Ninemile Timber Sale
Environmental Assessment

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Project Area in the Silver Valley Wildland Urban Interface, Shoshone County, Idaho

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1.0 Introduction

1.1 Background:

The forest vegetation on BLM land along Ninemile Creek north of the town of Wallace, in Shoshone County Idaho, is overstocked with numerous understory trees. These overstocked understory trees threaten the large overstory ponderosa pine trees with fire by providing a way for a ground fire to reach the crowns of the pine trees called “ladder fuels”. The combination of the overstocked understory and scattered dead lodgepole pine trees also creates a fire hazard adjacent to a major transmission line that traverses the area.

1.2 Proposed action summary: The BLM proposes to implement a timber sale and prescribed burn to reduce the wild land fire threat to the local community and infrastructure in the Ninemile Creek area.

1.3 Location: The project area is located about 1 mile northeast of the town of Wallace, ID at: T.48 N., R.4 E. Sections 1, 12, 13, 23, 24; and T.48 N., R.5 E. Sections 6, 7, 8, 17, 18, Boise Meridian (see Map 1).

2.0 Purpose and Need

2.1 Need:

The condition of the forest in the Ninemile Creek area, which is within the wildland-urban interface (WUI), poses a high risk to the local community and infrastructure from future wildland fire. The Coeur d’Alene Resource Management Plan (RMP) (BLM 2007) identifies a goal to “Protect life and property while returning fire to its natural role in the ecosystem.” The RMP further states that one of the specific objectives for achieving this goal is to “Reduce impact from wildland fire to WUI areas, municipal watersheds, and infrastructure.” In addition, the Shoshone County, Idaho Community Wildfire Protection Plan identifies the proposed project area as a high priority for hazardous fuels treatments.

2.2 Purpose:

The purposes of the proposed action are to reduce the risk that wildland fire would threaten the local community and infrastructure, to comply with the above mentioned goals and objectives from the Coeur d’Alene RMP, and to respond to the Shoshone County Community Wildlfire Protection Plan.

This would be accomplished by:

- Reducing surface fuels to limit the flame length of a wild land fire that might enter the stand.
- Increasing the height to flammable crown fuels to make it more difficult for canopy torching to occur. .
- Decreasing overstory crown density to make tree-to-tree crowning less probable.
- Retaining large trees of fire-resistant species (Hummel & Agee 2003; Brown, Agee & Franklin 2004).

3.0 BLM Decision to be Made

The BLM will decide where and what vegetation treatments to implement, and whether or not to conduct a timber sale in accordance with 43 CFR 5000 after the analysis has been completed.

4.0 Land Use Plan Conformance

The proposed action as described in Section 6 of this EA is in conformance with the Coeur d'Alene Resource Management Plan, approved June, 2007 (BLM, 2007). The following objectives and actions support the proposed action.

Goal WF-1- Protect life and property while returning fire to its natural role in the ecosystem.

Objective WF-1.5 – Improve or protect valuable resources and improve the FRCC through the use of fuels treatment activities within the 8,200 acres where vegetation treatments will occur.

Action WF-1.5.3 – Fuels treatments (prescribed fire, mechanical, chemical, or biological) will be conducted on identified areas.

Action WF-1.5.4 – Coordinate fuels treatment activities with adjacent land owners and other management agencies.

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

Action WF-1.6.3 – Conduct mechanical fuels treatments on identified areas.

Action WF-1.6.5 – Coordinate fuels treatment activities with adjacent land owners and other management agencies.

Goal VF-1- Restore forest vegetation towards historic species composition, structure, and function across the landscape.

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

Action VF-1.2.1 – Emphasize the use of natural disturbances, prescribed fire, and appropriate silvicultural methods to restore historic composition within wet/warm vegetation cover type.

Action VF-1.2.2 – Emphasize the use of natural disturbances, prescribed fire, and appropriate silvicultural methods to restore historic composition within dry vegetation cover type.

Action VF-1.2.3 – Emphasize the use of regeneration harvest and natural and artificial regeneration to restore historic composition within wet/cold vegetation cover type.

Action VF-1.2.6 – Restore forest structure and function by reducing tree density and brush/shrub competition using appropriate silvicultural treatments including, but not limited to, intermediate treatments, release treatments, use of pesticides, and prescribed burning. Aerial spraying to control brush/shrub competition will not occur. Prioritize these treatments within FRCC 2 and FRCC 3 areas (16).

Objective VF-1.3 – Maintain or enhance wildlife habitat function through the above objectives and actions, and in accordance with the goals, objectives, and actions listed in the Fish and Wildlife and Special Status Species sections (16).

Goal TM-1 – Provide adequate administrative access for resource management needs and appropriate public access to recreation opportunities on BLM – managed or partnered lands and waters.

Goal FP-1- Provide forest products to help meet local and national demands while protecting natural component of the environment.

Objective FP-1.1- Provide a PSQ of 4.4 MMBF/year over 15 years of commercial forest products (e.g., saw timber, hew wood, pulp, fuel wood, biomass, etc.) from vegetation treatments designed to improve forest health on at least 8,200 acres.

Action FP-1.1.1 – Identify and treat areas to promote forest health and restore forest stands to historic species composition, structure, and function by:

- Retaining large diameter trees when consistent with treatment objectives.
- Treating areas with excessive forest fuel loading and ingrowth.
- Treating areas with insect and disease infestation.
- Treating areas where other disturbances have occurred (45).

Goal FW-1 – Manage Aquatic, riparian, and wetland habitats to provide for a natural abundance and diversity of fish and wildlife with self-sustaining populations in northern Idaho.

Objective FW-1.1 - Promote recovery of aquatic, riparian, and wetland habitats, including maintaining/improving watersheds.

Action FW-1.1.1- Establish Riparian Conservation Areas (RCAs) consistent with RMO and S&G in the CNFISH.

TM-1 – Vegetation management practices may be used in RCAs only to restore or enhance physical and biological characteristics of the RCA including Riparian Management Objectives.

Goal FW-2- Provide terrestrial habitats for a natural abundance and diversity of native and desirable nonnative wildlife species with self-sustaining populations in northern Idaho.

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

Action FW-2.2.4- Retain snags ≥ 14 inches dbh (or largest available) according to the following:

Table 4.0: Snag Retention

Cover Type	Snags/acre
Wet Cold Conifer	8.1
Dry Conifer	3.3
Wet Warm Conifer	5.4

Goal SS-2 – Ensure that BLM-authorized actions are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species under provisions of the Endangered Species Act.

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.

Action SS-2.5.3 – Appropriate mitigation/guidelines (e.g., avoidance of occupied areas, distances from occupied habitat) will be designed when a project occurs near special status plant population(s).

Action SS-2.5.6 – Prioritize weed control at special status plant populations threatened by weed infestation. Methods of weed spraying within or near habitat will be formulated on site-specific and species-specific basis.

Action SS-2.5.7 Seeding within occupied habitat will be avoided unless clearly beneficial for special status plants.

Goal SE-3 - Provide opportunities for economic benefits while protecting cultural and natural resources.

Objective SE-3.1- Balance resource protection with opportunities for commercial activities and other noncommercial human uses (65).

5.0 Scoping and Issues

5.1 Public Involvement: Local residents who live within the project area and interested parties received written notification about the proposed action. The public comment period extended from 2/1/2014 to 4/1/2014. During the comment period four comments were received. All comments expressed concerned about maintaining the quality of their private drinking water sources.

5.2 Issues: The table below describes the issues identified through internal and external scoping which will be analyzed in detail in this EA:

Table 5.2: Issues Analyzed

ELEMENT/RESOURCE/USE	Issue Statement(s)
Forest Vegetation	The project would change the composition, structure and functions of the existing forest vegetation possibly affecting large old trees.
Vegetation/Special Status Plants	Sensitive plants could be damaged by logging or Rx burning.
Wetlands and Riparian Zones	Aquatic habitat could be damaged by road construction, logging or Rx burning.
Invasive, Nonnative Species	Disturbance to soil could provide opportunities for invasive plants and noxious weeds to spread.
Wildlife/Habitat	Increased recreational use could potentially disturb wildlife and degrade habitat.
Special Status/Migratory Birds	Bird nesting sites could be damaged.
Air Quality	Prescribed burning would produce smoke that could affect regional air quality.
Soil & Water Resources	Disturbed soils could produce sediment that may enter the creek.
Fire Management	Prescribed burning could damage the BPA transmission line.
Recreation	Project work could impact recreational use of public lands.
Cultural Resources	A historic abandoned rail line could be impacted by logging operations.
Social/Economic Resources Conditions	Residents living next to the project could be adversely affected by the project, ie. noise and traffic.

5.3 Issues Eliminated from Further Analysis:

The BLM considered the effects of the proposed action on visual resources as a potential issue. However, preliminary analysis revealed that the location of the specific treatment units of the project would not be visible from any key observation point (KOP). A KOP is a point or route from which the project area may be commonly viewed. Commonly travelled routes in the vicinity of the project include Interstate 90, Revenue Gulch Road, and Ninemile Road. The project units are located on higher elevations that are not visible from these routes. The only observable aspect of the project would be smoke from the prescribed burns. However, this would be very short-lived while the burn is occurring. Hence the BLM determined this issue was not significant and eliminated it from the detailed analysis in this EA. The BLM also considered the effects of the proposed action on water resources, specifically domestic water sources as a potential issue. However, during the scoping period only one individual acknowledged that they have a domestic water source located on BLM within the project area. Therefore, the project was designed and located to eliminate any possible disturbance to the water source.

6.0 Alternatives

This chapter describes the Proposed Action and No Action alternatives. It also describes alternatives that BLM considered but eliminated from further analysis.

6.1 Alternative A (Proposed Action):

6.1.1. General Description:

The proposed timber sales and hazardous fuel reduction actions would be located between Ninemile Creek and Canyon Creek in Shoshone County, Idaho, approximately four miles northeast of Wallace, Idaho. The majority of the proposed action would be located along the major ridgeline between the two creeks, see Map 1: Ninemile Timber Sale – Vicinity.

Fuel reduction and vegetative treatments would remove dead and dying trees from the forest, commercially thin healthy understory trees in mixed conifer stands, and prescribe burn ponderosa pine forests. Fuels treatments consist of biomass utilization, piling and burning, slashing, and prescribed burning. The project would treat approximately 350 acres of vegetation within the 2,980 acre project area, or 28% of the public lands within the project area. The existing road system would be upgraded to facilitate access by heavy equipment and the hauling of logs. There would be a no net increase in motorized road use on the project area after treatment.

Temporary administrative easements to use existing roads would be acquired to cross private lands before any commercial activities begin. Easements would also be acquired for the construction of about 70 feet of new road located on Hecla Limited ownership as shown on Map 2: Ninemile Timber Sale - Access

The timber would be sold in two phases. The first phase is planned for sale on September 2, 2014 on a three year contract that would use existing roads which access

the sale area. The second phase would include construction of new roads on private ground, and is planned to be sold on a three year contract beginning in September of 2016. See Map 3: Ninemile Timber Sale - Forest Treatments and Map 4: Ninemile Timber Sale – Harvest Method which shows the location of the four cutting units on the proposed timber sales.

After harvest activities are completed fuel reduction operations would begin. Logging slash would be piled on about 20 acres, on 75 acres of forest land small trees (< 8" DBH) would be slashed, and understory prescribed burning would be conducted on 344 acres of forest land, see Map 5: Ninemile Timber Sale – Hazardous Fuel Reduction.

The Proposed Action would:

- Construct about ¾ mile of temporary road, which would be closed at the end of the project;
- Thin the forest by harvesting trees located on 207 acres of forested land, which could produce about 1 million board feet of timber;
- Conserve all old ponderosa pine and Douglas-fir trees located on southern aspects by thinning understory fir and pine trees;
- Conserve all western white pine, western redcedar, dominate overstory western larch and Engelmann spruce trees located on northern aspects by thinning understory hemlock, fir and lodgepole pine trees;
- Conserve all active raptor nests, and provide nesting habitat for migratory songbirds;
- Decrease fire hazard on 100 acres of forested land adjacent to the Bonneville Power Administration's transmission line;
- Restore fire adapted ecosystems and reduce hazardous fuels by prescribed burning on 344 acres;
- Restore forest stands to historic species composition by planting disease resistant western white pine and western larch seedlings in openings created by logging or prescribed burning on the wet/warm vegetative cover types, and by planting ponderosa pine seedlings in openings created by logging or prescribed burning on the dry conifer vegetation cover type;
- Implement hazardous fuels monitoring on treatment units;
- Implement wild fire effectiveness monitoring of the project.

6.1.2. Environmental Design/Resource Protection:

A domestic water source located within the project area has been identified through the scoping process. No activities are proposed in the drainage where the water source is located.

Retention forestry would be applied to all ponderosa pine trees over 100 years old that are located on south facing aspects. All western redcedar trees would be retained on

the project area. Additionally, a twenty acre intact forest with large structure would be retained adjacent to the East Fork Ninemile Creek (Lindenmayer,et.al. 2012).

Riparian conservation areas would be established on all perennial and intermittent streams in the project area to maintain water quality and reduce the potential for sediment to reach the creek. Additionally, the majority of the constructed roads would be about ¼ mile away from the creek.

Large blocks of forest reserve areas within the project area would be conserved to minimize disturbance to wildlife populations. All known or discovered wetlands, seeps, bogs, elk wallows and springs less than one acre in size would be protected with a 100-foot "no activity" buffer along their perimeters.

The timber harvest activities would minimize impacts to soil and water quality through contract stipulations and best management practices (BMPs), including: restrictions on operating when soil moisture is greater than 25%, proper spacing of skid trails; limiting tractor skidding to slopes of 40% or less, and installing waterbars and other drainage measures as recommended by the BLM. Project inspectors would be on site during construction activities to ensure that proper procedures are followed. All disturbed ground would be re-vegetated as soon as possible with the District approved seed mix. To reduce sources of noxious/invasive seed and/or plant parts and minimize risk of spreading existing infestations, pre-existing weed populations would be treated prior to project activities.

Preventing new weeds species from entering the project area is the highest priority for protecting the area from weed invasion. Pre-harvest measures would include removing all mud, dirt, and plant parts from all off-road vehicles and off-road equipment before entering BLM lands. Cleaning must occur off BLM lands. (Cleaning requirements do not apply to vehicles that would stay on the established roadway and use the constructed landing. These areas are more easily monitored and treated if weed establishment occurs.)

Opportunities for weed invasion in disturbed sites would be reduced by seeding all disturbed soil (except the travel way on surfaced roads) in a manner that optimizes plant establishment for that specific site. A certified weed-free seed mix that includes fast-growing, early season species would be used to provide quick, dense re-vegetation.

Reduce impacts of weed populations following project completion. Post-harvest activities would employ an integrated weed control strategy of: monitoring and treatment of weed infestations on off-highway vehicle (OHV) trails, roads, landings, skid trails, and treatment areas. Weed treatments will use biological controls, mechanical removal, and/or herbicides after considering the effectiveness of all potential methods and combination of methods. Road and trail closures would reduce the likelihood of weed introduction, spread and persistence in these areas.

Work on the project area would be accomplished with care to ensure that no oil, diesel, gas or other harmful materials foul the soil or enter any stream.

All burning would be in conformance with air quality regulations, and coordinated with the North Idaho Airshed Group to maintain air quality. BMPs would be applied to reduce effects from road dust, i.e. road watering.

To maintain adequate habitat for snag and cavity dependent animals about five large snags or cull trees would be retained per acre for wildlife on north facing aspects and about three large snags or cull trees would be retained per acre for wildlife on south facing aspects.

About eight logs/acre would be retained per acre on north facing aspects to provide or improve grouse habitat, and about four logs/acre would be retained on dry conifer forests.

To protect raptors and their habitats, if an active nest is found a 50-yard buffer around the nest would be implemented.

To protect migratory birds, timber harvest and road construction activities are not authorized during the breeding season when birds are nesting. Timber sale activities would begin after July 15th.

To ensure scenic quality objectives are met, the location of the proposed roads and silviculture prescriptions for timber harvest would conform to the natural landscape.

To help protect soil, the contractor would have the option to log the area when the ground is frozen with at least 12 inches of snow cover.

The historic abandoned rail line located at the bottom of unit 3 shall be buffered from treatments to maintain the integrity of the artifact.

6.1.3 Monitoring:

A BLM representative would be onsite to inspect all active contract work. Post-project monitoring would include appropriate site preparation in areas to be reforested. Following seedling planting, out years stocking surveys would be conducted to determine the reforestation success. These surveys would depend on funding adequacy.

Effectiveness monitoring would be conducted on the Hazardous Fuel Removal areas to determine if the fuel reduction objectives are achieved.

After harvest activities would 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).

6.2 Alternative B (No Action):

No timber sale, understory vegetation slashing, prescribed burning or road construction would occur. Treatment of weeds would continue to occur as part of the Coeur d'Alene Field Office's weed management program.

6.3 Alternatives Considered but Eliminated from Detailed Analysis:

The BLM considered another alternative that would include small timber harvest areas scattered throughout the project area with no prescribed burning (see Map 6: Ninemile Timber Sale – Alternative Not Analyzed). However this alternative would not achieve the purpose and need of the project because prescribed burning is the only economical method to reduce the hazardous fuels.

7.0 Affected Environment and Environmental Effects

7.1 Scope of Analysis

7.1.1 General Setting

The town of Wallace is located about one mile southwest of the project area boundary. A Bonneville Power Administration (BPA) transmission line traverses the project area, and its operation is at risk from wild fire due to overstocked trees adjacent and near the transmission line. Private homes are located in Woodland Park, Zanettiville, and in the historic town sites of Blackcloud, Black Bear, Bunn, Gem and Frisco that are within one mile of the project area.

The project is located between Canyon Creek and Ninemile Creek, and it is about one mile southwest of Tiger Peak. Elevations on the project area range from about 3,000 feet up to 5,200 feet. The project is located on both north and south aspects, and about 80% of the area has slopes greater than 45%.

Since the early 1990s aerial insect and disease timber survey data has been collected by the USFS that indicates significant mortality from various insect attacks and diseases of which the mountain pine beetle and *Armillaria mellea* root disease are most active on the project area.

The majority of the forest in the project area was established after the 1910 wildfire. Historically, fires have played an important role in the ecosystem. Fires have provided repeating cycles of disturbance which create openings that enhance soil moisture, increase sunlight and nutrients providing habitat for disturbance adapted plants and animals, thus resetting succession. Due to the increase in home sites within the Wildland Urban Interface, naturally occurring fires have been suppressed throughout much of the west, including the project area. This has created an accumulation in fuels and allowed succession to near climax with less fire resilient species growing in the forest.

