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Clancy Area Hazardous Fuels Reduction Project

Location:

Principal Meridian Montana

T. 7 N., R. 4 W., Sections 2-5, 8-16, 20-22, 26-29;
T. 8 N., R. 3 W., Sections 4-8, 10-15;
T. 8 N., R. 4 W., Sections 1-3, 9,10, 12-15, 22, 23,32,34, 35;
T. 9 N., R. 2 W., Section 30;
T. 9 N., R. 3 W., Sections 17-20, 23-26, 29, 31-35;
T. 9 N., R. 4 W., Section 25.

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CHAPTER 1
INTRODUCTION AND NEED FOR ACTION

INTRODUCTION

The Bureau of Land Management (BLM) Butte Field Office is proposing a fuels reduction project in the Clancy area.

The project area includes portions of several BLM parcels within Jefferson County, Montana:

Principal Meridian Montana

T. 7 N., R. 4 W., Sections 2-5, 8-16, 20-22, 26-29;
T. 8 N., R. 3 W., Sections 4-8, 10-15;
T. 8 N., R. 4 W., Sections 1-3, 9,10, 12-15, 22, 23,32,34, 35;
T. 9 N., R. 2 W., Section 30;
T. 9 N., R. 3 W., Sections 17-20, 23-26, 29, 31-35;
T. 9 N., R. 4 W., Section 25.

The total area under analysis is approximately 11,000 acres of BLM administered public lands, with an estimated 3,300 acres being considered for possible treatment.

This Environmental Assessment (EA), authorized under the Healthy Forest Restoration Act (HFRA of 2003), has been prepared to disclose and analyze the environmental consequences of reducing hazardous fuels on public lands administered by the BLM within the project area (see map). This EA analyzes hazardous fuels conditions within or adjacent to the wildland-urban interface (WUI).

PURPOSE AND NEED FOR ACTION

High fuel loadings and vegetative composition and structures existing in the proposed management area pose a high risk of stand-replacement fire. Wildland fire could threaten human health and safety, as well as private property surrounding the proposed projects.

The purpose of this project is to lessen the fuels hazards in the WUI for firefighter and public safety. The WUI is defined as a line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Substantial residential development in the Clancy area over the last 30 years has resulted in a WUI situation. A risk assessment was performed on the Helena valley in 2002 and 2003. Findings from that assessment, Wildland-Urban Interface Communities-At-Risk Hazard Assessment (January 2004), show that 22 of 68 forested areas stratified rated "high", and 30 out of 68 forested areas stratified rated "medium" for hazardous fuels conditions in the Clancy project area.

Implementation of the Clancy-Unionville Vegetation Manipulation Project to reduce hazardous fuels occurred in 2005-2008. These treatments reduced approximately 680 acres from a high rating to a low to moderate hazardous fuel rating. Since the treatments, a mountain pine beetle outbreak occurred within the project area making past treatments less effective in reducing the wildfire hazard.

The objective of the project is to:

- Reduce fuel loading by removing dead and dying trees and modifying excessive live fuels within the WUI to increase public and firefighter safety.

CONFORMANCE WITH BLM LAND USE PLANS

The proposed action identified in this EA conforms to the terms and conditions of the Butte Resource Management Plan (RMP) of April 2009 and meets the fuels management (FM) goals.

Butte RMP goals include the following:

FM1- Provide an appropriate management response to all wildland fire, emphasizing firefighter and public safety.

FM4- Promote seamless fire management planning across jurisdictions within the boundaries of the Butte Field Office.

FM5- Protect life and property by treating hazardous fuels on BLM lands.

Butte RMP actions include the following:

Fire management program priority will be fuels reduction in the WUI area, in conjunction with completed Community Wildfire Protection Plans.

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

The proposed actions are in conformance with the following:

- Title 43, USDI-BLM Code of Federal Regulations, Part 5003
- 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
- The Federal Land Policy and Management Act (FLPMA) of 1976 established policy and guidelines for the administration, management, protection, development, and enhancement of public lands (43 U.S.C 1701 et seq.: 90 Stat. 2743; P.L.94-579).
- 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.).
- National Fire Plan, Hazardous Fuel Reduction and Community Assistance guidance and guidance provided by the 1995 Review and Update of the Federal Wildland Fire Management Policy and the 2001 Amendment.
- The Healthy Forest Restoration Act of 2003 (H.R. 1904)
- Community Wildfire Protection Plan(CWPP) Jefferson County, Montana (2005)
- Tri-County Fire Working Group Regional Community Wildfire Protection Plan (2005)
- Guidance For Environmental Assessment of Forest Health Project Memorandum (2002)
- The Canada Lynx Conservation Assessment and Strategy.

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.

ISSUES

Key issues for the project were identified through public and internal scoping. The following issues (excluding the critical elements) were determined to be key and within the scope of the project. These issues are addressed within the EA.

Hazardous fuels

Heavy fuel loading and continuity, as a result of overstocked, dense and dying forests, have resulted in unsafe wildland fire conditions within the WUI.

Firefighter and public safety

Overstocked, dense and dying forests have increased fuel loads and ladder fuels, which promote extreme fire behavior. This potential fire behavior creates safety issues for firefighters and the public.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED STUDY

An alternative for educating the public on treating the home ignition zone on their private property utilizing several treatment methods supported through recent research Dr. Cohen was identified during the scoping process. The alternative was considered, but not carried forward for detailed analysis because it does not meet the purpose and need and the identified objectives. The goal of this project is to" reduce fuel loading through the removal of dead and dying trees and the modification of excessive live fuels within the WUI to increase public and firefighter safety"; it was designed to meet goals outlined in the Record of Decision and approved Resource Management Plan (April 2009). In addition, this alternative is already part of an existing plan, policy or administrative function. The BLM Butte Field Office has an education and mitigation program that provides for coordination with local and state agencies, as well as the public, to educate and help with mitigation projects designed to treat fuels in the home ignition zone.

NO ACTION

No treatment of vegetation would occur in the proposed project area. Hazardous fuel reduction within the WUI would not occur, and the fuels associated with extreme fire behavior in the WUI would still be present, providing minimal protection to responding fire resources and the general public evacuating in the event of a wildland fire.

PROPOSED ACTION

The Proposed Action alternative is designed to be responsive to meet the goals and objectives of the purpose and need. Fuels treatments would be completed to minimize the adverse effects of wildland fire on up to 3,300 acres within the WUI areas of the Clancy Area Hazardous Fuels Reduction Project (11,000+ acres). Treatments would occur in ponderosa pine, Douglas-fir and lodepole pine cover types and would be designed to reduce the wildland fire hazard by treating hazardous fuels with a variety of methods. Fuels treatments would focus on creating target densities that result in a low fire hazard, as described in "A Strategic Assessment of Fire Hazard in Montana (Fielder, 2001).

Planned activities include timber removal, biomass removal, thinning, pruning, and chipping/mastication and/or lop and scatter with materials left on site. Prescribed burning could be used to reduce residual slash on site.

The project area was stratified by four cover types and previously treated areas. Each of the cover types and the previously treated areas would have different basal area prescriptions designed to meet the objectives. In the previously harvested stands (up to (680 acres), the focus would be to remove the dead and/or dying trees. In the ponderosa pine cover types (up to 670 acres), the focus would be to reduce the basal area to 40 ft2/ Ac. The Douglas-fir cover type (up to 305 acres) would be treated to below 80 ft2/ Ac basal area, and the mixed cover type (1400 acres) to below 60 ft2/ Ac basal area. The basal area reductions would be measured in the eight-inch and greater DBH trees in all four cover types. A thinning with spacing of 20-40 feet for trees with less than 8 inch DBH would occur in the three cover types. A salvage treatment would occur (up to 166 acres) in lodgepole pine.

Road access to possible treatment units is limited through BLM administered lands. Access across private lands would be needed to treat some of the area. It may be necessary to construct as much as nine miles of temporary road on BLM administered land to gain access to facilitate treatment activities. The actual amount of road would be determined by the final selected location and type of equipment needed to complete activities. All temporary roads would be rehabilitated after use to prevent habitat degradation, erosion, motorized access, and weed spread. Conditions of existing roads and ATV trails would be improved to minimum specification for utilization and returned to pre-project specification upon completion of the project. Travel for administrative purposes would be allowed on seasonally restricted or closed roads during treatment periods when necessary.

Design Features of the Proposed Action

Design features incorporated into the proposed action include the following

- The *Montana/Idaho Airshed Group Operating Guide* would be followed including utilization of the Best Smoke Management Practices (BSMP) and Best Available Control Technology (BACT) for any prescribed burning.
- All vegetation treatment activities would contain guidance for protection of any cultural remains and/or Native American Religious Concerns discovered during the survey process.
- Treatment of invasive, non-native species would occur in all alternatives, as outlined by the Butte Field Office Weed Management Plan Revision (May, 2009).

- Monitoring (pre and post treatment) for invasive, non-native species would occur. If monitoring shows increases in weeds, the area would be treated following guidelines found in Butte Field Office Weeds 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. Should the area have high potential for erosion, a cover grass would be seeded for soil protection until the native grass has a chance to establish. Smaller areas may be hand seeded to avoid the establishment of invasive weeds.
- Contracts would include a requirement to pressure wash all off-road equipment before entering the project areas and/or moving from unit to unit.
- Cultural clearances would be obtained prior to any project implementation.
- BLM sensitive plant species populations would be flagged and avoided within the treatment units.
- Periods of operations would be coordinated with authorized grazing operators so as to reduce conflicts with livestock management.
- Mechanized equipment would be limited to operating on those areas within the treatment area that averages $\leq$40 percent slope.
- 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.
- Slash would be lopped and scattered to within 12" of the ground. Stumps would be cut to within 12" of the ground on the uphill side.
- Residual slash would be composed of both large diameter (>10" DBH) and small diameter (<10" DBH) material.
- All existing improvements (i.e. cattle guards, fences, OHV trails and the main road) would be maintained during the course of the operation.
- Road maintenance, heavy equipment use, fuels 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).
- To protect water quality, a Clean Water Act/storm water discharge permit or other permits as required by federal, state, or local law may be required for new and existing forest road activities associated with timber harvest, log and heavy equipment hauling, and forest restoration activities.
- To the extent possible, existing trails in the Ohio Gulch Riding Area would not be widened or modified.
- Existing roads would be utilized to the greatest extent possible for hauling purposes prior to creating new roads.
- The existing travel management plan would be followed, and no new roads would be authorized for public motorized uses.
- Prescription design would take into account the designated trail system and the need for shade along trails, if possible, and still meet fuels objectives.
- Road construction activities would follow Montana Best Management Practices.
- Apply Montana Streamside Management Zone laws to all commercial activities that occur within or adjacent to riparian areas and streams.
- Riparian Management Zones (RMZs) actions would be met in accordance with the BFO Record of Decision and Approved Butte Resource Management Plan.

