Mineral Ridge Fuels Reduction

Environmental Assessment

DOI-BLM-ID-C010-2015-0003-EA

U.S. Department of the Interior
Bureau of Land Management
Coeur d'Alene Field Office
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August 2015

1.0 Introduction

1.1 Background:

The Bureau of Land Management (BLM) has been considering how to better manage the unique resources on Mineral Ridge by improving forest health and protecting adjacent property and unique natural resources from wildfire. Past proposals have included prescribed burning only in the fall, which is when historic fires would most likely have been ignited. However, the missed fire return intervals and the subsequent buildup of fuels, make controlling a fall burn precarious. In addition, getting air quality clearance as well as proper fuels conditions (humidity, fuel moisture, air temperature etc.) at the same time in the fall has proven difficult. The updated proposal includes flexibility in timing and methods to reduce fuels and improve forest health on the site. This would help the BLM to better protect legacy trees and adjacent lands from wildfire while still accomplishing the goal of reducing the build-up of fuels that makes the site more vulnerable to stand replacing fires and insects and disease.

1.2 Proposed action summary:

The BLM proposes to remove small diameter understory trees on 74 acres of BLM land on Mineral Ridge. In addition, a shaded fuel break would be completed along the southern boundary of the property where brush and small diameter conifers would be removed to provide even greater protection for adjacent private properties.

1.3 Location:

The area of the proposed action is in Kootenai County and lies about 5 miles southeast of Coeur d'Alene, Idaho. Mineral Ridge is a 200 acre BLM recreation site adjacent to Coeur d'Alene Lake.

The legal description is Boise Meridian T. 49N, R. 3W, Section 1 S 1/2, (See Appendix 1-Mineral Ridge Vicinity Map).

2.0 Purpose and Need

2.1 Need:

The Mineral Ridge Area has missed three or more fire return intervals (i.e., the understory hasn't burned in 45-75 years or more). The area is dominated by ponderosa pine, which typically burns every 15-25 years. As a result, a wildfire on public land, from lightning or from human carelessness, could move into the urban interface and destroy houses. This area has very limited access, which would delay initial attack fire suppression. This area is also a recreation area with a picnic site and a high volume of recreation along the trail. A wildfire could endanger recreationists, destroy the existing recreation site infrastructure, and spread to adjacent properties.

The site contains numerous legacy trees that are more than 100 years old. Insect and disease activity is expected to increase as the number of small diameter understory trees increase. These large diameter ponderosa pine and Douglas fir are of high value to wildlife and to people. Reducing small diameter understory trees around these legacy trees will help to protect them from future fires that may occur and increase their resistance to insects and disease.

2.2 Purpose:

The purpose of the proposed action is to improve forest health by reducing fuels within the Mineral Ridge area. This would protect people, property, and legacy trees from wildfire, while retaining the recreational values and uses of the area.

The objectives of the proposed project are:

- Protect large diameter pine from mountain pine beetles by reducing competition with small-diameter trees.
- Reduce the threat of wildfire to site, legacy trees, and adjacent lands by reducing fuel load and ladder fuels.
- Restore/maintain ponderosa pine as the dominant cover-type by removing Douglas fir and grand fir seedlings.
- Maintain recreational values and opportunities.

3.0 BLM Decision to be Made

The BLM must decide whether or not to implement the proposed fuels and forest health treatments on Mineral Ridge.

4.0 Land Use Plan Conformance

This proposal is in conformance with, and meets many of the objectives outlined in the Coeur d'Alene Field Office Resource Management Plan (RMP). Listed below are the objectives within the RMP that are relevant to this project:

Objective AQ-1.1 – Manage prescribed fire and wildland fire use in a manner to minimize degradation of the airshed.

Objective AQ-1.2 – Cooperate with other members of the Montana/Idaho Airshed Group on smoke management.

Objective AQ-1.3 – Ensure that all authorized activities on public lands meet federal and IDEQ air quality standards and regulatory requirements.

Objective SO-1.1 – Ensure that management actions for other resource programs incorporate adequate soil protection.

Objective WA-1.1 – Comply with state and federal requirements to protect public waters.

Objective WA-1.2 – Protect and maintain watersheds so that they appropriately capture, retain, and release water of quality that meets or exceeds state and federal standards.

Objective VF-1.2 – Restore forest stands to historic species composition, structure, and function by conducting vegetative treatments on approximately 8,200 acres.

Objective VW-1.1 – Comply with state and federal requirements to manage noxious weeds.

Objective FW-2.2 – Maintain adequate habitat for snag- and cavity-dependent animals, with emphasis on migratory birds, waterfowl, and bats.

Objective FW-2.3 – Protect raptors and their habitats.

Objective SS-2.2 – Maintain adequate habitat for snag- and cavity-dependent animals, with emphasis on migratory birds and bats.

Objective SS-2.5 – Ensure that rare plant populations/associated habitats and rare plant communities are stable or continue to improve in vigor and distribution.

Objective WF-1.6 – Reduce impact from wildland fire to WUI areas, municipal watersheds, and infrastructure.

Objective VR-1.1 – Use the visual resource management system to manage visual resources in a manner that is consistent with management direction of the other resource programs.

Objective RC-1.2 – Manage the Coeur d'Alene Lake SRMA for land- and water-based leisure activities for outdoor sport, relaxation, social group or family affiliation, and personal enrichment or learning through environmental study within accessible natural forested lakeshore settings.

5.0 Scoping and Issues

5.1 Public Involvement:

Initially the project was proposed solely as a prescribed burn in the Fall season. The BLM conducted public scoping for this original proposal in January of 2009. On December 9, 2008 several members of the BLM Coeur d'Alene Field Office visited homeowners adjacent to the proposed burn site to identify concerns and issues from

the public. On December 18, 2008 and January 15, 2009 public meetings were held at the Coeur d'Alene Field Office to discuss the project proposal and to solicit issues on the proposed project from the public. A field tour was held on May 2, 2009 at the proposed prescribed burn site.

However, because of the difficulty in getting air clearance at optimal burn times, and because of significant concerns about the welfare of large diameter trees, exacerbation of weed problems, and sensitive plants, the BLM decided to modify the proposed action in 2014. The BLM then reinitiated public scoping and asked for comments on the new proposal from March 2 to April 1, 2015.

5.2 Issues: Internal scoping

Internal scoping occurred through meetings of resource specialists within the Coeur d'Alene Field Office over several years. Issues identified included:

- Noxious weed introduction or expansion: removal of small diameter trees and burning of fine fuels could provide disturbance resulting in the introduction or expansion of noxious weed species.
- Impacts to fish and aquatic habitats: treatments could result in sediment runoff that would impact fish and aquatic habitats in adjacent streams and Lake Coeur d'Alene.
- Smoke and air quality impacts to adjacent landowners and the general public: smoke during the pile burning portion of implementation may affect adjacent land owners and the public.
- Impacts to visual resources: removing vegetation and treatment operations could reduce the visual quality of the landscape.
- Damage or destruction of cultural resources: treatments and operations could damage or destroy cultural resources within the project area.
- Disturbance to wildlife and their habitat: disturbance to wildlife resulting from human presence, equipment noise, and smoke may disrupt or deter wildlife on the site. Changes in habitat may have negative effects on some species.
- Impacts to sensitive plants and their habitat: opening the canopy and disturbing the soil (by burning or slashing) can create an environment that is favorable to weeds. Weeds can then out compete or inhibit the growth of sensitive plants that currently occupy or could occupy the site in the future.
- Impacts to soils and hydrology: treatments and operations could cause soil erosion and sediments affecting adjacent streams.

- Disruption of recreation activities: this high use area may need to be temporarily closed during project implementation. Treatments could affect the quality of recreational opportunities and experiences.

6.0 Alternatives

6.1 Alternative A (Proposed Action):

Fuels reduction activity would occur on 74 acres of BLM lands through slashing and hand piling of small diameter understory tree species. Tree species removed would be largely Douglas fir and grand fir. Removal would benefit shade-intolerant seral species, specifically ponderosa pine, and reduce ladder fuels. All material smaller than 9" diameter (both activity related and natural fuels) would be cut and piled. Small diameter ponderosa pine may also be cut only if they are interfering with dominant trees or are potential ladder fuels near large diameter, more desirable ponderosa pine or Douglas-fir.

In addition to the above action, BLM is proposing to create a buffer approximately 130 feet wide that would be treated along the southern portion of the BLM property line (see map). This area lies directly adjacent to private land and dwellings, thus we are proposing removal of conifers less than 9' inches in diameter *and* all brush within this buffer strip. All material up to 9" diameter would be cut and piled. All trees greater than 9" diameter will be left.

All fuels would be slashed by hand crews and piled throughout the project site. Piles would be left to cure and burned within one to two years.

In addition to the above forest health treatment and fuels reduction, old fire hand-lines that were constructed for implementation of the first proposed prescribed burn would be rehabilitated. This hand-line has become a "Trail" that is used by the public. The current use of the hand-line as a trail has resulted in compacted soil and may be furthering the spread of noxious weeds. Without rehabilitation, erosion of soils in steep areas will increase. Because prescribed burning will not be implemented as part of this final proposal, the hand-line would be rehabilitated to discontinue its use as a recreational trail.

6.1.2 Design Features

- In order to reduce the impact to the aesthetics of the site, there would be no slash piles created within 50 feet of the parking and picnic areas. Within this buffer, slash would be hauled off or chipped on site.
- The BLM botany and fuels programs would work closely to minimize impacts to BLM Special Status Plant Species.

- Burn pile areas adjacent to the two rare plant populations that do not recolonize with native species within one to two years would be reseeded or replanted using native vegetation, to inhibit post-burn weed invasion or expansion. Species chosen for the re-vegetation effort should be appropriate for the project area plant community and should not out-compete the two BLM Special Status Plant Species.

- To reduce impacts to Migratory Birds, vegetation cutting and piling will not occur between April 15 and July 15.

- Reduce sources of weed seed and/or plant parts and minimize risk of spreading existing infestations by treating pre-existing weed populations prior to project activities.

- Reduce impacts of weed populations following project completion. Post-project activities would employ an integrated weed control strategy of: monitoring and treatment of weed infestations in treatment areas. Weed treatments may use biological controls, mechanical removal, and/or herbicides after considering the effectiveness of all potential methods and combination of methods.

- Monitoring- After fuels treatment activities, employ the Coeur d'Alene Field Office's weed and vegetation management strategy to monitor and treat weed infestations on trails, roads, landings, skid trails, and treatment areas. Future weed treatments may use biological controls, mechanical removal, and/or herbicides after considering the effectiveness of the methods, as described for the Integrated Weed and Vegetation Management program in environmental assessment #ID-410-2008-EA-224 and the Standard Operating Procedures (SOPs) and environmental design measures in Appendix B and Appendix C of the EA (BLM 2010).

- The vegetation on the inside portions of the switch backs would not be slashed or removed to help prevent social trailing. A BLM representative would be on site during project implementation to flag the areas near the switchbacks that need less treatment.

- When practical, hand piles would be located thirty feet from the trail. This would help limit the amount of disturbance to the piles until burned. The thirty foot buffer would also limit the amount of burnt ground next to the trail. Limiting the amount of burnt area near the trail would help prevent the spread of noxious weeds by hikers.

6.2 Alternative B (No Action):

- No vegetation treatment would occur in the project area.

7.0 Affected Environment and Environmental Effects

7.1 Scope of Analysis

7.1.1 General Setting:

This recreation site was the first developed by the BLM in Idaho. The proposed project area contains 74 acres of BLM lands. The area is almost entirely along the south side of the ridge. Slopes vary from 29 to 50%, elevation varies from 2240 ft to 2782 ft. above sea level, and the aspect is predominantly south facing.

7.1.2 Related Past, Present, and Reasonably Foreseeable Actions:

There are several projects that have occurred or are planned to occur within the general area of Mineral Ridge. Across the lake in Blue Creek Bay, the BLM is planning to conduct forest health treatments on approximately 200 acres. The proposed treatments would include removal of shade tolerant trees to promote the health and vigor of ponderosa pine, western white pine, and larch. This proposal also includes expansion and improvement of recreation opportunities within the Blue Creek Bay area. Recreation use is exceptionally high within the Mineral Ridge Area. As one of the more popular trails close to Coeur d'Alene, this recreation site is used by around 70,000 visitors each year. This use is expected to continue and is likely to increase. Wolf Lodge Bay, just north of Mineral Ridge, is a popular destination for motorized and non motorized boat use, wildlife viewing, fishing and waterfowl hunting. Maintenance of recreation infrastructure and trails on BLM lands within the Mineral Ridge Area occurs throughout the year and will continue.