7.1.2 Related Past, Present, and Reasonably Foreseeable Actions

Human caused and natural events have had varying levels of impacts on the resources and values affected by the proposed forestry project. The only BLM action within the project area was a right-of-way granted to the Bonneville Power Administration in 1981 for the construction of the transmission line corridor and roads needed for the erection of the transmission line towers. Additional roads were constructed on private and BLM for mineral exploration and timber extraction.

Adjacent to the project area the BLM has completed several projects designed to improve forest health or reduce the wildfire threat identified in the Community Wildfire Protection Plan (see Map 1: Ninemile Timber Sale - Vicinity for project locations).

In 1959, BLM granted a right-of-way for the construction of the Avista (Washington Water Power) transmission line corridor and associated roads that traverse the Revenue Gulch area, adjacent to the project area. During the past 20 years the BLM completed several timber sales, near the project area, designed to conserve large pine trees and return disease resistant western white pine to the forest. About 6 million board feet of timber was harvested from about 550 acres of forest during that time.

In 1995, the BLM harvested 3.2 million board feet of timber from 300 acres of forest on the Dobson Pass Timber Sale.

In 2000, the BLM harvested 870 thousand board feet of timber from 90 acres on the Blackcloud Timber Sale.

In 2002, the BLM harvested 1.1 million board feet of timber from 167 acres of forest on the Nine Mile Timber Sale.

For more than 100 years, the Coeur d'Alene River Basin (Basin) was one of the most productive silver, lead, and zinc mining areas in the United States, producing 7.3 million metric tons of lead and 2.9 million metric tons of zinc between 1883 and 1997 (Mitchell and Bennett 1983; Long 1998). The majority of mining and mineral processing in the Basin occurred along the South Fork of the Coeur d'Alene River and its tributaries (Mitchell and Bennett 1983). The wastes generated by these operations contain metals, including lead, zinc, cadmium, and arsenic. A significant portion of these wastes were discharged directly into the Coeur d'Alene River and tributaries. The US Environmental Protection Agency (USEPA) has been, and continues to clean up this contamination through its Bunker Hill Superfund Site remediation actions. Recently this included work within the Ninemile Creek Watershed (USEPA).

Other past, present and reasonably foreseeable actions and events that contribute to the analysis of cumulative impacts to resources include past road building and continuing OHV trail use; transmission line maintenance; past timber harvest on private land; fire activity; insect and disease outbreaks; and house construction.

7.1.3 Analytical Assumptions

The analysis is based on the following assumptions:

- Since the majority of the private forest land has already been harvested, near-future timber harvests on these lands and construction of associated new roads is unlikely.
- Use of unimproved roads in the vicinity of the project area will continue to be light.
- If left untreated, a stand replacing crown fire will occur in the project area in the future.

7.2 Forest Vegetation:

7.2.1 Affected Environment:

There is considerable diversity in the forest setting because the project area is located on both north and south facing slopes. There are four principal forest habitat types on the project area and are represented in a vegetative mosaic across the area. Generally, south and east facing aspects (67%) sustain both Douglas-fir/ninebark and grand fir/queencup beadlily habitat types, north and west facing aspects (33%) sustain western hemlock/queencup beadlily and western redcedar/queencup beadlily habitat types (see Map 7: Ninemile Timber Sale – Forest Habitat Type for locations).

The project area appears to not have sustained a significant wildfire since the 1910 fire. Fire scars on large trees throughout the project area appear to be greater than 100 years old.

Shade intolerant shrub and herbaceous growth is vigorous where the forest canopy is more open, in contrast to deeply shaded areas with sparse understory vegetation.

Vegetation within the project area has been disturbed by recreational use of roads and trails; fire activity; insect and disease outbreaks; logging; road building and/or maintenance; and mining.

Several of the entomological and pathological agents are active in the project area as discussed below.

Mountain Pine Beetle

Mountain pine beetle is a native bark beetle with a one-to-two year life cycle that affects ponderosa pine as well as other pines. Adults select green trees of sufficient size and phloem thickness to nourish their larvae. The pitch tubes on the bole and boring dust at the base of the tree are evidence of beetle entry. Beetles are subject to mortality from parasites, predators such as woodpeckers, cold winters, drying of the pine following infection, and resin from the host tree. In lodgepole pine stands, infestations tend to occur in stands with basal area (BA) above 120 ft^2 per acre and also on poor sites. Thinning can help reduce susceptibility to mountain pine beetle. Thinning to residual BA of 80 ft^2 per acre is recommended by scientists (Mitchell, Waring, Pitman 1983).

Pockets of mountain pine beetle killed trees have been noted in the project area primarily effecting the concentrations of small diameter lodgepole pine trees.

Root Diseases

Root diseases are slow spreading insidious fungi that can affect all sizes, ages and species of trees. In the watershed, grand fir and Douglas-fir are most highly susceptible and the prevailing root pathogens affecting them are armillaria and annosus root rots. With the continued exclusion of fire, grand fir and Douglas-fir will increase, and root disease will likely also increase. However, this change is not toward conditions outside historic ranges. Where Douglas-fir has encroached on ponderosa pine stands, these will be more susceptible to root disease. Fire and root disease appear to have contributed historically to the maintenance of larch in mixed conifer stands. Without fire, root disease is unlikely to sufficiently limit grand fir competition leading to the eventual elimination of larch from the stand.

Root disease has probably increased in severity. The older a stand becomes and the more it shifts toward grand fir, the more severe root disease will be. Root disease may play a more important role if ponderosa pine is reduced and Douglas-fir and grand fir increase. It will affect canopy cover, cover types, size, and age distribution of trees, and timber productivity. The effects will be to create forest openings, favoring shrubs and regeneration of more susceptible grand fir or increased dominance by less susceptible species. Over the long-term, without fire or harvest to sustain less susceptible species, more stands will become susceptible.

7.2.2 Environmental Effects from Alternative A (Proposed Action):

The Proposed Action would transition forests closer to their pre-settlement species mix, density, structure, and diversity so it could be more resilient and resistant to the effects of insects, disease, and wildfire (Fulé 2001; Graham 2004). Pre-settlement fire behavior at lower elevations would have typically been low intensity, frequent understory burning in the western white pine, ponderosa pine and Douglas-fir forest types.

Harvest Operations

The amount of change in forest composition and structure of the treatment units would be related to species' retention priorities, diameter cut limits, and reforestation objectives. Removal of smaller diameter tree in-growth and intermediate and suppressed trees growing into the crowns of healthy dominant and/or co-dominant trees, as well as group selection harvest of trees affected by insects and disease, would visibly change the current forest structure, as well as reduce competition with retention trees for water, sunlight, and nutrients. Reducing the average number of trees per acre would open the forest canopy, with openings initially dominated by shade-intolerant shrub and herbaceous species, until re-planting or natural regeneration of trees occurs. Retention and management of larger diameter trees would further develop the large tree

structural component. Retaining larger woody debris on the forest floor would be important for tree seedling establishment, soil carbon cycling, nutrient and water storage, and wildlife activity.

On the acres designated for cable logging, vegetation would be injured or killed where the cable tower system is set up, along the cable corridors themselves, where individual trees are cut, and where trees are stockpiled for loading onto logging trucks. Logging with ground-based equipment would cause the ground disturbance and injury to plant communities in the action area. However, measures such as restricting skid trails to certain spacing intervals and widths could concentrate the most intense impacts into certain areas, helping reduce more widespread disturbance to vegetation due to skidding activities. Impacts to vegetation also could be reduced if tractor operations occurred on frozen ground with 12 inches of snow cover.

Reforestation

Planting blister rust resistant western white pine seedlings would aid re-establishment of diverse, resilient, and/or resistant forest vegetation in the project area. However, managing for seral tree species would require subsequent actions to discourage re-growth of tree species (such as grand fir and Douglas fir) that may dominate sites to which they are adapted where natural disturbance regimes have been altered. After the planned prescribed burn the timber harvest area will be evaluated to determine if seedling planting is needed. If reforestation is needed blister rust disease resistant western white pine seedlings and western larch seedlings would be planted on the north facing aspects, south facing aspects would be planted with ponderosa pine.

7.2.3 Environmental Effects from Alternative B (No Action):

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 be dominated by shade-tolerant species, until a future disturbance such as logging, wildland fire, insect infestation, or disease creates openings in the forest. Undesirable numbers of Douglas fir, grand fir, and lodgepole pine vulnerable to insect and disease outbreaks would continue to compete with western larch and western white pine. Impacts to common, native plant communities due to 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 variation in fire behavior.

This alternative would cause fewer disturbances to native plant communities in the action area, compared to the proposed action.

7.2.4 Cumulative Effects:

Within the project area the majority of the private land has been harvested to salvage trees dying from insect attacks and root disease thereby decreasing the mortality risk on

private lands. On BLM managed lands mortality from trees dying from insect attacks and root rot disease is ongoing and will continue to occur if no action is taken. Old growth ponderosa pine trees are currently dying, and mortality would increase due to moisture stress from the understory trees. The crown fire risk would increase over time as limbs of the understory trees reach into the crowns of the overstory old growth trees. Overall, the forest would transition into an unhealthy condition. The proposed action would bring the fire and disease risk on BLM lands closer to the condition of adjacent private lands.

7.3 Vegetation/Special Status Plants

7.3.1 Affected Environment:

The BLM searched the Idaho Natural Heritage Program rare species database for reported “element occurrences” of rare plants in the vicinity of Wallace, Idaho, and conducted fieldwork in the project area.

Threatened and Endangered Species

No water howellia (*Howellia aquatilis*-threatened) individuals, populations, or potential habitat occur in the project area.

No individuals or populations of Spalding’s catchfly (*Silene spaldingii*-threatened) were found in the project area, although a small amount of suitable habitat (less than one-half acre) occurs in Harvest Unit 3. In general, Spalding’s catchfly grows in open, mesic (moist) grassland communities; however, the species also is occasionally found within sagebrush-steppe communities as well as pine forests. The habitat in the project area is grassy openings in pine forest that is being invaded by Douglas fir. The primary grass species characteristic of Spalding’s catchfly habitat are Idaho fescue (*Festuca idahoensis*) and bluebunch wheatgrass (*Agropyron spicatum* = *Pseudoroegneria spicata*).

BLM Sensitive Species

Bank monkeyflower (*Mimulus clivicola*) populations are known from the South Fork Coeur d’Alene and Beaver Creek drainages near the project area. This species is a spring-flowering annual; with the number of flowering individuals in any particular growing season highly correlated with annual weather conditions, in this case, the amount of spring moisture. Flowering begins in late May or early June and continues to mid-July, with plants reproducing solely by seeds. It is suspected that pollination is by ants, which may be attracted to the sweet, musky odor of the glandular hairs covering the plant (Lorain 1991). Bank monkeyflower is restricted to a very specific set of habitat parameters. Plants typically occur in open pockets of moist, exposed mineral soil created by natural disturbances such as erosion or big-game activity, or human-related disturbances such as road cuts. This species is almost exclusively found on southern exposures (southeast, south, southwest) with steep slopes (generally > 60%) in microhabitats that hold moisture during the spring. Most bank monkeyflower

populations in northern Idaho occur in Douglas-fir/Idaho fescue, Douglas-fir/ninebark, and grand fir/ninebark habitat types (Cooper et. al.1991). While no individuals or populations of this species were found, potential habitat exists in Harvest Units 1 and 4 and the fuels treatment unit immediately west of lower Canyon Creek road.

Clustered lady's-slipper (*Cypripedium fasciculatum*) is a perennial, terrestrial, wild orchid. A small population has been documented south of the project area, located within a Constance's bittercress population. In Idaho, this species usually blooms from May through June. Clustered lady's-slipper mainly grows in shaded, moist to dry western redcedar forests and occasionally in grand fir forests. Two populations located in the vicinity of Coeur d'Alene indicate that this species can also occur underneath larger shrubs in drier seral stands of Douglas fir. No clustered lady's-slipper individuals or populations occur in the action area, though potential habitat is present within the forested communities of all treatment units.

Constance's bittercress (*Cardamine constancei*), a perennial herb, is a member of the mustard family. Its global distribution is restricted to north-central and northern Idaho; three occurrences have been found south of the project area. This species primarily reproduces vegetatively, since it does not tend to flower under dense tree canopy where it often grows. When exposed to increased sunlight, plants bloom from May to June, but most developing fruits are aborted by mid-July. Constance's bittercress is generally found in lower elevation moist forests, especially in western redcedar- and western hemlock-dominated riparian areas but may occupy moist microsites within drier habitats. It does appear to be favored by light disturbance and thinning of the canopy. No Constance's bittercress individuals or populations occur in the action area, though potential habitat is present within the forested communities of all treatment units.

Deerfern (*Blechnum spicant*) is a perennial, evergreen fern, which usually grows in moist, shaded forests. In North America, deerfern is chiefly found west of the Cascade Mountains of the Pacific Northwest but does extend south into northern California. Small, disjunct populations are known from northern Idaho, including the upper Two-Mile drainage west of the project area. No deerfern individuals or populations occur in the action area, though potential habitat is present within the moist forest communities of all treatment units.

Though each of the following species has been reported from the vicinity of the project, no Brunsfeld's lomatium (*Lomatium brunsfeldianum*), Idaho barren strawberry (*Waldsteinia idahoensis*), rare moonworts (*Botrychium* spp.), nail lichen (*Pilophorus acicularis*), pine broomrape (*Orobanche pinorum*), or short-spored jelly lichen (*Collema curtisporum*) (all BLM Sensitive) individuals, populations, or potential habitat were found during inventory of the project area.

7.3.2 Environmental Effects from Alternative A (Proposed Action):

Threatened and Endangered Species

The proposed action would have no effect on water howellia or its habitat, nor any direct effect on Spalding's catchfly individuals or populations.

One-half acre or less of suitable habitat for Spalding's catchfly may be disturbed by skyline yarding of logs in Unit 3, depending upon the locations of the cable tower system, the cable corridors themselves, where individual trees are cut, and where trees are stockpiled in landing areas. The area depicted in the photo below (Figure 7.3.2) represents suitable habitat for Spalding's catchfly and is relatively weed-free as of the date of field inventory. Ground disturbance associated with timber harvest and log yarding would create sites favorable for invasion by weeds such as spotted knapweed (*Centaurea maculosa*-noxious), meadow hawkweed (*Hieracium pratense*), Dalmatian toadflax (*Linaria dalmatica*-noxious), hound's-tongue (*Cynoglossum officianale*-noxious), common St. John's-wort (*Hypericum perforatum*), and cheatgrass (*Bromus tectorum*), all of which are present in or very near the project area and tend to be quite competitive following disturbance. These introduced species degrade native plant communities (Abella and MacDonald, 2000; BLM 2007; USDA Forest Service 2009), of which rare plant species are a part.

BLM Sensitive Species

In general, effects to potential habitat would vary according to individual species' ecological requirements. For example, certain species which need very shady growing conditions would not necessarily be benefitted by a project treatment that "opens up" a forest stand, while other species may be adapted to survive a certain level of plant community canopy removal. The following paragraphs discuss possible effects to potential habitat for bank monkeyflower, clustered lady's-slipper, Constance's bittercress, and deerfern.

Figure 7.3.2. Suitable habitat for Spalding's catchfly in Harvest Unit 3.

According to Lorain (1991, 1992), both natural and human-caused factors play a role in threatening and/or eliminating habitat for bank monkeyflower. Natural threats include

large-scale erosion and the process of natural succession. A certain amount of erosion or soil disturbance from animal movement appears to be necessary to create patches of exposed mineral soil where this plant establishes; however, large-scale erosion could eliminate habitat (though this type of event is not expected to occur within the project area). The process of natural succession can increase shading and result in soil stabilization, factors that are not favorable to this species. Since the proposed timber sale would reset ecological succession and reduce shading in treatment areas, it would benefit shade-intolerant plant species such as bank monkeyflower, by creating habitat with less competition for sunlight, water, nutrients, or pollinators. Burning would also stimulate new shrub growth that would attract wildlife and increase their use of the units, which would maintain or create habitat for bank monkeyflower along game trails. Unfortunately, wildlife also have helped transport highly competitive weeds, including spotted knapweed, meadow hawkweed, Dalmatian toadflax, hounds tongue, common St. John's-wort and cheatgrass, along the game trails from roads and OHV trails into monkeyflower potential habitat.

Natural or management-related disturbances to potential habitat that could affect soil fungi and overstory shade may influence clustered lady's-slipper survival. Disturbances which may have the greatest impact to habitat for this species include fire, various types of timber harvest, thinning, and ground disturbance associated with these activities (Lichthardt 2003 in USDA Forest Service 2006), all of which are included in the proposed action. Dry forest habitats historically experienced frequent low-intensity fires, so clustered lady's-slipper may be adapted at some level to fire regimes naturally occurring in these forest types. While clustered lady's-slipper may be able to survive low-intensity fires, high intensity fires that would remove canopy cover and eliminate or reduce the duff level in habitat may lead to mortality and an inability to reproduce (Lichthardt 2003, Kagan 1990 in USDA Forest Service 2006). This species has a shallow rhizome that is 1-5 inches below the mineral soil and can be killed by the direct effects of an intense fire (Lichthardt 2003 in USDA Forest Service 2006). Harrod et al (1995 in USDA Forest Service 2006) monitored clustered lady's-slipper plots burned by the Rat Creek fire on the Wenatchee National Forest. There was a decrease in the number of plants where the duff layer in that habitat was removed by the fire. There was an accompanying decrease in the percent cover of plants and the number of fruits per stem on the burned plot. Results of this study indicated that this species is fire-intolerant and should not be managed with prescribed fire. (USDA Forest Service 2006)

Constance's bittercress' response to certain disturbances was discussed in a Forest Service Environmental Assessment (2006) for a project just south of the Ninemile drainage. According to this analysis,

> "*Constance's bittercress (*Cardamine constancei*) reacts favorably to openings in the forest canopy as long as the ground is not severely scarified by equipment… . It does not tend to flower under shaded conditions, but may be able to maintain itself indefinitely by vegetative growth as long as competitive pressures are not too great… . Populations along the St. Joe and Selway rivers which were affected by crown fire have been observed to multiply vegetatively in response to increased sunlight, but successful flowering and seed set was low due to hot, dry*

conditions later in the summer. Indications are that survival of this species after canopy removal may be dependent on the availability of moist microsites."

Harvest and fuels treatments would change the forest canopy configuration in the project area, but based upon the information provided in the above paragraph, potential habitat for Constance's bittercress may still possess characteristics which would support this species. The suitability of the habitat would decrease, however, if conditions became too warm and dry for the species to survive; and/or if the site became infested with weeds that could out-compete the bittercress plants.