- Retention of old growth trees. A 26” diameter limit on all ponderosa pine and Douglas-fir would be included in timber harvesting prescriptions to ensure old forest structure is retained. Snag and downed woody requirements would also be met to help maintain healthy stand structures that are relatively complex.
- Retain all snags with nest cavities. Retain an average of four snags per acre, depending on stand characteristics, with larger snags preferred. Any snag retained without existing nest cavities would be at least twice its own height away from roads, trails, or private property.
- Retain all trees and snags with active or inactive raptor nests. No treatment related disturbance would occur within a 40-acre buffer of active nests. Appropriate habitat characteristics such as leaving more trees than called for in the prescription would be left within 40 acres of inactive nests.
- In areas where timber sales or other contracts are being implemented, public forest product removal (firewood cutting) would not be allowed until all operations associated with the contract are completed.
- All prescribed fire activities would comply with BLM policy found in the Interagency Standards for fire and fire aviation operations (NFES2924).
- Hazardous substances and petroleum products, which could impair water quality, would not be stored near hydric soils and would require secondary containment. Equipment would be refueled away from pathways to streams.

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 Clancy Area Hazardous Fuels Reduction Project is designed to reduce the fuels associated with potential extreme fire behavior within the WUI. The project area consists of BLM administered land surrounding and intermixed with private properties which are both forested with ponderosa pine, Douglas-fir, and lodgepole pine depending on elevation. Three rural towns are found within the project area boundary: Clancy, Montana City and Jefferson City (including the settlements of Corbin and Wickes). Over the years, many factors have contributed to the large amount of Douglas-fir, lodgepole and ponderosa pine in the project area. Over-stocked stands, ladder fuels, and heavy fuel loading are three characteristics that would contribute to unmanageable fire behavior.

Fuels reduction treatments were completed in the Clancy area in 2005-2008. Mountain pine beetle, Douglas-fir bark beetle, and spruce bud worm outbreaks have occurred within and outside the project area since then, killing trees in expansive areas and making past treatments inadequate within the WUI.

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 would be affected by the proposed action.

Table 01 Critical Element Table

CRITICAL ELEMENTS		
Determination*	**Resource**	**Rationale for Determination**
PI	Air Quality	Prescribed burning may occur. Temporary effects would conform to state air quality standards.
NP	Areas of Critical Environmental Concern (ACEC)	ACEC's are not present within the project area
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	No alternative considered in the course of this analysis resulted in any identifiable effects or issues specific to any minority or low income population or community as defined in Executive Order 12898. .
NI	Farmlands (Prime or Unique)	Prime farmlands are present, but there is no impact by the proposed action. Design features and BMPs would be employed to prevent degradation of soil properties which could affect farmland designations. Loss of Prime Farmland designation is possible due to erosion resulting from potential catastrophic wildfire in the No Action Alternative.
NP	Floodplains	No flood plains are present in the project area.
PI	Invasive, Non-native Species	Invasive, non-native plant species are present in the project area, and mitigation measures would be implemented to reduce the potential spread of noxious weeds during pre and post project implementation.
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	Three Threatened or Candidate species could disperse through the area but are unlikely to be permanent residents. .
NP	Wastes (hazardous or solid)	No hazardous wastes are identified in the 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.
	Wetlands/Riparian Zones	State of Montana SMZ laws would be adhered to. Riparian Management Zones (RMZ's) would be established to protect and restore the ecological function of riparian areas and streams.
NP	Wild and Scenic Rivers	No Wild and Scenic Rivers within project area.
NP	Wilderness	No designated 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).

Elements Not Present or Not Affected

Special Designation Areas

There are no National Special Designation Areas within the Clancy Project Area. This includes Areas of Critical Environmental Concern, National Trails, Wild and Scenic Rivers, Wilderness

Areas and Wilderness Study Areas. Since no Special Designation Areas exist within the project area, these resources would be removed from further consideration and analysis.

Visuals

The project area is managed as VRM Class III and IV. Management objectives for Class III areas are to partially retain existing character of the landscape. The level of visual changes should be no more than moderate. Management activities may attract attention but should not dominate the view of the casual observer as seen from known observation points. Class IV objectives are to allow for major modifications of the existing landscape where the level of change can be high. Activities in these areas may dominate views and attract attention.

Design features and mitigation measures would be developed for the proposed action alternative in order to minimize visual impacts. Since the mitigated proposed treatments are not considered high impact activities and are not located in highly sensitive areas, contrast ratings will not be completed. Since the proposed action alternative is well within the Management Class III and IV objectives, no further analysis will occur for this resource.

Travel Management

The Travel Management Plan was completed for this area in November 2000. All proposed actions would conform to the existing guidance of this plan. All newly created roads would be reclaimed, and no new roads would be authorized for public motorized use. Travel management revisions are considered outside the scope of this planning effort and will be addressed later through the Helena Valley Multi-Resource Planning effort scheduled for 2016.

Sensitive Species Plants

There is one known population of Astragalus convallarius, or lesser rushy milkvetch, within the Clancy Project Area. This population would be avoided during treatment. Follow-up surveys may be conducted; and if any new populations are found, they would be flagged and avoided.

Elements Present, or Affected

Cultural Resources

Affected Environment

Previous work performed in and around the project areas shows that the majority of site types are related to historic mining. Placer and lode mines are scattered throughout the proposed treatment areas, with varying levels of intensity. The majority of the sections mentioned in the analysis are located in the arbitrarily named “Colorado-Wickes Historic Mining District”. The following segment, portions from the Montana Department of Environmental Quality’s Historic Mining Narrative website characterizes the area as follows:

The Colorado/Wickes district was one of the most productive in the Helena region. It was first settled in 1864 when placer deposits were first discovered along Golconda Gulch and Prickly Pear Creek. Immediately after the placer discoveries, prospectors combed the surrounding area for the major lodes and located both the Gregory and Minah lodes in 1864. The Gregory mine was the first major lode mine and by the early 1880s was the district's leading producer. From 1883 to 1893 the Alta mine was the richest mine in the district although estimates vary as to the total production. The generally accepted estimate of the Alta's production is around $32 million dollars worth of silver/lead ore during this period. However, Philip K. Barbour, the nephew of mine owner Samuel T. Hauser, estimated the total production at only about $5.3 million. In 1900

the Comet (in the High Ore sub-district) became a large producer followed by the Minah which peaked a few years later. The most consistent and long-term producer during the twentieth century was the Mount Washington which was in production from 1890 to 1951. Other important mines in the district include: the Bertha which produced over 162,000 ounces of silver from 1906 to 1918; the Blizzard which was active from 1888 to 1896; the Minnesota, one of the oldest properties; and the Bluebird, discovered in 1887 and operated from 1907 to 1921. In addition, numerous small mines were scattered throughout the district (Pardee and Schrader 1933; Roby et al. 1960; Wolle 1963; Babcock et al. 1982).

The railroad ushered in a period of booming mining activities in the Colorado District as well as throughout the Montana Territory. From 1883 to the mid-1890s, Montana ranked second in the nation in the production of silver (except for 1887 when it was first). During this period, Montana mines produced roughly one-fourth of the nation's silver in addition to large amounts of gold, lead, copper, zinc and other metals which were found in the silver. The Colorado District was one of the most productive of the Montana mining areas and was reported to have produced over $50,000,000 worth of silver and other metals prior to 1900. The Alta, Gregory, Mt. Washington and Minah mines alone were credited with a total production of over $40,000,000 during this period (Malone and Roeder 1976; Spence 1973; Lorain and Hundhausen 1948; Becraft et al. 1963).

Sporadic mining activity has continued throughout the district up to the present but has only recently surpassed the levels attained during the 1883-1893 period. Many of the old tailings dumps such as the Alta, Minah, Gregory and Comet were re-treated. Extensive underground work has been undertaken in the Alta, Mount Washington and Comet mines but with only limited success. Production records provide a means of assessing the difference in scale of mining activity in the Colorado/Wickes district through the years. It has been estimated the district produced values of $50,000,000 prior to 1900 while recorded production for the entire district from 1900 to 1987 is valued at $5,850,470.

Impacts of No Action

Impacts to historic sites from the “No Action” alternative could be what is known as “demolition by neglect”, in which historic sites fall apart over time without stabilization (36CFR800.5 (a)(2)(vi). Also, historic sites could remain vulnerable to being obliterated in a wildland fire.

Impacts to prehistoric sites from the “No Action” alternative would come largely from physical alteration (spalling) from extreme heat conditions during a wildland fire.

Impacts of Proposed Action

A Class III cultural resources inventory would be conducted prior to implementation of all fuel reduction activities involving mechanized equipment. If any treatment units are identified for prescribed fire treatment, those units would be inspected with less intensity of coverage, as prescribed fires do not cause ground disturbance. All historic properties would be identified prior to implementation of the Proposed Action, protecting them from damage as a result of fuel reduction activities.

Reduction of fuels would help protect historic (wooden) features from being consumed in a wildland fire. While it is entirely possible for a historic (wooden) structure to be damaged or consumed during prescribed fire operations, the BLM would take every precaution against this particular outcome, reducing the chances of losing the structure to wildland fire.

Reduction of fuels would help protect prehistoric sites from being physically altered (spalled) from the extreme heat conditions produced by wildland fires.

Native American Religious Concerns

Affected Environment

Due to the amount of mining in the area during the past 130 years, the Butte Field Office does not anticipate any prehistoric cultural resources with a substantial religious value to be present.

Impacts of No Action

Sites that have religious values for Native Americans would remain undisturbed.