In early Spring of 2015 approximately 80 hazard trees were removed from the Mineral Ridge recreation area. Snags that were adjacent to trails and infrastructure and were deemed likely to cause harm to people if they fell were removed in early April.

7.1.3 Analytical Assumptions

The analysis of effects is based on the assumption that, if left untreated, a stand replacing crown fire will occur in the project area in the future.

7.2 Invasive, Nonnative Species (Weeds)

7.2.1 Affected Environment:

Invasive weeds threaten our public lands by outcompeting native vegetation and adversely affecting native plant and animal communities, damaging watersheds, and increasing soil erosion. Plant communities in the proposed action area have been affected by disturbances such as recreation activities, and wildlife.

Scattered populations of weeds exist throughout the project area including spotted knapweed (*Centaurea maculosa*), meadow hawkweed (*Hieracium pratense*), St. Johnswort (*Hypericum perforatum*), oxeye daisy (*Chyrysanthemum leucanthemum*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), sulfur cinquefoil (*Potentilla recta*) and Dalmatian toadflax (*Linaria genistifolia*). The BLM has treated weed populations with herbicides and biological control and successfully reduced these weed populations. Some weeds have persisted and provide a continuing source of weed seed.

7.2.2 Environmental Effects from Alternative A (Proposed Action):

Activities including fuels reduction and prescribed burning would increase the risk of weed expansion into forest areas by removing existing vegetation, disturbing soils, increasing light to the forest floor; all factors that favor weeds. Weed species are often better adapted to colonizing newly disturbed areas than native species. Sources of weed seed may be from the existing project area weed populations as well as adjacent areas.

Long term effects of the fuels reduction efforts will reduce the likelihood of a high intensity fire in the project area. A high intensity fire would remove vegetation and disturb soils. These disturbances would be greater than the disturbances resulting from the proposed fuels reduction activities.

7.2.3 Environmental Effects from Alternative B (No Action):

No action would result in current populations of weeds persisting and potentially expanding. In dry conifer forests weeds can expand from existing populations into forested areas, often spread by wildlife.

No action in the project area would result in increased fuel loading and with it increased risk of severe fire. A severe fire would remove competing vegetation and subsequent soil exposure leaves a burned area primed for noxious weed invasion. Private lands adjacent to the project area are heavily infested with noxious weeds and would likely provide a weed seed source and increase the likelihood of weed establishment. The increased fuel loading and untreated weed populations combine to create a potential for weed infestation of burned areas following a fire event.

7.2.4 Cumulative Effects:

There are many factors in the analysis area that contribute to the spread of noxious weeds including: logging, transportation, wildlife, wildland fires, recreation and other uses. Noxious weed control efforts in the project area and within the watershed would be conducted as part of the Coeur d'Alene Field Office Weed Management program. Weed control priorities and methods are described in the Coeur d'Alene Resource Management Plan (RMP) (BLM 2007) and the Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments (BLM 2008).

The Coeur d'Alene Field Office weed program is part of the Inland Empire Cooperative Weed Management Area (IECWMA). These cooperators have noxious weed control responsibilities and interests on adjacent and co-mingled lands in the area. Uncontrolled weed populations in one jurisdiction greatly affect the ability of other land managers to control weeds on lands they administer. The IECWMA promotes an integrated weed management program throughout the area that includes public relations, education and training in the noxious weed arena, along with coordination of weed control efforts and methods, and sharing of resources.

Past events such as road-building and use; logging; mining; fire; and OHV activity have contributed to weed invasion on BLM and non-BLM lands. Where left untreated, these weeds may have persisted and continued to threaten native plant communities; although in areas where plant canopy has provided sufficiently shaded conditions, weeds may have not established or decreased in extent over time. Where effective treatment has occurred, weeds have been either eradicated or their spread into native vegetation has been curtailed. Ongoing and reasonably foreseeable actions on non-BLM land which would increase the threat of weed invasion into native plant communities include road-building and use; logging; fire; wildlife, and OHV activity.

The short term effects of the proposed action may result in increased weed establishment and spread in areas of ground disturbance. Over the long term, the reduction in threat of wildfire in the analysis area along with weed control activities undertaken by BLM on public lands would contribute positive cumulative effects on noxious weeds through participation in the IECWMA and implementation of the proposed action.

7.3. Fisheries

7.3.1 Affected Environment:

The proposed project area is located on the ridge between Wolf Lodge Bay and Beauty Bay on Coeur d'Alene Lake. Coeur d'Alene Lake has two major tributaries, the Coeur d'Alene and St. Joe Rivers, and numerous smaller tributaries, including Wolf Lodge Creek entering at Wolf Lodge Bay and Beauty Creek entering at Beauty Bay. The project area is located outside of the Riparian Conservation Area (RCA). Riparian Conservation Areas are lands that are likely to affect the condition and/or function of aquatic habitat, and are usually adjacent to streams, ponds, lakes and wetlands. Highway 97 is located between the project area and the lake.

Thirteen native fishes inhabit the Coeur d'Alene Lake basin: northern pikeminnow (*Ptychocheilus oregonensis*), redside shiner (*Richardsonius balteatus*), cedar sculpin, *Cottus schitsuumsh*, torrent sculpin (*C. rhotheus*), shorthead sculpin (*C. confusus*)[1], speckled dace (*Rhinichthys osculus*), longnose dace (*R. cataractae*), longnose sucker (*Catastomus catastomus*), largescale sucker (*Ca. macrocheilus*), bridgelip sucker (*Ca. columbianus*), mountain whitefish (*Prosopium williamsoni*), westslope cutthroat trout (*Oncorhynchus clarki lewisi*) and bull trout *Salvelinus confluentus*. There are a variety of nonnative fish species found within the watershed as well, including smallmouth bass (*Micropterus dolomieu*), largemouth bass (*M. salmoides*), crappie (*Pomoxis* sp.), sunfish (*Lepomis* sp.), yellow perch (*Perca flavescens*), brown bullhead (*Ameiurus nebulosa*), channel catfish (*Ictalurus punctatus*), northern pike (*Esox lucius*), brook trout (*S. fontinalis*), rainbow trout (*O. mykiss*), chinook salmon (*O. tshawytscha*), and kokanee (*O. nerka*).

Threatened and Endangered Species

Bull trout were federally listed as threatened on June 10, 1998 by the USFWS (63 FR 31647). The USFWS issued a final rule for bull trout critical habitat on September 26, 2005, and on October 18, 2010 issued a revised designation of bull trout critical habitat, which includes Coeur d'Alene Lake.

Bull trout are found primarily in colder streams, although some are migratory in larger, warmer river systems throughout the Columbia River basin (Fraley and Shepard 1989; Rieman and McIntyre 1993, 1995; Buchanan and Gregory 1997; Rieman et al. 1997). Water temperature above 59°F is believed to limit bull trout distribution, which may partially explain patchy distributions within a watershed (Fraley and Shepard 1989; Rieman and McIntyre 1995). Bull trout typically spawn from August to November; spawning areas are often associated with cold water springs, groundwater infiltration and the coldest streams in a watershed (Pratt 1992; Rieman and McIntyre 1993; Rieman et al. 1997

Currently, within the Coeur d'Alene Basin bull trout are found primarily in the upper portions of the St. Joe River subbasin (PBTTAT 1998), which contains spawning and rearing habitats. Migratory bull trout also use the St. Joe River and Coeur d'Alene Lake for foraging, migrating, and overwintering habitat. The current distribution is substantially less than the historical distribution. Bull trout were documented in nearly 60 streams and river reaches throughout the basin over 60 years ago (USFWS 2002), but have not been observed in many of these streams in recent years. Spawning and rearing appear to be concentrated in relatively few tributaries of the St. Joe River subbasin. Surveys conducted in 1994 and 1995, and more recently, have failed to detect the presence of bull trout within the Coeur d'Alene River subbasin. In 1998, two bull trout were caught in Black Lake, which is located in the lower portion of the Coeur d'Alene River subbasin and may provide coldwater refugia and a forage base for bull

[1] The shorthead sculpin has been historically confused with the newly described cedar sculpin; though the shorthead sculpin is currently listed as an inhabitant of the Coeur d'Alene watershed it may not be present.

trout (USFWS 2002). Overall, within the Coeur d'Alene Basin, bull trout persist at low numbers in fragmented local populations (USFWS 2002).

Little is known about the role of Coeur d'Alene Lake in providing habitat for bull trout populations within the Coeur d'Alene Basin. Subadult and adult bull trout inhabit Coeur d'Alene Lake, which provides foraging, migration and overwintering habitat (USFWS 2010). Bull trout may use Wolf Lodge Bay and Beauty Bay in conjunction with the rest of Coeur d'Alene Lake. Bull trout are not known or likely to use Wolf Lodge Creek or Beauty Creek, which are small, do not have the habitat to support bull trout spawning or rearing, and likely have water temperatures too warm to support bull trout for much of the year.

BLM Sensitive Species

Two BLM sensitive fish inhabit the Coeur d'Alene Lake basin, westslope cutthroat trout and the newly described cedar sculpin (Lemoine et al. 2014).

Westslope cutthroat trout inhabit Coeur d'Alene Lake and many of its tributaries, including Wolf Lodge Creek, Beauty Creek and Coeur d'Alene Lake (Streamnet). They spawn mainly in small tributaries from March through July, when water temperatures warm to about 50°F. Westslope cutthroat trout stocks in the Coeur d'Alene Basin exist at a fraction of historic levels due to habitat degradation from activities such as mining, logging, development, and highway construction. Fishing pressure and introduction of non-native fish species has also contributed to reducing cutthroat numbers (USFWS, 1999; DuPont and Horner, 2003). Due to low numbers, the current fishing regulations for westslope cutthroat trout are catch-and-release in the entire Spokane River drainage, which includes Coeur d'Alene Lake and all tributary streams (Idaho Fish and Game website).

Cedar sculpin were recently described in 2014 as a new species using genetic and morphological methods. They have been found at stream sample sites throughout the Coeur d'Alene basin. Because of morphological similarities among sculpin species, cedar sculpin have been historically confused with the shorthead sculpin. The species is common to abundant in cool to cold tributaries with cobble and gravel bottoms (Lemoine et al. 2014) and are likely to be spring spawners like other sculpin species (Hendricks 1997). They are likely to inhabit Beauty and Wolf Lodge Creeks. It is not known if they inhabit Coeur d'Alene Lake. The torrent sculpin, a sympatric species, is known to inhabit rocky shoals and beaches of lakes (Hendricks 1997).

Other Fish Species

Many of the other fish species, both native and introduced, inhabit Wolf Lodge and Beauty bays. As with bull trout and cutthroat trout, other native fish species have been affected to some extent by habitat degradation and introduction of non-native fish species.

7.3.2 Environmental Effects from Alternative A (Proposed Action):

Threatened and Endangered Species

Lake Coeur d'Alene is designated critical habitat for bull trout and bull trout are known to inhabit the lake. Bull trout are unlikely to use any of the tributaries near the project area, though subadult and adult bull trout may use Wolf Lodge Bay and Beauty Bay for foraging and overwintering. The understory thinning, piling and burning is not expected to have any impacts on fish or aquatic habitat because there would be no ground disturbance except for a small amount where the piles are burned, the distance of the treatment from the lake, no treatment within RCAs and the road between the project area and the lake. In addition, implementing a fuels treatment should reduce the possibility of a large or stand replacing wildfire in the area, which could impact fish and aquatic habitat. Fires can increase erosion and sediment input to streams and lakes, alter water chemistry, and cause increases in water temperature (Benda et al. 2003; Rieman et al. 2003; Wondzell and King 2003), therefore implementing the proposed action could benefit bull trout and their habitat. The project would have "no effect" on bull trout or bull trout designated critical habitat.

BLM Sensitive Species

Westslope cutthroat trout inhabit Wolf Lodge Creek, Beauty Creek and Coeur d'Alene Lake (Streamnet). It is likely that cedar sculpin inhabit the streams and possibly the lake as well. The project is not expected to impact westslope cutthroat trout, cedar sculpin or their habitat for the same reasons described for bull trout above, and also could be beneficial

Other Fish Species

Impacts on other fish species are not expected since sediment is not expected to reach the lake and no other impacts are anticipated.

7.3.3 Environmental Effects from Alternative B (No Action):

Threatened and Endangered Species

No action would occur therefore there would be no effects to bull trout or bull trout critical habitat. Not implementing a fuels treatment may increase in the possibility of a large or stand replacing wildfire in the area, which has the possibility of impacting fish and aquatic habitat. Fires can increase erosion and sediment input to streams and lakes, alter water chemistry, and cause increases in water temperature (Benda et al. 2003; Rieman et al. 2003; Wondzell and King 2003). The extent of impacts from fires can vary greatly depending on fire patchiness and intensity, the preexisting conditions of the watershed and riparian communities, potential for recolonization of fish and other aquatic fauna, and the nature of fire suppression and post fire management (Rieman et al. 2003; Dunham et al. 2003; Gresswell 1999). Because of the large size of Coeur d'Alene Lake, the nature of the lakeshore in the area of Mineral Ridge, which is rocky,

has little riparian vegetation, and has a road very close to the lake, a large fire would not be likely to change water chemistry or increase water temperature. However, erosion leading to sediment input to Coeur d'Alene Lake does have the potential to occur, which could impact bull trout and/ bull trout designated critical habitat.