Deerfern may be directly affected by opening of the forest canopy and soil disturbance. A potential threat to the Idaho deerfern populations is loss of habitat, possibly through timber management, e.g. overstory removal, broadcast burning and subsequent introduction of competitive early successional plant species (Merkel and Hammet 2003 in USDA Forest Service 2006). The effects of fire on deerfern populations and habitat applies to prescribed fire as well, with effects dependent on the severity of fire, the response of competing vegetation and whether sufficient rhizomes survive to recolonize a particular site. This species has been observed to survive harvesting in wet forest habitats, although its reproductive success may be affected. Deerfern is apparently able to survive light surface fires, and may recolonize by sprouting from rhizomes or by spores from adjacent populations, but its response to severe wildfire has not been documented. Fire intervals in the cool, wet forest habitats the species prefers are estimated to be several hundred years, so that large-scale fires usually result in severe effects. (USDA Forest Service 2006)

Regarding the possibility that weeds would invade or expand into habitat for each of the four species discussed in the preceding paragraphs, unfortunately, while timber harvest or prescribed fire can be used as a management tool to restore historic fire regimes and promote desirable tree species, the disturbance created by these activities may favor many invasive species. (USDA Forest Service 2009) Invasive vegetation and noxious weeds are highly competitive and can often out-compete native vegetation, especially on recently disturbed sites. (BLM 2007) However, proposed post-project monitoring and weed treatment would reduce deleterious effects of weedy species on potential habitat for bank monkeyflower, clustered lady's-slipper, Constance's bittercress, and deerfern.

In conclusion, each of these species has slightly different habitat requirements and responses to disturbances, which makes management of their habitat challenging. However, project design features would decrease timber harvest and fuels treatment impacts, ensuring that the BLM does not contribute to the need to list bank monkeyflower, clustered lady's-slipper, Constance's bittercress, or deerfern as threatened or endangered.

The proposed action would not affect Brunsfeld's lomatium, Idaho barren strawberry, rare moonworts, nail lichen, pine broomrape, or short-spored jelly lichen individuals, populations, or potential habitat.

7.3.3 Environmental Effects from Alternative B (No Action):

Threatened and Endangered Plant Species

Suitable habitat for Spalding's catchfly would persist in the project area until plant succession produced more shrub or tree canopy in areas capable of supporting these other plant life forms. Compared to the proposed action, however, this suitable habitat could be burned over by a more intense wildfire, which might negatively affect suitable habitat features such as species composition, primarily by opening areas to invasion and/or expansion by weedy species such as spotted knapweed, meadow hawkweed, or Dalmatian toadflax.

BLM Sensitive Species

In bank monkeyflower habitat, plant succession would continue toward the potential natural community, where possible. Over a period of years, potential habitat capable of supporting more dense forest vegetation would become dominated by shade-tolerant species, which would not be suitable for this particular species. However, more dense forest vegetation would likely favor clustered lady's-slipper, Constance's bittercress, or deerfern. A future disturbance such as timber harvest; wildfire; insect or disease outbreak; or weather event that creates openings in the vegetation would re-create conditions capable of supporting bank monkeyflower and possibly even Constance's bittercress. Compared to the proposed action, potential habitat for several species could be burned over by a more intense wildfire, which might negatively affect these species' habitat requirements such as composition and structure, and may open more areas to weed invasion and/or expansion.

The proposed action would not affect Brunsfeld's lomatium, Idaho barren strawberry, rare moonworts, nail lichen, pine broomrape, or short-spored jelly lichen individuals, populations, or potential habitat.

7.3.4 Cumulative Effects:

The analysis area is located north of Interstate-90, covering the Ninemile and Canyon Creek drainages, approximately 22,000 acres.

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; firewood cutting; mining-related work; partying; fire activity; insect and disease outbreaks; and OHV trail development, use, and maintenance.

Reasonably foreseeable future actions and natural disturbances in the analysis area include road use and maintenance; firewood cutting; mining-related work and mine site

clean-up; recreational activities; fire activity; insect and disease outbreaks; OHV trail development, use, and maintenance.

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 bank monkeyflower, clustered lady's-slipper, Constance's bittercress, and deerfern, 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 bank monkeyflower. Mining-impacted sites that are rehabilitated may provide future potential habitat for these rare plant species. 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 bank monkeyflower. Where left untreated, though, weeds would continue to threaten potential habitat for BLM Sensitive plant species.

The proposed action would treat approximately 550 acres of almost 22,000 acres of vegetation in the analysis area; therefore, this project is unlikely to contribute cumulative effects to bank monkeyflower, clustered lady's-slipper, Constance's bittercress, or deerfern potential habitat, due to the relatively small area of disturbance and its projected staggered timing of implementation, when compared to the overall analysis area.

Under the No Action alternative, zero acres of vegetation would be disturbed by harvest, thinning or burning in the project area. Future, small-scale timber harvest on non-BLM lands in the analysis area would impact vegetation, including rare plant habitat, on an unknown number of acres. Vegetation composition and structure of rare plant habitat on adjacent lands in the analysis area could be altered by a future wildfire, which also could spread to the project area and impact potential habitat for BLM Sensitive plant species. The number of non-BLM acres burned and severity of fire effects to habitat for rare plants would be dependent upon many variables, including whether or not any treatments have been implemented to lessen the severity of those fire effects. Fuels reduction treatments may also occur in areas where rare plant habitat is present. Mining-impacted sites in the analysis area that are rehabilitated may provide future potential habitat for rare plant species. Where left untreated, weeds would continue to threaten native plant communities.

7.4 Aquatic/Special Status Species:

7.4.1 Affected Environment:

The proposed project area is located within the Ninemile and Canyon Creek watersheds, both tributaries to the South Fork of the Coeur d'Alene River (South Fork). The South Fork and many of its tributaries contain westslope cutthroat trout,

Oncorhynchus clarki lewisi, a BLM sensitive species. Fish surveys of the South Fork have documented the presence of westslope cutthroat trout, rainbow trout, *O. mykiss*, brook trout, *Salvelinus fontinalis,* and mountain whitefish, *Prosopium williamsoni*. Brook trout are an introduced species, and the rainbow trout are likely to be introduced also, given that they have been stocked in the past. Other native species likely to inhabit the South Fork Coeur d'Alene River and tributaries include the torrent sculpin, *Cottus rhotheus*, and the newly discovered cedar sculpin, *C. schitsuumsh* (Lemone, et al. 2014). Additional native and nonnative species are found lower down in the Coeur d'Alene River and Lake Coeur d'Alene. Canyon Creek is not known to contain any fish (http://www.streamnet.org/). Ninemile Creek and East Fork Ninemile Creek do contain westslope cutthroat trout (http://www.streamnet.org/).

Historically, bull trout, *Salvelinus confluentus*, federally listed as an endangered species, used the South Fork Coeur d'Alene River but are no longer found in the area. There is no designated critical habitat for bull trout within the South Fork watershed.

7.4.2 Environmental Effects from Alternative A (Proposed Action):

The primary impacts from timber and fuels management activities and associated roads on fish habitat come from an increase in sediment and temperature in streams, and a decrease in the amount of large downed wood in the stream channel and adjacent riparian floodplain (Chamberlain et al. 1991; Everest et al. 1985; Meredith et al. 2014). Elevated water temperature can cause physiological stress in fish, reducing overall health and survival. Excess sediment in streams reduces spawning and pool habitat, and may decrease food supply by altering the aquatic macro invertebrate composition (Chamberlain et al. 1991; Everest et al.1985).

Increase in stream temperature is likely to occur if trees that provide shade to the stream channel are removed. Roads can cause an increase in sediment input to streams (Furniss et al. 1991), as can soil disturbance caused by yarding and skidding of logs (Chamberlain et al. 1991). Sediment input to streams can also be caused by removal of trees adjacent to the stream channel, as this can cause bank instability and removes the ability of the riparian area to stop sediment before it enters the stream (Chamberlain et al. 1991; Everest et al. 1985). Large wood is often recruited to the stream channel from the adjacent riparian and upslope areas, thus removing adjacent trees would reduce future inputs of large wood (Murphy and Koski 1989; May and Gresswell 2003).

Wildfire, prescribed fire and other types of fuels treatments can also impact fish and aquatic habitat. Fires can increase erosion and sediment input to streams, alter water chemistry, and cause increases in water temperature (Benda et al. 2003; Rieman et al. 2003; Wondzell and King 2003). Effects can also be beneficial, such as increase in large wood input to the stream channel (Bisson et al. 2003), and even a pulsed sediment input to a stream may help increase aquatic habitat complexity (Benda et al. 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). Mechanical fuels treatments would have similar impacts to those caused by timber harvest activities.

Riparian Conservation Areas (RCAs) 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. In RCAs, riparian-dependent resources receive primary emphasis, and management activities are subject to specific guidelines. In the proposed action, no treatment is proposed to occur within RCAs. About 0.75 miles of temporary roads would be constructed and then closed after completion of the project. The temporary roads would all be located outside of RCAs, and most are over 0.25 miles away from any streams. If prescribed fire is used to treat fuels, the areas targeted for treatment would be outside of RCAs. It is possible that fire may burn inside the RCA; however the relatively low intensity of a prescribed burn would limit the potential for negative impacts. Therefore no impact to fish, including westslope cutthroat trout, or aquatic habitat is anticipated from sediment entering streams, or loss of future large wood inputs to stream channels.

7.4.3 Environmental Effects from Alternative B (No Action):

No timber harvest or fuels treatments would occur therefore aquatic habitat conditions would remain in their current condition. Under this alternative there is a greater possibility of a large stand replacing fire occurring, which could have harmful effects to the Ninemile and Canyon Creek watersheds and affect both fish and aquatic habitat (impacts of fire are discussed above under the proposed action). If extreme impacts occurred to the watershed either due to immediate direct effects of the fire (such as temperatures reaching lethal levels for fish), or indirect effects (erosion and high levels of sediment moving into the stream), it is possible that the fish population in the Ninemile and Canyon Creek watersheds, including westslope cutthroat trout, would be reduced.

The possibility of a large stand replacing fire occurring is slightly increased under this alternative, which could affect both fish and aquatic habitat within the Ninemile and Canyon Creek watersheds, with the possibility of at least some of the fish being eliminated. The fish species found within Ninemile and Canyon Creeks, including westslope cutthroat trout, are also found in the South Fork Coeur d'Alene River and its other tributaries. Westslope cutthroat trout are found throughout much of northern and central Idaho and western Montana. Reduction or elimination of the Ninemile and Canyon Creek watersheds native fish populations would not significantlyimpact these species throughout their range.

7.4.4 Cumulative Effects:

Since the proposed action would not cause direct or indirect effects to aquatic species or habitat, there could be no contribution to cumulative impacts.

7.5 Invasive, Nonnative Species (Weeds) :

7.5.1 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 prior disturbances such as fire, timber harvesting, road building, mining activities, recreation activities, wildlife, and firewood cutting.

Many weed species have invaded the proposed project area. Roads, transmission line corridors, and trails throughout the project area have populations of spotted knapweed (Centaurea maculosa), meadow hawkweed (Hieracium pratense), St. Johnswort (Hypericum perforatum), oxeye daisy (Chyrysanthemum leucanthemum), Canada thistle (Cirsium arvense), and bull thistle (Cirsium vulgare). Localized populations of common tansy (Tanacetum vulgare), Dalmatian toadflax (Linaria genistifolia), and houndstongue (Cynglossum officinale) have been identified in the project area.

While the BLM has treated weed populations on roads and trails and successfully reduced these weed populations, some weeds have persisted and spread into forested areas. A major component of this weed spread results from weed populations on adjacent private lands. Private lands adjacent to the BLM land in the project area have experienced prior logging activities. Many of these areas are infested with populations of the weeds listed above and provide a continuing source of weed seed.

7.5.2 Environmental Effects from Alternative A (Proposed Action):

Road construction, landing construction and skid trails would disturb existing vegetation and soils. Weed seeds and plant parts may be transported along these disturbed areas by vehicles during construction, maintenance activities, and logging operations. Sources of weeds may be from the existing project area weed populations. Weeds may also be transported into the project area from offsite weed populations, potentially introducing weeds species that are new to the project area. The environmental design features described in 6.1.2, include washing of all equipment that will leave the established roadways. This will reduce the possibility of introducing new weeds into the project area.

Activities including tractor skidding, skyline yarding, slash reduction, and prescribed burning would increase the risk of weed expansion into forest areas. These activities would remove existing vegetation, disturb soils, increase light to the forest floor; all factors that favors weeds. The same activities can potentially provide transport of weed seeds and plant parts into these disturbed areas. Weed species are often better adapted to colonizing newly disturbed areas than native species.

7.5.3 Environmental Effects from Alternative B (No Action):

No action would result in current population of weeds continuing to expand along roads and OHV trails. In dry conifer forests weeds can expand from existing populations into

forested areas often spread by wildlife. In wet warm conifer areas, assuming little to no disturbance, expansion of weed populations into forested areas is unlikely due to low light levels reaching the forest floor.

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.

7.5.4 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 continue 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.

7.6 Wildlife/Habitat and Special Status Wildlife/Migratory Birds:

7.6.1 Affected Environment:

General

Because of the diverse forest stand structure in the project area, an equally diverse array of wildlife species can be found on the site (see Forest Vegetation Section 7.2 and Table 7.6.1). North-facing slopes generally have more dense forest stands which provide thermal and hiding cover for big game species such as elk and white-tailed deer. These stands are also suitable for other wildlife species that prefer more closed canopy forests such as Pacific Wren, Northern Goshawk (nesting habitat), Hammond's flycatcher, Cordilleran Flycatcher, and Fisher. South and west facing slopes are generally drier and warmer and have a more open forest structure with dominant tree species being ponderosa pine, Douglas fir, lodgepole pine, larch, and grand fir in the understory. These types of stands provide habitat for species like Dusky Flycatchers, Western Tanager, Calliope Hummingbird, and Pygmy Nuthatch. These sites also provide forage for big game species throughout the year, depending on the elevation of the site.

Because forest insects and disease are already present on the site, there are snags available for wildlife that requires cavities. There are bats, birds, and other mammal species such as flying squirrels that use snags for a portion of their life-cycle present on the site. Larger diameter trees can also be found throughout the project area. These will become valuable future snags. Moist areas resulting from springs, as well as riparian areas associated with perennial and intermittent streams provide valuable habitat for salamanders, bats, and numerous other wildlife species.

Illegal firewood cutting has resulted in the loss of some larger diameter trees which have been cut and left on the forest floor. Access is not controlled by gates or any other physical obstacle, such as Kelly humps. As a result OHV and full size vehicle use is common in the area. The proximity to the community of Wallace results in moderate recreation impacts with highest use most likely occurring during the hunting season for elk and deer. The transmission line intersects the project area and full size vehicle access is needed for transmission line maintenance. Forests on adjacent private lands have been harvested and there are numerous roads, skid roads, and trails within the analysis area. All of these roads can serve as vectors for the spread of weeds, and increase motorized vehicle access which has known negative impacts to many wildlife species (Mace et.al 1996, McLellen and Shackleton 1988, Van Dyke et. al 1986, and Rost and Bailey 1976)).

Table 7.6.1 summarizes the Special Status Species that may be found in the project area.

Species	Likely to Inhabit	Uncommon-May Inhabit	Encountered on Site Visit
Bald Eagle*		X	
Merlin*		X	
Northern Goshawk*		X	
Great Gray Owl*		X	
Northern pygmy owl*	X		
Flammulated owl		X	
Dusky Grouse*		X	
American three-toed woodpecker*		X	
Black-backed woodpecker*		X	
Red-naped sapsucker*		X	
Cordilleran flycatcher*	X		X
Olive-sided flycatcher*		X	
Hammond's Flycatcher	X		X
Cassin's finch*	X		
Brown Creeper[M]			X
Calliope Hummingbird[M]	X		
Black-chinned Hummingbird[M]	X		
American Dipper[M]		X	
MacGillivray's Warbler[M]	X		X
Townsend's Warbler[M]	X		X
Varied Thrush[M]	X		
Western TanagerM	X		X
Yellow Warbler[M]	X		
Ruffed Grouse[M]	X		
Gray wolf**		X	
Wolverine**		X	
Fisher*		X	
Canada lynx**		X	
Fringed Myotis*		X	
Townsend's big-eared bat*		X	

Species	Likely to Inhabit	Uncommon-May Inhabit	Encountered on Site Visit
Long-eared myotis*	X		
California myotis*		X	
Long-legged myotis*		X	
Western small-footed myotis*		X	
Pygmy shrew*		X	
Red-tailed chipmunk*		X	
Common garter snake*		X	
Northern alligator lizard*		X	
Coeur d' Alene Salamander*		X	
Idaho giant salamander*		X	

*Special Status Species, ** Threatened, Endangered, Proposed, or Candidate Species, * IDFG species of Greatest Conservation Need, [M] PIF High Priority Species

Threatened, Endangered and Candidate Species

There are currently three federally protected wildlife species that occur in north Idaho: Grizzly bear (Ursus arctos), woodland caribou (Rangifer tarandus) and Canada lynx (Lynx canadensis). All except the caribou are listed as Threatened under the Endangered Species Act. The woodland caribou is an endangered species. No listed species have been documented on the site.

Woodland caribou require high elevation old growth forest and a sufficiently developed lichen community for winter survival (Servheen and Lyon 1989). The project is not suitable habitat for caribou and does not hold potential for becoming suitable habitat for this species because of the elevation and the potential vegetation community.

This area is not within a Lynx Analysis Unit or considered to be Lynx Habitat. Canada lynx are highly associated with both late and early succession forest stands. Early successional, densely stocked stands provide foraging habitat, while mature forest stands act as potential denning habitat (IDFG 2005, Ruggerio 1994). Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the northern Rockies, lynx habitat generally occurs between 3,500 and 8,000 feet of elevation, and primarily consists of lodgepole pine, subalpine fir, and Engelmann spruce. It may consist of cedar-hemlock in extreme northern Idaho, northeastern Washington and northwestern Montana, or of Douglas-fir on moist sites at higher elevations in central Idaho. It may also consist of cool, moist Douglas-fir, grand fir, western larch and aspen when interspersed in subalpine forests. Dry forests do not provide lynx habitat. (Interagency Lynx Biology Team, 2013). One lynx, reported within 6 miles of the project area, can be found in the Conservation Database. This sighting was submitted to IDFG in 1978, but the person was considered

to be of “uncertain background” and with “unknown ability” to distinguish between similar taxa.

