallow, violet green swallow, lazuli bunting, Bullock’s oriole, grey catbird, western kingbird, vesper sparrow, lark sparrow, chipping sparrow, savannah sparrow, and white-crowned sparrow.

Impacts of No Action

There would be no short-term impacts to wildlife under this alternative. Disturbance during work and loss of habitat such as nest trees near roads would not occur. In the long term, however, not implementing the project could result in facilitating the spread of wildfire and habitat changes that would result.

Impacts of Proposed Action

Conifer Forests

There are approximately 257 acres of dry forest found along the proposed evacuation routes. These stands are predominately dense forests and, although the quality of habitat may be degraded due to open roads, provide habitat for those wildlife species that prefer or depend on closed canopy conditions.

Both negative and positive impacts could occur from the proposed action. Adverse impacts would be mostly short-term. Potential adverse impacts from thinning the proposed evacuation routes include loss of breeding, foraging and security habitat, displacement and additional human disturbance. Displacement of animals could result in predation and/or difficulty of finding suitable replacement habitat. Human disturbance could alter the behavior of wildlife and lead to a decrease in survival.

Dry forests throughout the Field Office have experienced fire suppression over the last century that allowed these stands to become overstocked. Trees within these stands are often stressed from competition and drought and susceptible to disease and insects. Thinning of these stands along the routes would decrease these stressed conditions and decrease the chances of large-scale, high intensity/severity wildfire spread.

Although thinning dry forest stands could have adverse effects on those wildlife and avian species that prefer or depend on closed canopy forests, thinning these stands could also have beneficial effects on species that prefer or depend on open stands such as the flammulated owl (BLM sensitive species). Thinning the stands along roadways would remove hiding cover and increase visibility of wildlife near roads, potentially resulting in less roadkill.

There are two areas with the most acres of forest proposed for thinning, Missouri River – Prickly Pear (73 acres) and Indian Creek (31 acres). The direct and indirect effects to forest wildlife and avian species from thinning along the proposed evacuation routes would be low in all areas except MO – Prickly Pear and Indian Creek, where it would be moderate.

Sagebrush/Grassland Habitats

There are approximately 591 acres of sagebrush/grasslands, grasslands or sagebrush/grasslands with a moderate to high amount of ponderosa pine colonization along the proposed evacuation routes. All the proposed road segments are “open” and would provide lower quality habitat to nearly all wildlife species due to disturbance from use of roads.

Potential impacts from treating these habitats along the proposed evacuation routes could include loss of breeding, foraging and security habitat, displacement and additional human disturbance. However, sagebrush habitats throughout the Field Office lands are in decline due to conifer colonization that is reducing the cover of sage as well as forbs, grasses and other shrubs. Removing conifer colonization from these habitats could be beneficial to numerous species that depend on or use sagebrush meadows including many BLM sensitive species.

Most of the sagebrush/grassland habitats proposed for this project appear to have low conifer colonization and relatively few treatments would be expected in these areas. Areas that would have higher priority to remove conifers along the evacuation routes in sagebrush would be Crow Creek, Duck Creek, Holter Lake, and Indian Creek.

The removal of conifers could reduce breeding and foraging sites for some wildlife and avian species but would also improve habitat for sagebrush depend species or those species that use sagebrush at some time during their life cycle.

The direct and indirect effects to sagebrush/grassland habitat and those species that use this habitat type would be low or beneficial.

Streams and Riparian Habitat

There are approximately 98 acres of riparian habitat along the proposed evacuation routes. No riparian dependent vegetation including cottonwood, aspen, willow or other riparian shrubs would be removed under the proposed action. This would protect riparian dependent wildlife species, especially avian species.

Conifers within the riparian management zone, however, could be removed to reduce fuel loading and fire behavior along the evacuation routes. Material could only be removed from the RMZ if no wood requirements have been met and stream/riparian function is fully protected. These requirements would protect riparian wildlife and avian species.

Three areas would likely have thinning that occurs within the RMZ: Indian Creek, Duck Creek and Sevenmile Creek. Although some thinning could occur on the drier upslope areas of these RMZs, riparian dependent vegetation would be protected. Non-native fish species are found in Little Prickly Pear Creek, Crow Creek, Sevenmile Creek and Indian Creek. Of these, Indian Creek would have the greatest chance of fish being impacted by thinning activities. However, this section of Indian Creek does go subsurface in places and may not support fish.

The short-term direct effects to riparian habitats, riparian wildlife species and fish would be low but disturbance could cause short-term displacement of some species. In the long term, removal of conifers from riparian areas would be expected to benefit these sites by reducing competition to riparian vegetation. The proposed action in these areas would mimic riparian restoration projects that have been undertaken in other areas for habitat improvement.