BLM Sensitive and Other fish Species

Effects of the No Action Alternative would be the same as for bull trout (see above) with respect to Coeur d'Alene Lake. In addition, a large wildfire could impact Wolf Lodge and Beauty Creeks, which would likely lead to sediment input, and could also cause changes in water chemistry and increased water temperature, leading to negative effects on westslope cutthroat trout known to inhabit these two streams and other fish species present including the cedar sculpin.

7.3.4 Cumulative Effects:

Forest, agricultural practices, mining, development, road building and recreation activities have occurred in the vicinity of the project area. Development, including some clearing for houses and increase in roads, and timber harvest has occurred near the lake in the vicinity of Mineral Ridge though much of the land is forested. Future BLM projects in the area include timber harvest and fuels treatments in the Blue Creek Bay area. Recreational activities, including boating, fishing and hiking, and development will continue to occur. Beneficial actions, including aquatic habitat restoration and catch and release fishing regulations for both bull trout and westslope cutthroat trout are occurring and will continue to occur. The proposed action could incrementally add to these benefits by reducing the possibility of a large or stand replacing wildfire. Due to the proposed project occurring outside of the RCA and the small size of the project, no cumulative impacts to fish or any other aquatic species are anticipated.

7.4 Fuels

7.4.1 Affected Environment:

The project area is characterized by open dry conifer stands dominated by large ponderosa pine, with Douglas-fir more prevalent on moister sites. Historically, these dry open forests were maintained by a frequent (0-35 years or longer), low to mixed severity fire regime. The mean fire return interval was about 15-23 years (Graham and Jain 2005). Due to the past century of management activities and fire suppression, fire has been excluded from most of these stands for five or more return intervals, which is outside the historic range of variability.

Fire Behavior Fuel Models

Scott and Burgan (2005) categorized 40 standard fuel models based on a variety of fuel loadings and distribution that lead to predicted fire behavior outcomes. Fire behavior, such as flame length, surface fire spread, or fire intensity, is dependent on such characteristics as fuel type (e.g. grass, grass-brush, brush, timber litter, timber understory, slash) and fuel loading (size, amount, and distribution). Heavier fuels loadings, such as concentrations of logs or small trees and shrubs, contribute to more intense fire behavior and higher flame lengths. Ladder fuels, in the form of tall brush and young trees in the understory as well as low branches on less fire-resistant species, provide an avenue for surface fire to move upward into the forest canopy thus involving crown fuels.

Fire behavior not only effects the vegetation, but also the ability of firefighting resources to effectively manage or suppress the fire. Flame length of 4 feet is considered the threshold for firefighters on the ground to effectively and safely fight fire. Flame lengths above 4 feet require mechanized or aerial firefighting resources. Flame lengths above 8 feet are considered difficult for any firefighting resources to be effective.

Fuel conditions in the project area have been classified into 4 of the 40 fire behavior fuel models (LANDFIRE 2008; See Map B). Approximately 70 percent of the project area is classified into timber fuel models TL8 and TU5 (See Table 7.4.1). The remaining 30 percent of the project area is currently in a grass or grass/shrub fuel model (GR2 or GS2).

Most of the fuel models found in the project area exhibit predominantly surface fire behavior under wildfire conditions, with limited opportunity for fire to get up into the crowns. Fuel model TU5, however, has a high surface fuel loading, in addition to a ladder fuel component that allows fire to move up into and become established in the crowns. Grass-shrub fuel model GS2 would also exhibit high flame lengths due to the shrub (or seedling/sapling) component.

Fire behavior was determined for each fuel model using the BEHAVE Plus fire modeling system, under typical fire season weather conditions. Currently, 47 percent of the project area is subject to wildfire flame lengths of greater than 8 feet, where firefighting efforts would be greatly hindered.

Table 7.4.1. Fuel model distribution in the project area with predicted flame length and fire-caused mortality in ponderosa pine overstory under a typical wildfire scenario (90th percentile weather from the Hoodoo RAWS).

Fuel Model	Fuel Type	Existing Condition % Area	Proposed Action % Area	Flame length (ft)*	Percent Mortality**
GR2	Grass	12	12	8.3	12
GS2	Grass/shrub	18	16	8.9	37
TL8	Timber	41	72	6.3	0
TU5	Timber	29	0	12.3	80

*fuel moistures: 4% 1-hr, 5%10-hr, 6% 100-hr, 60% live herbaceous, 90% live woody; wind speed 10 mph, 55% slope
**80 ft. canopy height, 0.5 crown ratio, 16" dbh, 92 degrees F.

Fire Severity – tree mortality

Tree mortality is used as a measure of fire severity, or stand resiliency, as it represents the ability of a stand to withstand, or succumb to a wildfire. Fire-caused mortality is based on the expected fire behavior, as well as tree species and size class. Direct fire damage including percent crown volume scorched (Stephens and Finney 2002) and bark char have been shown to be key factors in predicting post fire tree mortality (van Mantgem and Schwartz 2003).

Open stands of Ponderosa pine are typically resistant to the detrimental effects of fire. These open stand conditions were historically maintained by low to mixed severity fire, which reduced the surface fuel accumulations, reduced ladder fuels, and prevented the encroachment of less fire resistant species. Species characteristics, such as bark thickness, root depth, and canopy base height make species such as ponderosa pine and Douglas-fir trees fire resistant. Douglas-fir is less fire-resistant than ponderosa pine due to its lower branching habit and shade tolerance, which allows this species to grow in denser stand conditions.

Fire-caused tree mortality in ponderosa pine was determined for each fuel model using the BEHAVE Plus fire modeling system, under typical fire season weather conditions (See Table 7.4.1). Currently, 29% of the project area is at risk of over 80% mortality in the ponderosa pine. An additional 18 percent would be subject to 37% mortality, while only 41 percent of the area is expected to see little mortality as a direct result of wildfire. This does not account for post fire stress and secondary mortality from insects and pathogens, which can be expected to increase post fire mortality.

7.4.2 Environmental Effects from Alternative A (Proposed Action):

Mechanical treatments in this alternative would reduce surface fuel loading and ladder fuel component enough to alter certain fuel models. Areas characterized by fuel model TU5 would be changed to TL8, while those areas that were characterized as TL8 pre-treatment would remain unchanged, primarily due to the pine litter remaining on site. Approximately 1.6 acres of grass/shrub GS2 within the fuelbreak would be changed to a TL8, due to the removal of all shrubs. The remaining areas, characterized by grass or grass/shrub fuels would not be expected to change by the proposed mechanical treatment (See Table 7.4.1). Potential wildfire flame lengths would be less than 8 feet across 84% of the treatment area, allowing fire resources to more effectively control the fire.

Should future wildfire occur, mature ponderosa pine trees across 28% of the project area would experience fire-caused mortality of 12-37%. The remaining 72% of the project area would see little or no tree mortality as a direct result of fire behavior. This does not account for post fire stress and secondary mortality from insects and pathogens, which can be expected to increase post fire mortality.

Surface fuel loadings would not be reduced under this alternative. Grass, brush, and timber litter would continue to build up over time. The removal of small trees and shrubs would lead to an increase in solar radiation to surface fuels and surface winds. Fuel moistures would dry out quicker making these fuels more available to burn, while increased surface winds could cause fires to spread quicker. Raymond and Peterson (2005) found that increased fire behavior in these more open stand conditions would

result in lower severity due to lower fuel accumulations and less likelihood of crown fire initiation and mortality. Additionally, Graham et al. (2004) found that increased solar radiation along with increased soil nutrient availability from prescribed burning would promote understory vegetation production in the form of forbs, grasses, and low shrubs. While these live fuels are still green, their higher foliar moisture would have a dampening effect on fire behavior (Agee et al. 2000), but once cured out would contribute to fire behavior.

7.4.3 Environmental Effects from Alternative B (No Action):

Under this alternative, both surface fuel accumulations and ladder fuels can be expected to continue to build. As overstory tree species continue to convert from the fire resistant ponderosa pine toward less fire resistant fir species, increased crown closure and ladder fuels would increase the likelihood of crown fire initiation. Studies have shown that the no treatment option is ineffective in reducing fire severity (Stephens and Moghaddas 2005).

Grass and brush litter would continue to build up in the non-timbered areas. Timbered stands would continue to move toward TU5 fuel conditions. Resulting fire behavior would increase as would opportunities for fire to move upward into the crowns. Wildfires would have greater opportunities to escape control efforts and burn larger areas, extending onto private land and toward houses.

Higher tree mortality would result from more severe wildfires, and surviving trees would be predisposed to insects and disease mortality (Barrett 1994). As overstory tree species continue to convert from the fire resistant ponderosa pine toward less fire resistant fir and spruce species, mortality would increase as these thin-barked, dense crowned, shallow rooted species are less able to withstand even low severity fires.

Wildfire activity in the project area would be difficult to suppress, thus posing a great risk to private property in the Beauty Bay sub development. Fire activity and smoke could impact traffic safety along highway 97 and may require short– or long–term closures of the primary access into several sub developments along the east side of the lake. Power and phone lines that feed these developments may also be disrupted.

7.4.4 Cumulative Effects:

This proposed action along with ongoing fuel reduction treatments on BLM lands in Blue Creek Bay, adjacent forest service, and private property would cumulatively reduce the intensity and severity of a wildfire burning through the area. These treatments tie in with other projects on adjacent lands and the proposed action, and may enhance fire suppression efforts and decrease the overall wildfire severity. Any future development within the project area would benefit from reduced fire risk under the action alternatives because of the added fire protection these alternatives offer. This project, in conjunction with other fuels reduction treatments, would contribute to the improvement of Fire Regime Condition Class (FRCC) across the landscape.

The No Action alternative would have no immediate effect on fuel conditions in the project area. However, fuel loadings would accumulate, increased stand density and ladder fuels would continue to increase, and less fire resistant species would eventually dominate most stands. The result is that more of the landscape could sustain fires with greater crown fire potential, and increased tree mortality. Over time fire suppression options would become even more limited, increasing the risk of property and resource damage, and firefighter and public injury.

7.5 Air Quality

The project area is located in Idaho Airshed No. 11. The analysis of air quality includes identifying the adjacent and downwind airsheds of concern (Class I and non-attainment areas) and comparing the amounts of smoke and particulate matter to be produced as a result of the fuels treatment activities associated with each alternative. The analysis includes discussion of the consequences of wildfire in regards to air quality.

7.5.1 Affected Environment:

The Bureau of Land Management is a party to the North Idaho Smoke Management Memorandum of Agreement (MOA), which initiated the joint smoke management program with the state of Montana through the Smoke Management Monitoring Unit located in Missoula, Montana. The Operating Guide for the Montana/Idaho Smoke Management Group is based upon the Environmental Protection Agency Interim Air Quality Policy on Wildland and Prescribed Fires. The Smoke Monitoring Unit coordinates prescribe burn activities through meteorological scheduling in order to ensure that cumulative air quality impacts are minimized.

Air quality impacts due to prescribed fire smoke result from a combination of emission production and atmospheric dispersion (Sandberg et. al 2002). Dispersion is dependent on meteorological conditions including seasonality, large-scale prevailing wind patterns, atmospheric stability, and local terrain-influenced weather patterns. The Smoke Monitoring Unit utilizes dispersion forecasts as a tool for making daily burn recommendations to members of the MT/ID Smoke Management Group.

Air quality associated with the Mineral Ridge Project analysis area is generally considered good to excellent most of the year. Local adverse effects result from dust from native-surfaced roads and smoke from prescribed burning, agricultural burning, and wildfires.

The Mineral Ridge Project analysis area is unclassified, but is considered to be in compliance with the NAAQS (national ambient air quality standards). The project area is approximately 2.5 miles southeast of the Coeur d'Alene impact Zone (identified as smoke sensitive or has an existing air quality problem). The closest non-attainment area is Pinehurst, Idaho approximately 21 miles to the east. The average large-scale airflow is generally from a westerly direction throughout the year.

The Spokane Indian Reservation, 55 miles northwest, and the Cabinet Mountains Wilderness, 60 air miles to the northeast, are the closest Class I areas to the analysis areas. Class I areas receive the highest levels of protection under the Prevention of Significant Deterioration (PSD) program. All other areas, including the Mineral Ridge Project analysis area, are designated Class II areas.