The project area is not within a Grizzly Bear Management Unit and is not considered Core habitat. The project area lies between the Cabinet Yaak Recovery Zone and the Bitterroot Ecosystem which have been outlined as areas important to the recovery of grizzlies throughout their historic range (USFWSa 2012). Currently the project area is considered to be “unoccupied” by grizzlies (USFWSb). However, one young male was killed inadvertently near Rose Lake in 2010, approximately 27 miles east of the project area. Also an adult male was killed in Kelly Creek in the Clearwater Drainage in 2007, approximately 60 miles south of the project area. Otherwise, no grizzlies have been verified in this area in 60 years. Grizzly bears are flexible in their habitat requirements. Their main habitat requirement is sufficient prey, forage, thermal cover, and denning habitat. But these things can be fulfilled in a variety of habitat types ranging from mountain meadows, high elevation alpine and subalpine habitats, and mid to low elevation coniferous forests (Snyder 1991).

A wolverine was documented near St. Joe Baldy in 2003 (IDFG 2003), approximately 25 miles southwest of the project area. In addition, three Idaho Fish and Game employees reported tracks and/or sightings in the Silver Valley Area in 1981, 1986, and 2003. Because of their large home range sizes and the very long dispersal distances of juvenile males, it is possible a wolverine may pass through or use part of the project area. Knowledge of wolverine habits, habitats, and behaviors is increasing every year. Some general assumptions about this species include that they are negatively associated with roads and clear cut forest stands (Hornhocker and Hash, 1981; Hash 1987; Copeland et. al 2007). The high density of existing roads and the consistent use by people for recreation and resource extraction make the habitat in project area and vicinity marginal at best. There is no historical or potential denning habitat in the project area.

It is possible that lynx, grizzly bear, or wolverine may pass through or temporarily use the project area, but it is not likely that any of these species would inhabit the area with any regularity as habitat for all three would be considered marginal because of the high degree of human development and disturbance.

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). With its variety of habitat types, the project area is occupied by several of these Special Status Species. A review of geographic species observations in the Animal Conservation Database indicates that there has been one observation of fisher within 4 miles of the project area. Also Idaho giant salamanders have been documented nearby.

Some of the species listed in Table 7.6.1 prefer dense, interior forest stands. For example, the northern goshawk, great gray owl, and fisher prefer this habitat for some

or all of their life history requirements. Goshawks are forest raptors that nest in relatively dense forest stands with canopy closure greater than 75% (Moser, B.W 2007). Great gray owls nest in dense coniferous forest but also use forest openings for hunting. Fishers are small forest carnivores in the weasel family. They are most commonly found in mid to high elevation interior forest stands.

Other species in Table 7.6.1 are primary or secondary cavity users, so they require snags. Flammulated and northern pygmy owls are cavity nesters and are generally found in lower elevation dry conifer or mixed conifer forests (Poole 2005). Black-backed and American three-toed woodpeckers are habitat specialists that require spruce and fir forests and also use cavities for nesting. These woodpeckers pull off the scales of bark on spruce trees to get to the insects infesting the tree cambium (Poole 2005). An obvious sign of their presence in an area is spruce trees that have some or almost all of their bark removed. They use the same dying trees for nesting that they use for foraging. Red-naped sap suckers are found in mixed coniferous forests but are highly associated with hardwood stands like aspen or birch (Poole 2005).

The Cordilleran flycatcher is present in the project area. This song bird prefers mixed forests, often those with Douglas-fir or pines (Poole 2005). It is almost indistinguishable by sight and sound from its cousin the Pacific-slope flycatcher. The project area sits right near the geographic range boundary for both species. Cassin's finch is also found in mixed forests at all elevations, but they prefer to nest in spruce and fir forests or Douglas-fir and pine forests (Poole 2005). This little song bird eats the buds and seeds of most conifer species (Poole 2005). Olive- sided flycatchers are found on the edges of naturally occurring forest openings or openings created by fire or logging. They are often associated with higher elevation brush fields and forest edges. They hunt for flying insects while perching high in a snag or tree at the edge of a clear cut, or in the middle of a burn area. Their nest is built on a horizontal conifer branch (Poole 2005).

The fisher is a small carnivore in the weasel family. They prefer the interior habitat of more dense coniferous forests. Often these forest stands are older, more moist, and at middle to high elevations. They have also been associated with riparian areas in Idaho (Ruggerio et. al 1994). They eat small to medium sized mammals, birds, and carrion. Fisher habitat often includes an abundance of logs, snags, and forest debris. A diversity of tree sizes and shapes and small forest "gaps" are also characteristic of fisher habitat (Ruggerio et. al 1994). Like wolverines, female fishers raise their young in natal and maternal dens. Natal dens are where the young are born. Maternal dens are additional den sites the mother may move her kits to if she feels threatened by predator presence or needs to move kits to an area where food is more available (Ruggerio et. al 1994). Very few denning sites have been described for fisher in the western United States, but logs and snags are commonly used (Ruggerio et. al 1994). The densely stocked portions of the project area may be suitable habitat for this species which has been documented several times in the vicinity of the project area.

The northern alligator lizard is relatively rare and one of only a few reptiles found in the Idaho Panhandle. The 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 (IDFG 2005). Common garter snakes may be found in the project area. They are usually not too far from a water source and are habitat generalists that prey on

insects, small fishes, amphibians, and occasionally small mammals and birds (NatureServe, 2009).

The Coeur d'Alene salamander is 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 (IDFG 2005). 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 2009). Because they respire through their skin, the most important habitat component for the Coeur d'Alene salamander is moisture and humidity (IDFG 2005). On the project site, other types of salamanders would be located in perpetually wet areas, such as a seep, spring, creek, or waterfall spray zone.

The bat species in Table 7.6.1 are habitat specialists because they require roosting and hibernating habitats that are very specific in their temperature and airflow requirements (Adams 2003). Often bat population sizes and demography, roosting sites, and life history requirements 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. There are 9 known mines in the project area, some of which have multiple adits. Other unknown shafts may exist on the site and may be used by bats as day roosts, night roosts, hibernaculums (hibernating areas), or maternity roosts. Some species that use snags, loose bark, cavities, or foliage for roosting may also be present on the site. California myotis (myotis is a type of bat) prefer dry conifer sites, and they may use this site for foraging. They may also roost under loose tree bark (Adams 2003). 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 (Adams 2003). Townsend's big eared bat may use this site for foraging and roosting. Man-made structures may be used during the summer months as well (Adams 2003). The long-legged myotis and long-eared myotis are both forest dwelling bats that use snags, caves, mines, and sometimes structures as roosts (Adams 2003). This site may provide both foraging and roosting habitat for these two species.

Migratory Birds

A variety of forest stands on the project site provide foraging and nesting habitat for numerous neo-tropical migrants in spring and summer and resident birds throughout the year. Western tanager, Swainson's thrush, pine siskin, MacGillivray's warbler, orange crowned warbler, evening grosbeak, Hammond's flycatcher, red-breasted nuthatch, black-capped chickadee, pileated woodpecker, two chickadee species, Chipping sparrow, and Townsend's warbler were among the species documented during one site visit. A comprehensive breeding bird survey would likely reveal use by many more migratory bird species.

Migratory birds in the project area use a variety of habitat types for nesting and foraging. These sites include mixed coniferous forests, the shrubby forest understory, and sunny forest openings with grasses and shrubs. These birds may nest in coniferous trees,

from near to ground level up to the highest branches. They may be secondary cavity nesters, or nest on the ground. While many migratory bird species may be found on the project site, this analysis will focus on those species of particular concern, including BLM Special Status migratory birds, Idaho Fish and Game Species of Greatest Conservation Need, and Partners in Flight High Priority Species.

Other Wildlife All raptors in Idaho are considered "migratory birds" under the Migratory Bird Treaty Act. The Coeur d'Alene Resource Management Plan addresses raptors separately in its objectives. Thus they will be described separately here. There are several raptor species that may nest in or forage in the project area. Sharp-shinned hawk, Cooper's Hawk, Great-horned Owl, Western Screech owl, Northern Pygmy Owl, red-tailed Hawk are just a few of the potential species that may use the project area. Diurnal raptors, such as red-tailed hawks build stick nests in large trees and defend a territory which includes hunting and nesting habitat. Owls generally use the abandoned nests of other large raptors, or they use cavities. Raptors are very sensitive to disturbance around active nests and their period of use for nests is longer than many other bird species. While a warbler may only be actively building and defending a nest for one month, raptors can use and defend nests more than three months.

Signs of elk, moose, deer and black bear were found throughout the project area. These species are generalists and can be found in a wide array of vegetative communities from brushy clear cuts, to dense forests with little understory. Rocky Mountain elk prefer winter habitat that is composed of 60% forage and 40% cover (Thomas 1979). Areas with high canopy cover and little forest understory would not be considered productive foraging areas, but they are valuable as security areas and thermal cover areas during winter months, (Peek et. al 1982). South-facing slopes with vigorous brush fields and nearby escape cover, provide vital winter range for elk, while high elevation brush fields provide equally important transition range providing nutrition that elk need to improve their body condition prior to winter (Innes 2011). Peek et. al (1982) found that elk tend to use forage areas within 1200 feet of cover.

Map 8 illustrates the availability of cover versus forage habitat for ungulate species such as Rocky Mountain elk and white-tailed deer within a larger analysis area. This area was selected based on topographical features and the estimated area of use for elk within a calendar year. "Cover" in this analysis includes both "thermal" and "hiding" cover. Elk in north Idaho are not migratory, thus their home ranges are much smaller than migratory herds in more xeric landscapes (Innis 2011). Home range size of female elk in western red cedar-hemlock forests of North Idaho averaged only 4.9 square miles or 3136 acres (Innis 2011). Because there are no data for elk home range use specific to this project area, and because portions of the cite are more xeric and are not represented by the western red cedar-hemlock habitat type, we increased the size of the analysis area to just over 23,000 acres. We felt that this would adequately take into account multiple herds that could be found in, or may use the Nine Mile and Canyon Creek Watersheds in which the project area is situated. The entire analysis area is currently 51% cover and 49% forage. Recommended year- round habitat for elk is 50:50 cover:forage. The cover to forage ratio within the project area is 31% cover and 69% forage. To the east of the project area, adjacent private lands have been heavily

harvested. To the west of the project area, harvest has been limited and there is generally more cover than forage available to ungulates.

This project site provides necessary habitat components for wolves, mountain lion, bear, grouse, wild turkey, bobcat, and numerous small mammal species. All of these species take advantage of many vegetation communities and their presence is largely influenced by the presence of humans. Areas with significant human disturbance are less likely to be used by many wildlife species (Steidl and Powell 2006).

7.6.2 Environmental Effects from Alternative A (Proposed Action):

The following table indicates the medium to long term effects of the project on Special Status Species. For the purposes of this analysis, medium to long term is defined as from 2-30 years after project implementation. Discussion of the medium to long term effects and short term impacts of project implementation are described in more detail below. Vegetation removal, human disturbance, and operation of machinery has the potential to disturb, injure or kill wildlife species. Design features within the project proposal have been developed to help minimize the potential for these impacts.

Table 7.6.2: Medium to long term effects of the Proposed Action on Special Status Species in the project area.

Species	**Benefitial Effect**	**Neutral or No Effect**	**Adverse Effect**
Merlin*		X	
Northern Goshawk*	X		X
Northern pygmy owl*		X	
Flammulated owl	X		
Dusky Grouse*			X
American three-toed woodpecker*		X	
Black-backed woodpecker*		X	
Red-naped sapsucker*	X		
Cordilleran flycatcher*		X	
Olive-sided flycatcher*	X		
Hammond's Flycatcher			X
Cassin's finch*		X	
Brown Creeper[M]	X		
Calliope Hummingbird[M]	X		
Black-chinned Hummingbird[M]		X	

Species	Benefitial Effect	Neutral or No Effect	Adverse Effect
American Dipper[M]		X	
MacGillivray's Warbler[M]	X		
Townsend's Warbler[M]			X
Varied Thrush[M]			X
Western Tanager[M]		X	
Yellow Warbler[M]	X		
Ruffed Grouse[M]		X	
Gray wolf**		X	
Wolverine**			X
Fisher*			X
Canada lynx**		X	
Fringed Myotis*		X	
Townsend's big-eared bat*		X	
Long-eared myotis*		X	
California myotis*		X	
Long-legged myotis*		X	
Western small-footed myotis*		X	
Pygmy shrew*		X	
Red-tailed chipmunk*		X	
Common garter snake*		X	
Northern alligator lizard*		X	
Coeur d' Alene Salamander*		X	
Idaho giant salamander*		X	

** Threatened, Endangered, Proposed, or Candidate Species, *Idaho Species of Greatest Conservation Need, M High Priority Partners in Flight Migratory Bird Species

Threatened, Endangered, and Candidate Species

It is possible that Canada lynx, grizzly bear, or wolverine may pass through or temporarily use the site, but it is not likely they would inhabit the site with any regularity.

Thinning and burning may promote colonization of an area by snowshoe hare, the primary prey of Canada lynx, or may eliminate them from the area depending on the timing of the action. If the site is already colonized by hares then these actions would be detrimental to lynx foraging areas, but if they are not yet in the area and the stand is

greater than 30-40 years old, thinning and burning my make the habitat more agreeable to hares in the long term (10-15 years post implementation) (Ruggerio 1994).

While grizzly bears can make use of many different habitat types throughout the year, roads are a known negative impact to this species. Road density has a negative effect on numerous wildlife species including big game, forest carnivores, and nesting birds. The proposed ¾ miles of temporary road will not have a negative effect on wildlife habitat within the project area, assuming that post project closure of the road is effective.

The high density of existing roads and the consistent use by people for recreation and resource extraction make the habitat in project area and vicinity marginal at best for wolverine. If a wolverine was present during project implementation, it is likely the individual(s) would move away from the disturbance and any effects to the animal would be of very short duration and low to moderate intensity. There is no denning habitat within the project area, thus no impacts are expected. Indirect effects to wolverine are largely related to foraging and dispersal habitat quality. Because no clear-cuts are proposed and there will be increase in road density, impacts to dispersal and foraging habitat should remain largely unchanged. If a grizzly bear, Canada lynx, or wolverine did pass through the area at the time of implementation, they would likely be disturbed enough to leave the project site. This is highly unlikely, but if it did occur, it would not result in any significant or long lasting impact to the animal.

Special Status Species

Effects on BLM, IDFG, and Partners in Flight Special Status Species will vary throughout the project area. Where one species may be negatively affected by forest canopy reduction, another species may benefit. For example, aggressive tree removal negatively affects Varied Thrush, Townsend's Warbler, and Hammond's Flycatcher (Cornell Lab of Ornithology 2014). However Olive-sided Flycatcher, Yellow Warbler, and MacGillivray's Warbler will benefit from tree removal once the shrub community responds to increased sunlight and decreased competition with trees (Cornell Lab of Ornithology 2014). Opening the canopy should benefit any existing hardwood trees like birch and aspen. This will benefit Red-naped Sapsucker, as well as Northern Goshawk, and Flammulated Owl (Cornell Lab of Ornithology 2014).

Removal of dead and dying trees will have short term negative impacts on cavity nesters, woodpeckers that use these insect infested trees as a food source, and bats that use the snags for roosting. However, retention of snags as proposed and as directed by the Coeur d'Alene Field Office Resource Management Plan should provide enough cavity availability to accommodate primary and secondary cavity users. In addition, mortality of trees due to root rot, insects, and disease will ensure a continuous supply of dead and dying trees for cavity dependent wildlife. Minimizing snags that must be cut because of safety, and minimizing post project loss of snags due to blow down, is especially critical on the east side of the project area where there is less forest cover available on adjacent private lands.

Short-term negative impacts to cavity dependent wildlife would occur at the time of harvest- when birds and bats may be using the cavities for nesting or roosting. Prohibiting logging between April and mid-July should mitigate some of the losses for

resident and migratory birds, as many species will have had at least one nesting attempt by that time. In the medium to long term, snag availability and the recruitment of new snags on the site should be sufficient to accommodate the demand by cavity users.

Negative impacts to the Northern Goshawk, Dusky Grouse, and Fisher can be expected in portions of the project area. Northern goshawk and Dusky Grouse prefer interior dense forests for nesting (Moser 2007, Cornell Lab of Ornithology 2014). Goshawks nest in closed canopy forests on moderate slopes (Moser 2007). However, Moser (2007) found timber harvest did not affect territory re-occupancy post timber harvest, as long as more than 39% of the 420 acre territory contained potential nesting habitat. Portions of the project area would meet that requirement. Particularly areas near the top of the ridge. The northwest facing slope will see little to no harvest and should remain suitable for Goshawk nesting, whereas the southeast facing slope that will be treated may provide improved foraging habitat. Northern Goshawk will receive some benefit from new forest openings that can be utilized for hunting (Cornell Lab of Ornithology 2014). Most of the project site would not be considered suitable habitat for Great Gray Owls. At the highest elevations and the densest forest stands within the project area Great Gray Owls might be found. They prefer dense forest stands for nesting (Cornell Lab of Ornithology 2014). Tree removal, where this species is more likely to be found nesting, would reduce nesting habitat quality. But like the Northern Goshawk, Great Gray Owls also prefer to hunt in open forests, or even forest openings and meadows (Poole 2005). Therefore, some areas within the project area will become more suitable as hunting areas for this diurnal boreal forest owl.

Fisher prefers older growth forest stands where rodents and birds are abundant (Ruggerio et. al 1994). Many portions of the project area are likely unsuitable for fisher. But the denser stands at higher elevations would likely be suitable for fisher use. Tree removal and the reduction of downed woody debris will reduce habitat suitability for fisher (Ruggerio et. al 1994). Woody debris should be left on site, in particular, large diameter logs. Firewood harvest by the logging company and the public should be minimized or controlled so that sufficient structure is left for fisher and other wildlife species like grouse, bears, and salamanders that use logs as habitat.

In the short term, bats like the myotis species listed in Table 7.6.2 that use dead or dying trees as roosting sites will be negatively affected during implementation of the project. Mortality is likely for those roosting in a harvested tree. Some bats may escape as the tree is falling. Over the medium to long term, enough snags will be retained and sufficient recruitment of new snags resulting from insects and disease will provide roosting habitat needed to support bat populations in the project area.

Most negative impacts to aquatic species like the Coeur d'Alene salamander, tailed-frog, and Idaho giant salamander would be avoided by stream buffers and road construction standards. If new and existing roads are not properly constructed or maintained, then erosion into streams may increase as a result of logging activity and public use. This would decrease habitat quality for Idaho giant salamander and tailed-frogs that utilize high-gradient, cold, low- sediment stream habitats. As proposed, the project should have little to no impact on these species.

