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Bureau of Land Management

Environmental Assessment
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REVISED

Wallace L. Forest Conservation Area at Blue Creek Bay Vegetation Treatment and Trails

Coeur d'Alene Field Office
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Contents

1.0 Introduction

This Revised Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of treating hazardous fuels, conducting commercial timber sales, and improving the non-motorized recreation developments within the Wallace L. Forest Conservation Area (WFCA). The BLM previously published an EA for this project on August 26, 2016. This revised EA was prepared to address public comments received on that original EA. See Section 5 for a more detailed discussion of public involvement and the original EA.

The EA is a site-specific analysis of potential impacts that could result with the implementation of a Proposed Action or alternatives to the Proposed Action. The EA assists the Bureau of Land Management (BLM) in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of "Finding of No Significant Impact" (FONSI). If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the Proposed Action or another alternative. A Decision Record, including a FONSI statement, documents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects) beyond those already addressed in the 2007 Coeur d'Alene Resource Management Plan (RMP) (BLM 2007).

1.1 Background

The Bureau of Land Management (BLM) acquired the public land known as the WFCA throughout the early 1990's in several transactions over an eleven-year period. The area has a rich history prior to the BLMs ownership; it was used for a wide variety of purposes from haying and livestock grazing to logging. In addition, a segment of the historic Mullan Road, the first constructed overland wagon route through the Northern Rockies, crosses through the portion of the uplands. This area is comprised of a gradient of forest types ranging from wetlands to upland forest dominated vegetation. The upland forested areas consist primarily of ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), western larch (*Larix occidentalis*), western white pine (*Pinus monticola*), western redcedar (*Thuja plicata*), and western hemlock (*Tsuga heterophylla*) and are home to a variety of upland game and birds. As a result of past timber harvests, the area contains a mosaic of trees of varying sizes and types. Old logging roads and skid trails traverse the property and have traditionally been used by hikers and equestrian users to access the upland portion of the property. A large wetland/riparian and wet meadow area extends along the mouth of Blue Creek Bay with black cottonwood (*Populas balsamifera*), thin-leaf alder (*Alnus incana*), red-osier dogwood (*Cornus sericea*), reed canarygrass (*Phalaris arundinacea* L.), sedges, cattails, and various rushes. Several meadows are also found in the upper portions of the property.

Following the ice storm of 1996 and a series of wind storms around the same time, the BLM, through a number of timber sales, treated approximately 500 acres removing wind thrown material, broken topped trees, and trees killed by insects following the storms. Since that time no further forest health treatments have occurred. Changes in vegetative conditions have also resulted in increased susceptibility and loss of forest vegetation due to drought, insect and disease agents and climatic changes. This has resulted in a departure from historic stocking levels, an accumulation of hazardous fuels within the wildland urban interface (WUI), increased conifer encroachment to the dominant overstory and a potential hazard to recreationalists. Fuel accumulations and fire suppression have also changed the vegetation patterns, structure, and composition of forests; therefore, the role that fire plays in the ecosystem has been altered (BLM 2007). The altered forest composition, the increased recreational use and structures built adjacent to BLM lands increase the potential for future fires.

In addition to the unique forest, the WFCA is considered one of the top priority locations for non-motorized recreation planning by the Coeur d'Alene Field Office. Over the past decade, the BLM has constructed an American with Disabilities Act (ADA) accessible day-use area with docks, a day-use trailhead with parking, outdoor education amphitheater, and a viewing platform. Development of a fully accessible ADA paved trail (foot/wheelchair access only) and parking area are underway on the western side of the meadow; however, no upland developments to date have occurred on the western side of the WFCA parcel (BLM 2009). Currently, access from the east side developments to the west side are through the use of county maintained roads (Figure 1).

1.2 Location

The WFCA is approximately 751 acres of BLM managed lands located six miles east of the city of Coeur d'Alene, ID in Kootenai County and is accessible via Interstate 90 or county and city surface roads. The legal description is Boise Meridian T. 49 N., R. 2 W., section 6 lot 4; T. 49 N., R. 3 W., tract 37, 38; T. 50 N., R. 2 W., section 31 lots 5, 6, 7, 8; T. 50 N., R 3 W., tract 37, 38.