Big game species

The open roads along the evacuation routes could have adverse effects on big game species. Roads can impact big game species, especially during critical phases of their life cycle. Disturbance and displacement of big game species can increase stress and energy demands on animals during critical periods such as the winter, breeding or calving seasons and reduce survival, especially during the winter and spring months. Motorized use of roads can produce disturbance that prevents full utilization of available habitat. The loss in potential use of habitat can exceed 50 percent when open road densities exceed 2 mi/mi² (Christensen et. al. 1993). During the hunting season, the probability of bull elk survival in proximity to open roads is much lower than in areas away from roads. Road kill causes direct mortality of elk and major interstate freeways may act as movement barriers in some cases.

Thinning forest habitats and the removal conifer colonization from sagebrush/grasslands could result in a disturbance to big game as well as direct loss of habitat through an increase in invasive weeds and loss of security cover. There could be the potential for big game to be displaced in the short-term while thinning is occurring.

The biggest adverse impact to elk, mule deer and white-tailed deer would occur when dense forests are opened through thinning. Mule deer winter range would be the most impacted with a

total of 895 acres potentially treated. Thinning dense forests could reduce hiding and security habitat for these species and making in these areas more susceptible to disturbance. However, the proposed action could keep big game farther from roadways and improve visibility for drivers, and result in less roadkill. The majority of effects to these species in forest habitats would occur in two areas, Indian Creek and Missouri River – Prickly Pear. Although removing conifer colonization from sagebrush/grasslands could also reduce hiding and security cover for elk, mule deer and white-tailed deer, it would also improve habitat for these species by maintaining sagebrush, forbs, grasses and other shrubs for forage. Restoring or maintaining sagebrush would be the most beneficial for mule deer in winter range. The overall adverse effects to elk and white-tailed deer would be low due to existing disturbance from open roads as well as having the effects dispersed across the landscape. The overall effects to mule deer would be low in forest habitats and beneficial in sagebrush/grasslands.

The effects to bighorn sheep would be low to beneficial because thinning dense forest stands and reducing conifers in sagebrush/grasslands would increase and improve security habitat for this species.

The effects to antelope would be low to beneficial because thinning or removing conifers from sagebrush/grasslands could improve habitat for this species.

Threatened, Endangered, Candidate and BLM Sensitive Species

Transient gray wolves could be found in any of the action areas. The project includes parts of both the Northwest Montana Recovery Area where wolves are classified as Endangered, and the Yellowstone Recovery Area where wolves are classified as an Experimental, Nonessential population. However, there are no resident packs near any of the proposed work locations. No other species identified as Threatened or Endangered under the Endangered Species Act are suspected to occupy habitat along the proposed evacuation routes. No candidate species are suspected of occupying habitat along the evacuation routes. There would be “No Effect” to threatened, endangered and candidate species from the proposed action.

Westslope cutthroat trout (BLM sensitive species) are found or suspected in three streams along the proposed evacuation routes, Hi Ore Creek, Greenhorn Creek and Duck Creek. Hi Ore Creek would have about 16 total acres within the RMZ. Greenhorn Creek is in the Sevenmile area and would have approximately 19 acres within the RMZ. Roughly 17 acres would be in the RMZ adjacent to Duck Creek. Although some thinning could occur on the drier upslope areas of these RMZs, riparian dependent vegetation would be protected. Effects to westslope cutthroat trout would be expected to be negligible under the proposed action.

Effects on other BLM sensitive species that use riparian habitats such as boreal toad and northern leopard frog would also be low but there is the potential of direct mortality to dispersing boreal toads from being crushed by equipment.

There are several BLM sensitive species that depend on forest habitats. Effects to these species would vary depending on their habitat needs. The flammulated owl would benefit from thinning dense stands of dry forest. However, thinning too heavily could reduce the quality of habitat for the northern goshawk, three-toed woodpecker and bat species and could have moderate negative effects on these species.

Since no sagebrush would be intentionally removed along the proposed evacuation routes, the direct and indirect effects to the Brewer’s sparrow, burrowing owl, ferruginous hawk, golden eagle, long-billed curlew and sage thrasher would be expected to be minimal or beneficial.

Migratory Birds

Effects to migratory birds from thinning along evacuation routes include direct loss of habitat from removal of trees, disturbance, fragmentation of habitat, change in use of habitats and potential threats and competition from edge species such as the brown-headed cowbird.

Because thinning prescriptions would be done across the northern part of the Field Office in 16 different areas, the effects to migratory birds would be not be as severe as if the acres treated were all in one location.

Some areas would have very few acres treated (Helena, French Bar, Hauser Lake, Horse Creek, Little Prickly Pear, Trout Creek, Upper Holter Lake and White Horse). The effects to migratory birds in these areas would be expected to be negligible.