Northern alligator lizards will be vulnerable to the direct effects of project implementation. Mortality could result from being crushed during logging activities, fire line construction, or broadcast and pile burning. It is possible that individuals may not be able to escape and will die as a result. Habitat effects should not be significant as these lizards prefer open rocky talus slopes and exposed soil areas which should remain essentially unaffected by the proposed project. In fact, these areas may increase as the forest canopy is opened and the understory temporarily removed via broadcast burning and brush field burning. Until recovery of shrub and other understory species, the project may create more suitable habitat in the short term but will not reduce habitat in the long term.

Migratory Birds

Removal of vegetation to build roads, create skid trails, harvest trees, and reduce fuels has the potential to destroy migratory bird nests and possibly injure or kill adult birds and their offspring. Limiting tree felling and vegetation removal to between July 15th and April 1st will help to reduce the number of nests disturbed or destroyed by the project. Many birds will have completed a first nest attempt by July 15th. Some species may attempt a second clutch and still be impacted by vegetation removal and disturbance. This possible impact would not rise to the level of population impacts to local migratory bird species. Any nests found by BLM Staff or logging crews should be avoided until the nest attempt is completed.

Other Wildlife Species

Raptor species, such as Merlin, Sharp-shinned Hawk, Barred Owl, and Great-horned Owl that are nesting during implementation may be disturbed by logging activities. Actions 2.3.1 and 2.3.2 in the Resource Management Plan require that forest structure and activities around any active raptor nests in the project area be buffered by 100 yards. This will reduce disturbance and habitat impacts until nesting is completed. However, if active nests are not found prior to implementation, eggs and nestlings may be lost if the nest tree is cut down. This likelihood can be further reduced by postponing logging as long as possible during the nesting season throughout the project area. Prohibiting tree falling until after July 15th will increase the likelihood that raptors have fledged their chicks before nest trees are felled.

Opening up the canopy and reducing tree density would reduce thermal cover and security cover for big game. At the same time this would create more productive foraging areas for deer, elk, and moose. Portions of the project area are adjacent to private lands lacking in cover due to heavy historic timber harvest, tree removal is not likely to benefit big game in this forage rich environment. The proposed selective thinning will take mostly small diameter trees, and leave large healthy trees. Some level of canopy cover will remain and recovery of brush in the understory will not eliminate hiding cover entirely. But there will be a loss in thermal cover for big game animals, which is already in short supply in some areas. Productive winter range where cover is scarce has a reduced value if hiding and thermal cover is in short supply. However, on the west side of the project area there are adjacent areas with ample cover and improving forage in this circumstance will be of value to resident elk herds.

In general, elk avoid roads with human activity and avoid disturbances created by active logging operations (Skovlin et. al 2002). Elk avoid areas near roads open to motorized vehicles across a variety of seasons, landscape conditions, and geographic regions. Elk generally avoid habitat adjacent to roads, particularly during calving and hunting seasons and during the rut. Ensuring that temporary roads are effectively closed should not decrease security of elk in the project area.

Wolves and other predators of big game such as mountain lion and black bears may find increased numbers of prey or a better hunting environment where cover has been reduced if prey stay in the area and use newly created and rejuvenated forage sites.

Prescribed Burning and Fuels Reduction Treatments

Effects of prescribed burning and fuels reduction treatment are very similar to other vegetation removal methods. Equipment and human disturbance, the removal of small trees and brush have the potential to destroy habitat for some species and create habitats for others. Activities associated with fuels reduction would include slashing brush and trees smaller than 6-8 inches in diameter, constructing fire lines, and prescribed pile burning and broadcast burning. Most of the area would be treated with a broadcast burn to reduce fuels after the forest treatment.

A portion of the project area will be slashed and pile burned to protect large diameter larch that could be harmed by a broadcast burn where post logging activities leave a lot of slash near large trees. The most significant and direct impact of fuels reduction will be to nesting migratory birds and the northern alligator lizard. If slashing, fire line construction, and burning occur during the nesting season, many birds will lose their nests, eggs, and nestlings. Delaying these activities as much as possible (until after July 15th) would best protect resident and migratory birds, game birds, and Special Status Species. There are numerous migratory bird species that are not Special Status and would also be impacted. Examples include Spotted Towhee, Ruffed Grouse, Song Sparrow, Chipping Sparrow, Yellow Warbler, Cedar Waxwing, and Gray Catbird (Kaufman 1996).

In order to ensure that a sufficient amount of woody debris remains on site post burn, logging activities should be implemented in a manner that leaves larger diameter debris on site. Firewood harvest of downed logs or snags should be minimized, especially trees of larger diameter. Conducting the above described activities before April 1st and after July 15th would provide a better opportunity for these birds to complete their nesting attempts successfully.

While northern alligator lizards might be able to escape an area during fire line construction, it is unlikely that they would escape broadcast burning. It is reasonable to assume that all lizards onsite during a burning project would be lost to the fire. However, in such a limited area, it is not likely that losses would amount to a significant effect on the north Idaho or area population.

Where forest cover is abundant and forage is lacking, fuels reductions and burning would benefit many wildlife species that prefer brush and an open forest canopy. Ungulates in particular, will enjoy many benefits from prescribed burning of old decadent brush and broadcast burning of the forest understory (Innes 2011). Existing

brush will have higher forage value once burned. Where the understory has not been vigorous because of shade, burning will induce vigorous growth of the shrub, forb, and grass understory (Innes 2011 and Hooker and Tisdale 1974).

Species that prefer more closed canopy conditions or more mature brush for nesting sites will be negatively affected by a broadcast burn. These species would include those addressed above in the discussion of silvicultural treatment effects on wildlife. Examples include Dusky Grouse, fisher, and Varied Thrush.

7.6.3 Environmental Effects from Alternative B (No Action):

Mortality to wildlife due to machinery and tree falling, as well as disturbance from human activity would not occur under the No Action alternative.

If the proposed action is not implemented, an increase in the number of dead and dying trees is expected. As a result, the likelihood of a stand-replacing fire would also increase. Those wildlife species that require snags, prefer more dense forest stands, and rely on forest insects would be positively affected if this alternative was selected. For example, black-backed woodpeckers would have a higher density of insect infested trees to forage in, as well as numerous available cavities to choose from. Similarly, a denser, mature forest stand will be beneficial to boreal owls and fisher. However, this benefit would be negated for many of these species if a stand- replacing fire were to occur. Those species that prefer forest openings and a more open forest canopy would be negatively affected if the project is not implemented. Some species, such as northern goshawk and great-gray owl would be both negatively and positively affected by no action. On the one hand, they prefer more dense forests for nesting. But they also use forest openings and less dense forest for hunting.

Threatened, Endangered, and Candidate Species

Canada lynx, grizzly bear, and woodland caribou have not been documented in or near the project area. Suitable habitat for woodland caribou is not located in or near the project area. Woodland caribou require high elevation old growth forest and a sufficiently developed lichen community for winter survival (Servheen and Lyon 1989). This area does not hold potential for providing habitat for this species because the elevation and the vegetation community will never progress towards suitable habitat. There will be no effect on this species regardless of which alternative is selected.

Canada lynx are highly associated with both late and early succession forest stands. Early succession, densely stocked stands provide foraging habitat, while mature forest stands act as potential denning habitat (IDFG 2005, Ruggerio 1994). Thinning and burning may promote colonization of an area by snowshoe hare, the primary prey of Canada lynx, or may eliminate them from the area depending on the timing of the action. If the site is already colonized by hares then these actions would be detrimental to lynx foraging areas, but if they are not yet in the area and the stand is greater than 30-40 years old, thinning and burning may make the habitat more agreeable to hares in the long term (10-15 years post implementation) (Ruggerio 1994). Selection of the No Action Alternative would reduce any possibility of temporary disturbance to lynx during

implementation. Likewise there would be no changes (positive or negative) in the existing habitat, which appears to be unoccupied.

Of the three listed species, grizzly bear would be the most likely to use or pass through the project area. However, the current project area is less than suitable habitat for grizzlies because of the high level of human presence, development, and disturbance.

The No Action Alternative would eliminate the possibility of any direct effects to grizzly bears in the unlikely event one was in the project area. There would be no additional road building. If no forest is thinned and no prescribed burn occurs, ungulates will not benefit from more productive forage on the landscape and grizzly bears would not indirectly benefit from increased ungulate use and possibly increased ungulate numbers. Conversely, no cover would be reduced in areas that are already somewhat lacking in this habitat element. Portions of the area may experience less use by ungulates if cover is not present near forage and therefore, no action would be best in this scenario.

Special Status Species

Under the No Action alternative, mortality to wildlife due to machinery and tree falling, as well as disturbance from human activity would not occur.

If the No Action alternative is selected, an increase in the number of dead and dying trees is expected. As a result, the likelihood of a stand-replacing fire would also increase. Those wildlife species that require snags, prefer more dense forest stands, and rely on forest insects would be positively affected if this alternative was selected. For example, pileated woodpeckers would have a higher density of insect infested trees to forage in, as well as numerous available cavities to choose from. However, this benefit would be negated in the long term for many of these species if a stand-replacing fire were to occur that reduced large diameter trees in the project area.

Where there is less forest cover available nearby, “no action” would most likely be a preferred alternative for those species requiring more forest cover where it is already lacking. Examples include Northern Goshawk, Dusky Grouse, Great Gray Owl, Townsend’s Warbler, and fisher.

Special Status Species that prefer more open stands with a brush understory or the presence of hardwoods would not benefit from selection of the No Action” Alternative. Examples include, Olive-sided Flycatcher, Red-naped Sapsucker, Flammulated Owl, MacGillivray’s Warbler, and Yellow Warbler. Some species, such as Northern Goshawk and Great Gray Owl would be both negatively and positively affected by no action. On the one hand, they prefer more dense forests for nesting. But they also use forest openings and less dense forest for hunting.

Table 7.6.3 below, illustrates the projected medium to long-term effects on the special status species that would occur if no action is taken. This analysis does not assume that a stand-replacing fire would eventually occur. Effects of a stand replacing fire are discussed in the text above.

Table 7.6.3 No Action Medium to Long Term Effects On Special Status Species

Species	**Benefitial Effect**	**Neutral or No Effect**	**Adverse Effect**
Merlin*		X	
Northern Goshawk*	X		X
Northern pygmy owl*		X	
Flammulated owl			X
Dusky Grouse*	X		
American three-toed woodpecker*		X	
Black-backed woodpecker*		X	
Red-naped sapsucker*			X
Cordilleran flycatcher*		X	
Olive-sided flycatcher*			X
Hammond's Flycatcher	X		
Cassin's finch*		X	
Brown Creeper[M]		X	
Calliope Hummingbird[M]			X
Black-chinned Hummingbird[M]		X	
American Dipper[M]		X	
MacGillivray's Warbler[M]			X
Townsend's Warbler[M]	X		
Varied Thrush[M]	X		
Western Tanager[M]		X	
Yellow Warbler[M]			X
Ruffed Grouse[M]		X	
Gray wolf**		X	
Wolverine**	X		
Fisher*	X		
Canada lynx**		X	
Fringed Myotis*		X	
Townsend's big-eared bat*		X	
Long-eared myotis*		X	
California myotis*		X	

Species	Benefitial Effect	Neutral or No Effect	Adverse Effect
Long-legged myotis*		X	
Western small-footed myotis*		X	
Pygmy shrew*		X	
Red-tailed chipmunk*		X	
Common garter snake*		X	
Northern alligator lizard*		X	
Coeur d' Alene Salamander*		X	
Idaho giant salamander*		X	

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

Migratory Birds

Under the no action alternative, no disturbance of migratory birds, their habitats, nests, or offspring would occur. Similarly, no changes to their habitat would occur. If the project is not implemented, species that prefer more dense forest vegetation will benefit as the stand continues to mature and shade tolerant species continue to increase in the understory. Species that prefer a more open forest canopy or require stands that are mature and resistant to wildfire will not benefit from the No Action alternative.

Other Wildlife

Under the no action alternative, no raptor nests would be disturbed or destroyed by implementation of the project. Raptor species that prefer more dense forest for nesting, such as Northern Goshawk, would benefit from selection of the no action alternative. However, species that use more open forests for foraging, again, like Northern Goshawk and Flammulated Owl, will not see improvements to their foraging habitat under the no action alternative.

If the No Action Alternative is selected, none of the negative or positive effects described in the preferred alternative above would influence ungulate habitat. Succession would result in higher stocked forest stands and thermal and hiding cover would continue to increase while forage would decrease. In the case of a stand-replacing fire, habitat would convert to forage, but significant losses in thermal and hiding cover would occur as well.

7.6.4 Cumulative Effects:

The cumulative impacts analysis area for wildlife is the same as that area used to assess effects to ungulates (see Map 8). This area encompasses 36 square miles and was selected to incorporate the large ranges of big game species and carnivores,

without being so large as to dwarf potential impacts to species with very small ranges like song birds, reptiles and amphibians.

Portions of the analysis area and vicinity represent a highly disturbed and significantly modified landscape. Aggressive logging on adjacent private lands, mining activities, the transmission line, and the human activity associated with the town of Wallace have resulted in significant disturbance to and modification of habitat. Historic and continuing activities in the action area that have impacted wildlife populations include logging and forest health projects, wildfires, forest pathogens, prescribed fires, mining, recreation (consumptive and non-consumptive), road and trail building, rural and urban development along the Nine Mile and Canyon Creeks near the town of Wallace. All of these activities have the potential to negatively affect wildlife species. Some of these actions have positively benefited wildlife species.

Mining activities increase human access and disturbance in some areas. Logging and forest health projects temporarily increase disturbance and may permanently increase access to hunters and recreationists. These projects have the potential to both positively and/or negatively affect wildlife species depending on their habitat requirements. For example, fisher would be negatively impacted by aggressive tree cutting in a dense forest stand, whereas big game animals and McGillivray's Warblers would benefit from opening the forest canopy.

Reasonably foreseeable actions in the analysis area include possible timber harvest where merchantable timber remains, forest health projects, and mining activities. Mining activities can also be expected to continue within the area at the levels currently occurring. Consumptive and non-consumptive recreation can be expected to continue at similar levels occurring today and a low level of human development is likely to continue in the Wallace area and the Interstate 90 corridor. Forest insects and disease will continue to cause tree mortality in the analysis area. If no action is taken, these trees will eventually fall and regeneration of early seral species would be expected.

For species that prefer landscapes with low road densities and low disturbance, such as grizzly bear and wolverine, the project will not contribute to cumulative impacts to the populations of these species because not net increase in roads or disturbance is expected, While road density is not going to change there are existing ATV trails and roads within the project area, continued authorized and unauthorized use of the road system is likely. In general, the loss of interior forested habitat is a concern for species like fisher and boreal owl. If a catastrophic fire is avoided because of the reduction of dead and dying fuel, the benefit of the project could outweigh the reduction in cover. The reduction in cover will be far less than a reduction seen after a forest fire. However, if one assumed that no stand-replacing fire would ever occur, the effects of this project on interior forest species is negative and these species are likely to decrease over time in the analysis area. Species that prefer a more open forest stand are likely to increase in the analysis area because of continued forest projects that reduce the canopy and the eventual loss of trees due to insects and disease.

The small scale of the project, coupled with the already disturbed landscape should have no significant effect on Special Status wildlife populations in or around the project area. In fact some species such as Calliope Hummingbird and Flammulated Owl will

benefit if the proposed action is implemented. Impacts of the above activities, paired with the proposed project are not expected to contribute to cumulative effects on any Special Status wildlife species populations.

7.7 Air Quality:

7.7.1 Affected Environment:

The project area is located in Airshed 11as defined by the Montana/Idaho Airshed Group. The analysis area for air quality includes the Coeur d'Alene Field Office and the airsheds immediately surrounding it that may potentially be affected by smoke emissions. Montana and Idaho are currently managing smoke emissions for forest and prescribed burns under the Montana/Idaho Smoke Management Group. 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 prescribed 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.

The Clean Air Act requires that the Environmental Protection Agency (EPA) identify pollutants that have adverse effects on public health and welfare and to establish air quality standards for each pollutant. Each state is also required to develop an implementation plan to maintain air quality. The EPA has issued National Ambient Air Quality Standards (NAAQS) for sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, lead and particulate matter 10 microns in diameter or smaller (PM 10) and 2.5 microns and smaller (PM 2.5; Table 2). The Idaho Department of Environmental Quality (IDEQ) has included an additional standard for fluorides, bringing the applicable standards in Idaho to seven.

Table 7.7.1 National Ambient Air Quality Standards for PM 10 and PM 2.5

Particulate Matter	Unit of Measure	NAAQS
PM_{10}	24-hour average Annual arithmetic Mean	150µg/m^3 revoked
$PM_{2.5}$	24-hour average Annual arithmetic Mean	35µg/m^3 15µg/m^3

Air quality associated with the Ninemile analysis area is generally considered good (air pollution causes little or no risk) most of the year. Local adverse effects result from smoke from prescribed burning and wildfires and dust from mineral processing

operations, forestry activities, construction, unimproved roads, and recreation. Due to active fire suppression, current smoke emissions are significantly reduced from historical averages, especially during the wildfire season (Quigley and Arbelbide 1997).

The Ninemile project area is unclassified, but is considered to be in compliance with the NAAQS. The Environmental Protection Agency (EPA) determines airshed compliance defined by criteria pollutants. Non-attainment areas *within* the CdA FO include Pinehurst (Shoshone County) and Sandpoint (Bonner County) areas. Both areas have exceeded PM_{10} NAAQS levels. However, air quality in both of these areas has improved in recent years, and the areas have been documented to be in compliance with the PM_{10} NAAQS, though they currently remain designated as nonattainment areas.

The Ninemile project area is classified (EPA) as a Class II air quality area, which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. The closest Class I air quality area—sensitive areas such as hospitals, airports, wilderness areas—near the project area, is Cabinet Mountains Wilderness, approximately 40 miles northeast of the project area. Class I areas receive the highest levels of protection under the Prevention of Significant Deterioration (PSD) program. The PSD program is designed to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value.

Greenhouse gas is a gas in the atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect. The primary greenhouse gases in the Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Greenhouse gases greatly affect the temperature of the earth; without them, the earth's surface would average about 33°C colder than the present average of 14 °C (57 °F).

Since the beginning of the Industrial Revolution, the burning of fossil fuels has contributed to a 40% increase in the concentration of carbon dioxide in the atmosphere from 280 ppm to 397 ppm, despite the uptake of a large portion of the emissions by various natural "sinks" involved in the carbon cycle. Anthropogenic carbon dioxide (CO2) emissions (i.e., emissions produced by human activities) come from combustion of carbon based fuels, principally wood, coal, oil, and natural gas.