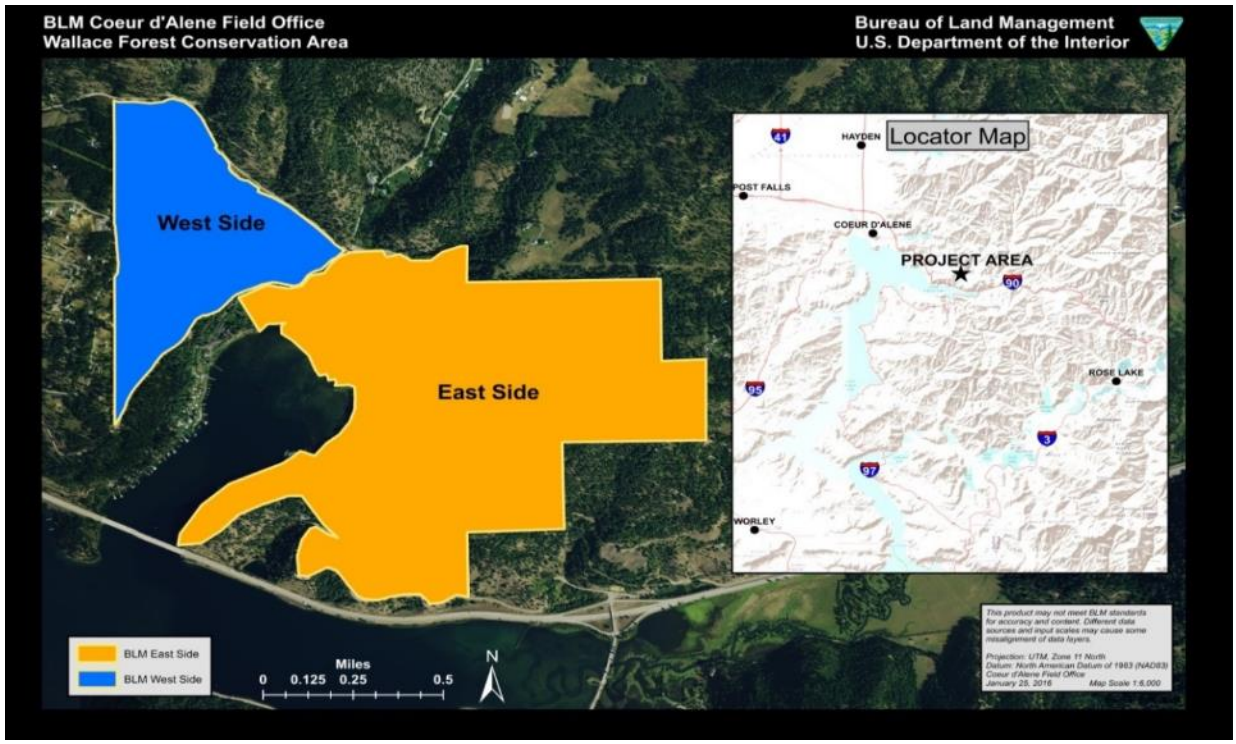


Figure 1. Locator map and BLM ownership designation of the project area.

1.3 Proposed Action Summary

Forestry

The Bureau of Land Management (BLM) is proposing to reduce stocking levels and treat hazardous fuels across approximately 616 acres within the WFCA through a combination of vegetative treatment methods including: the use of selective harvest (SH), pre-commercial thinning (PCT), hazardous fuels reduction work and prescribed burning (Appendix A: Map 1 *Forestry Treatments Proposed Action*). All vegetative treatments would favor leaving early seral species such as western larch, ponderosa pine and western white pine where they exist. To facilitate vegetative treatments existing roads and old logging trails would be utilized. In areas adjacent to homes and/or structures, or in areas that are devoid of other vegetation treatments, a fuel break of approximately 200 feet would be created. Treatments would begin in late 2017 and continue for up to six years through multiple phases.

Recreation

In addition to vegetative treatments, the BLM is proposing to enhance non-motorized trail and education opportunities within the WFCA parcel. This would include: developing the west side trail system with purpose built trails, developing more adequate parking, establishing a single track connection trail from the east side to the west side through the meadow, designating three connection trails on the east side and pursue opportunities for environmental education. The BLM anticipates that recreation activities would occur in conjunction with vegetative treatments and would continue for up to six years (Appendix B: Map 2 *Recreation Proposed Action*).

2.0 Purpose and Need

2.1 Need

The WFCA is comprised of a gradient of forest types ranging from wetlands to upland forest dominated vegetation. The present forest composition is showing signs of decline in overall health and has become overstocked with Douglas-fir, grand fir, and small diameter ponderosa pine. The resulting condition is encroachment by small diameter trees into areas that were historically dominated by large diameter, lower density ponderosa pine and western white pine stands.

Overstocking has increased fuel loadings and ladder fuels, in effect creating hazardous fuels conditions within the wildland urban interface. The forest vegetation communities are not within the appropriate fire regime condition class (FRCC) due to past fire suppression practices. The FRCC refers to the degree of departure from the natural fire regime and its subsequent effect on vegetation composition and structure on a landscape scale. Approximately 29 percent of the project area is FRCC 2 and 53 percent FRCC 3. FRCC 2 is a moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances. FRCC 3 is defined as having high departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and predispose the system to high risk of loss of key ecosystem components. Insect and disease agents are also prevalent and continue to kill trees, many of which are located near county roads and along recreation trails.

Demands for outdoor recreation opportunities continue to increase which make the WFCA a desirable recreation site. The demand is largely due to public access to Lake Coeur d'Alene and its proximity to Coeur d'Alene, ID. A demand for trails in the area has been demonstrated by a developing network of social trails on the west side. More trails would be needed to be analyzed for connectivity within the greater designated trail system and to meet the demand for more trails in an area with growing recreational use. The east side of the ownership has been developed with a non-motorized trail system accompanied with day-use areas, and the west side is currently undeveloped. To meet this growing demand for trails in the area, additional designated trails are needed. Recreation use would benefit with improved access and trails.

The Coeur d'Alene Resource Management Plan (RMP) states that the BLM will "restore forest vegetation towards historic species composition, structure, and function", "identify areas where fuels treatments will reduce hazards and emphasize the use of small diameter trees" and "reduce impact from wildland fire to WUI areas, municipal watersheds, and infrastructure"(BLM 2007). In addition, the Kootenai County, Idaho Community Wildfire Protection Plan identifies the proposed project area as high priority for hazardous fuels treatments. Additionally, the RMP calls for managing this area for recreational use "within an accessible natural forested lakeshore setting."

2.2 Purpose

The purpose of the proposed action has two main objectives. The first is to manage for forest health throughout approximately 751 acres within the WFCA by conducting forest vegetative

treatments (commercial thinning, pre-commercial thinning, slash piling, prescribed fire, etc.) to reduce stocking levels and promote a historic species composition. This will in effect reduce the accumulation of hazardous fuels adjacent to homes located within the WUI, protect developed recreation sites and structures on public lands, and reduce the threat of wildfire to cultural and natural resources.