Impacts of Proposed Action

A Class III cultural resource inventory would be conducted prior to any fuel reduction treatment involving mechanized equipment. This inventory would record prehistoric sites with religious values, as well as other historic properties. Those sites that appear to have religious significance would be avoided, according to prescriptions derived from consultation.

Fire Management

Affected Environment

The project area consists of stands of ponderosa pine, Douglas-fir and lodgepole pine. These stands are overstocked with almost continuous pine and fir canopy. These forest stands have all experienced infestation from insects, producing large pockets of a combination dead red, dying yellow, dead gray and green live trees. In some of the infested pockets, the trees are beginning to break at three-quarters of the way up and fall to the ground

The "Wildland-Urban Interface Communities-At-Risk Hazard Assessment" was completed in 2002-2004 for BLM administered land in conjunction with The Tri-County Fire Working Group Regional Community Wildfire Protection Plan (2005) and Jefferson County Community Wildfire Protection Plan (2005). All three assessments identify the Clancy project area as being in the WUI and of having the fuels component resulting in high fire danger or hazard???.

The project area was evaluated for crowning potential and crowning index to determine fire hazard as associated with public and firefighter safety and to set a base line to evaluate the alternative treatment. Crowning potential was determined using stand data, specifically Basal Area (BA) collected and analyzed in The Wildland Urban Interface Communities-At-Risk Hazard Assessment (DOI, BLM 2004). BA is the area in square feet of a cross section of a tree stem at four and half feet above the ground. That assessment utilized the methodology in " A Strategic Assessment of Fire Hazard in Montana"(Fiedler et al. 2001) to determine low, moderate and high hazard stratified forested stands. The objectives for this analysis was 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 that by using a prescription to reduce the BA of ponderosa pine stands to less than 40 BA (low level), the result would be an increase in the crowning index (i.e. hazard decrease). The BA values for ponderosa pine (PP), Douglas-fir (DF) and Dry Lower Mixed Conifer (DLMC), that are common in the project area, are shown in Table 02.

*Table 02 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 (ft2/ac)**			**Forest Type**	**Basal Area (ft2/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

Stands in the project area have a BA range from 10 to 300; 22 out of 68 stratified forested stands have a high hazard rating, and 30 out of the 68 stratified stands have a moderate hazard rating, based on forest inventory data collected in 2004 for the Wildland Urban Interface Communities-At-Risk Hazard Assessment (DOI, BLM 2004).

The majority of pine stands in the project area have undergone a mountain pine beetle attack and have pockets of trees that fall into the following four categories: green (attacked), successfully attacked (dying), red dead trees with the needles still on the tree, and grey dead with the needles already on the ground. As these trees die, they will eventually fall to the ground, changing stand structure and fuel loading. These fuel changes likely affect both surface and crown fire behavior, but there is not yet consensus among experts regarding the nature and magnitude of these effects (Jenkins et al 2008). In some of the infested pockets of ponderosa pine in the project area, trees are beginning to break at three-quarters of the way up and fall to the ground.

To determine fire behavior hazard from ground fuels, fuels were classified into fuel models and the fire behavior produced from these fuel models, as described in Aids to Determining Fuel Models for Estimating Fire Behavior (Anderson 1992). The forested stands in the project fall into fuel models 8 and 9. Fuel models 8 and 9 would produce flame lengths between 1.0 feet and 2.6 feet high in the event of a wildland fire under set environmental factors. Flames lengths from 0.1 feet to 4.0 feet are considered low hazard, flames from 4.1 feet to 8.0 feet are considered to be of moderate hazard, and above an 8 foot flame length is considered to be of high hazard when it comes to the safety of wildland firefighters.

In pine stands that have undergone mountain pine beetle attacks, the surface fuels build up is more than predicted by fuel model 8 or 9, due to needles falling to the ground as well as stem breakage. A study conducted in ponderosa pine and cited in The International Journal of Wildland Fire (2011) shows that surface fuels in mountain pine beetle infested stands can have up to 2.5 times increase in surface fuels and a decrease of two fold in canopy fuels five years after the attack. To determine surface fire behavior in these stands The Standard Fire Behavior Fuel Models: A Comprehensive Set for Use Wither Rothermel's Surface Fire Spread Model (Scott 2005) was used. It was determined through visual assessments that the current conditions for these timber stands are best representative of fuel model TL9 (189). This fuel model has approximately 5.65 tons of fine fuel loads and would produce a flame length of approximately 4.0 feet in the event of a wildland fire under the same set of environmental parameters.

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 within the project area. The BA of these stands would maintain or increase, which would reduce the Crowning Index (i.e. hazard increase.) The recent disease and insect mortality in the pine and fir stands would continue to add materials, specifically 100-hour (1-3 inch diameter) and 1,000-hour fuels (greater than 3 inches diameter) to the ground. This would change the fuel model classification of the site from a fuel model TL8 (188) to a fuel model SB2 (202) and/or SB3 (203) which would increase flame lengths produced from a fire from 4.0 feet to approximately 5.0 feet to 8.0 feet as described in The Standard Fire Behavior Fuel Models : A Comprehensive Set for Use Wither Rothermel's Surface Fire Spread Model (Scott 2005) . This would change the fire danger rating from existing condition low to one of moderate to high hazard rating as described in Wildland Urban Interface Communities-At-Risk Hazard Assessment (2004). These added fuels may aid in the transition from a ground fire to a crown fire in these conifer stands. 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.

The continuing buildup of fuels under the No Action alternative would not improve public and firefighter safety within the project area.

Impacts of Proposed Action

The potential for crown fire occurrence does not depend on any single element of the fuel complex, or 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.

With the proposed action, high density stands of Douglas-fir and ponderosa pine would be thinned down to 60-90 BA and 50-80 BA, respectively. Thinning of the stands would reduce the crown fire potential from moderate to high crown fire potential to low to moderate in these areas, according to Fiedler et al. (2001). Results would be a decreased risk to the public and firefighters, in the event of a wildland fire.

The proposed action would remove red dead trees in the areas that are already in the range of BA for low fire danger. This would reduce the hazard of falling trees and would maintain the fuel model as an 8 or 9, keeping flame lengths at the low hazard level. The areas that would be masticated and or lopped and scattered with no fuels removal would be considered a fuel model TL8 (188) producing approximately a 3.5 foot flame length. This would be an increase in flame lengths compared to fuel models 8 or 9, but would be less than the flame lengths produced by fuel model SB2 (202) and/or SB3 (203) and still be considered of low hazard. The mastication would also promote quicker break down of the material so the duration of the hazard increase would be less than the no action alternative.

The use of prescribed fire in the future to reduce residual slash left from the mechanical treatments would lower the on-the-ground fuels hazard and thin any new regeneration of trees. This would help lower the fuel load and maintain the stands at the low fuels hazard rating.

Soils

Affected Environment

The project affects a wide variety of soil types, approximately 126 soil map units, as inventoried in the Soil Survey Geographic (SSURGO) certified soil survey of Jefferson County Area and part of Silver Bow County, Montana (MT627) (NRCS, 2011a). Soils are highly variable, represented by residual, alluvial, and colluvuial soils derived from granite, basalt, limestone, igneous, sedimentary and metamorphic rocks, tuff and other volcanic formations. The variety of soil types, in combination with slopes ranging from 2 to 75 percent and dry to wet soil moisture conditions result in potential risks of erosion and compaction, ranging from low to high. This diversity of soil types influences land management activity considerations and mitigation measures. Information about soil types, and ratings for factors such as compaction and erosion, resulting from mechanized equipment and wildland fire, are available on the internet for download at the Soil Data Mart (NRCS, 2011a), or through an interactive mapping tool, the Web Soil Survey (NRCS, 2011b). 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, 2011a). Hydric soils are considered to be wetland indicators (EnvLab 1987).

Erosion can cause decreased productivity and negatively impact water quality of adjacent streams. 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 (NRCS 2004; Carr et al. 1991). Compacted soils can reduce site productivity, reduce the soil's capacity for infiltration of surface water and hydraulic conductivity (NRCS 2004, Carr et al. 1991, Siegel-Issam et al. 2005), and possibly increase greenhouse gas emissions from the soil as a result of decreased inter-aggregate pore space and decreased air permeability (Horn et al. 1995; Kaspar 2011).

Soils at highest risk of erosion are found in the Wickes area, due to steep slopes, ranging from 45-60%. Soils at highest risk of rutting are found in drainage bottoms, and generally, most soils in the project area have low to moderate resistance to compaction from mechanized equipment due to soil surface texture and structure. Compaction could negatively affect the ability of surface water to infiltrate the soil surface and can impede plant productivity.

Surface horizons for most soils in the project area have high levels of organic matter content ranging from 7% to 50%, placing them at risk of becoming hydrophobic in the event of wildfire. Hydrophobic soils repel water, thereby increasing risk of runoff and erosion, particularly the first year following fire (Neary et al. 2005; MacDonald & Huffman 2004; Robichaud 2000; Wondzell & King 2003).

High severity wildland fire 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; Stoof et al. 2011a). Soil organic matter acts as a soil stabilizing factor and nutrient source. High severity wildland fire can negatively impact soil productivity due to high losses of carbon and nitrogen from combustion of surface soil organic matter (Homann et al. 2011).

High levels of surface rock can act as an armoring agent to prevent soil erosion resulting from mechanized equipment, and wildland fire (NRCS 2004, Stoof et al. 2011b); however, it can

prolong heating effects from wildland fire, thereby increasing biological impacts in the soil surface (Stoof et al. 2011b).

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. Beetle-killed trees would continue to pose a threat of high-severity wildland fire. High severity wildland fire places soil at risk erosion, sedimentation and degraded soil productivity resulting from fire consuming soil organic matter, and soil heating. Current uses would continue, and undisturbed sites would continue to function as they are presently. High-severity fire has the potential to cause soils to become hydrophobic (water-repellent) the first year following the fire, resulting in increased runoff of precipitation that would otherwise infiltrate the soil surface. This increased runoff can cause soil erosion at rates in excess of rates for bare ground alone.

Impacts of Proposed Action

The greatest possibility of erosion due to management actions is expected in mechanical treatment areas. Hand-cutting operations would be expected to have the least impact on soils. Should a wildland fire occur, following treatments, the amount of erosion would be less than the No Action Alternative, because the burn severity would be less, resulting in a corresponding decrease in risk of soil erosion (Stoof et al. 2011b).