7.7.2 Environmental Effects from Alternative A (Proposed Action):

Smoke from prescribed burning would affect air quality temporarily. Impacts would be minimized by following the design features and coordinating with the MT/ID Smoke Management Program. The amount and duration of smoke impacts should be limited by conducting burns only during atmospheric conditions that are conducive to good smoke dispersion, by limiting the number of piles burned at one time, by scheduling ignitions early in the day to allow for more complete combustion during daytime conditions, and by planning the ignition to occur prior to a precipitation event that would extinguish the residual fire.

Smoke from prescribed burning activities would result in the production of carbon dioxide emissions resulting in the production of greenhouse gases. Prescribed burning to dispose of carbon based fuels (wood) would result in the consumption of 9.9 metric tons of biomass per acre of pile burning, or 990 metric tons for 100 acres. Therefore the proposed action would result in the direct emission of a total of 3,405 metric tons of carbon dioxide.

Indirect effects would be a potential decrease in smoke emissions and the impairment of visibility from wildfires when they occur due to the increased ability to suppress wildfire using direct suppression tactics, where firefighters can create a fireline adjacent to the flanking front, pinching off the spread and limiting the size of a wildfire. Reducing concentrated hazardous fuel areas created by the slash piles would be a long-term benefit following implementation of prescribed burning.

Indirect effects of greenhouse gas on the environment and climate change does not have a clear cause and effect relationship with a proposed action or alternative because it is not currently possible to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate change.

Mechanical fuel treatments and vehicle travel would increase the amount of dust in the area depending on the time of year, soil moisture, and the amount and kind of vehicle traffic. Treatments using mechanical activities may temporarily affect air quality within and around the project area. The mechanical vegetation treatment would be accomplished using a variety of machines to modify the vegetative biomass in the project area as presented in the proposed action.

The primary effect to air quality from these activities would be the generation of dust on roads from vehicle traffic during dry periods from July to September. Road dust would be limited to the project area and the access roads. Air quality impacts from dust would be minor and short term with the application of BMP's.

Dust may have a short term affect to visibility and safety issues related to traffic on project area roads, but dust is not expected to interfere with traffic on Interstate 90. Production of dust is temporary and occurs only while activities are taking place within the project area.

7.7.3 Environmental Effects from Alternative B (No Action):

There would be no direct effects on the existing condition of air quality from the No Action Alternative because no prescribed burning would occur. No particulate matter would be produced and visibility would not be impaired due to prescribed burning.

Vegetation could eventually burn from wildfires with remaining post-fire debris providing concentrated hazardous fuel loads. 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). It is reasonable to conclude, using the

aforementioned research that smoke from wildfire incidents would result in three to four times the production of carbon dioxide emissions resulting in the production of greenhouse gases. When comparing prescribed burning to dispose of carbon based fuels (wood) to that of wildfire incidents, emissions result in the consumption of 39.5 metric tons of biomass per acre burned, or 3,960 metric tons for 100 acres.

7.7.4 Cumulative Effects:

Locally adverse and cumulative impacts to air quality could be expected if extensive prescribed burning occurred, particularly if that burning occurred in conjunction with on-going wildfires or other prescribed burning activities in and adjacent to the airshed. However, design measures and procedures outlined by the Montana/Idaho Smoke Management Group are intended to increase the efficiency and effectiveness of communications about, and coordination of, prescribed burning to avoid adverse cumulative effects. In addition to air quality impacts, the cumulative effects to global climate change are difficult to ascertain. The US Geological Survey (2008) in a memorandum to the US Fish and Wildlife Service summarized the latest science on greenhouse gas emissions and concluded that it is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the source of specific climate impacts at a specific location.

The major sources of greenhouse gas emissions within the Silver Valley are; vehicle emissions (specifically I-90), wood heating in the winter and an occasional wildland fire in the summer. Greenhouse gas emissions resulting from the proposed action would be negligible compared to the surrounding area. The largest impact could be caused by prescribed buring operations, and this impact would be for a few hours.

Therefore the cumulative effect of greenhouse gas and global climate change does not have a direct cause and effect relationship.

Dust impacts would be minimal due to the light nature of use of the roads, and minimal vehicles necessary for the project. Should a wildfire occur, substantial smoke, dust and ash would be produced thus affecting the airshed.

No Action Cumulative Impacts

If a wildfire were to occur, the project area could burn. Depending on the intensity and type of fire the vegetation could make the wildfire hard to suppress due to the potential flame lengths and spotting produced. This could, in turn, contribute more particulate matter, smoke emissions, and greenhouse gases to cumulative effects compared to the proposed action.

7.8 Soil Resources

7.8.1 Affected Environment:

Previous road building, mining, development, and logging activities have impacted soils in the project area.

As described in the NRCS soil survey (USDA, 2002) soils on the project area are generally classified as moderately steep to very steep, deep, well-drained silt and sandy loams on mountains. They consist of weathered material derived from meta-sedimentary bedrock, primarily argillite and quartzite, with a thick mantle of volcanic ash. The hazard of water erosion is rated as moderate in surface and severe in subsoil. Other potential hazards related to the proposed action are described below.

Potential for Damage by Fire

Prescribed burning is a restoration practice that is primarily designed to help return the natural fire cycle to the landscape. Properly carried out on suitable sites, burning can be a very effective and cost efficient treatment method to help restore the desired composition of plant species in an ecological site, reduce fuel loading, rejuvenate sprouting browse species and stagnant grass plants, release nutrients into the soil, and prepare an ash seedbed for artificial or natural seeding.

Potential for damage by fire, as defined in the soil survey, “involves an evaluation of the impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer. The potential damage ratings are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope.” Within the project area, all of the soil types have a “highly susceptible” rating for potential damage by fire. "Highly susceptible" indicates that the soil has one or more features that are very favorable for soil damage by fire (USDA, 2002). The ratings are directly related to burn severity (e.g. a low-moderate severity burn will not result in water repellant layer formation).

Susceptibility to Compaction

Compaction tends to reduce water infiltration which affects plant production and composition, increases runoff with generally increased erosion rates, and affects organisms living within the soil. Compaction is predominantly influenced by moisture content, depth to saturation, percent of sand, silt, and clay, soil structure, organic matter content, and content of coarse fragments.

The project area soils are rated as “low resistance” to compaction, which indicates that the soil has one or more features that favor the formation of a compacted layer.

Soil compaction associated with logging occurs in response to pressure exerted by machinery. The risk for compaction is greatest when soils are wet. Compacted soil usually allows less water to infiltrate, resulting in greater overland flow, with greater energy to transport soil particles, resulting in increased erosion. Soil texture affects the

potential for soil compaction, which also can reduce plant productivity. In general, finer-grained soils can withstand less soil compaction before rooting restrictions occur (Megahan 2004).

Soil displacement reduces plant growth where topsoil and organic matter are removed. Road construction on steep slopes, as well as mass failures, will typically have the greatest soil displacement associated with timber harvest.

7.8.2 Environmental Effects from Alternative A (Proposed Action):

Construction of temporary roads would have the greatest impact on soils, followed by tractor and cable logging. Megahan et al. (2004) summarizes the reported soil disturbance from various logging systems in the Pacific Northwest and British Columbia; he found an average of 21 percent from tractor logging, 13 percent from ground cable logging, 8 percent for skyline logging, and 4 percent for aerial logging. Prescribed burning generally would have a much lower impact. Temporary roads would contribute most to cumulative erosion per acre of ground disturbance, but erosion would decline to negligible levels after decommissioning.

The amount of road construction is relatively minimal, as is the tractor harvest portion of unit 4. In addition, the tractor ground is located near a ridge top where gentle slopes and rock outcrops would minimize soil displacement, erosion and overland transport. The prescribed burns will be of low to moderate intensity to reduce the potential for fire damage to the soil and subsequent erosion.

There will be a short term increase in sediment production from soil disturbance associated with construction of the temporary and permanent roads. The increase in sediment production from the temporary roads will recover to near background levels if properly reclaimed and re-vegetated. The permanent roads are assumed to continue to produce sediment above natural background levels, though delivery to channels can be mitigated by factors such as design measures and location.

7.8.3 Environmental Effects from Alternative B (No Action):

Under the No Action alternative**,** no soil compaction or displacement would occur as a consequence of road construction, timber harvest, or fuel reduction activities. Existing soil compaction and displacement would persist with very slight natural recovery of surface layers of compacted soils. The possibility of a large stand replacing fire occurring is higher under this alternative, which could result in a substantial increase in soil loss and sediment delivery to the stream channels in the project area.

If wildfire occurred, mechanized suppression activities and subsequent salvage logging could create severe soil impacts, depending on fire characteristics and administrative decisions. The continued accumulation of dead and down fuel loads could contribute to increased potential for locally severe fire effects on soil, including physical alteration of soil structure and development of hydrophobic layers.7.8.4 Cumulative Impacts

Reasonably foreseeable future natural disturbances and land use actions that would affect soils in the analysis area include large- scale clean up actions as outlined in EPA's 10-year implementation plan (EPA 2012). This includes construction of a waste repository in upper East Fork of Ninemile Creek drainage, and extensive removal of waste rock and mine tailings along Ninemile and Canyon Creek. Other impacts include road use by passenger vehicles; fire suppression; OHV use of roads and trails; communication site maintenance; and transmission line corridor maintenance.

7.9 Water Resources:

7.9.1 Affected Environment:

Primary drainages within the project area are Canyon Creek and Ninemile Creek (including the East Fork of Ninemile Creek). These watersheds have been heavily impacted by logging, mining, channelization, road construction and wildfires. The terrain is steep and runoff is rapid.

Both Ninemile Creek and Canyon Creek are conveyed through culverts to their confluences with the South Fork of the Coeur d'Alene River in Wallace, Idaho. Referring to Map 4-Ninemile Timber Sale-Harvest Method, the majority of unit 1, and all of unit 4, are located in the Canyon Creek watershed. The majority of unit 3 and all of unit 2 are located in the Ninemile Creek watershed. The Ninemile Creek watershed receives a mean annual precipitation of approximately 40 inches. Elevations range from 3,470 feet to 6,300 feet, with a mean basin elevation of 4,880 feet. About 40% of the drainage lies below 4,500 feet and is subject to rain-on-snow storms. About 60% of the drainage has been logged, where the majority of the trees were harvested.

Several local residents obtain their drinking water from small creeks within and adjacent to the project area. Through the project design measures, the drainage where the domestic water source is located was avoided in the project layout.

There are no stream channels indicated in any of the harvest units, with the exception of an approximately 400- foot long intermittent segment in unit 4. This is a skyline harvest unit and the stream will have a 150-foot, no- harvest buffer.

The Coeur d'Alene Basin has been a leading world producer of silver, lead and zinc. Mining –related contaminants, particularly lead, zinc, cadmium and arsenic, from historical practices have severely affected surface water, groundwater, soil, and sediments in large areas of the CdA Basin. Historical ore-processing activities resulted in large quantities of metal-rich tailings that were placed in and along streams. The tailings have produced, and continue to produce, trace-metal-contaminated water and extensive deposits of trace-metal-contaminated sediment throughout the South Fork of the Coeur d'Alene River Basin (Donato, 2006).

In the Ninemile and Canyon Creek drainages, dissolved zinc concentrations exceed allowable water quality criteria (AQWS) by a factor of up to 73 in Nine Mile Creek and 40 in lower Canyon Creek (EPA, 2012). The 2010 and 2012 IDEQ integrated reports (303d) list Canyon Creek and Ninemile Creek stream segments (including the East Fork

of Ninemile Creek) as “not supporting” for cold water aquatic life and salmonid spawning beneficial uses.

Table 7.9.1: Historical Mining Impacts to Project Area Watersheds

Water body	Approximate Drainage Area (sq. miles)	Mean Annual Precipitation (inches)	Dissolved Zinc Concentrations Compared to Ambient Water Quality Criteria	Estimated Contaminated Waste in Watershed
East Fork Nine Mile Creek	5.4	44.4	unavailable	unavailable
Nine Mile Creek	11.6	40.3	73	1.1 M. cu. yards
Canyon Creek	22.0	45.5	40	1.7 M.cu. yards

7.9.2 Environmental Effects from Alternative A (Proposed Action):

New road construction is limited to 0.75 miles of temporary road. This would be located high on the slope and away from any water courses. The timber harvest activities would minimize impacts to soil and water quality through contract stipulations and BMPs, including: restrictions on operating when soil moisture is greater than 25%, proper spacing of skid trails; limiting tractor yarding to slopes of 40% or less, and installing waterbars and other drainage measures as recommended by the hydrology or fisheries specialists.

Due to the drainage characteristics described in the Affected Environment, the BMPs and contract requirements described above, as well as the wide, untreated buffer area between the ground disturbing activities and any water courses, sediment delivery to a stream is unlikely.

7.9.3 Environmental Effects from Alternative B (No Action):

No timber harvest, burning or road construction would occur; consequently, soil and water quality would be unchanged from current conditions. The possibility of a large stand replacing fire occurring is slightly higher under this alternative, which could result in a substantial increase in soil loss and sediment delivery to the stream channels in the project area.

7.9.4 Cumulative Impacts

Reasonably foreseeable future natural disturbances and land use actions that would affect water quality in the analysis area include large- scale clean up actions as outlined in EPA’s 10-year implementation plan (EPA 2012). This includes construction of a waste repository in upper East Fork of Ninemile Creek drainage, and extensive removal of waste rock and mine tailings along Ninemile and Canyon Creek. Other impacts

include road use by passenger vehicles; fire suppression; OHV use of roads and trails; ; and transmission line corridor maintenance.

7.10 Fire Management:

7.10.1 Affected Environment:

Suppression of all wildfires in the Ninemile project area has been ongoing for nearly a century. Fire exclusion has caused a substantial change in stand conditions and related fire behavior, especially in the dry habitat types of the project area. Increases in surface, ladder, and crown fuels have resulted in the potential for increased fire intensity and burn severity should a fire start. The arrangement and amount of fuel, particularly in the dry habitat types, could carry a fire into the crowns of trees, resulting in fires of an intensity and severity outside of the historic fire regime. (The moist habitat types adapted with mixed-severity disturbances where the severity of the fire events often times exceeded 10 percent but were less than 90 percent lethal.) These intense fires are difficult to suppress, threaten human life and property, and can result in the loss of key ecosystem components (tree species such as ponderosa pine, white pine, and western larch). Erratic fire behavior of this nature within close proximity to urban residences can endanger lives, disrupt communities, and degrade water quality.

The key issue for the fire and fuels analysis for the Ninemile Project is to prevent the effects of a large wildland fire in the Wildland Urban Interface (WUI), protecting the residents of Wallace, Idaho and rural communities of Burke, McCarthy, and Frisco. This issue has been identified through scoping as a key issue of the project and is of sufficient concern to drive the development of an alternative.

The Fire and Fuels section tracks the following issue indicators throughout this analysis:

1. Changes in surface fuel loadings that would reduce fire intensity *(measured by potential flame lengths).*
2. Spatial arrangement and amount of the landscape treated *(measured by the Minimum Travel Time (MTT) of a simulated wildland fire).*
3. Changes in fuel continuity (vertical and horizontal) that would reduce the crown fire hazard *(measured by fire type, surface, passive, or active crown fire).*

Broad Scale Fire History

Fire is a major disturbance factor that produces vegetation changes in our ecosystems. If the role of fire is altered or removed, this will produce substantial changes in the ecosystem. Fire has burned in nearly every ecosystem and nearly every square meter of the coniferous forests and summer-dry mountainous forests of northern Idaho, western Montana, eastern Washington, and adjacent portions of Canada. Fire was responsible for the widespread occurrence and even the existence of western larch, lodgepole pine, and western white pine. Fire maintained ponderosa pine on sites

throughout its range at the lower elevations and killed ever-invading Douglas-fir and grand fir (Spurr and Barnes 1980). Many ecosystems are regularly recycled by fire; life for many forest species literally begins and ends with fire.

The types of fires that occur in forested ecosystems (Zack and Morgan 1994) include:

- **Nonlethal Fires** – These fires kill 10 percent or less of the dominant tree canopy. A much larger percentage of small understory trees, shrubs and forbs may be burned back to the ground line. These are commonly low-severity surface and understory fires, often with short fire return intervals (a few decades).
- **Mixed-severity Fires** – These fires kill more than 10 percent, but less than 90 percent of the dominant tree canopy. These fires are commonly patchy, irregular burns, producing a mosaic of different burn severities. Return intervals on mixed severity fires may be quite variable.
- **Lethal Fires** – These fires kill 90 percent or more of the dominant tree canopy. These are often called "stand-replacing" fires and they often burn with high severity. They are commonly crown fires. In general, lethal fires have long return intervals (140-250+ years apart), but affect large areas when they do occur. Local examples of these types of fires include the Sundance and Trapper Peak fires of 1967 that burned over 80,000 acres in a relatively short time during late summer drought conditions.

The Ninemile project area has had a variable fire regime characterized by both infrequent, large, lethal (stand-replacing) fires and more frequent, shorter interval, nonlethal and mixed-severity fires (Zack and Morgan 1994). The variability of wildland fire severity and intensity shaped forest structures throughout the landscape. Zack and Morgan (1994) found that lower severity fires structure how the landscape responds when a lethal fire occurs. Lower severity fires increase the proportion of the landscape that contain big trees and open canopies, maintaining conditions that will not sustain a crown fire.

The interaction of fire throughout the Ninemile landscape was historically influenced by several different ignition methods, including but not limited to lightning and human ignitions. The number of lightning fires regularly experienced in northern Idaho is more than adequate to account for a disturbance regime that includes regular major wildfires (Zack and Morgan 1994). Fire suppression efforts have been effectively excluding fire from the ecosystem since the 1930s, subsequently eliminating underburns and mixed-severity fires. Such fires served as the thinning agents that favored dry habitat type legacy trees like larch and ponderosa pine. The changes that have occurred to western warm-dry forests have been well documented (Keane et al. 1990, Harvey 1994).

Project Area Fire History

The 1910 fire burned a substantial amount of the forests in and around Wallace, Idaho. Fire actually burned through town and there are epic stories of the devastation that affected the town of Wallace. In recent years land managers have attempted to map the 3 million acre 1910 fire from fire atlas and historic records. The 1910 fire polygon excludes the Ninemile project area, burning all the way around it (Fire/Fuels project file). A couple larger fires show up in the Ninemile project area; a fire in 1919 burned 238 acres north of Cornwall Mountain and a 640 acre fire burned near Dobson pass in 1889.