The second purpose of the proposed action is to provide an upland trail network on the western side to safely accommodate a variety of non-motorized day-use recreation opportunities while reducing potential user conflict, establish connectivity between the east side features to the west side, improve access, and enhance environmental education opportunities throughout portions of the WFCA.

The WFCA consists of a combination of non-motorized trails which include user-created and designated shared-use trails. The majority of the user-created trails are located on the west side of the WFCA where a trail network has been established. Some user created trails also exists on the east side; however, most of these trails were previously designated through past planning efforts.

3.0 BLM Decision to be Made

In accordance with the Federal Land Policy and Management Act (FLPMA), the BLM Coeur d'Alene Resource Management Plan, and other pertinent statutes and authorities the BLM Coeur d'Alene Field Manager will decide whether or not to implement the proposed vegetation treatments, construct recreational facilities and designate trails in the WFCA.

4.0 Land Use Plan Conformance, Statutes, Regulation, and Other Plans

4.1 BLM Land Use Plan Conformance

Federal regulations (43 CFR 1610.5-3(a)) require that resource management actions must be in conformance with approved resource management plans (RMP). The proposed action as described in Section 6 of this EA is in conformance with the Coeur d'Alene RMP approved in June 2007. The following RMP decisions specifically apply to the proposed action.

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 vegetation treatments on 8,200 acres.

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 types.

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

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 control brush/shrub competition will not occur. Prioritize these treatments within FRCC 2 and FRCC 3 areas.

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

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 or disease infestation.
- Treating areas where other disturbances have occurred (e.g. fire, ice storm, etc.)

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.

Goal RC-1-Provide opportunities for quality outdoor recreation experiences ensuring enjoyment of natural and cultural resources on BLM-managed or partnered lands and waterways.

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

Action RC-1.2.10: Enhance environmental education opportunities at the Mineral Ridge National Recreation Trail through maintenance of the interpretive trail, guide booklet, and bald eagle viewing booklet. Additionally, plan and construct or implement additional interpretive or environmental education sites or projects at:

- Blue Creek Bay (undeveloped)

Action RC-1.2.11: Recreation site development projects will be planned and implemented at the WFCA (Blue Creek Bay) that consider the following:

- An upland trail system for nonmotorized uses
- Wildlife viewing and interpretive facilities

4.2 Relevant Statutes and Authorities

This section is a summary of the relevant statutes/authorities that apply to this project.

- Archeological Resource Protection Act (ARPA) 1979
- National Historic Preservation Act (NHPA) 1966 as amended
- Federal Land Policy and Management Act (FLPMA) 1976
- Federal Regulations (43 CFR 5003)
- Healthy Forest Restoration Act (HFRA) of 2003
- Migratory Bird Treaty Act of 1918
- National Environmental Policy Act (NEPA) 1969

4.3 Relevant Regulations

The Bureau of Land Management published supplemental rules in the *Federal Register* for the Blue Creek Recreation Management Area, December 8, 2010. These rules state:

1. You must not occupy or use the Blue Creek Bay public lands from one hour after sundown to one hour before sunrise.
2. You must not moor any boat overnight on any BLM-managed structure or shoreline.
3. You must not start or maintain any open campfires, except when completely contained within permanently installed steel fire grates or cooking grills.
4. You must not discharge a firearm (powered by compressed gas or gunpowder) for hunting, target practice or other purposes, except that waterfowl hunters may hunt waterfowl below the high water mark of Lake Coeur d'Alene within Blue Creek Bay.
5. You must not use motor vehicles off county roads.
6. You must not cut or collect firewood.

5.0 Scoping and Issues

5.1 Scoping

Internal Scoping

An Interdisciplinary Team (IDT) of BLM resource specialists conducted internal scoping through the project planning process, which included on-site field examinations of the project area, professional observations and judgment, literature review and IDT discussions. In the

project planning process the IDT considered environmental elements particular to this project site. The IDT also developed a preliminary proposed action and identified preliminary relevant issues for consideration during external public scoping.

External Scoping

The Coeur d'Alene Field Office initiated the WFCA vegetation and trails public scoping process by mailing over 75 scoping notices on July 29, 2015 to interested parties such as adjacent landowners, Kootenai county commissioners, the Coeur d'Alene Tribe, as well as to individuals that had previously expressed interested in management of WFCA. This was followed by an article written by a reporter for the *Coeur d'Alene Press* on August 5, 2015 and a BLM news release published in the *Coeur d'Alene Press* on August 13, 2015. The articles invited the public to participate in a public meeting on August 18, 2015 to discuss the proposed treatments and recreational improvements. The BLM also published information about the project on the project website.

During the initial public scoping comment period which concluded on August 29, 2015, the BLM received over a hundred comments that were used to refine the proposed action, develop alternatives, and identify issues for analysis. A large proportion of the comments received pertained to the BLM considering the incorporation of mountain biking trails into the initial proposal. Subsequently, the BLM held additional meetings with members from the biking community on October 29, 2015 and with several members of the equestrian community on December 8, 2015 to develop alternatives with regards to trail systems.

The original EA was later developed and made available for a 30-day public review and comment period which ended September 26, 2016. The BLM made over 240 notifications pertaining to the original EA by direct mailings, emails, and news releases that were published in both the *Coeur d'Alene Press* and *Spokesman Review*. The original EA received a lot of interest which prompted another informational public meeting by the BLM on September 21 and the extension of the comment period through October 14, 2016. The BLM also attended and conducted additional meetings to share information about the draft document and answer questions beyond the comment period.