7.5.2 Environmental Effects from Alternative A(Proposed Action):

The proposed action would require pile burning on 74 acres to reduce fuel loadings to an acceptable level. The resulting smoke from these acres would affect local air quality, predominantly in the Mineral Ridge/Beauty Bay subdivision for a short period of 1-3 days.

Indirect effects would be a long-term decrease in fuel loading following implementation of the project. Therefore, there is likely to be a decrease in particulate matter emissions and the impairment of visibility from wildfires when they occur.

7.5.3 Environmental Effects from Alternative B (No Action):

There would be no direct effects on the existing condition of air quality from this alternative because no pile burning would occur. No particulate matter would be produced and visibility would not be impaired.

Indirect effects would be that fuel loadings continue to increase and wildfires would continue to occur. Wildfires tend to burn much larger acreages than controlled prescribed fire does. Also, wildfires are not planned around other wildfire events or meteorological conditions that would allow for dispersion and transport away from impact zones. Wildfire occurrence without previous fuel reduction is likely to produce two to four times greater particulate matter emissions than would be generated by prescribed fire (Quigley and Arbelbide 1997).

7.5.5 Cumulative Effects:

The cumulative effects area for air quality is Airshed 11. Consideration of cumulative effects for air quality takes a different approach than for other resources. Past activities in the analysis area don’t necessarily require consideration, except in the sense that use of existing roads and facilities may contribute to fugitive dust levels as described above. Present use of and activities in the analysis area are continuing with a current assessment of good to excellent air quality.

Locally adverse and cumulative impacts to air quality could be expected if pile burning occurred in conjunction with on-going wildfires or other prescribed burning activities in and adjacent to the airshed. Other potential prescribed burning projects that could have an impact are listed in the beginning of this chapter (description of the past, present and foreseeable future actions). However, design measures and procedures outlined in the North Idaho Smoke Management Memorandum of Agreement are intended to increase

the efficiency and effectiveness of communications about, and coordination of, prescribed burning to avoid adverse cumulative effects.

7.6 Visual Resources:

7.6.1 Affected Environment:

The Coeur d'Alene RMP designated the project site and adjacent BLM lands as Visual Resource Management (VRM) Class II. This means that the objective for management of the visual resources is to retain the existing character of the landscape. Level of change to the landscape should be low. Changes should repeat the basic elements found in the natural features of the landscape (form, line, color, and texture). Management activities in Class II areas may be seen, but should not attract attention of the observer.

There are three locations which are the most likely places from which people would view the project area (key observation points or KOPs): Beauty Ridge Trail Observation Deck (KOP 1), Mineral Ridge Trailhead and Picnic Area (KOP 2), or Mineral Ridge Trail (KOP 3).

KOP 1 is located approximately ¾ of a mile southwest of the project area. Almost all of the 74-acre project area is visible from this KOP. Looking towards the project area from KOP 1, the viewer sees tree-covered ridges in the immediate foreground (out to about 1 mile) including in the project area, in the distant middle-ground (1-3 miles) and in the background (beyond 3 miles) to the north. The ridges and hills in the foreground contain occasional irregular open patches of smooth light green-tan grass that contrasts with the dark green vertical conifers that cover the majority of the landscape. The green-brown and smooth surface of Beauty Bay of Lake Coeur d'Alene is visible in front of (to the west of) the project area. A small ¼ mile length of Interstate-90, mostly consisting of a bridge over the entrance to Blue Creek Bay, appears as a gray horizontal line at about 1½ miles north of the KOP. About 400-yards of State Highway 97, located about 300 yards east of the KOP, appears as a gray straight-to-slightly curved horizontal line.

KOP 2 is the BLM Mineral Ridge picnic and trailhead area located immediately adjacent and south of the project area. Due to the vegetation and closeness, the visible portion of the project area from KOP 2 is only about 400 feet across and about 100 feet deep (approximately 1 acre). A portion of the tree-covered ridge line within the project area that comes down to the lake is visible as a backdrop on the far left (west) side of the view. Within the trailhead/picnic area there are scattered trees and shrubs within a cut lawn. The dark gray-brown vertical boles are the most visible portion of the larger conifers, with dark green irregular branching in the crowns. Mixed in are a few smaller light green conifers and shrubs. Similarly, within the project area there are numerous large conifers with gray-brown vertical boles and dark green irregular branching in the crowns. Dense light green irregular shaped shrubs and smaller conifers fill most of the spaces between the larger trees, leaving only occasional patches of light green grass

visible. There is a square paved parking area on the left side of this area, and a concrete ramp leading up to the trail. The actual trail is hidden by vegetation. There is a dark brown rectangular kiosk at the top of the ramp covered by a dark gray shingled pitched roof and a similarly colored shed about 20 feet in front of the picnic area. A small rectangular restroom building, with colors similar to the kiosk and shed is visible on the far right side of the view.

KOP 3 is located within the project area. Since KOP 3 is a linear trail the BLM selected one of the benches along the trail to represent the viewshed because this is a point at which trail users might stop and spend more time noticing the surroundings. Since the bench faces to the south, this view was used for analysis. Similar to KOP 2, the view from the bench (about 400 feet across and 100 feet deep - approximately 1 acre) is limited by the vegetation, although, through the tree tops, the adjacent ridge to the south is visible against the sky.

7.6.2 Environmental Effects from Alternative A (Proposed Action):

The proposed action would meet the RMP objective for VRM Class II in the long term.

As viewed from KOP 1, the project would create more small irregular openings among the trees. Within a year of implementation any new openings would fill with light green grass and other vegetation. This pattern is similar to the surrounding landscape and would be unnoticeable. When slash piles are burned, smoke would be visible and attract attention of viewers at KOP 1, however this distraction would only occur during the short period (1-3 days) while burning occurs.

From KOP 2, removal of small tress would reduce the density of the visible trees and grassy areas would increase. Within a year of implementation, new vegetation growth would likely make the treatment unnoticeable. There would be no slash piles within 50 feet of KOP 2, but slash piles that are further away may be visible. Smoke and possibly flames from burning of these piles would be visible, but only during the short period (1-3 days) while burning occurs.

The effects from KOP 3 would be similar to those from KOP 2. However, slash piles may be close to the trail because hauling or chipping is not practical. Therefore, the piles would be more visible from KOP 3, until they are burned.

7.6.3 Environmental Effects from Alternative B (No Action):

There would be no immediate change to visual resources under the No Action Alternative. However, should the lack of treatment result in intense wildfire, the viewshed from all KOPs would change dramatically due to removal or charring of most of the trees. This would take decades to recover.

7.6.4 Cumulative Effects:

From KOP 2 and 3, the view is limited to the project area and no other past, current, or anticipated future actions would result in cumulative effects on visual resources.

However, there would be observable cumulative effects from KOP 1. The BLM is planning to conduct similar vegetation treatments over the next couple of years on public lands around Blue Creek Bay, which is located between 1.5 and 2 miles northeast of KOP 1. This would likely have similar effects to those resulting from the proposed action, but across 730 acres. Like the effects from the proposed action, the effects from treatments at Blue Creek Bay would make that project area appear similar to the rest of the visible landscape. The treatments over this larger area would create more slash piles. If these piles are burned during the same period as those within the Mineral Ridge project area, this would create visible smoke over most of the visible landscape.

It is also likely that private land owners would implement vegetation treatments over the next few years on their lands, which are visible from KOP 1. Depending on the types of treatments, the effects on visual resources could be similar to, or more severe than those in the Mineral Ridge project area. These too would likely blend with the rest of the landscape and not attract attention.

In the background, visible from KOP 1, there are a number of areas where timber has been harvested in the recent past (<20 years). These harvested areas usually follow ownership boundaries creating semi-straight unnatural contrast lines where they abut more mature forest vegetation on adjacent properties. Although these areas are in the background, they are much more noticeable than any of the effects would be from the proposed treatments at Mineral Ridge, Blue Creek Bay, or private lands in the fore/middle ground.

Lastly, if burning of slash piles occurs on private property or Forest Service property (visible in the distant background from KOP 1) at the same time as piles on the Mineral Ridge project area and Blue Creek Bay are burned, the smoke would cumulatively reduce visibility and distract a viewer of the landscape from KOP 1. In such a case, given the small relative size of the Mineral Ridge Project compared to the rest of the visible landscape, smoke from the Mineral Ridge project would likely not be a major contribution to the overall effects from smoke. Also, the windows allowed for burning are usually brief and the smoke from all visible areas would likely only last from a few days to a week.

If large stand-replacing wildfire resulted from the No Action Alternative, fire could spread from or to adjacent areas. Vegetation treatments in adjacent and near-by areas (such as Blue Creek Bay) would reduce the impact to visual resources from fire in those areas, even though the impact within the Mineral Ridge project area would be severe.

7.7 Cultural Resources:

7.7.1 Affected Environment

The BLM completed a cultural resource inventory and found one cultural resource in the area of the proposed project. This resource (Site 10KA0620) consists of past mining activity and is in poor condition. It is not considered eligible to the National Register of Historic Places.

7.7.2 Environmental Effects from Alternative A(Proposed Action):

Cutting, piling, and subsequent burning of the vegetation piles will have no effect on 10KA0620.

7.7.3 Environmental Effects from Alternative B(No Action):

If no cutting, piling, or burning occurs there will be no effect to 10AK0620.

7.7.4 Cumulative Effects:

Since neither the Proposed Action nor the No Action Alternative would affect cultural resources, there would be no cumulative effects.

7.8 Wildlife

7.8.1 Affected Environment:

This site provides habitat for a wide array of wildlife species (Table 7.8.1). Both "generalist" wildlife species, such as coyote, and "habitat specialists" such as Flammulated Owl, may inhabit the site. The relative abundance of mature ponderosa pine forest in north Idaho is low. This forest type has declined 60-70% in Idaho, and 85-98% in the greater Rocky Mountain and Inter Mountain West, and the eastside Cascade Mountains (Noss and others 1995). That makes the value of this habitat type to wildlife species, especially habitat specialists, disproportionate to its abundance.

Table 7.8.1. Migratory birds, raptors, Special Status Species, Species of Greatest Conservation Need (SGCN) and game animals that may inhabit the project site

Species	Likely to Inhabit	Uncommon-May Inhabit	Encountered on Site Visit
Bald Eagle	X		X
Northern Goshawk		X	
Red-tailed Hawk	X		
Sharp-shinned Hawk	X		
Cooper's Hawk	X		
Merlin*			
Northern Pygmy Owl*	X		
Flammulated Owl*		X	
Ruffed Grouse	X		
Wild Turkey	X		
Calliope Hummingbird	X		

Species	Likely to Inhabit	Uncommon-May Inhabit	Encountered on Site Visit
White-headed Woodpecker*		X	
Lewis' Woodpecker*		X	
Cordilleran Flycatcher*	X		X
Dusky Flycatcher	X		
Western Wood-peewee	X		X
Black-headed Grosbeak	X		X
Brown Creeper	X		
Pygmy Nuthatch			X
House Wren	X		
Swainson's Thrush	X		X
Cassin's Vireo	X		X
Warbling Vireo	X		
MacGillivray's Warbler	X		X
Yellow-rumped Warbler	X		
Yellow Warbler	X		
Townsend's Warbler	X		X
Orange-crowned Warbler	X		X
Nashville Warbler		X	
Western Tanager	X		X
Lazuli Bunting	X		X
Chipping Sparrow	X		X
Spotted Towhee	X		X
Cassin's Finch*	X		
Gray wolf (*Canis lupus*)		X	
Fisher (*Martes pennant*)		X	
Fringed Myotis* (*Myotis thysanodes*)		X	
Townsend's big-eared bat* (*Corynorhinus townsendii*)		X	
Yuma myotis* (*Myotis yumanensis*)	X		
Long-eared myotis* (*Myotis evotis*)		X	
California myotis* (*Myotis californicus*)		X	
Long-legged myotis* (*Myotis volans*)		X	
Western small-footed myotis* (*Myotis cilliolabrum*)		X	

Species	Likely to Inhabit	Uncommon-May Inhabit	Encountered on Site Visit
Northern alligator lizard* (*Elgaria coerula*)		X	
Coeur d' Alene Salamander* (*Plethadon idahoensis*)		X	

*Special Status Species/SGCN, ** Threatened, Endangered, Proposed, or Candidate Species

Threatened and Endangered Species

There are currently three Federally protected species that occur in north Idaho. Grizzly bear (*Ursus arctos*), and Canada lynx (*Lynx canadensis*) are listed as Threatened under the Endangered Species Act. Woodland Caribou (*Tarandus rangifer*) is listed as Endangered. None of these species have been documented on the site. This project area is not within a Lynx Analysis Unit, nor is it in a Bear Management Unit or in designated Grizzly Bear Core Habitat. The site lies far south of woodland caribou designated critical or suitable habitat. Therefore, none of these listed species would be affected and will not be further addressed.