However, the age and size class of the vegetation suggests that a fire disturbance right around the turn of the century burned the Ninemile project area. It is reasonable to assume that the project area burned right around the turn of the century, but due to mapping errors it was not included in some of the fire polygons.

The fire event that burned the Ninemile project area most likely burned very similar to a mixed-severity fire, because some large legacy trees exist. It is also reasonable to assume that as the fire progressed through the project area it burned with high intensity and severity on the southern, dry aspects where wind, slope, and fuel aligned causing crown replacing fire, evidence by the brush fields and younger size class of trees that exist in the project area presently. Mosaic patterns where fire did not burn were also likely created, presumably influenced by greater fuel moistures and/or site-specific variability with wind and weather events. Arno and Davis (1980) state that fires in moist habitat types burned under variable intensities, ranging from light ground fires that did little direct damage, to crown fires that covered hundreds of acres in a major run. Overall, Arno and Davis (1980) conclude that presettlement fire history in moist habitat types left a patchy pattern of complete stand-replacement, partially killed overstory, underburning with little overstory mortality, and unburned forest.

Lands managed by the BLM in the Coeur d'Alene Field Office have fire protection by the Idaho Department of Lands and the US Forest Service per the Idaho State Fire Protection Agreement. The project area is predominately protected by the Idaho Department of Lands. Historic fire ignition data from the recent past only shows nine fires in the database (1980-2001). The largest fire in the project area burned in 1994, burning 0.8 acres. The other eight fires occurred practically every other year; all suppressed at under 0.1 acre, and all of them being human caused fires. All of the fires occurred in July through early October, having the potential for a larger fire had suppression actions not occurred. Within close proximity to the project area there is a rich fire history record. From this ignition history data, it would be reasonable to assume that the project area had more than nine wildland fires in the recent past and given the protection swap, some of the fires did not get recorded accurately. It is also reasonable to assume this recent fire history would have been adequate to maintain the historic fire regimes that this ecosystem naturally adapted with if fire suppression activities had not taken place. Nevertheless, it is clear that fire has played a major role in shaping the ecosystem in the project area.

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human intervention, but including the influence of aboriginal burning. Condition Class is a classification illustrating the functionality of an ecosystem. Combined, provides an analysis measure of Fire Regime Condition Class. Fire Regime Condition Class (FRCC) is a classification of the amount of departure from the natural regime, including ecosystem function and disturbance frequency. The following is a summary of fire regime classification:

Fire Regime I: 0-35 year frequency and low to mixed severity (surface fires most common)

Fire Regime II: 0-35 year frequency and high severity (stand replacement fires)

Fire Regime III: 35-:200+ year frequency and mixed severity

Fire Regime IV: 35-200+ year frequency and high severity (stand replacement fires)

Fire Regime V: 200+ year frequency and high severity (stand replacement fires)

Fire regimes were obtained from LANDFIRE, National database 2010 for the Ninemile project area and currently shows 13% (567 acres) fire regime I, 71% (3,084 acres) fire regime III, and 16% (677 acres) fire regime IV. Predominately the project area is classified as fire regime III, having a 35-200+ year fire frequency with mixed severity. This analysis is consistent with much of the fire regime classification in northern Idaho.

Fire Regime Condition Class (FRCC) obtained from LANDFIRE, National database 2010, currently shows the project area is 21% Condition Class 3; 71% Condition Class 2; and 7% Condition Class 1 (Table 7.10.1). Approximately 1% of the project area is classified as "unburnable," or areas of rock, homes, roads, etc. The fire regime condition class analysis for the project area showed that the landscape as a whole is in Condition Class 2, and is in need of restoration of fire effects, vegetation composition and structure, and fuel characteristics. The dry habitat types are most altered, falling into Condition Class 3. Moist habitats fall into Condition Class 2. Both the departure from natural fire frequency, severity, and the departure from natural vegetation composition, structure, and fuel characteristics influences the dry and moist habitat types. Fire exclusion and white pine blister rust are the primary factors in pushing the condition class rating towards Condition Classes 2 and 3.

Table 7.10.1. Definition of Fire Regime Condition Class.

Fire Regime Condition Class	Description	Potential Risks
Condition Class 1 (low) **282 acres (7%)**	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) is low.
Condition Class 2 (moderate) **3,051 acres (71%)**	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate; Risk of loss of key ecosystem components is moderate.
Condition	High departure from	Fire behavior, effects, and other associated

Fire Regime Condition Class	Description	Potential Risks
Class 3 (high) **897 acres (21%)**	the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances.	disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

Throughout the project area, shade-tolerant understories continue to advance in succession, which will create a denser stand in the future if disturbance processes such as wildfire continue to be excluded. Surface fuels, which were once light on these sites, have accumulated for approximately a century, and are most likely heavier than they were in 1910 when a majority of the project area burned. Downed woody material is now common from forest insect and root disease influences.

Fire exclusion in fire-adapted ecosystems can cause many changes in vegetation and potential fire behavior, which are well documented. Large, lethal wildfires, which were historically rare in the open dry habitat type ponderosa pine forests, have become common in the dense stands that have developed as a result of fire exclusion. These dense stands provide abundant fuel ladders that allow fires to increase in intensity and burn explosively through the tree crowns (Arno et al. 1996).

The increased potential for crown fire as a result of fire exclusion is of concern to fire managers, particularly when the conditions exist close to communities. Crown fires are the most difficult to suppress and as a result are more likely to become large. The project area surrounds private land and homes; a large, uncontrolled fire could threaten the community near Wallace, Idaho.

7.10.2 Environmental Effects from Alternative A (Proposed Action):

Changes in Surface Fuel Loading and Potential Flame Lengths

The use of FlamMap (a fire behavior mapping and analysis program that computes potential fire behavior characteristics over an entire landscape using constant weather and fuel moisture conditions) helps illustrate the differences in predicted fire behavior from the existing condition to the Proposed Action, Alternative 1. The fire behavior modeling shows that if Alternative 1 is implemented, the potential flame lengths would be less than four feet, which is a threshold that enables direct fireline suppression tactics, in the treatment areas. Potential flame lengths in the treatment area changes from 90 foot height to1.5 foot flame height with treatment. Direct attack with hand crews is most effective with flame lengths under four feet. Once flame lengths surpass this mark, fires are too intense for direct attack making other indirect suppression tactics such as backfiring or burnouts necessary to control the spread of the fire. Indirect tactics

are those where suppression forces would retreat to a safe and defensible place where they believe the fire can be stopped, and attempt to hold the fire at that location. Use of this tactic often results in more acreage burned. Once flame lengths are greater than 11 feet, crowning, spotting, and major fire runs are common. That type of fire behavior presents serious control problems that increase threats of wildland fire to life and property, and increase costs associated with fire suppression activities. The proposed action shows that with environmental conditions at or above the 97th weather percentile, flame lengths in the treated areas drop to four feet or less (Fire/Fuels project file). Potential flame length were modeled using a 50 mph wind on a dry August/ September day to emulate conditions associated with a dry cold front passage affecting the project area. An analysis of the Fire and Fuels project area shows that direct fire suppression could be effective on 30% of the project area after the implementation of the Proposed Action. This increased 18% from the existing condition. This includes all of the fuels in the project area, including riparian areas, rock, and non-burnable surfaces. Fire suppression with the use of equipment such as bulldozers, can be effective with flame lengths up to 11 feet in height. Modeling potential flame lengths using the existing condition of the project area results in approximately 41% of the project area having flame lengths less than 11 feet in height , thus areas where suppression could be effective, even with the use of equipment. Modeling the proposed action increases the percentage of the project area to 56%; thus approximately half of the Ninemile project area has the potential for successful suppression when using crews and equipment with the implementation of the proposed treatments.

The predominate fuel reduction method to reduce surface fuels in the project involves the use of prescribed burning, which can have a range of effects depending on the fuel and weather conditions at the time of the fire. Prescribed burning is completed using a weather prescription and prescribed fire burn plan in order to control and predict the effects of management-ignited fire. Common effects of prescribed burning include surface fuel reduction, understory and overstory mortality, tree crown and bole scorch, duff consumption, soil heating, and mineral soil exposure. The degree of each effect of a prescribed fire can be controlled by careful ignition in the appropriate weather conditions and modification of ignition patterns and methods. Weather conditions, however, cannot be predicted completely accurately, so there is some risk of escape with every prescribed fire that is ignited. The proximity of the Ninemile project area to private land and communities increases the values-at-risk, and dictates very careful implementation of all prescribed burning.

Changes in aspect and shaded draws would be used as boundaries for prescribed burning; these areas often have higher fuel moistures (especially in the spring), and in many cases would burn with very little intensity, if at all. Even with careful forethought and planning, prescribed burning can be uncertain, and small, burned areas outside of the designated treatment areas should be expected. These “slop-overs” tend to be relatively small, suppressed with contingency resources, contained quickly, and should not cause substantial effects.

Changes in Fuel Continuity Measured by Fire Type

The Proposed Action uses prescribed burning activities in the wildland-urban interface to directly affect potential fire behavior. The effect of the treatments in Alternative 1 would reduce potential flame lengths below four feet and change the fire type from passive and active potential crown fire behavior to surface fire in the treated areas. The Proposed Action reduces passive and active crown fire percentages of the 4,337 acre project area by 10%. FlamMap output results in 19% surface fire, 51% passive crown fire, and 30% active crown fire given the existing condition. Analyzing the Proposed Action with the same fire weather scenario results in 26% surface fire, 52% passive crown fire, and 21% active crown fire. The reduction in potential fire intensity increases the ability to suppress wildfire because it allows for incorporation of direct suppression tactics, where firefighters can create a fireline adjacent to the flanking front, pinching off the spread and limiting the size of a wildfire. This effect is consistent with the goals and objectives of the Shoshone County Community Wildfire Protection Plan to reduce the rate of spread and acres of land burned by forest fires through the implementation of targeted fuel mitigation treatments where the landscape has the potential to sustain fires that threaten communities and other assets in the wildland urban interface (Online *http://www.idl.idaho.gov/nat_fire_plan/county_wui_plans/shoshone/2011-chapter1.pdf*).

Spatial Arrangement and Amount of the Landscape Treated

Peterson et al. (2005) state that fuel treatment programs should consider the spatial pattern of fuel across large landscapes to be most effective at reducing large-scale crown fire. Therefore, spatial arrangement and amount of the landscape treated are issue indicators used to determine the effectiveness of treatments to reduce the potential threats to the city and residents of Wallace, Idaho. The issue indicators can be measured by FlamMap, by using the Minimum Travel Time model, a spatial model that generates fire growth in the absence of time-varying winds or fuel moisture content, enabling analysis only of the effects of spatial patterns of fuels and topography. A wildland fire event was simulated in the southern end of the project area to represent a potential fire incident burning for 2.5 hours on a dry, hot, windy (97th percentile environmental conditions and 50 mph winds) day with a cold front passage. The MTT major paths traveled a simulated 4.3 miles given the existing condition. A direct effect of Alternative 1 results in a fire incident where the MTT Major Paths traveled 1.6 miles in the 2.5 hours of simulated burning. An indirect effect of Alternative 1 provides more opportunities for fire suppression and a smaller fire incident size with the implementation of the Proposed Action (Figure 7.10.2). The units identified for treatment in Alternative 1 are oriented on the landscape to break up the connectivity and homogeneity of the fuels in the project area. The prescribed burns provide for opportunities to promote characteristics that are resilient to disturbance.

An indirect effect of Alternative 1 is that it provides the greatest opportunity for fire suppression efforts. This is achieved by optimizing the placement of treatments throughout the landscape to directly affect fire behavior, impeding the pathways for fire to travel quickly throughout the project area. Without treatment, the units identified in Alternative 1 would have little to no opportunities for successful fire suppression. Due to

the intense fire behavior that could occur, indirect suppression tactics would be necessary.

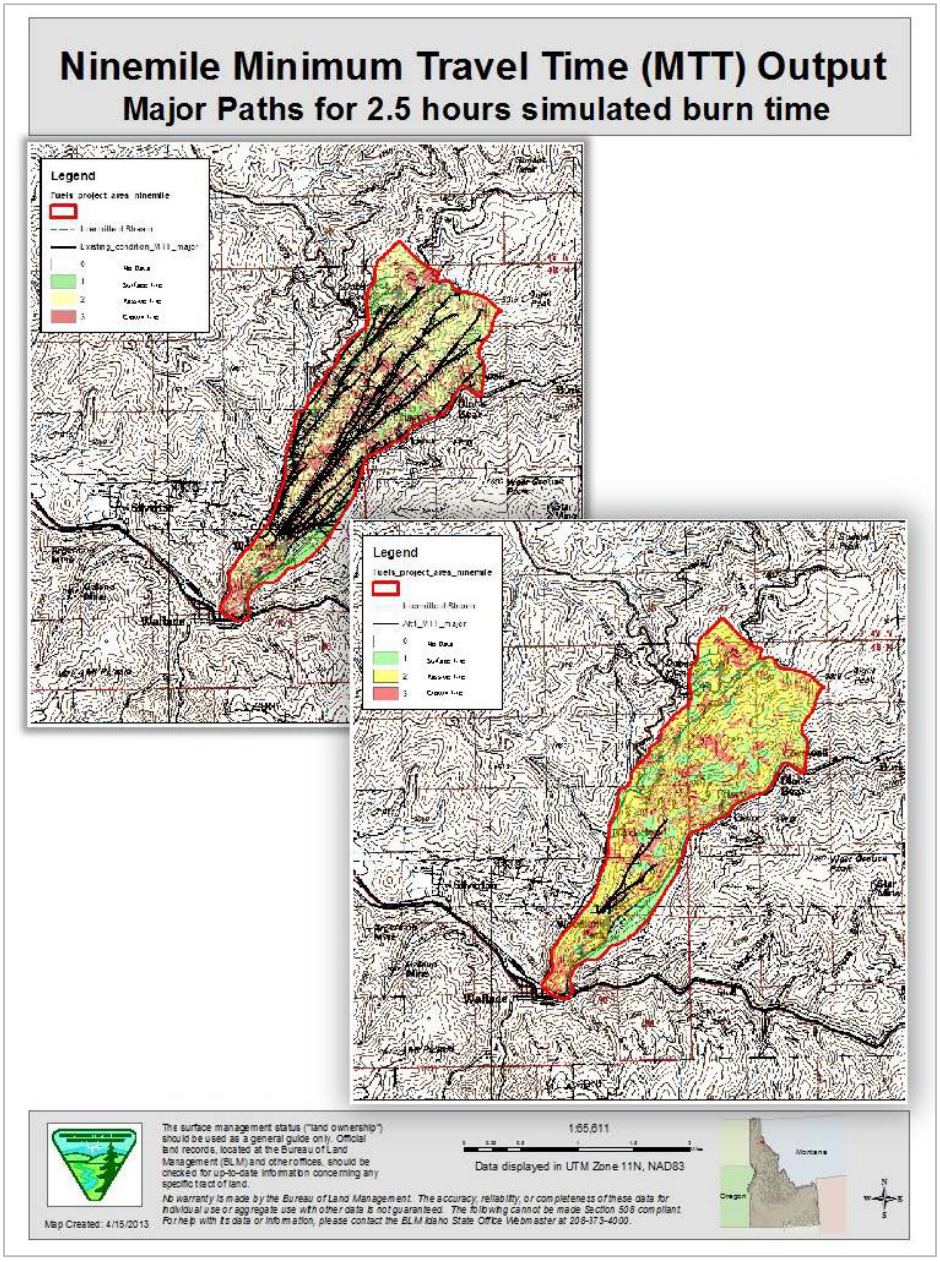

Figure 7.10.2. FlamMap Minimum Travel Time output for a simulated wildfire incident in the Ninemile project area.

Alternative 1 reduces potential fire intensity (flame lengths less than four feet and passive and active fire type) and fire behavior on more acres and across a greater expanse of the landscape than the No Action alternative. The reduction in potential fire

intensity increases the ability to suppress wildfire because it allows for incorporation of direct suppression tactics, where firefighters can create a fireline adjacent to the flanking front, pinching off the spread and limiting the size of a wildfire. This effect is consistent with the goals and objectives of the Shoshone County Community Wildfire Protection Plan to reduce the rate of spread and acres of land burned by forest fires.

7.10.3 Environmental Effects from Alternative B (No Action):

The effects of no action would be indirect and cumulative. Indirect effects include the continued accumulation of surface fuel and successional changes in stand structure that would affect fire behavior. The fire behavior prediction software FlamMap was used to estimate the potential fire behavior that would be reasonably expected over time, if none of the proposed activities were implemented and succession continued.

Changes in Surface Fuel Loading and Potential Flame Lengths

Without treatment in the Ninemile project area, natural succession will continue and disturbance will inevitably occur with forest insects, forest disease, wildfire, or all of the above. Shade-tolerant understory vegetation would continue to grow and replace the overstory. As it dies and falls down, it causes an accumulation of surface fuels and an increase in potential flame lengths much greater than 4 feet (Fire/Fuels project file). The existing condition shows that with environmental conditions at or above the 97th weather percentile[1], flame lengths quickly surpass the 4- and 11-foot thresholds, resulting in erratic fire behavior (Fire/Fuels project file). No action would allow the vegetation to continue in succession until some disturbance process takes place; if fire continues to be successfully excluded, forest insects and disease would assume the primary disturbance process of the stands. The accumulation of biomass on the forest floor would contribute to greater flame lengths and subsequently greater fire intensities in the event of a wildfire (Fire/Fuels project file).

Changes in Fuel Continuity Measured by Fire Type

Fuel buildup over time and changes in vegetation with continued succession in the Ninemile project area would most likely lead to an increased probability of a large, uncontrollable wildfire due to increased fire intensity associated with higher fuel loads, which would hamper fire suppression efforts. Large fires in north Idaho have historically been wind-driven events, occurring when uncontained fires were hit by strong winds (such as the north Idaho and western Montana fires of 1910, MacPherson Fire of 1931, and Sundance Fire of 1967). These wind-driven fires often spread several miles within hours; the Sundance Fire traveled 16 miles in 9 hours (Anderson 1968). Firebrands were found 10-12 miles in advance of the Sundance Fire (Anderson 1968), indicating the potential for spot-fires to develop ahead of the main fire.

No Action in the Ninemile project area results in fire behavior outputs that show a greater amount of passive (1%) and active (9%) crown fire in the Ninemile project area.

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[1] A percentile is a value on a scale that indicates the percentage of a distribution that is equal to it or below it. For example, a temperature at the 97th percentile is equal to or higher than 97 percent of the observed temperatures.

Passive and active crown fire type has a greater resistance to control, thus being difficult for fire suppression efforts when compared to surface fire.