By the end of the extended comment period, interested parties had submitted 257 letters and emails. The BLM analyzed these submissions and the comments they contained. See Appendix Q: *Substantive Comments Received* for more information about comment analysis and responses.

5.2 Issues

The IDT identified issues based on applicable law, management direction contained in the RMP, and information gathered during the scoping and project planning process. The issues helped to determine whether the proposed action should be modified and the significance of the project effects on elements of the environment; and helped shape alternatives to analyze. Although the comments received did not identify new issues for analysis, they did provide additional information which led the BLM to modify the proposed action, consider and analyze a new alternative, and analyze additional aspects of the issues.

5.2.1 Issues Considered for the Development of Alternatives and Analyzed in Detail

Air Quality

Smoke impacts to adjacent landowners and the general public: smoke during the pile and broadcast burning portion of implementation may bother adjacent land owners and the public.

Dust: majority of the roads surrounding the project area are not paved and dust may bother adjacent land owners and visitors recreating.

Botany and Special Status Plants

Impacts to rare plants and their habitat: opening the canopy and disturbing the soil (by timber harvest, burning and/or slashing) can create an environment that is favorable to weeds. Weeds can then outcompete or inhibit the growth of sensitive plants that currently occupy or could occupy the site in the future. Additionally, increased recreational use could result in damage to special status plant communities.

Cultural

Impacts to cultural sites: implementing management actions could impact cultural and historic sites, to include sites eligible for the National Register of Historic Places, either directly or indirectly.

Socio-Economics

Local Economy and Adjacent property values: Harvesting forest resources and providing additional opportunities for recreation may affect the local economy. Creating additional parking on Bonnell Road could increase traffic and affect property values.

Fisheries

Fisheries, including special status fish species: logging, including road and skid trail construction/improvements, fuels treatments, and trail building could cause 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. This can affect habitat for fish and other aquatic species.

Invasive, Non-native Species

Noxious weed introduction or expansion: disturbance to soils and vegetation through broadcast burning and utilization of logging equipment could result in the expansion of noxious weed species.

Public Health and Safety

Logging traffic from vegetation treatment could result in a higher risk of traffic accidents. The increased traffic could also create dust which reduces visibility for drivers. Visibility along I-90 could also be affected by the smoke due to the broadcast burn on the southern end of the property. With more developed trails on the west side of the property, recreation use is likely to

increase. Parking is limited to the shoulder of Bonnell Road, and more people would be likely to park on the shoulder of the road to access the new trails.

Recreation

Implementation of the forestry actions may require temporary area closures which could temporarily displace visitors. Skid trails also have the potential to establish undesired user-created trails if not dealt with properly. A trail system with designated uses could also result in user conflict among the different recreational uses.

Soils

Minor impacts to soils could occur while building the recreation trails and trailhead as well as during harvest activities. Naturally occurring (and some man-made) erosion is prevalent in localized areas. Proposed trail building and other construction could result in disturbances to soils with increased erosion in some areas and decreased erosion in others.

Visual Resources

Timber harvest and fuel breaks: removal of trees and vegetation could alter the scenic quality of the landscape.

Wildfire

Increased recreational users increases exposure to the area and could contribute to human caused fires.

Wildlife

Disturbance to wildlife and their habitat: harvest activities may have negative effects on some species if snags and brush are removed. Changes in habitat may have negative effects on some species. Additional disturbance to wildlife resulting from human presence, equipment noise, and smoke may disrupt or deter wildlife on the site.

5.2.2 Issues Eliminated from Further Analysis

During the initial scoping period a comment was received concerning trapping and bow hunting outside of the appropriate seasons. Since the Idaho Fish and Game is the regulatory agency responsible for developing and enforcing the regulations associated with all hunting and trapping on public lands, the BLM is eliminating this issue because it is beyond the scope of this analysis. However, the effects of potential increases in trapping and bow hunting will be analyzed in the wildlife section 7.14 and also in the recreation section 7.9.

After the final scoping period several commenters requested that the BLM consider a forestry only alternative, with no recreation actions. The BLM did not analyze this in further detail because it does not address the recreation issues described in the purpose and need.

6.0 Alternatives

Three alternatives were developed through internal and external scoping efforts and are considered to meet the purpose and need of the project. In addition, for analysis purposes, the BLM included a no action alternative. The alternatives are:

- Alternative A (Proposed Action)
- Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Additional Parking off Bonnell Road)
- Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)
- Alternative D (No Action)

6.1 Alternative A (Proposed Action)

The proposed action involves forestry and recreation components. The forestry component addresses forest health and hazardous fuel issues. The recreation component incorporates the development of an established trail system and parking area on the west side of the BLM ownership, a new trail system bisecting the meadow, the development of new trails on the east side to improve overall trail connectivity and additional parking areas.

Forestry

The proposed forestry action would occur over the course of six years through multiple phases (estimated from 2017 thru 2023) treating approximately 616 acres which would be broken into seven treatment units shown in Appendix A: Map 1 *Forestry Treatments Proposed Action* and are described in Table 1 below.

Table 1. Proposed Action Units, Harvest Methods, Vegetation Treatments and Acres Associated with Proposed Treatments.