Other Special Status Species

Very often, species that are habitat specialists are BLM Special Status Species or Idaho State Listed Species of Greatest Conservation Need. Their populations tend to be less secure because loss of their specialized habitat results in more dramatic population declines and higher rates of extinction (R.L.Smith 1992). Recovery of declining populations requires restoration of lost habitat which may be difficult for many reasons. Ponderosa pine specialists require ponderosa pine during some portion of their life history. Lewis' Woodpecker and White-headed Woodpecker use large ponderosa pine for excavating nesting cavities and for foraging. Pygmy Nuthatches forage for insects along the bole of the ponderosa tree, and they store pine seeds from the cones in the knobby bark. Pygmy Nuthatches excavate a nesting cavity in the soft wood of a dead limb or snag, or they use an existing cavity. Small family groups roost in the nesting cavity during the non breeding season.

The northern alligator lizard is a habitat specialist that can occur in many different upland habitats, but is limited to those habitats that have talus slopes, or rocky outcrops.

The type locality for the Coeur d'Alene Salamander is on the north side of Mineral Ridge. They are associated with three habitat types; waterfall spray zones, springs and seeps, and stream edges. In wet weather they may be found under leaf litter, logs, and bark. Forest sites where they have been documented have at least 25% canopy cover but can be highly variable in cover type; from ponderosa pine to hemlock (Montana Fish, Wildlife, and Parks Animal Field Guide2015). Because they respire through their skin, the most important habitat component for the Coeur d'Alene Salamander is moisture and humidity. On the project site, salamanders would be located in perpetually wet areas, such as a seep or spring. The project area is on a

south-facing slope in the dry conifer forest type. There are no perpetually wet areas that the Coeur d'Alene salamander would use within the project area.

The bat species found in Table 7.8.1 are habitat specialists because they require roosting and hibernating habitats that are very specific in their temperature and airflow requirements. Often bat populations, roosting sites, and life histories are not well known. This lack of knowledge leads most wildlife and land managers to take a more conservative approach when it comes to actions that may impact these bat species or their habitats. One mine shaft in the project area was sealed with foam in 2007 because it was a public safety hazard. Another shaft that exists on the site has no bat activity and will be closed as part of the Abandoned Mine Lands Program to protect public safety. Some species that use snags, loose bark, cavities, or foliage for roosting may also be present on the site. California myotis prefer dry conifer sites, and they may use this site for foraging. They may also roost under loose tree bark. The fringed myotis, which is relatively rare in north Idaho, is most likely to be found in low elevation ponderosa pine. Little is known about its roosting habitat requirements, but snags are one likely source in spring, summer, and early fall. Townsend's big eared bat may use this site for foraging and roosting. Structures may be used during the summer months as well. The long-legged myotis and long-eared myotis are both forest dwelling bats that use snags, caves, and sometimes structures as roosts. This site may provide both foraging and roosting habitat for these two species. Yuma myotis are most commonly found near open water so these bats are highly associated with wetlands. Because of the proximity of Beauty Bay and the mouth of Beauty Creek, it is likely that Yuma bats may use this site for roosting and for foraging (Adams 2003).

Migratory Birds

The open forest canopy and shrub understory on the project site provide foraging and nesting habitat for numerous neo-tropical migrants in spring and summer. In addition there are many resident passerines, woodpeckers, and raptors that are likely to use the project area year-round.

Table7.8.1 lists migratory birds that are expected to use the site, were documented on the site, and those that are uncommon but are known to use the habitat types that are currently present on the project site. Mature ponderosa pine, with an open and shrubby understory is a habitat type that supports both specialist and generalist migratory birds. For example, Brown Creepers use mature ponderosa pine with knobby bark for foraging and nesting. They hide their nests behind a large slab of bark, or occasionally in an existing cavity. Calliope Humming birds build their nests on pine boughs, or on the base of an old pine cone (Kaufman 1996).

Unlike ponderosa pine specialists, migratory birds that are generalists on the project site can usually fulfill all of their life history requirements in mixed coniferous forests, the shrubby forest understory, or in sunny forest openings with grasses and shrubs. Table 7.8.1 lists these generalists that are likely to be on the project site and are relatively common. These birds may nest in trees, from near to ground level up to the highest branches. They may be secondary cavity nesters, nest in shrubs, or nest on the ground. (Birds of North America Online 2015)

Other Wildlife

This site gets the highest amount of recreational use in the spring, summer, and fall because of the Mineral Ridge Trail that crisscrosses through the project area. As a result, elk and deer use on the site is not particularly high and most certainly lower than adjacent suitable habitat without as much human disturbance. However, during nighttime hours and in winter, it is likely that this site does have high value to deer and elk. The south facing aspect, low elevation, shrubby understory, and open canopy are components of winter range for deer, moose, and elk. Elk prefer habitat that is composed of 60% forage and 40% cover (Thomas 1979). This project site also provides necessary habitat components for mountain lion, bear, Ruffed Grouse, Wild Turkey, bobcat, and numerous small mammal species. Again, because of the high recreational use, it is unlikely that the densities of these animals are as high as on adjacent, less impacted suitable habitat.

7.8.2 Environmental Effects from Alternative A (Proposed Action):

Table 7.8.2 summarizes the predicted impacts to Special Status Species, Migratory Birds and Raptors that may use the project site. Short term effects to resident species on the site would occur at the time of the fuels reduction and for the following year until vegetation (shrubs, forbs, and grasses) begins to recover. These effects are most likely to result in mortality (i.e. direct mortality resulting from the slashing, pile burning, or indirect mortality via increased predation) and immediate displacement of wildlife. Medium to long term effects would occur 2 to 10 years after the fuels reduction activites and would be mostly effects to habitat. A negative effect is defined, for the purposes of this analysis, as an effect which results in the medium to long term displacement of the individuals of a species on the site, or the mortality of the individual. Neutral or No Effect is defined as having no effect at all to the species in the medium to long term, or having effects that neither benefit nor harm the species. Positive effects are those that will benefit a species and the resulting available habitat is likely to attract more individuals of that species to the site, increase successful reproduction, or decrease mortality. The reduced fire-risk to large diameter trees and snags habitat would benefit cavity-dependent birds and mammals. The overall character of the site would change to favor some species that prefer more open forest.

Special Status Species

Special status species would be both negatively and positively impacted by the project. Ponderosa pine specialists like the Lewis' Woodpecker, Pygmy Nuthatch, Flammulated Owl, and White-headed Woodpecker would benefit in the long term. Maintenance and protection of large diameter ponderosa pine, which is relatively rare in north Idaho, is important in the persistence of these species (Birds of North America Online 2015). Because all of these species are cavity excavators or secondary cavity users, the reduction in likelihood of loss of snags due to fire would be a long-term benefit. If the

resulting stand is more resistant to disease and insects, the availability of future snags may decrease over time as old snags fall.

Northern alligator lizards would be vulnerable to direct mortality during the proposed slashing, piling, and pile burning. In the buffer area shrub cover and coarse woody debris they need to protect themselves from predation by raptors and other predators would be temporarily lost (Smith 2000). When shrub cover returns, these individuals should recolonize the site. Long term impacts to habitat should have neutral or no effects on this species. The northern alligator lizard is limited to rocky sites with exposed gravel and soil. This project should not have any medium or long-term negative impacts on these habitats. (Nature Serve 2015) The Coeur d'Alene salamander is found under rocks and in rock crevices near springs, seeps, and streams thus the project is unlikely to have any impact on this species (Smith 2000).

Roosting or hibernating habitat for special status bats would not be affected by this project in the short term. If the resulting stand is more resistant to disease and insects, the availability of future snags may decrease over time as old snags fall. Because many bats use snags as roosts, this could reduce the habitat suitability of the site in the long-term if existing snags are not replaced as they fall. Affects to foraging habitat would negligible.

Migratory Birds

The proposed slashing would not occur between April 15 and July 15 which will help reduce impacts to nesting Migratory Birds. Pile burning is most likely to occur in early spring or late fall and most migratory birds should not be impacted. Due to weather events, some species may initiate second clutches, and these eggs or nestlings may be lost to the direct effects slashing or pile burning. There are a handful of species that can be expected to have second clutches (robins, some swallows, etc.) that may be impacted by brush removal in the buffer area and small conifer removal in the rest of the project area. Impacts at the local population level would be insignificant (Smith 2000). Most birds that are mature enough to be flight capable should be able to avoid impacts of project implementation without incident (Smith 2000).

The most significant effects to migratory birds would be habitat effects. For those species that specialize in using mature ponderosa pine or open conifer habitats, the project would be beneficial. Removing more shade tolerant tree regeneration (Douglas fir and grand fir) and some larger shade tolerant trees (no greater than 9 inches dbh) will reduce fuel loads on the project site. As a result, the unique old growth ponderosa pine habitat would be better protected from stand replacing fire. Ponderosa pine regeneration and mature trees would be less affected by competition from surrounding shade tolerant trees. This should improve the resistance of ponderosa pine to bark beetle mortality.

Those bird species that require or prefer a shrubby understory would be temporarily displaced in the buffer as the understory recovers from slashing. Shrub habitat in the buffer area would be reduced significantly the first spring after project implementation, but would likely recover within 2-5 years (Bock and Bock 1983). Ground nesting

species like Spotted Towhees may not have enough cover the first spring after the project to adequately hide their nests. As a result, they may choose not to nest in the buffer area, or their nests may have a higher rate of predation or cowbird parasitism than if the project was not implemented (Birds of North America Online 2015). Table 7.8.2a addresses Migratory Bird species and the predicted medium to long term impacts (positive, negative, or no effect/neutral) to those species.

There are some bird species that prefer a more densely stocked forest stand. Examples include Hammond's Flycatcher, Golden-crowned Kinglet, and Western Flycatcher. In the medium to long term these species would be negatively impacted because the stand is unlikely to become suitable habitat.

Other Wildlife

Direct impact of the proposed action is of little concern for big game animals. Deer, elk, moose, bear, bobcat, and mountain lion should have no problem leaving the area during implementation of the project(Smith 2000). Effects to habitat would be more immediate and more significant in their impacts to game animals. In the short term, the loss of shrubs (in the buffer area) and small conifers would reduce hiding cover and forage. In the medium to long term, deer, elk, and moose should be beneficiaries of the proposed action. Once shade tolerant regeneration is removed and the mid- level canopy is opened up shrubs, forbs, and grasses should flourish with increased access to sunlight and moisture. The project should reinvigorate shrub species and encourage new growth that would be higher in nutritive value than older, more decadent shrubs (Hooker and Tisdale 1974, Smith 2000). Benefits to ungulates should translate into benefits for their predators. If any lions or bears use the site, they should benefit from increased use by their prey (deer and elk). Bobcats, which prefer brushy habitats that provide cover for their prey (small mammals and snowshoe hare) would be negatively impacted until shrub cover in the buffer area returns (2-5 years).

Wild Turkey should benefit in the long term because mature ponderosa pine with flat tops are a preferred roosting tree. Ruffed Grouse would benefit from the rejuvenation of brush in the project area in the medium to long term. As ground nesters, both species may have difficulty finding adequate cover for their nests in the buffer area until shrubs recover (Smith 2000). But in subsequent years, shrub cover should be available for nesting sites (Bock and Bock 1983).

Table 7.8.2- Medium to long term effects on Threatened, Endangered and Special Status Species Habitats

Species	Negative	Neutral	Positive
Bald Eagle		X	
Northern Goshawk		X	
Red-tailed Hawk		X	
Sharp-shinned Hawk		X	

Species	Negative	Neutral	Positive
Cooper's Hawk		X	
Northern Pygmy Owl			X
Flammulated Owl			X
Calliope Hummingbird			X
White-headed Woodpecker			X
Lewis' Woodpecker			X
Pygmy Nuthatch			X
Cassin's Finch		X	
Flammulated Owl*			X
Grizzly bear		X	
Lynx		X	
Fisher		X	
Fringed Myotis		X	
Townsend's big-eared bat		X	
Yuma myotis		X	
Long-eared myotis		X	
California myotis		X	
Long-legged myotis		X	
Western small-footed myotis		X	
Northern alligator lizard		X	

Table 7.8.2a - Medium to long term effects on migratory birds

Species	Negative Effect	Neutral Effect	Positive Effect
Dusky Flycatcher			X
Western Wood-peewee			X
Western Flycatcher	X		
Black-headed Grosbeak		X	
Brown Creeper			X
House Wren		X	
Swainson's Thrush		X	
Cassin's Vireo		X	
Warbling Vireo		X	
MacGillivray's Warbler		X	
Yellow-rumped Warbler		X	

Yellow Warbler		X	
Townsend's Warbler	X		
Orange-crowned Warbler		X	
Nashville Warbler		X	
Western Tanager			X
Lazuli Bunting			X
Chipping Sparrow			X
Spotted Towhee		X	

*Special status species

7.8.3 Environmental Effects of Alterative B (No Action):

If Alternative B is implemented, no fuels reduction would occur on the site. The shade tolerant tree species would slowly begin to dominate the project area as shade intolerant species die and are replaced. The tree density would increase, and overall tree age and diameter would decrease. The likelihood of a stand replacing fire that would kill legacy trees would increase. If these trees were killed by wildfire, it would take more than 100 years to replace them and the benefits they provide to wildlife.