Controlling the location and timing of mechanized treatments would decrease the risk of erosion. Operating when soils are dry or frozen reduces the risk or compaction and erosion (NRCS, 2004; Nishimura et al. 2011). Accurately predicting impeded tree growth due to compaction and reduced infiltration and hydraulic conductivity, resulting from mechanical treatment is difficult, and varies by soil type (NRCS 2011a; Siegel-Issam, et al 2005); therefore, on-site monitoring would be needed to direct treatments away from high risk soils. For example, a high percentage of gravel (15-35 percent) in the mineral soil section of the profile in many of the soils in the area (NRCS 2011a) lowers the erosion potential resulting from rubber tired equipment (NRCS 2004), so would be favored for mechanized movement over the same soil without rock fragments. Adjusting the timing of treatment to coincide with dry or frozen soil conditions can also mitigate compaction risk.

Generally, compaction on roads and skid trails can cause slow regeneration of plants due to the root limiting nature of a compacted layer, which can also cause a loss of pore space and structure that can lower water storage capability and aeration (Siegel-Issam, et al. 2005; Daddow and Warrington, 1983). Concentrating use on roads decreases the risk of compaction in the treatment area (Labelle et al. 2011). By decommissioning temporary roads using ripping, or subsoiling, and seeding would restore infiltration and hydraulic conductivity of the near soil surface (Vadose Zone) portion of the soil profile (Schwen et al. 2011). The tap rooting systems of the native Douglas-fir and lodgepole pine trees would work well in concert with natural weathering processes to break up and break through less severely compacted layers away from roads. Over time, organisms would create burrows and macro-pores.

Mechanical treatments are expected to expose the soil surface, such as on skid trails, which would temporarily increase the risk of erosion and displace surface organic matter (litter). No effects to organic matter that is incorporated in the soil matrix (mineral soil below the litter layer) would be

expected. Potential erosion, sedimentation, and compaction is less using tracked, rather than wheeled equipment because equipment load is more evenly distributed over the soil surface. Impacts are further minimized where mastication is employed, because it can travel over masticated material (mulch) it creates, thereby protecting the soil surface.

Excluding riparian forests and buffer strips from mechanized treatment, in compliance with Montana Stream Management Zones, leaves them intact to capture sediment and nutrients from entering streams (Moriasi et al. 2011; Davis et al. 2011). Excluding these typically moist soils (NRCS 2011a) from mechanized treatment also avoids the most compaction prone soils in the project area (NRCS 2004; Labelle et al. 2011).

The proposed treatments to remove live and dead trees to reduce the threat of high severity wildland fire, would also reduce the risk of hydrophobic soils, particularly those with high duff layers, or high levels of organic matter incorporated into the surface horizons. In response, the risk of hydrpohobically induced erosion and reduced infiltration would decrease (Madsen et al. 2011).

Generally, mechanical prescription units are situated on soils that have a moderate potential for soil erosion and slight to moderate soil compaction potential (NRCS 2011a, NRCS 2004). Soils rated with a combination of severe erosion and severe compaction potentials are generally avoided for treatment and could occur as small inclusions (less than 1 acre) within treatment areas.

Soil erosion and negative impacts to soil productivity beneath slash and pile burns is likely, in response to fire consumption of protective vegetation and organic matter. For pile burns, these effects would be localized and minimal due to implementation of BMPs. Effects from wider spread slash burns would be minimized by burning in the fall or spring, using a low intensity burn.

Hand-cutting treatments would be used on soils at high risk of erosion and compaction, if treatment was deemed necessary. Existing trails would be used where possible, but new trails may be created. Displacing soil organic matter, soil erosion, and compaction would be minimal and mitigated due to the lack of ground disturbing activities, except for potential access trails, which would be seeded to reclaim the site. Minimizing impacts to litter levels maintains the carbon and nutrient pool, thereby having less of an impact on soil productivity than mechanized treatments.

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

Water Quality

Affected Environment

The project area is part of the Prickly Pear Creek watershed (USGS, 2008). The State of Montana, Department of Environmental Quality (DEQ) has responsibility for implementing the Clean Water Act. This responsibility includes establishing Total Maximum Daily Loads (TMDL) of sediment and contaminants that can affect water quality. Stream water quality is listed, or rated, according to beneficial uses of the water. For example, a stream may be listed as not

supporting aquatic life, but was found to be fully supporting industrial use. This would not mean that fish or industry were found in or along the creek, but would mean that the water quality was sufficient to support industry, but not some form of aquatic life. Complete descriptions of the TMDL rating process are available online (DEQ 2011a).

Prickly Pear Creek, which receives water from many of the tributaries in the project area, is listed on the State of Montana and EPA 303(d) list of impaired water bodies. TMDLs have been developed for Prickly Pear Creek, Corbin Creek, Clancy Creek and Lump Gulch. A listing of these streams and associated TMDLs are published in the Water Quality and Restoration Plan and Total Maximum Daily Loads (TMDLs) for the Lake Helena Watershed Planning Area (DEQ, 2004; DEQ, 2011a).

Corbin Creek water quality is listed as not supporting use for drinking water, cold water fishery, primary contact recreation, agriculture, industry, and aquatic life. Causes listed include alteration of streamside vegetation that affects stream temperature, and mining, which introduced high levels of silver to the stream. Lump Gulch was found to be fully supporting agricultural and industrial uses, and not supporting aquatic life, cold water fisheries, and drinking water uses. Mercury contamination from abandoned mine lands is listed as the cause of impairment. Clancy Creek water quality was found to fully support agricultural, industrial, and primary contact recreation uses. It does not support aquatic life, cold water fisheries, and drinking water uses due to contamination from mercury and loss of stream side vegetation due from mining, roads, grazing, and animal feeding operations. Finally, Prickly Pear Creek water quality supports primary contact recreation and agricultural uses. It does not support drinking water, cold water fisheries, aquatic life, and agricultural uses. It is impacted by stream channel alterations, sedimentation, loss of streamside vegetation, and industrial point source contamination stemming from mining, grazing, and contamination by aluminum and antimony. No known sources of impairment are found on BLM lands within the project area.

For the most part, reaches with flowing water are found along boundaries of BLM land, with the exception of a parcel, split by Interstate 15 and Prickly Pear Creek. Ephemeral drainages are found throughout the parcels. Following guidance for Streamside Management Zones, and employing BMPs on a site specific basis would be needed to mitigate effects of potential ground disturbing activities that could produce sedimentation, and to prevent degradation of riparian vegetation. Treatments should be designed to reduce sedimentation and not impede flows into these streams in the interest of water quality and quantity.

Impacts of No Action

Under the No Action Alternative, current trends and processes would continue. Beetle-killed trees would continue to pose a threat of high-severity wildland fire. High severity wildland fire places soil at risk erosion, sedimentation. Erosion could be substantial enough to alter the physical properties of the soil to the point that the ability of the soil to store water for plant uptake (available water capacity) could be reduced; altering, in turn, the ecological site (plant community) potential. Potential erosion due to wildland fire could translate to large amounts of sedimentation, depending on the size of the burn and its proximity to perennial streams. Sedimentation in response to wildland fire could impact fisheries and drinking water supplies. In addition to sedimentation resulting from a wildland fire, soils can become hydrophobic (water-repellant). As a result, increased runoff of precipitation would occur, leading to increased

sedimentation downslope. The lack of infiltration of precipitation would result in decreased levels of plant available stored soil moisture and increased delivery of water via overland flow.

Potential increases in the size and frequency of storm events due to climate change (Groisman et al 2001) and potential increases in overland flow resulting from wildland fire, or reduction of ground water consumption by conifers, could increase the volume of water delivered to streams. Climate change also could increase the probability of increased sedimentation into streams, due to changes in precipitation and changes in vegetation type and density, suitable for soil stabilization (Goode et al. 2011).

Impacts of Proposed Action

Mechanical treatments would expose the soil surface, rendering it subject to sedimentation. Positioning hand-cutting operations on soils with a higher risk of erosion, rather than mechanical treatments, would lower the risk of erosion and probability of sedimentation. Treatments would be implemented in compliance with State of Montana Streamside Management Zones, to reduce risk of sedimentation, and to ensure proper stream function. The ephemeral nature of drainages in the project area also lessens the probability of sedimentation. Should erosion occur where sediment would be transported from a treatment unit, it would likely settle out on low slopes and at toe slope/hill slope positions. Erosion that could occur as a result of burning and mechanical treatment would be much less than amounts resulting from wildland fire.

Reducing conifer would likely yield more soil moisture and potential groundwater recharge; however, given the small acreage affected, the volume of increased water yield would be relatively small. Compaction, resulting from mechanical treatment, would temporarily lower the amount of stored soil moisture and ground water recharge. Levels would return to normal over time due to ripping, or subsoiling, and seeding temporary roads to break up compacted layers and restore subsurface hydraulic function. Tree roots, organisms and weathering would break up less compacted layers outside of roads and trails. Lower infiltration rates of surface water due to compaction would occur.

Short-term, restricted infiltration rates in response to soil compaction resulting from operation of mechanized equipment may occur. Long-term, the removal of more overstory to favor understory vegetation, and to reduce the threat of wildland fire, would result in a higher probability of long term soil stability.

Excluding riparian forests and buffer strips from mechanized treatment, in compliance with Montana Stream Management Zones, leaves them intact to capture sediment and nutrients from entering streams (Moriasi et al. 2011; Davis et al. 2011).

Although predicting effects in response to climate change is difficult, proposed treatments that would open the overstory, thereby increasing understory vegetation density, could act to protect water quality of receiving streams in the project area (Goode et al. 2011).

Air Quality

Affected Environment

The state of Montana is divided into ten airsheds by the Montana Air Quality Bureau (DEQ 2011b) 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 area lies within Airshed 6, having a "Class 2" air quality designation. The Gates of The Mountains Wilderness Area, which has a "Class 1" designation, is located approximately 25 miles northeast of the project area. In addition to monitoring, the ID/MT Airshed Group has established Smoke Impact Zones. These zones surround cities where prescribed burning emissions could adversely affect air quality. Butte is the closest Smoke Impact Zone and is located approximately 21 miles southwest of the project area. This Smoke Impact Zone coincides with a State and Environmental Protection Agency (EPA) designation for Butte as a particulate nonattainment zone.