Unit	Harvest Method	Vegetative Treatment	Treated Acres
1	Hand Cutting	Pre-commercial Thinning	36
2	Tractor/Short Cable	Variable Density Thinning	130
3	Tractor	Aspen Release	5
4	Tractor/Short Cable	Variable Density Thinning	345
5	Tractor/Short Cable	Selective Cut	67
6	Hand Cutting	200’ Fuel Break	33
7	Under Burning	Prescribed Fire	57*
8		Wildlife Reserve Area	135**
		Total Treatment Area	616

**Treatment overlap not included in total treatment area (15 acres of private)*
***Not included in treatment area*

The BLM anticipates that approximately 2.0 million board feet (MMBF) of merchantable material could be removed from 542 acres (Units 2, 4, and 5).

Techniques used to implement the proposed action would include:

1. Pre-commercial Thinning (PCT): approximately 36 acres (unit 1) would be treated by removing non-commercial trees (less than 7 inches in diameter) to reduce tree densities of non-desirable trees species thus allowing for less competition of resources and to increase site productivity (Chase et al. 2016). To achieve the desired spacing of the residual trees, a 16 foot by 16 foot spacing would be utilized.

2. Variable-density Thinning (VDT): on approximately 475 acres (units 2 and 4) a variety of techniques would be utilized to achieve small scale skips (areas left unthinned), gaps (openings in the forest canopy) and a light thinning. This would be achieved through a selective cut in which primarily smaller suppressed trees would be removed to reduce ladder fuels, and improve vigor and longevity of the mature overstory trees while promoting a historic species composition (see Figure 2). Other than in openings, on average 32 trees per acre (TPA) would be maintained favoring dominant and co-dominant trees ≥ 24" diameter at breast height (DBH), where practical.

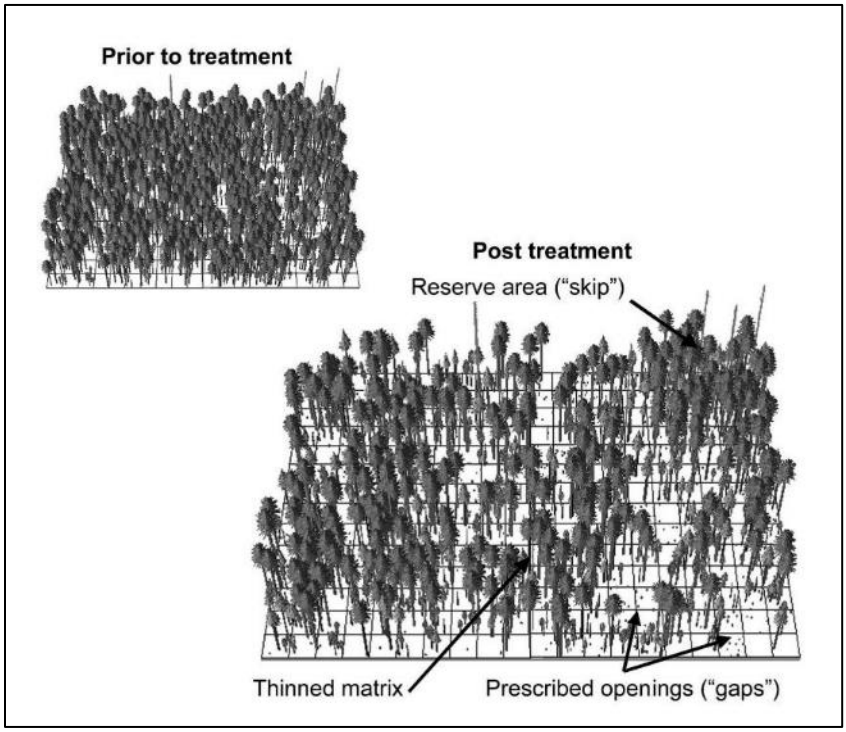


Figure 2. A stand before and after thinning with skips and gaps (Harrington 2009).

3. Aspen Release: approximately 5 acres (unit 3) would be treated near residual aspen by removing competing conifers and vegetation in order to create openings large enough to increase sunlight to reach the forest floor and stimulate sprouting (Shepperd 2001;

Shepperd et al. 2006). Pile burning of slash material and fencing would also be used to help stimulate aspen suckering and protect it from herbivory.

4. Selective Cut: approximately 67 acres (unit 5) would be thinned from below to remove ladder fuels and ingrowth in order to improve vigor and longevity of the overstory. Ponderosa pine and western larch and western white pine would be favored for retention especially in areas that are within 50 feet of root rot pockets. Douglas-fir trees that are competing with dominant ponderosa pine would be favored for removal to maintain a historic species composition.

5. Fuel Breaks: approximately 33 acres (unit 6) would be treated to create a 200 foot wide shaded fuel break along the ownership boundary and main road system in areas not proposed for other forestry treatments. Treatment would reduce surface fuel accumulations and ladder fuels by thinning understory vegetation and small diameter trees up to 8 inches DBH and piling slash and natural fuel accumulations.

6. Prescribed Fire: approximately 57 acres (42 BLM, 15 Private) (unit 7) would be underburned to reduce surface fuels and kill small shade tolerant trees in the understory. All prescribed burning would require a project level prescribed fire burn plan that would adhere to smoke management and air quality standards, meet the objectives for the project, and maintain or restore ecosystem processes or structure. This could also include burning 15 acres of adjacent private land in coordination with the land owner.

7. Wildlife Reserve Areas: approximately 135 acres (unit 8) would be reserved from treatment to minimize disturbance to wildlife populations.