The impacts to wildlife species in the medium to long term are summarized in Table 7.8.3 and Table 7.8.3a. Specialists that depend on mature ponderosa pine forests would be negatively affected. Species that prefer more closed-canopy forests with a shrubby understory would benefit. Generalists that reside in mixed coniferous forests would likely neither benefit nor be harmed by Alternative B.

There would be no direct mortality to any individuals or increased predation as a result of the loss of cover.

Special Status Species

The Special Status species that are ponderosa pine specialists would be negatively affected if Alternative B were implemented (See Tables 7.8.3 and and 7.8.3a). Over time, without fire or timber harvest, shade tolerant species will begin to dominate the site. Large diameter, mature ponderosa pine will slowly decrease due to competition, insects, and disease. They will be replaced with shade-tolerant species that can better compete in a more closed canopy understory. There is also the increased likelihood of a high intensity stand-replacing fire as the tree density and fuel load increases on the site. With increased fuel loads, crown fires that result in mortality of older larger trees would be more likely. In the medium to long term, Lewis' Woodpecker, Pygmy Nuthatch, Flammulated Owl, and White-headed Woodpecker, all closely tied to mature ponderosa pine, would be negatively affected by loss of this habitat type.

Northern alligator lizard and the Coeur d'Alene salamander would not be at risk of mortality if this alternative is selected. Forest succession that will occur without the fuels reduction is unlikely to have negative or positive impacts on these species since

their habitat requirements do not necessitate mature ponderosa pine. Rock and talus slopes required by the northern alligator lizard will remain intact if Alternative B is implemented. Likewise, springs or seeps required by Coeur d'Alene salamander will also remain intact under this Alternative.

Special status bats will still use the site for foraging and roosting under Alternative B. However, the gradual loss of large diameter snags may reduce the quantity of roosting habitat over time. But this is not likely to have significant effects on the local population. Large diameter snags would be replaced by small and medium diameter snags that can also be used as roosting sites.

Migratory Birds

Table 7.8.3a summarizes the medium to long term effects of Alternative B on Migratory birds. Under this Alternative, there would be no mortality risk to the offspring of migratory or ground nesting birds that are incubating or rearing second clutches. Birds like the calliope humming bird and the dusky flycatcher that prefer open ponderosa pine forests would be negatively affected by the gradual replacement of ponderosa pine by more shade-tolerant species on the site. More generalist species like the Swainson's Thrush and the Black-headed Grosbeak would not experience positive or negative effects under Alternative B. Townsend's Warblers, Golden-crowned Kinglets, and Hammond's Flycatchers, which prefer a more dense forest canopy, would benefit under Alternative B.

Other Wildlife

Under Alternative B, big game animals would not experience any loss of cover or forage as a result of this alternative. But neither would they get the benefits of a rejuvenated shrub understory. The net effect would likely be neutral and no significant increases or decreases in the local big game population would be expected. Ground- nesting game birds, like Ruffed Grouse, California Quail, and Wild Turkey would not experience mortality to themselves or their offspring due to fuels reduction. While the gradual succession of the site into more shade-tolerant coniferous species would not exclude use by Wild Turkey, the loss of large diameter, broken topped ponderosa pine that make good roosting habitat would be a negative effect of Alternative B.

Table 7.8.3- Medium to long term effects of Alternative B on Threatened, Endangered and Special Status Species Habitats

Species	Negative	Neutral	Positive
Bald Eagle		X	
Northern Goshawk		X	
Red-tailed Hawk		X	
Sharp-shinned Hawk		X	
Cooper's Hawk		X	

Species	Negative	Neutral	Positive
Northern Pygmy Owl		X	
Flammulated Owl	X		
Calliope Hummingbird	X		
White-headed Woodpecker	X		
Lewis' Woodpecker	X		
Western Flycatcher			X
Pygmy Nuthatch	X		
Cassin's Finch		X	
Grizzly bear		X	
Lynx		X	
Fisher		X	
Fringed Myotis		X	
Townsend's big-eared bat		X	
Yuma myotis		X	
Long-eared myotis		X	
California myotis		X	
Long-legged myotis		X	
Western small-footed myotis		X	
Northern alligator lizard		X	

Table 7.8.3a- Medium to long term effects of Alternative B on migratory birds

Species	Negative Effect	Neutral Effect	Positive Effect
Western Flycatcher*			X
Dusky Flycatcher	X		
Western Wood-peewee		X	
Black-headed Grosbeak		X	
Brown Creeper	X		
House Wren		X	
Swainson's Thrush		X	
Cassin's Vireo		X	
Warbling Vireo		X	
MacGillivray's Warbler		X	
Yellow-rumped Warbler		X	

Species	Negative Effect	Neutral Effect	Positive Effect
Yellow Warbler		X	
Townsend's Warbler			X
Orange-crowned Warbler		X	
Nashville Warbler		X	
Western Tanager		X	
Lazuli Bunting	X		
Chipping Sparrow	X		
Spotted Towhee		X	

*- Special status species

7.8.4 Cummulative Effects

Because of the large amount of private land and infrastructure development within the analysis area, there has been little management of forest structure that maintains large diameter ponderosa pine stands. The lack of fire and the gradual increase in shade-tolerant trees in the understory has made large ponderosa pine and the wildlife that depend on them, more vulnerable to fire throughout the area. Historical timber harvest and land development have removed many of the large diameter pines and resulted in a more densly stocked forest. This gradudal transition benefits wildlife that utlize mixed conifer more densly stocked forest stands, but negatively effects species that require large diameter trees and a more open understory. While timber harvest may continue to occur on private lands, this type of harvest is unlikely to result in large diameter trees being retained.

The small diameter tree and brush removal proposed in this project, in conjunction with the proposed timber sale on BLM lands within Blue Creek Bay may reduce understory trees and protect large diameter ponderosa pine, larch, western white pine, and large Douglas fir. If implemented in this way, more habitat for wildlife species that depend on mature ponderosa pine forests or large diameter trees would be created or protected. This would negatively impact those species that utilize more densly stocked forest, such as Pacific Wren or Hammond's Flycatcher. However, in the analysis area, this forest type is plentiful. This project is expected to benefit several special status species in the anlysis area,

Human presence is prolific throughout the analysis area. Interstate 90 effectively functions as a barrier to movement for elk, deer, and moose, as well as other wildlife species like skunks and coyotes. Roads constructed to access private lands and recreational use of the uplands and Lake Coeur d'Alene bring human disturbance to much of the wildlife in this landscape. While the proposed action is within a heavily used recreation area, no increase in recreation is expected as a result of project implementation. The project will not increase road access, or trail access and has no impact on recreational use of the Lake or adjacent uplands.

After considering the effects of the proposed project, as well as historical, current, and expected future impacts to wildlife and habitat for Special Status Species within the analysis area, no cumulative effects are expected due to the proposed fuels reduction.

7.9 Vegetation

7.9.1 Affected Environment:

Vegetation Communities

The south-facing project area is mostly forested, dominated by ponderosa pine and Douglas fir trees. Grand fir seedlings and saplings have begun growing in the forest understory, where moisture, soil, and light conditions permit. Areas that have thinner soils and/or are quite rocky support primarily shrub and herbaceous species, with a few scattered trees. Shrubs typical of drier forest types in northern Idaho, such as oceanspray (*Holodiscus discolor*), mallow ninebark (*Physocarpus malvaceus*), serviceberry (*Amelanchier alnifolia*), snowberry (*Symphoricarpos albus*), shiny-leaf spiraea (*Spiraea betulifolia*), and Oregon grape (*Berberis repens*), predominate. Examples of dry site herbaceous species that are present in the project area include bluebunch wheatgrass (*Pseudoroegneria spicata*), Idaho fescue (*Festuca idahoensis*), heart-leaf arnica (*Arnica cordifolia*), yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*), silky lupine (*Lupinus sericeus*), wild strawberry (*Fragaria spp.*), and nine-leaf biscuitroot (*Lomatium triternatum*).

Vegetation within and adjacent to the project area has been disturbed by recreation site development and use; road-building, use and maintenance; mining; logging; severe weather events (ice storm); home site establishment; and fire activity. These disturbances have resulted in the mosaic of plant communities in various stages of ecological succession that is present today in the Mineral Ridge vicinity.

Weedy plant species have invaded many of these disturbed areas and compete with native species for light, water, nutrients, and pollinators. Section 7.2 describes the existing condition and trend of invasive species in the project area.

BLM Special Status Plants

Water howellia (*Howellia aquatilis*; federally-listed threatened) is an annual, aquatic plant currently known from six sites in the vicinity of Tensed and Potlatch, Idaho. No water howellia plants or habitat have been found in the project area; the Beauty Creek drainage; or Beauty Bay. Therefore, this species will not be affected and will not be discussed further.

Spalding's catchfly (*Silene spaldingii*; federally-listed) is a perennial herb found in the Palouse region of Idaho; eastern Washington; northeastern Oregon; and northwest

Montana. The nearest occurrence to the project area is a historical site at Liberty Lake, Washington, likely destroyed by urban development. Suitable habitat for Spalding's catchfly consists of plant communities dominated by native perennial grasses such as Idaho fescue, prairie junegrass (*Koeleria macrantha*), and rough fescue (*Festuca scabrella*), with associated species such as bluebunch wheatgrass, snowberry, ninebark, and Nootka rose (*Rosa nutkana*). Depending on soil moisture characteristics, some sites have few to no shrubs or trees present, whereas other sites may have scattered individual ponderosa pine or Douglas-fir (USFWS 2007). Idaho occurrences are threatened by invasive species such as cheatgrass (*Bromus tectorum*); spotted knapweed (*Centaurea maculosa*); Dalmatian toadflax (Linaria genistifolia); and yellow starthistle (*Centaurea solstitialis*). Although suitable habitat for Spalding's catchfly is present in the project area, and on nearby BLM land at Blue Creek Bay and Beauty Bay, no plants have been found, despite numerous inventories of these grassland and woodland communities. Therefore, this species will not be affected and will not be discussed further.

Whitebark pine (*Pinus albicaulis*; federal candidate) occurs on high elevation sites (>4,500 feet in northern Idaho) characterized by rocky, poorly developed soils, cold temperatures, and snowy, wind-swept exposures. No whitebark pine trees or habitat are present in the project area. Therefore, this species will not be affected and will not be discussed further.

Clustered lady's-slipper orchid (*Cypripedium fasciculatum*; Idaho BLM Type 3 (globally rare or very rare in Idaho, with moderate endangerment factors)) is a rhizomatous, perennial orchid. As in other members of the orchid family, this species requires a symbiotic relationship with fungi in the soil for reproduction and development. It reproduces mainly by seed, but also may increase to a limited extent by rhizome. Because of its dependency on fungal associates, reproduction is typically low. Clustered lady's-slipper requires shade, either from overstory trees and/or shrubs, and a certain level of duff or litter. The amount of shade and duff necessary to sustain the species has not been established, and probably varies depending on habitat type and other site factors. (Lichthardt 2003) Three populations in the vicinity of Coeur d'Alene indicate that this species can also occur underneath larger shrubs in drier seral stands of Douglas fir. The population in the project area was first reported in 2006. Since then, every three years, another plant has appeared; currently, four plants occupy an area of about one square-foot.

Pine broomrape (*Orobanche pinorum*; Idaho BLM Type 3) is a plant that lacks chlorophyll and is an obligate root parasite of the shrub, oceanspray. It is endemic to western North America, where it has been found from northern California to Oregon and north to central Washington and through Idaho (Ellis et al., 1999). Pine broomrape is uncommon throughout its range and is considered a "coastal disjunct" species in Idaho because the main distribution of this species on the west coast is separated from the populations in northern Idaho by the drier, interior portions of Washington and Oregon. At Mineral Ridge, most, if not all of the individual pine broomrape plants grow very near to oceanspray shrubs within the proposed fuelbreak.