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

The Butte Field Office acknowledges that global climate change may be occurring; however, currently, tools that are able to analyze effects of management actions on climate change at a local scale are not available. Should such tools become available, they will be adopted. Standards and guidelines formally adopted in the Butte Field Office RMP that direct management activities are applicable to a range of hypothesized, predicted changes in GCC. As new tools are developed for monitoring and quantifying effects of management activities on GCC and vice-versa, they will be adopted.

Impacts of No Action

Under the No Action Alternative, current uses would continue, and undisturbed sites would continue to function as they are presently. Current trends and processes would continue. Beetle-killed trees would continue to pose a threat of high-severity wildland fire. Wildland fire would result in temporary conditions of smoke and particulates that could exceed air quality standards. Carbon dioxide (CO2) would also be released into the atmosphere; this gas is considered by the BLM and State of Montana, among other agencies, to be a greenhouse gas. Wildland fire would expose the soil surface, subjecting it to wind erosion in excess of current background levels. This would be a temporary effect until vegetative re-growth and litter cover reestablishes.

Impacts of Proposed Action

Mechanical and burn treatments would expose the soil surface, subjecting it to wind erosion. Fugitive dust would be temporary, lasting for the duration of operations and ceasing upon reclamation of roads and natural recovery. Exhaust from equipment would also be temporary.

Pile and slash 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 prescribed burning would be temporary and, given the comparative acreage of fuels consumed, would be less than what would be emitted in the case of wildland fire. Dust resulting from unauthorized motorized access by the public into the area would be prevented by reclaiming temporary roads.

Effects would be short term, limited to the period of treatment.

Invasive, Non-native Species

Affected Environment

The establishment and spread of invasive species is considered one of the top threats to ecosystem health. The Clancy Area Hazardous Fuels Reduction Project has numerous Montana noxious weeds located in its boundaries. Dalmatian toadflax, found frequently throughout the planning area, has an extensive and deep root system along with a waxy leaf, which make this an extremely difficult plant to manage. Spotted knapweed is also found along the road ways and in open areas. Past disturbances in the area have shown an increase in the thistle populations, including Canada thistle (MT noxious weed), bull thistle, and musk thistle (both found on county lists.) Wheeled motorized vehicles such as cars, trucks, ATVs, UTVs, and motorcycles can be major vectors of weed transport and spread. In general, invasive plant infestations in the Butte Field Office reflect what is widely known: most weed infestations are found in proximity to open motorized roads and trails.

Eradication of noxious weeds in the planning area, though ideal, would be very hard to achieve. Controlling and decreasing the existing populations, limiting the spread of noxious weeds present, and an active EDRR (Early Detection Rapid Response) of new noxious weed invaders, is the primary invasive, non-native species goal in the planning area.

Impacts of No Action

Under the No Action alternative, existing noxious weed infestations along roadways within the analysis area would be treated with herbicides on an annual basis by BLM noxious weed control crews, and would continue to be treated into the foreseeable future. The current weed control program is operating under the Butte Field Office Weed Management Plan Revision (May, 2009). Ground disturbance such as roads and trails would still be a major vector of noxious weed transport and introduction. If a disturbance such as a wildland fire were to happen, the likelihood of being able to manage noxious weeds after the wildland fire would be greatly reduced.

Impacts of Proposed Action

Any type of ground disturbance, by either natural or unnatural means has the capability of making suitable weed habitat. Roads and trails would still be a major noxious weed vector and new roadways with new ground disturbance would be prime weed habitat. Controlling the amount of disturbance and keeping up with an active noxious weed control program would significantly reduce the chance of more weed establishment. Treatments that would open up dense wooded areas would help promote establishment of native vegetation, thus creating a natural competition against weed infestations, but the disturbance would also create more weed habitat if native plants do not get established. Mechanical and burn piles would cause more disturbance, allowing weed infestations to occur. Positioning handcutting treatments, or no treatment, in areas where there are known weed infestations lowers the risk of exposed areas where weed locations are likely to occur. Weed invasions that would occur as a result of burning and mechanical treatments would be expected to be less severe than those resulting from wildland fires, because wildland fires would burn more severely and potentially sterilize the soils. The native seedbank would be lost with this scenario, and noxious weeds would have no competition for seed establishment

Upland Vegetation

Affected Environment

The majority of the project area falls under the 10” to 15” precipitation zone. This amount of precipitation lends itself to many different vegetation communities depending on elevation, slope, soil, and disturbance regime. The most common upland vegetation type is the sagebrush/bunchgrass community. In this area the species are Artemesia

tridentata/Pseudoroegneria spicata or big sagebrush/bluebunch wheatgrass. The sagebrush communities are experiencing expansion from conifers while the grassland communities are experiencing expansion from sagebrush along with associated decadence.

Environmental Impacts

No Action Alternative

Under this alternative, vegetative conditions would not be directly affected. Existing successional pathways would continue to progress. Short-term impacts associated with vegetative treatments would not occur and therefore direct impacts of the treatments would be non-existent. Expansion of conifers and sagebrush would continue to be prevalent without any form of disturbance whether natural or man-caused.

Proposed Action Alternative

The removal of conifers would reduce competition and release resources for uptake by sagebrush and grasses in the understory. The sagebrush and grass would have access to expand into areas where they may have been out competed by conifers. The initial direct disturbances to the communities would be minimal and localized to direct plant removal/loss most likely associated with travel and movement of biomass. Once conifers are removed the lesser stature plants would have more access to available resources and should increase into areas previously occupied by conifers.

Forestry

Affected Environment

The project area was stratified by previously treated areas and four cover types, ponderosa pine, Douglas-fir, mixed, and lodgepole pine. Many of the forested stands throughout the project area appear to be low to highly departed from their historic natural range of variability. Species composition, stand structure, and BA have changed in many areas. These changes have caused stand health to decrease, making them highly susceptible to wildland fire, insect infestations, and disease. Old growth is scattered throughout the project area. Nearly all of the stands with old growth structure have been severely affected by disease and the current insect infestations.

Also, in areas whose historic fire regimes included frequent, low to mixed severity fire, the exclusion of fire has allowed increased regeneration and encroachment of small diameter Douglas-fir and ponderosa pine. Increased tree density puts stress on the resources required for the ecosystems to remain healthy and increases the risk for unnaturally high severity/intensity wildland fire to occur. Conifer regeneration can also negatively affect other preferred species of plants due to competition.

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. Some areas of high mortality are starting to show signs of trees breaking and falling to the ground. The standing, dead trees within the project area pose a safety risk for the public using these areas.

Impacts of No Action

With the no action alternative, no hazardous fuels treatments 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 high severity wildland fire would

increase. Hazardous trees would remain on the landscape and could cause harm to public utilizing the area. The overall health of individual stands would continue to decrease, making them more susceptible to fire, insect infestations, and disease. Any old growth structure would not be protected and would continue to decline throughout the project area.

Impacts of Proposed Action

Implementation of the Proposed Action would reduce the undesirable effects expected under the No Action alternative. Proposed fuels treatments 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 BA 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 potential adverse effects of wildland fires, which could cause high mortality in the any old growth overstory and negatively affect seed beds critical for adequate regeneration. Vigor of individual stands would increase, making them less susceptible to wildland fire, insect infestations, and disease (O'Laughlin, 1993). Insect infested trees would be removed and thus insect populations would be reduced, possibly helping to protect residual trees.

Dead and dying timber would be removed from the project area. This would be beneficial for the future health of these stands, because research suggests that the most important component of the slash which should remain onsite from a nutrient budget perspective is the fine material (needles, leaves, and small twigs) (Hacker, 2005). Still, through removal of both live and dead timber, the amount of material available for decomposition and nutrient recycling would be reduced. Slash requirements would be followed to help maintain nutrient recycling, desirable micro-site conditions, and to create down woody material appropriate for the site. By reducing these stands BA and removing some slash, the projects would help protect the nutrient cycle in these forests by reducing the effects of a wildland fire.

Treatments would follow average BA prescriptions to meet all objectives. BA of a stand is directly related to the stocking and average diameter of trees within each stand. Therefore, it is possible to determine the average number of trees per acre, relative to the desired BA. The average leave tree DBH's would be highly variable throughout stands. Three diameter classes (10", 15", and 20") were chosen in the tables below to help display the relationships between basal area and average DBH. Average BA was also broken into three classes 40, 60, 80 BA. If treatments are implemented, the graphs below give an estimate for the average number of leave trees per acre (tpa) their spacing.

Table 03 Average BA for Average Tree Diameter

Average Diameter (inches)	Average BA		
	40	60	80
10 "	73 tpa	110 tpa	146 tpa
15 "	33 tpa	49 tpa	65 tpa
20 "	18 tpa	27 tpa	36 tpa

Table 04 Average Spacing for TPA

TPA	Spacing (feet)
18	49
27	40
33	36
36	34
49	30
65	26
73	24
110	20
146	17

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 would be managed in a manner to reduce the occurrence of unnaturally large and severe wildland fires and forest insect outbreaks. Natural disturbance regimes would be maintained or mimicked so that plant communities are resilient when periodic outbreaks of insects, disease, and wildland fire occur.

Riparian and Wetlands

Affected Environment

The Butte RMP defines Riparian Management Zones (RMZs) as areas where riparian values will receive primary emphasis with all activities to the extent possible. Maintaining and restoring quality riparian habitat (including vegetation) is important: 1) as habitat for many wildlife species; 2) to maintain water quality, appropriate woody material, and nutrient routing to aquatic habitats; and 3) to maintain appropriate stream channel morphology.

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

The RMZ for a riparian area containing a fish bearing stream is the area on both sides of the stream, extending from the outer edges of the bankfull channel a slope distance equal to the height of two site-potential trees. A site potential tree height is the average maximum potential height of dominant trees in the RMZ.

For a riparian area with a non-fish bearing stream, the RMZ would be the area on both sides of the stream extending from the outer edges of the bankfull channel a slope distance equal to the height of one site-potential tree.

For intermittent streams and wetlands that are < 1.0 acre in size the RMZ consists of the water body and a zone located on all sides of the water body. This zone extends from the outer edges of the bankfull channel or adjacent wetland a distance equal to at least 50 feet. The lentic features identified in the TABLE 05 as North Kelley and South Kelley are both <1.0 acre in size.