Treatments would include:

Harvest Methods

Harvest methods would include tractor (ground-based) skidding on slopes less than 45% and cable yarding on slopes greater than 45%. Cable yarding would be utilized with cable corridors varying between 400 feet and up to 1000 feet in length and may be logged using a conventional cable system (yarder) or an off-road jammer (e.g. tong-tosser).

Whole tree yarding would take place in areas that are adjacent to or within sight of trails to reduce the amount of activity fuels remaining within the units after logging operations. In areas that are isolated from public access or have low amounts of coarse woody debris, a lop and scatter approach would be utilized to ensure adequate amounts of slash is retained in order to promote nutrient cycling (see *Slash Treatments*).

Road Work

The timber harvest activities would utilize approximately 3.47 miles of existing roads on the eastern side of the ownership and approximately 1.3 miles of existing roads on the western portion of the ownership (Appendix C: Map 3 *Forestry Roads-Proposed Action*). These haul roads would be reshaped and maintained to facilitate harvest operations. As needed, road maintenance actions would include blading, providing road drainage (e.g., rolling dips, ditch

cleaning, culvert installation, etc.), rocking/graveling low-water fords, and road clearing (e.g., logs, debris). During logging operations dust abatement measures would be utilized when necessary to prevent excess dust and reduced visibility.

Skid trails would utilize old existing trails and would be designated prior to operations. Use of ground based equipment (e.g. crawler tractors, skidders, feller bunchers, forwarders, etc.), would not be allowed when it is determined that damage is occurring to the soil due to operating procedures or high soil moisture content. Skid trail intervals would generally range ±100 feet, keeping them to a minimum width necessary to prevent damage to reserve trees, buffer strips, snags, wildlife habitat, etc. Following operations all skid trails would be water barred, decompacted where necessary and seeded using a certified weed-free seed mix.

Two main haul roads in the project area (approx. 1 mile on the west and 1.6 miles on east) would be maintained post-harvest to allow for administrative use to facilitate future maintenance needs of the recreation site (Appendix D: Map 4 *Forestry Administrative Roads*). All roads would be treated using certified weed-free seed mixes to help prevent the establishment of noxious weeds. Roads not used for administrative use would also be water barred and decompacted where necessary.

Noxious Weeds
Preventing any new weeds species from entering the project area is a high priority. 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 roadways.) All haul routes, skid trails (except the travel way on surfaced roads) and areas prone to weed invasion would be seeded in a manner that optimizes plant establishment for that specific site, using a certified weed-free seed mix that includes fast-growing, early season species to provide quick and dense re-vegetation.

Preventing Unauthorized Non-motorized Vehicle Use
All access points to the sale area are controlled by pre-existing locked gates. Gates would be kept closed and locked during periods when hauling is not occurring to prevent unauthorized use.

Riparian Buffers
Riparian conservation area (RCA) buffers 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 lake.

Landings
The BLM would require the timber sale operator to construct landings according to the approved logging plan.

Reforestation
Reforestation would be planned in areas were openings are larger than 3 acres in size across the entire project area and depending on availability of funding and seed supply. Planted

species composition and planting density would be described in a silvicultural prescription for each unit, but in general would be planted to a density of 300 trees per acre, with species composed mostly of ponderosa pine, western white pine and western larch.

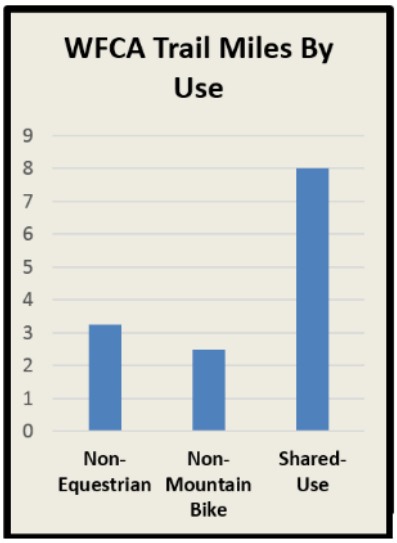
Slash Treatments
On average a minimum of fifteen (15) tons of residual slash (all size classes) per acre would be dispersed during harvest operations where possible to act as an erosion control measure and for nutrient cycling (Graham 1994). Primarily, trees would be whole tree yarded to designated landings; however, if 15 tons per acre is not being achieved, the contractor would process trees at the stump rather than at the landing to increase the residual slash (see above *Harvest Methods*). Breakage of brittle limbs and tops during felling and skidding would contribute most, if not all of the slash needed. Slash piles at landings would be burned following the completion of harvest operations and after approval of a prescribed fire burn plan.

Down Woody Material
Dependent on the cover type (see *wildlife design features* below) an adequate amount of logs ≥ 14 inches (or largest available) per acre would be retained to aid in forest productivity and to provide habitat for plants and animals (Stevens 1997).

Recreation

Trails
During the scoping process the public helped identify potential additional uses for the west side of the WFCA. The total designated trail miles for the WFCA would be approximately 13 miles (see Table 2).

Table 2. Total Proposed Trail Miles



Under this alternative, user-created trails that are not designated would be reclaimed, barricaded, and signed to indicate closure.

<u>Trails on the west side</u>
All trails would be open to hiking. However, the west side would have trail specific designations to reduce potential user conflicts between equestrian and mountain bike users (see Appendix K: Map 11 *West Side Trail Designations*). Trails where mountain bike use would be emphasized would be closed to equestrian use. Trails where equestrian use would be emphasized would be closed to mountain bikes. Mark Brunson from Utah State University (1998, p.11) described ways to resolve conflict as, "Initial efforts are likely to focus on education/information campaigns, often in conjunction with increased enforcement of existing regulations. If those fail, managers may change rules that segregate or otherwise restrict some or all recreation uses, or they may seek solutions through design or construction of on-site facilities." The area would have education and informational signs to inform recreationalists of the trail designations.