Of the remaining 6 areas, Indian Creek, Missouri River – Prickly Pear, and the River Road would have the greatest number of acres proposed within the evacuation routes. Along River Road, there is very low conifer encroachment and little treatment would be expected in this area. Missouri River – Prickly Pear area would have the most acres of dense forest habitat thinned and the most negative effects to forest birds. Indian Creek would have the most sagebrush/grassland treated. The effects from removing conifer colonization along Indian Creek could be beneficial to sagebrush/grassland bird species.

No riparian dependent vegetation such as cottonwood, aspen, willow or riparian shrubs would be removed under the proposed action. Conifers could be thinned within the riparian management zone for human safety but down wood requirements would have to be met and stream/riparian function protected. These requirements would protect migratory birds.

Direct and indirect effects to migratory birds would be expected to be low to moderate.

CUMULATIVE IMPACTS ANALYSIS

“Cumulative impacts” are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

BLM managed lands in this EA have been impacted by various human activities since pre-Euroamerican settlement. In historic times, these activities have included livestock grazing, road building, mining, timber harvest, and agriculture. Vegetation, wildlife distribution, and species presence and diversity have all been altered to some degree by recreational activities, mining, and other human practices, individually or in combination.

Through the development of the Population Protection Plans by the TRICO group, over 450 miles of primary and secondary evacuation routes have been identified. Fuels treatment on private, State and Forest Service lands may occur adjacent to lands that are managed by the BLM.

Impact of No Action Alternative

With the no action alternative, other activities will continue to contribute particulate matter that will affect air quality standards. They include prescribed burning, residential wood combustion, machinery exhaust, road dust, and smoke from wildfire. With the current fuel loading, a wildfire would be difficult to control and would consume a large majority of ground fuels and timber

stands in the forested areas. This could contribute PM-2.5 and carbon monoxide at levels exceeding the National Ambient Air Quality Standards. Smoke could also persist in areas for an extended period of time.

Under the no action alternative, established weeds would have less of a chance of becoming a widespread problem because of the absence of ground disturbance. However, in the event of a wildfire, the potential for large infestations of invasive, non-native vegetation would be much higher due to the large scale disturbance that occurred. A wildfire could also cause substantial erosion, with water and debris flows that could carry away organic matter, eroding the soil surface and delivering substantial sedimentation to streams. Depending on the degree of erosion, recovery could take several years to decades or more.

The forested lands within the project area have been affected by many factors, most notably the current insect outbreaks and the exclusion of fire in these complex ecosystems. Under the No Action Alternative, no treatments to forested lands would be implemented. Forested stands would continue to grow farther away from their natural ranges of variability. The overall health of individual stands would continue to decrease, making them more susceptible to disturbances such as fire, insect infestations, and disease. Large scale disturbances in some areas could remove old growth timber and cause unwanted species conversions to occur. The no action alternative will have no effect on cultural resources or Native American Religious concerns due to the fact that sites will be marked for avoidance.

Impact of Proposed Action Alternative

Wildlife habitat in the proposed project area has been affected by roads, historic and current mineral exploration and mining, timber harvest, weed infestations, urbanization and development, recreation, power line corridors and communication sites. Human population has also grown in these areas and the trend is expected to continue, along with increased recreational use. Primary recreation activities in the project area include big game hunting, non-motorized uses (hiking, jogging, horseback riding, mountain biking, etc) and motorized and OHV uses (ATV, motorcycle).

All these activities can have adverse effects to wildlife and avian species. The proposed project could add cumulatively to these activities by directly removing habitat, causing short-term disturbance and providing soil disturbance for weeds to become established. However, the project could also add to restoration activities that have occurred in the northern part of the Field Office by restoring or improving sagebrush/grasslands habitats.

The beneficial impacts of removing conifers from riparian areas with this project, in addition to other riparian projects on BLM lands or other areas within the same vicinity designed to improve existing conditions, may allow riparian improvements to occur at a larger scale and provide greater overall benefit than smaller scale individual projects on their own. The unfavorable short-term impacts, which are an influx of noxious weeds due to disturbance from the Proposed Action could cause more invasive, non-native species to become established and provide more habitat for terrestrial weeds to inhabit

Increasing structural and compositional diversity across the landscape, as a result of forest treatments and prescribed burning, decreases the probability of large-scale disturbances that could produce adverse impacts over a large area. Large-scale disturbances would still have the potential to occur; however, areas treated would create buffers of less susceptible (in terms of insects/disease) and more fire-resilient habitats.

Under the Proposed Action, the removal of fuels would result in a lower probability of erosion and sedimentation to occur as a result of wildfire. Effects from implementing treatments would be temporary for the most part and would likely recover over a period of a few months to a year. These positive effects would likely be greater than the scope of the Proposed Action, due to similar proposed treatments on adjacent land by collaborating partners.

Increases in understory vegetation in response to conifer removal would increase the presence and extent of riparian areas and vegetative buffer strips. These would improve protection of stream water quality from overland flow and sedimentation. These positive effects would likely be greater than the scope of the Proposed Action, due to similar proposed treatments on adjacent land by collaborating partners.