The riparian reaches that are located on BLM lands identified as potential treatment areas are listed in TABLE 04. The reaches are a combination of predominantly perennial and intermittent streams. There are two lentic (lacustrine or still water) features, PEAR 19 & 20, that are located in T8N, R4W, S½ Sec. 10. All of the reaches have been assessed by BLM personnel and determined to be in either Proper Functioning Condition (PFC) or Functioning at Risk (FAR).

Table 05 Riparian reaches that are located within proposed treatment areas

RATING	NAME	STREAMTYPE
PFC	Shingle Butte North	Intermittent
PFC	Prickly Pear Creek Trib.	Intermittent
FAR	Prickly Pear Cr.	Perennial
PFC	Prickly Pear Creek Trib.	Intermittent
PFC	Jackson Cr.	Perennial
PFC	Jackson Creek Trib.	Ephemeral
PFC	Jackson Creek Trib.	Ephemeral
FAR	Lump Gulch	Perennial
FAR	Lump Gulch	Perennial
FAR	Lump Gulch Trib.	Ephemeral
PFC	Lump Gulch Trib.	Perennial
PFC	Lump Gulch Trib.	Perennial
PFC	Buffalo Cr.	Perennial
PFC	Lump Gulch Cr.	Perennial
PFC	Lump Gulch Cr.	Perennial
PFC	Corral Gulch	Perennial
PFC	North Kelly Lentic	Lentic feature
PFC	South Kelly Lentic	Lentic feature
PFC	Clancy Cr.	Perennial
FAR	Clancy Cr.	Perennial

Some of the reaches are adjacent to roads and intense, historic lode and placer mining activities. These activities may be outside of BLM management control and therefore limit the options available to improve stream morphology or riparian vegetation.

The riparian vegetation that is found along the majority of the reaches matches what is expected for these types of systems and includes, but is not limited to, species such as; aspen, alder, willows, red-osier dogwood and various species of sedges and rushes. There are noxious weeds within some of the riparian areas, including spotted knapweed and dalmation toadflax. Conifers have expanded into riparian areas located within the project area.

Impacts of No Action

Current trends and processes would continue. Beetle-killed trees would continue to pose a threat of high-severity wildland fire. Conifer expansion into riparian areas would also continue.

High severity wildland fires can result in increased runoff due to the loss of upland and riparian vegetation and the loss of soil organic matter resulting in hydrophobic soils. This increased runoff and the accompanying erosion would result in increased sediment loads in the streams and their associated riparian areas as well as a change in channel morphology.

Conifer expansion into riparian areas can result in a shift from riparian plant communities to communities more often associated with uplands. This change in plant communities can result in streambanks becoming more susceptible to erosion and changes in channel morphology due to the loss of the deep binding root mass provided by riparian species.

Impacts of Proposed Action

The reduction of fuels would potentially lower the severity of wildland fire. This reduction in severity would help to reduce the potential for sediment loading of streams due to increased erosion post wildland fire. Native riparian vegetation would benefit from the increase in available resources due to the reduction of competition with conifers. A healthy riparian vegetation component helps to ensure that stream morphology is in balance with the watershed.

Recreation

Affected Environment

Recreation demands within the Clancy treatment area have been increasing recently and visitor use is expected to continue this upward trend in the foreseeable future. Reasons for this include increases in population and residential developments within the Helena/Clancy area, an increase in ATV sales and designated trails, and continual hunting pressures with greater mobility.

Recreation activities and users are quite varied within this area. Most of the current activities are dispersed as there are no highly developed recreation sites or facilities on the BLM lands. The primary recreation uses are big game and upland bird hunting, and OHV riding along established trails and undeveloped roads. Other secondary uses include hiking, horseback riding, mountain biking, rock climbing, firewood gathering, Christmas tree cutting, and wildlife viewing. Winter snowmobiling and cross country skiing is minimal given the limited snow accumulations on these lower elevation slopes.

Most visitors are nearby or local residents. Average visits are relatively short (2 to 4 hours) and overnight camping rarely occurs. Most recreation activity occurs during the spring, summer and fall months.

The Recreation Opportunity Setting (ROS) of the BLM lands are classified as Roaded Natural given the density of roads and trails scattered throughout the landscape and the proximity of residential homes. Road densities are greatest in the central portions where access needs for residential housing, mining, timber harvesting, grazing and utility lines have been historically the greatest. This area is receiving the greatest amount of OHV riding primarily from ATVs and trail bikes.

Motorized routes are less prevalent in the remaining portions of the project area and therefore recreation opportunities are better suited for non-motorized activities. Although some roads and trails exist, the setting is more remote and natural with fewer influences (sights and sounds) from other users.

Special Features

The primary attraction area is in the Sheep Mountain Special Recreation Management area. This area is divided into two sub-units by the Sheep Mountain Road. The northern extremity (Sheep Mountain) is a semi-primitive, non-motorized area that consists of numerous granite rock spires. Recreation opportunities include hiking, rock climbing, hunting and natural viewing. The southern sub-unit is a Roaded, Natural area known as the Ohio Gulch area. This area has a high density of secondary roads and trails that are popular for OHV riding, mountain biking, occasional horseback riding and fall hunting. Both areas have established trail heads and informational signs.

Impacts of No Action

Impacts on Non-Motorized Recreation Opportunities and Users

Under this alternative, vegetation conditions and landscape settings would not be affected. Existing recreation uses would continue unchanged. Vegetation fuel loads would remain high and therefore settings would be subjected to a higher severity in the event of a wildland fire disturbance. Short-term impacts associated with vegetation treatments would not occur and therefore non-motorized users would not be impacted by altered roads or temporary disturbance activities related to treatment activities. Under this alternative the potential for increased motorized uses along temporarily upgraded hauling roads would not occur.

Impacts on Motorized Recreation Users

Existing uses would remain unchanged and the motorized settings that users enjoy would be more susceptible to future wildland fires as fuel loads would not be reduced. Primitive roads and designated OHV routes in the Ohio Gulch area would not be altered and therefore impacts to current riding opportunities would remain unchanged.

Impacts of Proposed Action

Impacts on Non-Motorized Recreation Users

Non-motorized users would be subjected to short-term sights and sounds of treatment activities throughout the affected area. The natural appearance of treated areas would be impacted during the short-term which would degrade user experience levels to varying degrees depending on the extent of tree thinning, residual slash and road upgrades. The salvage treatment area north of Jackson Creek Road would also create temporary impacts to hikers along the Jack Mountain Trail as the immediate natural setting of the area would be degraded. Under this alternative newly created roads would be reclaimed and no new roads would be authorized for public use. The existing setting of the Sheep Mountain rock climbing area would not be affected since no treatments are proposed in the area.

Over time the impacts of these vegetative treatments would become less evident as slash decomposes, altered roads are reclaimed and the overall health of vegetative conditions improve and become more diversified. The long-term effects of these actions would ultimately benefit non-motorized recreation experiences since the threat of high severity wildland fires and its associated impacts would be decreased.

Impacts on Motorized Recreation Users

Motorized users riding BLM secondary roads throughout the affected area would be impacted to a moderate extent from the short-term sights and sounds of treatment activities. The natural condition of some treated areas may impact user experience levels due to the influence of tree cutting, residual ground slash and modified roads. Treatments in the Ohio Gulch riding area could have the greatest impacts to rider experiences given the higher OHV uses that occur and the density of trails in the area. To the extent possible timber would be removed using existing roads and trails would be avoided. Even so, some trails would be impacted from skidding and timber removal. In addition, the natural areas along these trails would more open and vegetative alterations would be more evident. Over the longer term the natural setting would be restored, roads and trails reclaimed to the current condition and the possibility for large scale wildland fire greatly reduced. Ultimately these changes would have a beneficial effect on riders in the area.

The salvage treatment of lodgepole pine would not affect motorized users as there are no open travel routes in this area.

Wildlife

Wildlife in the project area is typical of forested areas in southwestern Montana. Basic life history and habitat requirement information on all species mentioned can be found at http://fieldguide.mt.gov/ and numerous other sources.

Mammals The entire project area provides summer habitat for elk, deer, and moose. Winter habitat for these big game species is generally considered to be the entire area for elk, the area west of I-90 for deer, and the southern portion for moose. Pronghorn antelope use lower, open areas where fuels reduction activities are unlikely to occur. Numerous other mammal species are associated with forested habitat including American marten, northern flying squirrel, redback vole, porcupine, snowshoe hare, red squirrel, deer mouse, dusky and vagrant shrews, golden-mantled ground squirrel.

Birds Many species of migratory and non-migratory birds are found in the project area. Examples of species highly associated with mature closed-canopied forests include golden-crowned kinglet, brown creeper, pine grosbeak, northern goshawk, boreal owl, hermit thrush, and Townsend's warbler. Other species more general in their habitat choices but frequently associated with mature coniferous forest include the mountain chickadee, red-breasted nuthatch, gray jay, pine siskin, red crossbill and ruby-crowned kinglet.

Reptiles and Amphibians Reptiles that could occur in the project area include the painted turtle, eastern racer, gopher snake, garter snakes, and western rattlesnake. Amphibians that could occur in the project area are Columbia spotted frog, western toad, and long-toed salamander. Other reptiles and amphibians are unlikely to occupy the area.

Fish Streams known to support fish are Prickly Pear Creek, Lump Gulch, and Clancy Creek. Other seasonal or intermittent water bodies in the area do not support fish. No Federally-listed or BLM-sensitive fish species are present in the project area. Westslope cutthroat trout, a BLM sensitive species, exist in Lump Gulch and Prickly Pear Creek several miles above the project area on USFS lands. (*Montana Fisheries Information System 2012*)

Table 06 Fish Species Present on Project Area Segments

Waterbody name	Stream type	Fish species present on project area segments
Holmes Gulch	Intermittent	No data
Clark Gulch	Intermittent	No data
Jackson Creek	Intermittent	No data
Ohio Gulch	Intermittent	No data
Lump Gulch	Perennial	Brook trout – abundant Brown trout – rare Mottled sculpin - abundant
Buffalo Creek	Perennial	Brook trout - common
Corral Gulch	Perennial	No data
Clancy Creek	Perennial	Brook trout - abundant
McCauley Gulch	Perennial	No data
Shingle Creek	Perennial	No data
Prickly Pear Creek	Perennial	Brook trout – abundant Brown trout – abundant Rainbow trout - abundant Longnose sucker – abundant Mottled sculpin – common White sucker – rare Longnose dace - unknown

Table 07 Special Status Species

Endangered Species Act listed species that could occur in the project area		
Species	**Status**	**Notes**
Grizzly bear	Threatened	Unlikely to occur; may occasionally disperse through the area.
Lynx	Threatened	Small portions of T9N, R3W, S20 are considered suitable habitat. However, the upper elevation is approximately 5700'. Unlikely to be a permanent resident in this area due to deterrence from coyotes, bobcats, and mountain lions.
wolverine	Candidate	Could occur anywhere in forested habitat but unlikely to be a permanent resident of the project area. The project area would comprise only a small portion of a wolverine's home range.