The west side would see approximately 4-6 miles of designated trail. The shared-use trails and trails closed to equestrian use, identified in Appendix K, are conceptual and illustrate a potential trail network, while the trails closed to mountain bikes are user-created and are currently on the landscape.

The BLM would designate between 2-3 miles of trails closed to mountain bikes, which are labeled in Appendix K as grey. These trails are primarily located south of the powerline corridor following existing user-created trails. Although a user-created trail system exists, for these trails the BLM would improve sustainability by following design parameters outlined in the *USFS Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds* (USFS 2007). The guidebook also refers to trail classifications and the equine/hike trails would fall under class two and three (see Figure 3 below).

Trail Attributes	Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
	General Criteria: Physical characteristics to be applied to all National Forest System trails				
Tread & traffic flow	★ Tread intermittent and often indistinct ★ May require route finding ★ Native materials only	★ Tread discernible and continuous and rough ★ Few or no allowances for passing ★ Native materials	★ Tread obvious and continuous ★ Width accommodates unhindered one-lane travel (occasional allowances constructed for passing) ★ Typically native materials	★ Tread wide and relatively smooth with few irregularities ★ Width may consistently accommodate two-lane travel ★ Native or imported materials ★ May be hardened	★ Width generally accommodates two-lane travel, or provides frequent passing turnouts ★ Commonly hardened with asphalt or other imported material
Obstacles	★ Obstacles common ★ Narrow passages; brush, steep grades, rocks and logs present	★ Obstacles occasionally present ★ Blockages cleared to define route and protect resources ★ Vegetation may encroach into trailway	★ Obstacles infrequent ★ Vegetation cleared outside of trailway	★ Few or no obstacles exist ★ Grades typically <12% ★ Vegetation cleared outside of trailway	★ No obstacles ★ Grades typically <8%
Constructed features & trail elements	★ Minimal to non-existent ★ Drainage is functional ★ No constructed bridges or foot crossings	★ Structures are of limited size, scale, and number ★ Drainage functional ★ Structures adequate to protect trail infrastructure and resources ★ Primitive foot crossings and fords	★ Trail structures (walls, steps, drainage, raised trail) may be common and substantial ★ Trail bridges as needed for resource protection and appropriate access ★ Generally native materials used in Wilderness	★ Structures frequent and substantial ★ Substantial trail bridges are appropriate at water crossings ★ Trailside amenities may be present	★ Structures frequent or continuous; may include curbs, handrails, trailside amenities, and boardwalks ★ Drainage structures frequent; may include culverts and road-like designs
Signs	★ Minimum required ★ Generally limited to regulation and resource protection ★ No destination signs present	★ Minimum required for basic direction ★ Generally limited to regulation and resource protection ★ Typically very few or no destination signs present	★ Regulation, resource protection, user reassurance ★ Directional signs at junctions, or when confusion is likely ★ Destination signs typically present ★ Informational and interpretive signs may be present outside Wilderness	★ Wide variety of signs likely present ★ Informational signs likely (outside of Wilderness) ★ Trail Universal Access information likely displayed at trailhead	★ Wide variety of signage is present ★ Information and interpretive signs likely ★ Trail Universal Access information is typically displayed at trailhead
Typical recreation environs & experience	★ Natural, unmodified ★ ROS: Often Primitive setting, but may occur in other ROS settings ★ WROS: Primitive	★ Natural, essentially unmodified ★ ROS: Typically Primitive to Semi-Primitive setting ★ WROS: Primitive to Semi-Primitive	★ Natural, primarily unmodified ★ ROS: Typically Semi-Primitive to Roaded Natural setting ★ WROS: Semi-Primitive to Transition	★ May be modified ★ ROS: Typically Roaded Natural to Rural setting ★ WROS: Transition (rarely present in Wilderness)	★ Can be highly modified ★ ROS: Typically Rural to Urban setting ★ Commonly associated with Visitor Centers or high-use recreation sites ★ Not present in Wilderness

Figure 3. US Forest Service Trail Class Criteria (USFS 2007)

The trails would be improved to follow the guidelines listed under the Designing Trail Elements section within the USFS Guidebook. Sightlines, slope, trail tread, tread width, etc. would be elements of the trail addressed to help develop and maintain a sustainable trail network. See figure 4 below of standard trail widths for equestrian trails.

Trail element	Low development (feet)	Moderate development (feet)	High development (feet)
Tread width	1.5 to 2	3 to 6	8 to 12
Clearing width (horizontal)	5.5 to 8 (Tread plus 2 to 3 feet to each side)	9 to 12 (Tread plus 3 feet to each side)	14 to 18 (Tread plus 3 feet to each side)
Overhead clearance (vertical)	10	10 to 12	10 to 12

Figure 4. Standard Equestrian Trail Width

The BLM would also designate approximately 2-3 miles of trails closed to equestrian use, located primarily north of the powerline corridor. These trails (labeled in green in Appendix K) would consist of directional trails beginning at the Bonnell Parking area heading north into the Mountain Bike Emphasis Area then tying into the trailhead at the bottom in the meadow. These trails would be built to accommodate beginner mountain bike riders with the intent to provide mountain bike experiences that are family friendly. The trail system would be evaluated to coincide with The Guidelines for a Quality Trail Experience (GQTE) (BLM 2017), IMBA's (2004) *Trails Solutions*, and IMBA's (2007) *Managing Mountain Biking.* The trails would be constructed with hand tools and heavy equipment where needed (e.g., mini excavator, trail dozer, etc.).