The forested lands within the project area will continue to be affected and changed by many factors, most notably the current insect outbreaks and the exclusion of fire in these complex ecosystems. Under the Proposed Action Alternative, in the short term, the proposed project could have many effects on stand structure and species composition in the forested areas. Many stands could be moved either backwards or forwards in their successional stages depending mainly on crown densities and the level of mortality from insects. In the long term, the proposed project could increase forest stand health while moving stands back within their natural range of variability. In addition, stands could be more resistant and resilient to disturbances in the future.

The project is located in the Montana Airshed units 6 and 7 that cover Broadwater, Jefferson and Lewis and Clark Counties. The smoke emissions from any prescribed burning in these areas would be cumulative and would include other prescribed burning projects within these airsheds. Since the BLM is an active participant in the Montana/Idaho Airshed Group, any pile burning that will occur in relation to the Tri County Roadside Clearing project, along with other prescribed burning in the Tri County area, would have a temporary cumulative effect, but within the air quality standards.

CHAPTER 4

PERSONS, GROUPS, AND AGENCIES CONSULTED

During preparation of the EA, the public was notified of the proposed action through a posting on the Butte Field Office NEPA Register in October 2010. The agency considered input from persons or groups regardless of age, race, income status, or other social and economic characteristics. The process that was used to involve the public included the opportunity to respond to the scoping notice published in local newspapers by contacting the Butte Field Office or via the Montana Dakotas BLM public website where current NEPA projects are listed. A public comment period was offered due to the extensive scale of the project.

As a result of the newspaper notification of the proposed project, the BFO received contacts via email and one letter. As result of the contacts, further explanation of the project area was addressed and clarified.

Scoping

The public has been involved and interested throughout the development of this EA. Public comments helped to define the Proposed Action for accomplishing management goals and objectives. Following are the highlights of public involvement activities and efforts.

- Public notification of the Proposed Action through a posting on the Butte Field Office NEPA registers in October 2010.
- “BLM considers collaboration to make fire evacuation routes safer” was published in the Helena Independent Record on January 20, 2011.
- A December 21, 2010 press release titled “BLM Plans to Remove Hazard Trees and Reduce Fuels along Travel Routes” was published in the Whitehall Ledger on December 29, 2010.
- A December 21, 2010 press release titled “BLM announces plans to remove hazard trees, reduce potential fuels along forest travel routes” was published in the Boulder Monitor on December 29, 2010.
- The comment period ended on January 31, 2011 and the Butte Field Office received 5 written and email comments from individuals.

All comments received from the public were considered during project planning to the extent possible within the scope of the project. A list of comments are attached in Appendix B along with a Summary of Public Involvement and External Communications in Appendix A

List of Preparers

Table 4.1 List of Preparers

Name (and agency, if other than BLM)	Title	Responsible for the Following Section(s) of this Document
Greg Campbell	Fire Management Specialist	Project Leader / Proposed Action / Fire Management
Scott Franklin Sara LaMarr	Wildlife Biologists	Wildlife/ Threatened, Endangered or Candidate Animal Species

Lacy Decker	Range Technician-Integrated Weed Management	Non-Native Invasive Species / Noxious Weeds
Corey Meier	Soil Scientist	Soils/Water Quality/ Air Quality
Michael O'Brein	Forester	Forest Resources
Tanya Thrift	Range Management Specialist	Threatened, Endangered or Sensitive Plants Riparian/ Range/Vegetation
Carolyn Kiely	Archeologist	Cultural Resources / Native American Religion Concerns

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APPENDICES:

APPENDIX A:

Summary of Public Involvement and External Communications

Date	Public Involvement/External Communication
12-9-2010	Spoke with Mellissa Morris, Jefferson County, in regards to obtaining shape files for county evacuation routes
1-15-2011	Spoke with Pat McKelvey, Tri County Working Group (TCWG), inquiring about the road that the TCWG are looking to treat in 2011
1-19-2011	Newspaper article interview with Eve Byron, Independent Record, Helena

APPENDIX B:

Summary of Responders and Comments

Date	Comments
1-1-2011	Was interested in map of project, specifically Toll Mountain area, west of Whitehall.
1-20-2011	Was interested in map of project area, specifically roads in Lewis and Clark County.
1-20-2011	Would like to see opportunity for small business owners when implementation occurs.
1-24-2011	Would like to see log material sold to Wood Products Industry and extend harvest at least 250 feet on either side of road.
1-30-2011	Does not want to see all the fire wood removed, and does not want miles of open road sides cleared.

MAPS

All Evacuation routes are highlighted in red.

Tri County Overview –pg. 32

Northern Half of Project Area- pg. 33

Southern Half of Project Area- pg. 34