No Action would also have an indirect effect on fire behavior, trending the vegetation away from historic conditions, creating an increased challenge to fire suppression forces. Fires would continue to be more intense, and therefore more dangerous to firefighters. Fires with high intensities are also more likely to escape initial attack and require more time and money to control. Forests where pathogens or diseases exist have the additional problem of snags, which are particularly dangerous for firefighters.

Larger, more intense fires that threaten nearby homes and communities could have various unwanted effects. Wind-driven wildfires often have a characteristic spread direction, traveling from the west or southwest to the east or northeast. A wind-driven fire originating in the Ninemile project area would most likely have its primary spread towards the adjacent communities, and/or backing spread and wind shifts would also pose substantial threats to the community of Wallace, Idaho. The Ninemile project area consequently has ideal juxtaposition to predominate southwest winds that travel over the St. Joe Divide. The slopes of the Ninemile project area are also steep, which combined with wind, produces radiant heating of the fuels upslope and greater rates of fire spread.

However, other fire-spread possibilities exist depending on the weather situation and the behavior of the potential wildfire. A wildfire could be plume-dominated, rather than wind-driven, which would result in far more unpredictable spread, because downdrafts created by the plume could surface in any direction. Another possibility is the presence of easterly winds, which could push a fire in the project area towards the community of Ninemile and eventually Wallace, Idaho. Easterly winds are most common in the cool months, and are more frequent in the periods from September through April than during summer months (Rothermel 1983). Large fires during spring and fall, though less common, have occurred in north Idaho. The possibility exists that a large fire could occur during periods when 97th percentile weather conditions are not reached. A wildland fire event was simulated in the southern end of the project area to represent a potential fire incident burning for 2.5 hours on a dry, hot, windy (97th percentile environmental conditions and 50 mph winds) day with a cold front passage. FlamMap's Minimum Travel Time (MTT) "major paths" traveled a simulated 4.3 miles given the existing condition.

Spatial Arrangement and Amount of the Landscape Treated

The No Action alternative does not change the spatial arrangement and successional stages of vegetation that currently exist in the project area. No efforts will be taken to break up the homogeneity of fuels in the project area. There will not be any treatment in the project area that could serve as opportunities for fire suppression efforts or potentially altering fire type, intensity, and severity of fire on the landscape. If post-fire rain events were to occur on severely burned area, the No Action alternative does not provide any effort towards reducing potential effects to water quality from surface and rill erosion. No action in the Ninemile project area would not change the potential fire type given a wildfire event occurring with a 97th percentile weather event.

The occurrence of intense and severe wildfire behavior within the Ninemile project area given the No Action alternative would have indirect effects following the fire. Removal of the canopy by intense and severe wildfires disrupts the photosynthetic activity of the stand, consequently interrupting the use of water to complete that activity. Depending on the intensity of the fire and the severity of its effects, wildfire can alter watershed soils by consuming the erosion-limiting litter layer at the top of soils and the binding organics within the soil (Ice 2003). Condensation of volatized organics on soil surfaces often results in water-repellant (hydrophobic) soil conditions (DeBano 1981, Doerr et al. 2000; Dyrness 1976) that can contribute to overland flow and increased in-channel failures (Ice 2003). This is of particular concern being that the Ninemile project area has several streams that are used as domestic water sources.

7.10.4 Cumulative Effects:

The past, present, and reasonably foreseeable activities that are pertinent to the fire and fuels analysis within the project area are past timber harvests, wildfire incidents, defensible space activities, and road access in and within the vicinity of the Ninemile project area. The majority of the private forest land has had some level of past disturbance. Many of the stands have been selectively harvested to salvage dead and dying trees from either root rot or the mountain pine beetle infestation that began about a decade ago. Most often, timber harvests on private lands tend to be partial cuts that remove trees of the highest economic value (usually the largest) and typically remove large fire-resistant seral species. Natural regeneration is relied on to fill most created openings. This tends to favor shade-tolerant Douglas-fir and grand fir trees over early seral species such as ponderosa pine and western larch. With increased values for private timber, and historic harvest practices on private lands, it is probably safe to say that inherent disturbance regimes and historic vegetation patterns will never be reestablished on private lands bordering the analysis area. Pile burning is often times the method chosen for slash removal at the timber sale landing areas. There is a rather large timber sale on private lands on the north end of the project area (189 acres) that appears to be a clear cut. Fire suppression activities have been occurring in the cumulative effects area for nearly a century. The cumulative effects of all of the harvesting activities, fire suppression, and defensible space treatments are analyzed for each alternative in this section.

Fire suppression has been effective in the Ninemile project area for nearly a century, and the incremental effect of suppressing each small fire throughout the landscape has contributed to a substantial change in the vegetation throughout the project area. Fire suppression is currently occurring in the Ninemile project area and will continue in the future due to RMP direction (on lands managed by the BLM), value at risk in terms of providing domestic water sources for the residents of rural Wallace, ID, and the close proximity to communities and urban residences. Fire suppression will allow the continuation of surface fuel accumulation, as well as allow shade-tolerant and fire-intolerant species (Douglas-fir and grand fir) to regenerate and continue in succession. However, this trend would be reversed by prescribing treatments that reduce potential fire intensities on approximately 13 percent of the project area.

Cumulative effects from incremental hazardous fuel reduction projects identified in the Shoshone County CWPP promote a desired condition where potential flame lengths and fire intensities decrease. Activities such as these cumulatively decrease the opportunity for wildland fire to spread to adjacent lands and conceivably the Ninemile project area, having an effect with the proposed action that supports the purpose and need of the project.

Timber harvesting on both public and private lands occurred from removal of selected individual trees to regeneration harvesting in and around the Ninemile project area. The effects on fire from timber harvest can vary, depending on the amount of canopy removed, the subsequent fuel treatment, and the time since harvest. Timber harvest without subsequent fuel treatment may have much the same effect as fire suppression, by causing an increase in surface fuels. Research suggests that despite repeated silvicultural cuttings over a period of over 80 years, thickets of understory conifers (ladder fuels), down woody fuels, and litter fuels tend to increase in the absence of fire (Smith and Arno 1999). These findings support the conclusion that the primary factor in analyzing cumulative effects for the fire/fuels resource is the absence of fire, caused by nearly a century of effective fire suppression.

Shoshone County has an active mitigation group that has been operating in and near the project area since 2004 by creating defensible space to mitigate the effects of wildfire and protect values at risk. The Shoshone County Fire Mitigation Working Group has explored options to conduct fuel reduction treatments on private lands within the project area to create defensible space around participating landowners' property and homes. The fuel reduction work includes thinning, pruning, and harvesting treatments to reduce potential flame lengths and reduce the probability of crown-fire behavior. The location and extent of these treatments complements the purpose and need of the project. Future efforts depend on landowner participation and cooperation with the Shoshone County fire mitigation program, an element of the National Fire Plan and the 10-Year Comprehensive Strategy Implementation Plan activities would complement the proposed action by progressing towards a landscape approach of reducing fire intensities in the wildland-urban interface.

Given intense and severe fire behavior, it is reasonable to expect expensive wildfire suppression costs, and damages or changes to values such as water quality, soil productivity, recreation, aesthetics, or other resources. Effects to these resources could be prevented or lessened with activities that treat forest fuels.

The No Action alternative fails to provide preventative steps to protect water quality for the domestic water sources in the Ninemile project area from an uncontrolled wildfire and/or erratic fire behavior. The continued succession of fuels, vegetation, mortality from insect disease, and the exclusion of fire will create areas where the trend in fire behavior characteristics exceed the goals, objectives and actions established in the RMP.

7.11 Recreation:

7.11.1 Affected Environment:

The project area is within the Silver Valley Special Recreation Management Area (SRMA). This SRMA is characterized by motorized and trail-related activities for adventure, exploration, and social group or family affiliation within front and mid-country forest mountain settings. The project area has no developed recreation sites. The travel designation for this area is motorized vehicles are allowed on designated routes and snowmobile access is not allowed. Two unimproved routes traverse the project area, but are not designated for motorized access (see Map 9). The lack of BLM routes in the area is due to the private lands that border public lands. Public use of the project area is generally year around, with Non-authorized snowmobiling in the winter and, berry picking and hunting in the summer and fall. Non-authorized motorized access to 'existing' roads (not designated routes) is also prevalent in the area. The main recreational uses are hunting, OHV use, and other dispersed non-motorized activities primarily by local users. In general, non-authorized use levels can be characterized as moderate due to the proximity of Wallace and Gem.

7.11.2 Environmental Effects from Alternative A (Proposed Action):

The primary sale period would be outside of the hunting season and not affect public use of the area. Other uses by the public (berry picking, hiking, etc) may have a minor impact, but are nearly negligible. The public would be restricted from using the project area during active burn phases, leading to temporary disruption of some recreational activities. However, the high-profile nature of the project and the relatively low overall use within the project area would make this an acceptable and minimal impact upon the recreating public.

All of the 'existing' routes used in the timber sale are for administrative use and not 'designated' routes within the Coeur d'Alene Resource Management Plan travel management plan for the Silver Valley. As such, these 'existing' routes are closed to public motorized access per the travel management plan. This area will be evaluated in a new Travel Management Plan slated to begin in 2017 and conclude in 2020.

Closure of the newly constructed roads by putting-to-bed the first 100 feet of the new road will cause some concern to the local residents that collect firewood for home heating. For example, snowmobile use will be disrupted when the BLM closes the 'existing' routes. However, snowmobile use is currently not authorized in the project area. The BLM has done a less than adequate job of limiting snowmobile use in unauthorized areas. Unauthorized cross-country OHV travel may increase as a result of forest vegetation treatments as trees and fuels are reduced and thinned.

In the long-term, the impacts to legal use of the area will be minimal. The potential impacts to non-authorized use may be more significant.

7.11.3 Environmental Effects from Alternative B (No Action):

Under the no action alternative illegal motorized use of the 'existing' roads would continue, as well as illegal snowmobile activity. Most popular public uses of the area, hunting, berry picking would continue uninterrupted. Hunting, which is the most popular visitor use of the project area, would decrease as less game is seen due to degrading forest conditions, specifically after a stand replacement wildland fire.

7.11.4 Cumulative Effects:

As described within the affected environment section, the surrounding landscape has been subjected to significant disturbance from mining, timber harvest, and other human activities since the 1800s. The mitigation measures and design features built into the proposed action will minimize any cumulative impacts from the project as compared to other timber management practices observed in the surrounding area over the last several years. Nearby private lands have undergone significant timber harvest and road construction during that time period, and has significantly changed the visual nature of the area.

7.12 Cultural Resources:

7.12.1 Affected Environment:

A cultural resource inventory was conducted in the project area. A historic railroad bed forms a portion of the west, south, and east boundaries of a harvest unit. The historic property consists of the excavated railroad bed; the tracks and railroad ties have all been removed. A portion of the railroad bed is dug through a steep hillside creating a trench. There is extensive slope movement and boulders now strewn across the railroad bed. Small trees or saplings are growing in this area and only a game trail weaves its way across the railroad bed.

One additional cultural resource was noted immediately outside the area of potential effect. It is an adit, which has sloughed in and is not considered significant. Additionally, one telephone line pole that had been cut many years ago, two transmission line poles cut and laying on the ground from many years ago, and portions of a vehicle body were located. None of these features were considered significant.

7.12.2 Environmental Effects from Alternative A (Proposed Action):

A railroad bed forms a portion of the west, south, and east boundaries of a harvest unit. It is proposed to use this existing railroad bed as a holding fire line to burn when burning excess fuels after the harvest is completed. It is proposed to dig a fire line by hand about three (3) feet wide and three (3) inches deep from the existing railroad bed uphill to the proposed road on the north boundary of Unit 2. The fire line will not impact the qualities that would make this site potentially eligible to the National Register. The

railroad bed surface has already been disturbed from the initial railroad tie installation, use by the railroad over time, and then later removal of the ties and rails.

7.12.3 Environmental Effects from Alternative B (No Action):

There will be no impact to cultural resources.

7.12.4 Cumulative Effects:

Since there would be no direct or indirect effects from the proposed action, there would be no contribution to cumulative effects.

7.13 Social/Economic Conditions:

7.13.1 Affected Environment:

Shoshone County, established in 1864, encompasses 2633.91 square miles with a population density of 5.2 people per square mile. According to the 2000 census data, the county had a population of 13,771; 5,906 households and 3,856 families residing in the county. In the last three decades of the 1900s its population declined by 30.2 percent. Industries providing employment include: Education, health and social services (20.8%); Agriculture, forestry, fishing and hunting, and mining (13.0%); and Arts, entertainment, recreation, accommodation and food services (12.3%). The median household income was $28,535, and the median income for a family was $35,694. About 12.4% of families and 16.4% of the population were below the poverty line, including 21.8% of those under age 18 and 10% of those over 65.

According to the Idaho Department of Labor, in December 2008, Shoshone County was one of six Idaho counties with a double-digit unemployment rate. While Shoshone County has had historically high unemployment rates, the 13.3% rate was higher than the past several years. Shoshone County's unemployment rate changes quickly due to the relatively low population and fluctuates due to cyclical industries such as agriculture, forestry and mining; typically with less people employed during the winter months.

BLM, USFS and private lands in the area provide a source of economic benefit to the Silver Valley area from the recreational and commercial opportunities. Public land, adjacent to private property, is sometimes viewed as being an asset because public lands cannot be commercially developed; providing landowners with a landscape that is unobstructed by other residential or commercial sites. Landowners place a high value on the visual benefits derived from open space and native vegetation.

The OHV trails surrounding Wallace attract numerous motorized recreationists to the area who eat and sleep in the local area. Annual OHV jamborees attract several hundred visitors to the area for these three to four day events. Dispersed recreationists, including hunters or berry pickers add to the local economy and supplement the traditional industries of mining and logging.

Within the 2,980 acre project area there are about 20 private residences located along Ninemile and Canyon Creeks. The following list details the major land owner acreages and ownership percentage within the project area;

- Bureau of Land Management – 1,147 acres (38%)
- Hecla Mining Company - 512 acres (17%)
- Boston Timber Opportunities, LLC – 171 acres (6 %)
- Cooney, Walter – 166 acres (6%)
- Magnuson Mining Properties – 165 acres (6%)
- System Global Timberlands, LLC – 137 acres (5%)
- Benton Mining Company – 121 acres (4%)
- Hancock Forest Management – 113 acres (4%)

See Map 10: Ninemile Timber Sale - Surface Ownership for ownership locations.

7.13.2 Environmental Effects from Alternative A (Proposed Action):

The economic discussion below shows the estimated “real” dollars that would be derived from the project areas. While the number of times that a dollar is cycled through the community is not projected, each dollar winds up benefitting several people and/or businesses as it is used to cover wages, supplies, operating expenses, living expenses, etc.

The project would contribute to the local economy by providing jobs needed to accomplish the work described in the Proposed Action and by providing forest products to local sawmills and other manufacturers ranging from Shoshone County south to Benewah County and west to Kootenai County (depending on who purchases the various forest products derived from the project area).

The various forest products that would result from implementing the Proposed Action range from saw logs, studs from hew wood, hog fuel for cogeneration plants, pulp, chips for strand board, posts, poles, biomass and firewood. Due to the volatility of the wood product market, an accurate estimate of the type of forest products, quantity of forest products and the value of these products cannot be made. However, saw logs and hew wood quantities can be estimated as these are the most common forest products to arrive at an estimated forest product value. This estimated value would reflect the potential minimum value of forest products which would be removed from the project area based on the criteria in the proposed action.

Using April 2014 average delivered log prices for saw logs and hew wood, it is estimated that the value of saw logs and hew wood removed from the sale area would be approximately $200,000. Delivered log price is the amount a mill pays for loggers and/or land owners for wood delivered to the mill. Most often the basis for payment is either board feet or tons. No estimate of quantity is being made of other forest products that would be removed from the project area. However, any other forest products removed from the project area, such as biomass, would provide additional economic

support to the local community. It is difficult to arrive at a total value for all forest products and to estimate how much more economic value is poured into the local economy from these manufacturers. For purposes of this discussion, it was assumed that two-thirds of the final product value covers the cost of getting it to the manufacturer (in this case delivered log price). Based on the above discussion, the sale of forest products would add another $25,000 to $50,000 to the local economy.

7.13.3 Environmental Effects from Alternative B (No Action):

The No Action Alternative, by foregoing implementation of timber harvest and the development and restoration package would result in no change to the current revenue production or expenditures. The proposed timber volume in the project would be part of the BLM's allowable sale quantity of 46.9 million board feet per 15 year planning period. If the sale is not offered, the BLM's planned volume for the year in which the sale was to occur may decline, affecting local and regional economies. Changes in harvest levels translate into changes in timber industry employment and income levels.

7.13.4 Cumulative Effects:

It is difficult to quantify monetary benefits from the private, State, BLM and USFS managed lands in the cumulative effect area due to volatility of delivered log prices. The proposed project is expected to bolster the economy of the area by providing additional raw material to manufacturers, creating or increasing jobs. Increased supply of raw material would help hold down prices for finished products.

8.0 Tribes, Individuals, Organizations, or Agencies Consulted

Jon Cantamessa & Vince Rinaldi: Past Shoshone County Commissioners
Current Shoshone County Commission
Coeur d'Alene Tribe of Idaho
Idaho Department of Fish & Game
US Fish and Wildlife Service
Idaho Conservation League
Kootenai Environmental Alliance
The Ecology Center
The Lands Council
Idaho State Historic Preservation Office
Idaho Native Plant Society

9.0 List of Preparers

Name	Title
Larry Kaiser	Forester/Project Lead

Lonnie Newton	Fire Ecologist
Carrie Hugo	Wildlife Biologist
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David Sisson	Archeologist
Cindy Weston	Fisheries Biologist
Janna Paronto	Realty Specialist
Doug Evans	Natural Resource Specialist/Weeds
Kurt Pindel	Outdoor Recreation Planner
Scott Pavey	Planning & Environmental Coordinator

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11.0 Attachments

1) Map 1: Ninemile Timber Sale - Vicinity
2) Map 2: Ninemile Timber Sale - Access
3) Map 3: Ninemile Timber Sale - Forest Treatments
4) Map 4: Ninemile Timber Sale - Harvest Methods
5) Map 5: Ninemile Timber Sale - Fuel Treatments
6) Map 6: Ninemile Timber Sale – Alternative Not Analyzed
7) Map 7: Ninemile Timber Sale - Forest Habitat Type
8) Map 8: Ninemile Timber sale – Cover/Forage Ratio
9) Map 9: Ninemile Timber Sale – Existing Roads
10) Map 10: Ninemile Timber sale – Surface Ownership