Table 08 Sensitive Species

BLM sensitive species that could occur in the project area		
Species	**Documented in area?**	**Notes**
Fisher	no	Project is at the southeast edge of their range in MT. Occur in a variety of forest types. Can move several miles per day and dispersing individuals can cover long distances.
Fringed myotis	no	Roosts in caves, mines and rock crevices. Undocumented but could occur in the project area.
Gray wolf	no	No resident packs are currently in the project area but individuals may disperse through it.
Long-eared myotis	no	Undocumented in project area but could occur. Associated with forested stands with old-growth characteristics.
Long-legged myotis	no	Uses tree bark or caves for summer roost sites. Could occur in project area. Occurs in aspen and mixed conifer forests.
Townsend's big-eared bat	no	Prefers caves and abandoned mines for roosting.
Bald eagle	no	Preferred habitat near lakes and larger rivers is not available in project area. No nests are known in the project area but individuals likely pass through.
Swainson's hawk	no	May occur in the project area but prefer open areas for hunting.
Flammulated owl	yes	Nests in cavities excavated by woodpeckers. Has been documented in the western portion of the project area, and in the forest east of the area.
Golden eagle	yes	One nest has been found in the project area. Hunts over open country.
Great gray owl	no	Could occur in the project area. Prefers dense forest and has large home range.
Northern goshawk	yes	Territories and nests have been confirmed near the western portion of the project area.
Black-backed woodpecker	no	Unlikely to occur in project area. Prefers recently burned forests.
Three-toed woodpecker	no	Could occur in project area. Nests in cavities, often near water.
Western toad	no	Has been documented west of the project area and could occur near water, wet meadows or beaver ponds.

Impacts of No Action

Under this alternative, open canopies in the project area would continue to be under-represented and dense canopies over-represented in relation to their historic levels. Any disturbance or harm that may come to individuals during implementation would not occur. Hiding cover for big game would remain the same but forage conditions for big game would not improve.

Impacts of Proposed Action

The Proposed Action is general in nature due to access issues that need resolution prior to implementing any treatments. Therefore it is difficult to determine precise effects on wildlife and habitat. When looked at in an overall ecosystem context, the project area is already highly fragmented, being in the I-15corridor with a very patchy land ownership pattern, most of which is private. This patchy and mostly private land ownership pattern is what drives this action to

protect human safety. The project area is relatively quite small in relation to much larger areas of far less fragmented habitat adjacent to the project area.

Under any implementation scenario, treated areas would add diversity to adjacent untreated areas and return treated areas to a more historic state before fire suppression became common. Timber harvest would diminish cover for big game while improving foraging opportunity. Many homes and roads exist in this area; reduction of hiding cover could reduce some wildlife-human conflicts.

Currently the open forest type is under-represented in relation to historic amounts. Treatments would transform varying amounts of closed forest to open forest. This would reduce habitat for species that require dense forest environments (such as northern flying squirrel, redbacked vole, brown creeper) and create new habitat for species preferring more open stands (such as violet-green swallows, chipping sparrows, mourning doves). Species that tolerate a wide range of forest structure (such as chickadee, pine siskin, deer mouse) would be relatively unaffected.

Activities associated with implementation of treatments could disturb or harm individuals but no species populations would be affected. Design features would minimize impacts to flammulated owls and northern goshawks. Habitat for these species would be improved in the long-term.

CUMULATIVE IMPACTS ANALYSIS

Cumulative Effects for All Alternatives

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.

Past and Present Actions

The project area has had a variety of activities over the past century, including historic mining activity, logging, and development of roads, power line placement, development and management of private lands, motorized and non-motorized use and livestock grazing

Approximately 785 acres of commercial timber harvest, 212 acres of thinning, and 149 acres of prescribed fire have occurred on forested BLM administered lands in the Clancy project area in the past 20 years. Effects to soils from past vegetative treatments were negligible. Additional acreages have been treated on adjacent Forest Service, State and private grounds.

Wildlife and wildlife habitat has also been lost or degraded due to high road densities, the use of motorized vehicles year-round, historic mining, timber harvest, weed infestations and recreation. Primary recreation activities include motorized OHV uses (ATV, motorcycle) and non-motorized uses (hiking, jogging, horseback riding, mountain biking, etc.). Vegetative treatments on BLM lands would have had minor effects to wildlife habitat in the project and analysis areas. However, development on private lands has substantially altered the landscape and caused a substantial decline in the quality and quantity of wildlife habitat in this area.

Noxious weeds and non-native invasive species are well established in the project area. Motorized activities play a large role in the distribution of noxious weeds. Open roads and development adjacent to BLM lands and the substantial amount of public use would still allow for the spread of noxious weeds.

Public land management agencies have suppressed almost all wildland fire starts in recent decades (since about 1911). As a result, biomass and fuel loads have increased in forests

managed under this strategy; and species composition shifted away from more fire-tolerant species to less fire tolerant species (Barrett & Arno 1982). Exclusion of fire from the landscape (e.g. removal of fine fuels by livestock, coupled with fire suppression over the past century) has increased fuel loads and decreased forest health.

Specifically, with respect to vegetation, there are complex interrelationships between biotic and abiotic components of forest plant communities. Natural and human-induced processes transcend ownership boundaries. Effects, existing and future, on the local level would contribute to existing and future effects on adjacent lands. Cumulative effects of vegetation changes would apply to other resources such as wildlife, fish, visual quality, and watersheds. Effects of new vegetative treatments would contribute to the effects of older vegetative treatments, both on BLM-managed land and on adjacent private and other public ownerships. These effects would be mitigated somewhat by the separation in time and space between earlier treatments and the new treatments (Brown et al. 2006).

Recent subdivision growth on private lands would lead to more road construction and surface disturbance. Additionally, subdivisions have the potential to disrupt the connectivity of plant habitat and populations as well as disturbing or eliminating pollinators needed by sensitive species. Some sensitive species that require soil disturbance may benefit.

Livestock grazing on public and private ground currently occurs in the adjacent valley bottom and has occurred for at least 150 years, but in recent years livestock grazing has declined in the analysis area due to ranches and rangelands being subdivided for residential development.

Reasonably Foreseeable Action

Timber harvest and fuels treatments conducted on public and private lands would also likely occur for the foreseeable future with variable effects to soils. Reducing fuels under the controlled conditions of deliberate treatments may benefit soils in the long-term by reducing the risk of high severity fires in treated areas.

The Implementation of Tri County Roadside EA may occur. Tri-County (TRICO) FireSafe Working Group has more than 200 miles of primary and secondary evacuation routes identified through the Population Protection Plans that were evaluated by the area fire departments in Jefferson, Broadwater, and Lewis and Clark Counties. Some of these routes that TRICO has identified cross through BLM administered lands in the Tri-County Area. TRICO is in the process of prioritizing routes to start the road side mitigation in the fall and winter of 2012.

The Forest Service may implement the Warm Springs Habitat Enhancement Project.
The project would use a variety of silvicultural tools including intermediate harvest, regeneration havest hand thinning with chain saws and prescribed fire on approximately 42,000 acres to develop and/ or maintain mature habitat structures where possible and to address mountain pine beetle infestation and fuel hazard.

Increasing residential development on adjacent private lands would likely continue for the foreseeable future to variable degrees. Erosion, compaction, and covering of soils would occur due to additional road construction, clearing/leveling for home sites, and establishment of utility infrastructure for residential developments.

Anticipated subdivision growth on private lands would lead to more road construction and surface disturbance. Additionally, subdivisions have the potential to further disrupt the connectivity of plant habitat and populations as well as disturbing or eliminating pollinators needed by sensitive species. Some sensitive species that require soil disturbance may benefit.

Livestock grazing would continue in areas adjacent to the proposed treatments and has the potential to impact sensitive plant populations and habitat. On public lands, ongoing rangeland health assessments and implementation of livestock grazing guidelines would continue to improve or maintain sensitive species populations and habitat. On private lands, livestock grazing is expected to decline slowly as more ranch and farmland is subdivided. Conditions may improve or degrade as management changes.

Noxious weed control would continue on both public and private lands with varying degrees of success. To the extent that these efforts are successful, sensitive plants would benefit from the reduced competition. Use of herbicides for noxious weed control could cause mortality to special status plants if individual plants are inadvertently sprayed.

It is expected that the area would continue to see recreational use in the form of motorized use of designated OHV areas and on roads and trails, as well as other forms of non-motorized recreation (hiking, wildlife viewing, etc.)

The risk of wildland fire on all ownerships will continue. Fire suppression efforts, utilizing resource benefit objectives, would continue on federally-administered lands in the watershed.

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 April 2011. This report is available at: http://www.blm.gov/style/medialib/blm/mt/blm_information/nepa_logs/

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 and/or in person at an open house meeting that was held in Clancy. A public comment period was offered due to the extensive scale of the project. As a result of the newspaper notification and/or public open house of the proposed project, the BFO received 26 responses providing comments on the proposals via email and/or letter.

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 participation in this project started in 2002 with gathering data for the Wildland-Urban Interface Communities-At-Risk- Hazard Assessment. This assessment set the basis for Clancy Area Hazardous Fuels Reduction Project.

- Public notification of the Proposed Action through a posting on the Butte Field Office NEPA registers in April 2011.

- A scoping letter explaining the project and requesting attendance at a public open house was mailed to approximately 30 federal agencies, local, state and county government cooperators and Tribes.