7.9.2 Environmental Effects from Alternative A (Proposed Action)

Vegetation Communities

Cutting all Douglas fir and grand fir trees <9”dbh on 74 acres would temporarily create openings in the vegetation (decrease tree density), where shade-intolerant plants would proliferate until affected by ecological succession or future disturbance. Shade-tolerant plant species would be negatively impacted, such as by sun scalding, until sufficient canopy cover redevelops. This action would reduce the intense competition for water, sunlight, and nutrients among the current tree species and size classes. Conifer tree species composition would shift toward ponderosa pine and larger-diameter Douglas fir. The vertical structure of the forest vegetation would change temporarily, as the <9” size class is removed, including small-diameter ponderosa pine competing with or serving as a fuel-ladder to the larger, dominant trees. Without future treatment, tree seedlings would sprout and begin to fill-in the openings created by the project.

Cutting, piling, and burning shade-tolerant conifers <9” and all shrubs within the designated fuelbreak generally would cause effects to vegetation similar to those on the 74 acres discussed above. However, because shrubs would also be treated, some effects would be more pronounced. Visually, openings between remaining large-diameter trees would appear to be occupied by only herbaceous species, ponderosa pine (>9”dbh), and Douglas fir (>9”dbh). Because most dry-site shrubs in northern Idaho resprout from the base of the plant following disturbance, and mature trees will continue to produce cones, this state will be short-lived; unless future slashing or underburning occurs. The vertical structure of the fuelbreak also would appear much more simplified at first, with the removal of smaller diameter, shade-tolerant trees and the aerial portions of shrubs.

Live vegetation in areas where slash piles are created would be crushed; some re-growth of plants would occur at the edges of the piles, where sunlight can penetrate, while the piles are drying. When the piles are burned, the concentrated intensity of fire would kill plants directly under the piles, and kill or injure plants immediately adjacent to the piles. Over time, burn pile sites within project units would likely be recolonized by adjoining, surviving native vegetation, but additional seeding may be necessary to inhibit post-burn weed invasion. Larger, woody debris (down material >7”dbh) and any slash left on the ground to decompose would release nutrients to the surviving plant community.

Vegetation and ground disturbance associated with mechanical fuels treatment would create sites favorable for weed invasion and would produce conditions that allow more sunlight to reach the forest floor. Therefore, weeds, which currently occupy sites in or adjacent to the project area and tend to do extremely well in warmer, drier environmental conditions, may spread or at least maintain their present level of infestation. Section 7.2 describes the effects of this proposed project related to invasive species.

BLM Special Status Plants

The proposed action would have no effect on water howellia, Spalding's catchfly, or whitebark pine; and no effect on habitat for these three species.

The clustered lady's slipper population would be buffered from project disturbance; therefore, no effect to this species or its habitat is expected.

Data describing pine broomrape's response to disturbance are scarce. Monitoring by the U.S. Forest Service after a wildfire in north-central Washington included pine broomrape; however, preliminary results concerning this species' response to disturbance were inconclusive, and the study was not funded in subsequent years. (Harrod et al. 1997) Its host plant, oceanspray, is described in the Fire Effects Information System database (USDA Forest Service 2015) as being favored by disturbance. The database states that oceanspray prefers open sites; is a "light-demanding, early successional" species; and is promoted by disturbances that open the canopy. Based upon the regenerative abilities of oceanspray, it is possible that the obligate root parasite pine broomrape also exhibits some resiliency similar to that of its host. Because of the uncertainty surrounding this species, close coordination would occur between the Field Office botanist and District fuels staff during project implementation, so that effects to the broomrape plants would be minimized. For example, slash piles would not be placed directly on top of known pine broomrape locations. Because project disturbance would create conditions that could favor noxious weeds, design features discussed in Section 7.2 are very important to minimize impacts to pine broomrape from weeds in the fuelbreak area.

7.9.3 Environmental Effects from Alternative B (No Action):

Vegetation Communities

Plant succession would continue toward the potential natural community, where possible, in the absence of disturbance. Over time, sites in the area capable of supporting more dense forest vegetation would become dominated by shade-tolerant species, until a future disturbance such as logging, wildfire, insect infestation, disease, or intense weather event creates openings in the forest community. Undesirable numbers of Douglas fir and grand fir vulnerable to insect and disease outbreaks would continue to compete with ponderosa pine. Impacts to common, native plant communities and rare plants from a wildfire may be more severe due to the amount of fuel accumulated in unthinned areas, and possibly spread beyond the boundaries of the proposed action. A wildfire has the potential to be stand-replacing but may also create a mosaic of burned and unburned vegetation, depending upon factors such as variation in fire behavior. Weeds would still remain in and adjacent to the project area and compete with desirable, native species. A wildfire at Mineral Ridge could affect a greater number of acres than the proposed action, putting more acres at risk from weed invasion.

BLM Special Status Species

Clustered lady's-slipper has been found growing in more dense forest vegetation in northern Idaho than occurs in the project area; therefore, this alternative would likely promote survival of this species at Mineral Ridge, also. Because pine broomrape is closely associated with oceanspray shrubs, it is possible that plant community conditions that sustain the shrub, such as a certain amount of vegetation canopy, would also benefit the pine broomrape. Compared to the proposed action, however, the areas occupied by clustered lady's-slipper and pine broomrape could be burned over by a more intense wildfire, which might negatively affect species' habitat requirements such as composition and structure, as well as open more areas to weed invasion and/or expansion.

7.9.4 Cumulative Effects:

The analysis area includes the Beauty Creek drainage, plus the portion of Mineral Ridge facing Wolf Lodge and Beauty Bays, approximately 11 square miles.

Proposed Action

As summarized in Section 7.1.2, past land use practices and disturbances in the analysis area have influenced the species composition, vertical structure, and density of existing plant communities, including rare plants. Invasive or seeded, introduced herbaceous species have established in the analysis area. Currently, various stages of ecological succession are present due to past disturbances.

Present activities and natural disturbances in the analysis area include road use and maintenance; trail use and maintenance; firewood cutting; recreational activities; fire activity; wind blow-down events; and insect and disease outbreaks.

Reasonably foreseeable future actions and natural disturbances in the analysis area include road use and maintenance; trail use and maintenance; firewood cutting; recreational activities; fire activity; wind blow-down events; and insect and disease outbreaks, and vegetation treatments on adjacent or near-by lands such as the proposed BLM Blue Creek Bay project.

Ongoing and future vegetation-disturbing activities in the analysis area would continue to promote a mosaic of plant communities in various stages of ecological succession. The variety of successional stages would provide the diverse habitats needed to support clustered lady's-slipper and pine broomrape, though habitat condition would be degraded by the presence of weedy species. Ecological succession would proceed where vegetation is left undisturbed and would influence vegetation species composition, vertical structure, and density. Plant communities that revert to earlier ecological succession stages due to disturbance such as timber harvest, insect infestation, or disease would begin the process of maturing all over again and include habitat characteristics favorable for pine broomrape. Ongoing and proposed activities that impact vegetation would open up sites favorable to weed invasion due to ground disturbance and/or reduction of tree canopy cover but may also favor pine broomrape. Where left untreated, though, weeds would continue to threaten native plant communities, including BLM Special Status Plant Species.

The proposed action would treat approximately 85 acres of almost 7100 acres of vegetation in the analysis area; therefore, this project is unlikely to contribute cumulative effects to common, native plant communities, clustered lady's-slipper, or pine broomrape; due to the relatively small area of disturbance and its projected timing of implementation, when compared to the overall analysis area.

No Action Alternative

Under this Alternative, zero acres of vegetation at Mineral Ridge would be disturbed by fuels reduction. Vegetation composition and structure on adjacent lands in the analysis area could be altered by a future wildfire. The number of acres burned and severity of fire effects would be dependent upon many variables, including whether or not any treatments have been implemented on adjacent or near-by lands. Fires on these lands could also spread to the project area. Where left untreated, weeds would continue to threaten native plant communities, including rare plant populations.

7.10 Soils and Hydrology

7.10.1 Affected Environment:

Soils

Soil types within the project are mapped by the Natural Resources Conservation Service (NRCS) as deep, well-drained soils on mountains. These soils are gravelly silt loams underlain by fractured meta-sedimentary rocks. (USDA, 1981)

Water Resources, including Water Quality

The site extends across a broad, south-facing slope. Drainage is generally to the south towards an intermittent channel that flows into Lake Coeur d'Alene. Slope shape across the unit is primarily straight to convex, and slope drainage is generally dispersed rather than concentrated. There are no intermittent or perennial channels within the proposed project area.

7.10.2 Environmental Effects from Alternative A (Proposed Action):

Soils

Erosion potential varies by slope and degree of soil disturbance. Hand piling can keep soil losses to a minimum.

Potential for soil damage by fire from the pile burning is rated as low. As described by NRCS, "the ratings in this interpretation indicate the potential for damage to nutrient, physical, and biotic soil characteristics by fire. The ratings involve an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer. The ratings are based on

slope as well as the texture, content of rock fragments, organic matter, and thickness of the surface layer".

Though the NRCS rating is for prescribed fires or wildfires, the same characteristics would apply to potential for soil damage from pile burning.

There will be a minimal and short-term disturbance to soils from the fuel treatment hand work. The area of disturbance is minor and will re-vegetate with ground cover and become covered with duff within one season. Offsite erosion of the disturbed soil would be minimal, as there would be little to no concentrated overland flow for sediment transport.

Water Resources, including Water Quality

Due to the drainage characteristics described in the Affected Environment, as well as the untreated buffer area between the project and any water courses, sediment or ash delivery from pile burning to a stream is unlikely.

7.10.2 Environmental Effects from Alternative B (No Action):

Soils

Under this alternative, the risk of a stand replacing fire would be slightly higher. A fire with a high burn severity could result in substantial soil damage if burning is intense enough to remove the duff layer and consume organic matter in the surface layer. Soil impacts can also be compounded by increased erosion due to reduced ground cover.

In the event of a stand replacing fire, high burn severity could result in substantial soil damage if burning is intense enough to remove the duff layer and consume organic matter in the surface layer. Soil productivity would return to existing levels as duff accumulates and the plant community recovers.

Water Resources, including Water Quality

Under this alternative, the risk of a stand replacing fire would be slightly higher. A fire with a high burn severity could result in adverse impacts to water quality if burning is intense enough to remove the duff layer and consume organic matter in the surface layer. Water quality in the analysis area could be impacted due to increased erosion and sediment transport resulting from reduced ground cover, though the lack of stream channels in the project area itself would greatly reduce sediment delivery efficiency to Lake Coeur d'Alene.

7.10.3 Cumulative Effects:

Soils

No cumulative effects to soil resources are anticipated from the project.

Water Resources, including Water Quality

(As described in the fisheries section 7.3) Forest, agricultural practices, mining and development on lands within the action area have occurred in the vicinity of the project

area. Most of these activities, other than development, take place on tributaries to Coeur d'Alene Lake and are not directly adjacent to the lake. Development, including some clearing for houses and roads, as well as timber harvest, has occurred near the lake in the vicinity of Mineral Ridge. There are no known future timber harvest or prescribed burning projects in the area of Mineral Ridge, though some development is likely to continue to occur.

No cumulative effects to water resources are anticipated from Alternative A due to the lack of drainage features connecting the project area and the lake.

Under Alternative B, if a stand replacing fire occurred there would be an unquantified, but temporarily increased over existing conditions, sediment load delivered to the lake.

7.11 Recreation

7.11.1 Affected Environment:

The project area is within a heavily used day-use non-motorized recreation area where visitation is approximately 70,000 people per year. Visitation is particularly heavy in late spring, summer, and fall when conditions are relatively dry. Most visitors are attracted to the Mineral Ridge hiking trail. The hiking trail is primarily a loop trail with several spurs to scenic viewpoints of the north end of Lake Coeur d'Alene. The trail is primarily used by the public as a nature hike where trees, plants, and animals are viewed in their habitat. The general public, schools, and other organized groups regularly use the site as a "classroom in the forest." The forest ecosystem along the trail is described in a self-guiding nature brochure with 24 exhibits. These 24 exhibits are marked along the trail with wooden posts. Along with the exhibits, there are several benches and wooden structures along the 3.3 mile hike. The benches and structures are typically the areas where visitors stop to observe the forest setting.

The Mineral Ridge trail head is a day-use recreation site that includes paved parking, accessible walkways, vault toilets, information kiosks and signs, two wooden pavilions, and a groomed lawn for picnicking. There are two wells with water systems at the site. One well supports irrigation for the lawn areas, and the other well supplies potable water. There are three water faucets that offer drinking water to the public. Two faucets are located at the developed trailhead, and the other faucet is located on the trail at the top of the ridge.