- The scoping letter explaining the project and requesting attendance at a public open house was posted at post offices and local businesses throughout Clancy, Montana City, Jefferson City and Helena.

- On January 18, 2012 an editorial of the project and invitation to the open house meeting appeared in the Boulder Monitor.

- On January 20, 2012 an editorial of the project and invitation to the open house meeting appeared in the Helena Independent record.

- On January 23, 2010 a legal notice of the scoping letter explaining the project and requesting attendance at a public open house appeared in the Helena Independent Record.

- On January 23, 2012 a public open house was held at the Clancy Grade School.

- The Butte Field Office received 26 written and email comments from individuals (appendix A). The majority of the comments were in support of the project and the removal of hazardous fuels (15). Of the15, two identified areas that were not

proposed to be treated. One letter produced several comments including the effects of logging on soil and water resources, road effects on wildlife, soil and water, suggested that the goal of the project should be changed and using verbenone treatments. Two comments were received related to weeds. One comment on the use of prescribed fire was received. All effected resource comments were considered in the effects of the purposed action. The Butte Field Office already has an office-wide programmatic EA that covers applying pheromones, such as verbenone. Possible pheromone treatments would be evaluated in combination with other treatments.

Comments were addressed by (1) modifying the proposed action and refining project design features; (2) incorporating the comment into the analysis, or (3) explaining why the comments do not warrant further agency response.

All comments received from the public were considered during project planning to the extent possible within the scope of the project.

List of Preparers

Table 9 Preparers

Name (and agency, if other than BLM)	**Title**	**Responsible for the Following Section(s) of this Document**
Charles Tuss	Fire Management Specialist	Project Leader / Proposed Action / Fire Management
Scott Franklin	Wildlife Biologist	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
Roger Olsen	Range Management Specialist	Threatened, Endangered or Sensitive Plants Riparian/ Range/Vegetation
Erik Broeder	RangeManagement Specialist	Riparian
Carolyn Kiely	Archeologist	Cultural Resources / Native American Religion Concerns
Brad Rixford	Recreation Planner	Recreation, Travel Management /Visual Resource Management (VRM)

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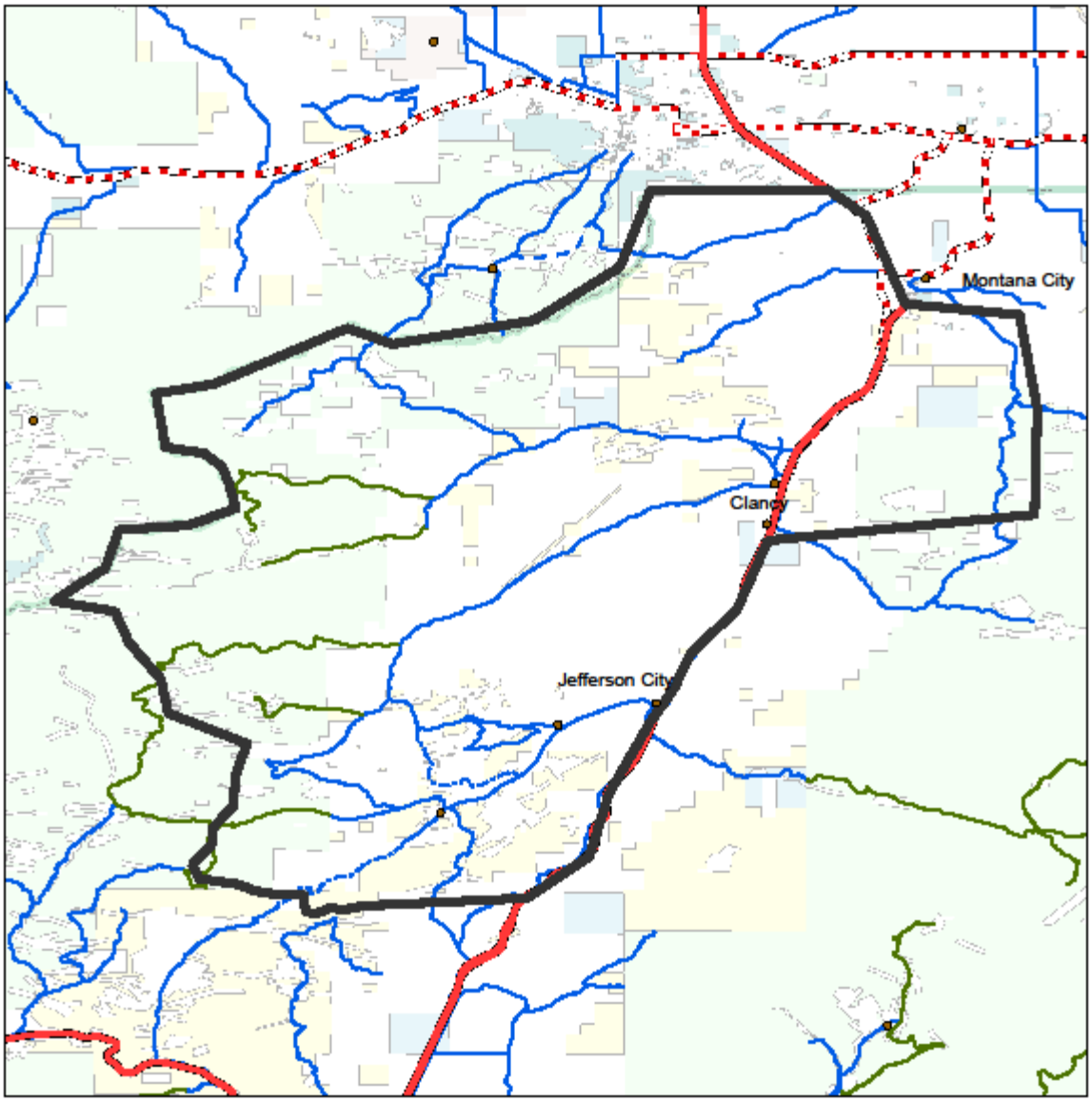
APPENDICES MAPS

Clancy Area WUI Fuels Reduction Project



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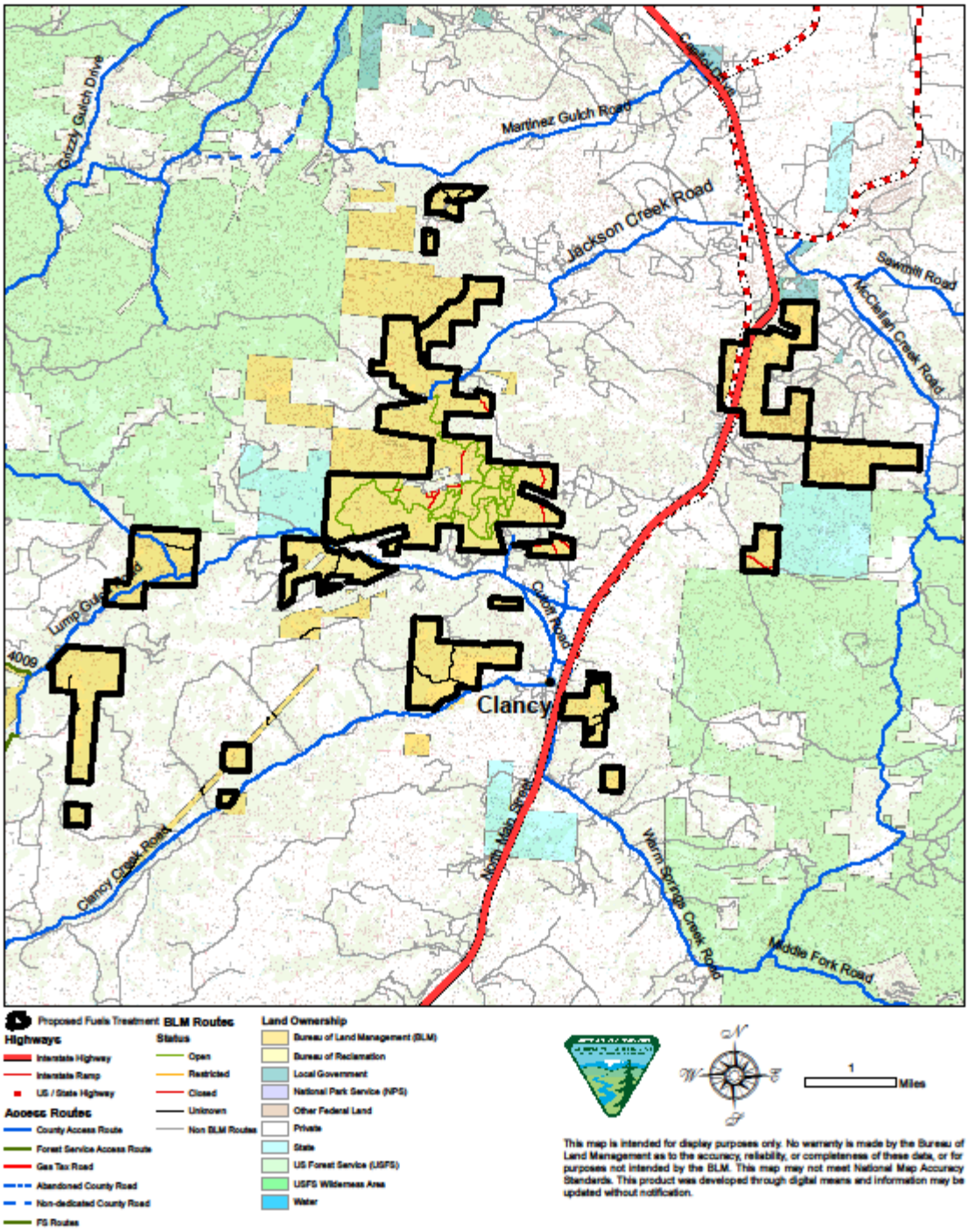
Legend
Project Boundary

highways aro
TYPE
Interstate Highway
Interstate Ramp
US / State Highway

access_routes aro
TYPE
County Access Route
Forest Service Access Route
Gas Tax Road
Abandoned County Road
Non-dedicated County Road

BFO Ownership

OWN
BLM
BOR
Local Gov
NPS
Private
State
US Gov
USFS
USFS Wild

Clancy Area Hazardous Fuels Reduction Project

Treatment Map