The Mineral Ridge Trailhead was the first developed recreation site for BLM Idaho. The Mineral Ridge Trail was designated as a National Recreation Trail within the National Trail System.

7.11.2 Environmental Effects from Alternative A (Proposed Action):

The Mineral Ridge Recreation Area is a popular hiking/picnicking destination within close proximity of Coeur d"Alene. Due to the popularity of the site, visitors are likely to show up at the trailhead during project implementation when the area is closed. For these visitors to find similar recreational opportunities on BLM lands, they would need to

visit other nearby recreation sites such as the Wallace C. Forest Conservation Area (WFCA) in Lake Coeur d'Alene's Blue Creek Bay or the Beauty Bay Recreation Site. These potentially displaced visitors would be informed and directed to the WFCA. This developed recreation site and trail system is located approximately three miles north of Mineral Ridge. The WFCA has two developed day-use picnic areas and about seven miles of trail. This developed recreation site and trail system is located approximately three miles north of Mineral Ridge. With the WFCA located nearby, visitors that are displaced unexpectedly have an area where they can experience similar recreational opportunities. Visitors would also be able to travel south to the nearby Beauty Bay Recreation Site. This is a small site that offers a half mile looped trail along with seven picnic sites. Thus, visitors would be encouraged to recreate at the WFCA, due to the smaller more limited size of the Beauty Bay Recreation Site. The visitor impacts and displacement would be short-term and would cease upon reopening of the site. Therefore, impacts would not be significant with the consideration of long-term benefits of forest health and infrastructure protection.

Due to high visitation the Mineral Ridge Recreation Area requires a significant amount of routine maintenance. The RMP classifies the site as a Maintenance Level 3 (ML 3: High Maintenance Intensity). The RMP states that, “Recreation facilities will be maintained in good condition (defined as safe, clean appearing, and functional for the intended use level and purpose) at the indicated maintenance level.” (2007, p.48) The Proposed Action lies within the indicated Maintenance Level 3, and helps protect the trail, facility infrastructure, and surrounding forest from wildfire. The Proposed Action would also help protect the scenic and recreational values from the dangers of wildfire and forest health related issues.

The areas treated near the trail would provide for future opportunities to add environmental education on forest recovery.

7.11.3 Environmental Effects from Alternative B (No Action):

The site would continue to see visitors to the area with the current forest condition. The No Action Alternative would leave the fuel load as it is which increases the risk of a stand-replacing wildfire or decreases in forest health. These outcomes would lead to decreased recreation in the area and damaged infrastructure at the site. Recovery may take decades for the forest habitat to regenerate. It would also take years to rebuild the recreation area due to the costs associated with replacing developed infrastructure.

7.11.4 Cumulative Effects:

Another forest health/ fuels reduction project is planned to occur at the WFCA at Blue Creek Bay. This project is anticipated to last up to 6 years. If the implementation of the WFCA project overlaps with the Mineral Ridge project, then visitors would not be able to use either location for recreation. This overlap would likely increase use at the Beauty Bay Recreation Site. However, in the long term, both projects would improve opportunities for recreation in close proximity to Coeur d’Alene.

8.0 Tribes, Individuals, Organizations, or Agencies Consulted

The Tribal Chairman of the Coeur d'Alene Tribe of Idaho received a letter that included the full scoping package for this project. No comments were received.

9.0 List of Preparers

Name	Position
Scott Pavey	Planning and Environmental Coordinator
LeAnn Abell	Botanist
Doug Evans	Natural Resource Specialist
Jake Bachtel	BLM Park Ranger
Jered Bowman	Area Forester
Carrie Hugo	Wildlife Biologist/Project Lead
Scott Sanner	Mining Engineer
David Sisson	Archaeologist
Mike Stevenson	Hydrologist
Jim Hammons	GIS Specialist
Kristen Sanders	District Fire Use Specialist
Cindy Weston	Resource Coordinator/Fisheries Biologist
Janna Paronto	Realty Specialist

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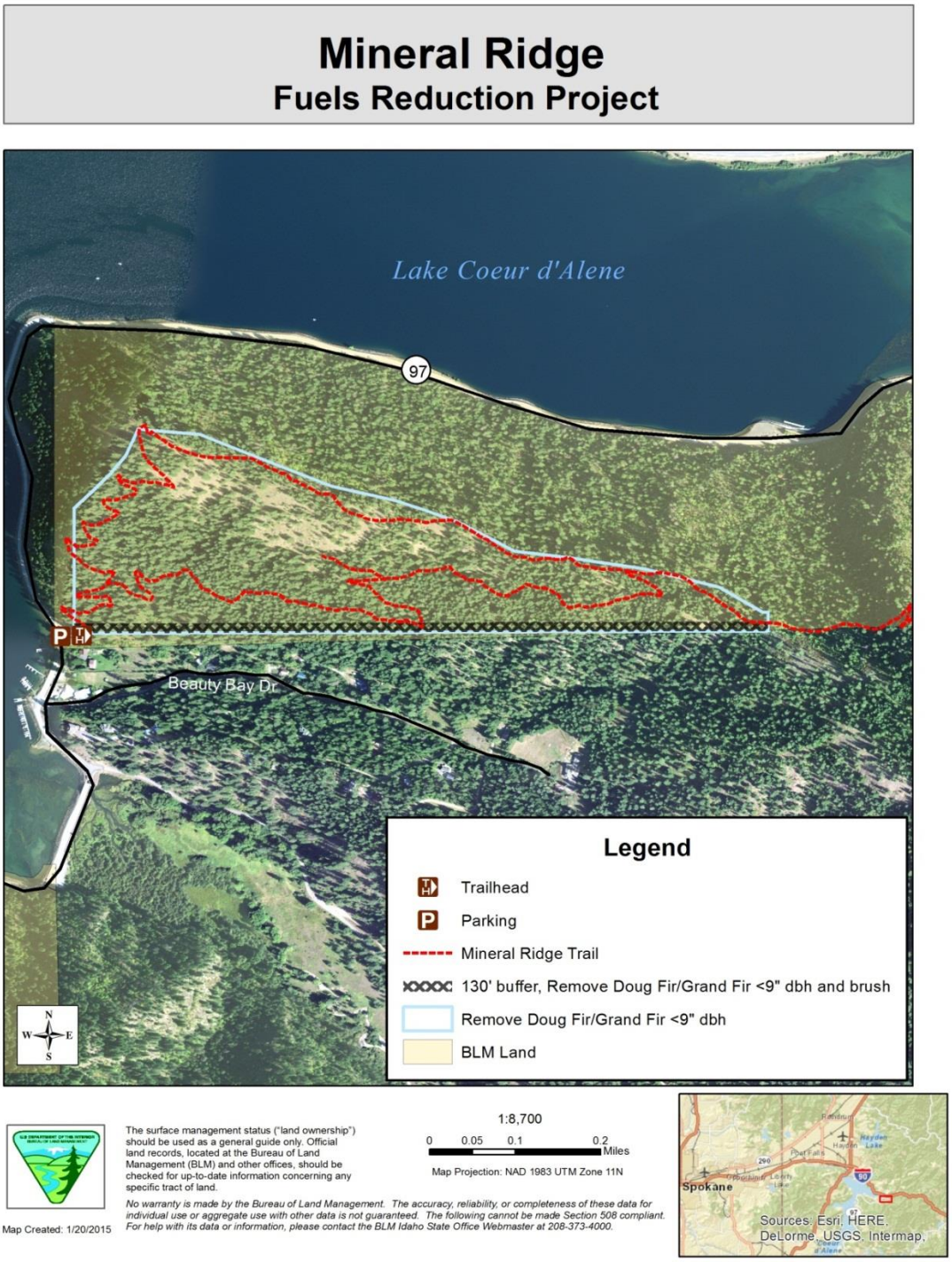
MAP A


Mineral Ridge
Fuels Reduction Project
Lake Coeur d'Alene
97
Beauty Bay Dr
Legend
Trailhead
Parking
Mineral Ridge Trail
130' buffer, Remove Doug Fir/Grand Fir <9" dbh and brush
Remove Doug Fir/Grand Fir <9" dbh
BLM Land
N
W
E
S
The surface management status ("land ownership") should be used as a general guide only. Official land records, located at the Bureau of Land Management (BLM) and other offices, should be checked for up-to-date information concerning any specific tract of land.
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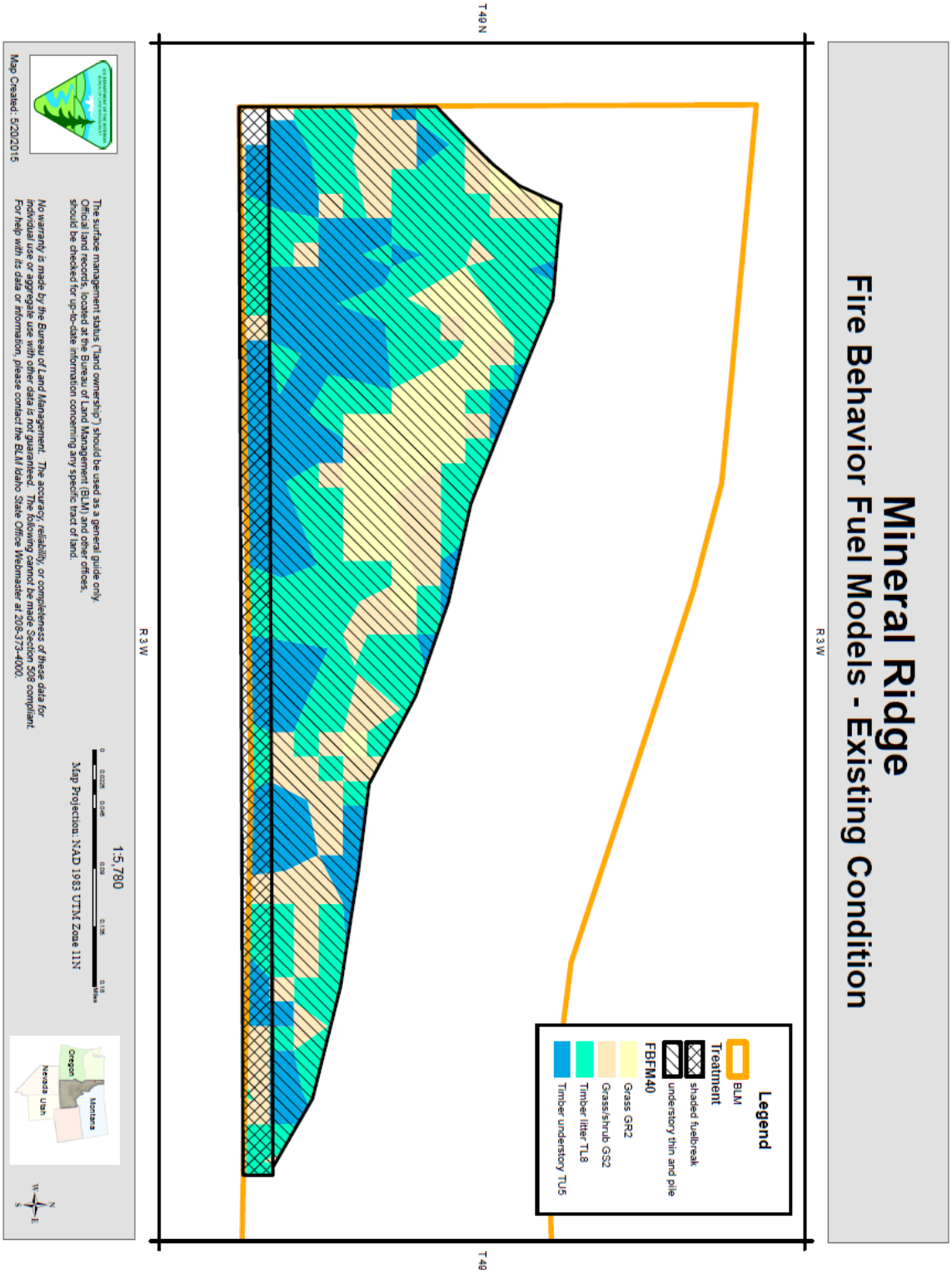
Map Created: 1/20/2015
1:8,700
0 0.05 0.1 0.2
Miles
Map Projection: NAD 1983 UTM Zone 11N
Spokane
Sources: Esri, HERE, DeLorme, USGS, Intermap,

MAP B


Mineral Ridge
Fire Behavior Fuel Models - Existing Condition
R 3 W
T 49 N
T 49
Legend
BLM
Treatment
shaded fuelbreak
understory thin and pile
FBFM40
Grass GR2
Grass/shrub GS2
Timber litter TL8
Timber understory TU5
1:5,780
Map Projection: NAD 1983 UTM Zone 11N
Oregon
Montana
Nevada
Utah
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