There would also be a 1.48 mile shared-use trail (labeled in turquoise in Appendix K: Map 11 *West Side Trail Designations*) that would follow the south perimeter of the property to allow for all users to safely travel back to the top of the property from the Meadow Parking Area without having to travel on the paved road. The trail's tread width, grade, and sightlines would be constructed in a manner to accommodate shared-use. Only directional mountain bike use from the Meadow Parking to the Bonnell Parking would be allowed to reduce potential conflicts on the shared-use trail.

Trails on the east side

The east side currently has 4.2 miles of shared-use designated trails on the landscape (labeled in blue in Appendix B: Map 2 *Recreation Proposed Action*). These trails would remain open for all non-motorized uses (excluding the 0.22 mile ADA trail which would be foot traffic and wheelchair access only).

To increase connectivity among the existing trail network and to provide views of Lake Coeur d'Alene, the BLM would add 1.25 miles of new shared-use designated trails to the east side trail system (trails labeled in brown in Appendix B: Map 2 *Recreation Proposed Action*). In addition to the trails labeled in brown, the BLM would construct a trail to link the west side trails with the east side trails (trail labeled in purple in Appendix B). This trail would begin at the Meadow Parking Area and traverse the upper portion of the meadow connecting to the Blue trail near the trailhead on East Yellowstone Trail. The stream crossing would include placement of rocks along the creek bottom to help armor the creek bed and construction of a small walking bridge (see Appendix B: Map 2 *Recreation Proposed Action*).

Kid Friendly Trail
A kid friendly beginner loop trail would be built near the existing trailhead on Yellowstone Road (Appendix L: Map 12 *Kid Friendly Trail*). This trail would be relatively flat with some rolling hills and berms. The kid friendly trail would be shared-use and be opened for winter activities (cross country skiing, fat bikes, snow shoeing, etc.) when adequate snow is present.

All new trails would have site-specific resource inventories completed before being constructed (see Table 3 for total acres of soil disturbance for existing trails and proposed trails).

Table 3. Trail Distances and Acres of Disturbance

Trails	User-created		Proposed Designations		Total Designated	
	Acres	Miles	Acres	Miles	Acres	Miles
West Side						
Closed to Equestrian	--	--	--	3.25	--	3.25
Closed to Mountain Bike	--	--	--	2.54	--	2.54
Shared-Use	--	*2.54	--	*1.48	--	1.48
Total		**2.54**		**7.27**	--	**7.27**
East Side						
Eastside Proposed Trails	--	1.38	--	1.38	--	1.38
Kid Friendly Loop				0.29	--	0.29
Connection Trail	--	--	--	0.58	--	0.58
Blue Trail	--	--	--	--	--	*2.60
Orange Trail	--	--	--	--	--	*1.10
Red Trail	--	--	--	--	--	*0.50
**Meadow Trail (ADA)	--	--	--	--	--	*0.22
Total		**1.38**		**2.25**	--	**6.67**
Grand Total	**0.95**	**3.92**	**2.16**	**8.92**	**3.38**	**13.94**

** Portions of trail follow old roads*
*** ADA accessible and limited to hiking/wheelchair access*

Trailheads/Parking
Existing Trailheads/Parking
There are currently three designated trailheads/parking areas for the trail network. The first trailhead offers access to the east side trails and is located on East Yellowstone Trail. The second trailhead is more centralized to the trail network located at the beginning of the Meadow Trail. The third trailhead is located on the old log landing road which provides day-use recreation on Lake Coeur d'Alene along with access to the trail network. There is an undeveloped parking area located at the beginning of the Red Trail. This parking is currently on the shoulder of the road with minimal room to park (see Appendix M: Map 13 *Parking Locations*).

Proposed Trailheads/Parking
A new 0.5 acre trailhead/parking area would be constructed at the top of the west side trail network just off of the Bonnell Road (see Appendix N: *Bonnell Parking Concept*). The new

parking area would be constructed to provide for a more safe and adequate place to park. The parking area would consist of approximately 7 parking stalls along with a turnaround area that would accommodate 2-3 truck and trailer parking. The trailhead would be constructed with a road base type material, post and pole fence or boulders for controlled access and to help delineate parking, an informational kiosk and a restroom. The trailhead would be accessible for low clearance vehicles and large enough to accommodate truck and trailer parking. Vegetation would be left, and planted where needed, adjacent to the road to provide screening. An interpretive panel would be installed at the new parking area to inform the public about the WFCA area, the trail designations, trail etiquettes, and regulatory information.

The lower Meadow trailhead would be expanded to 0.3 acres to allow for 18 vehicles while also providing 4 accessible parking spaces for the Meadow Trail leading to the wildlife viewing platform (see Appendix O: *Meadow Parking Concept*). This trailhead would be central to the WFCA and have trails that lead to the east and west sides. An interpretive panel would be installed at the parking area to inform the public about the WFCA area, the trail designations, trail etiquettes, and regulatory information.

The parking area located at the beginning of the Red Trail is limited to the side of the road with minimal room to park. This parking area would be located up the road and widened to allow visitors to park further off the shoulder of the road (see Appendix P: Map 14 *Red Trail Parking*). An interpretive panel would be installed at the parking area to inform the public about the WFCA area, the trail designations, trail etiquettes, and regulatory information.

6.1.1 Environmental Design Features

All vegetation treatments would follow established agency management plans, policies, and procedures, including the Best Management Practices (BMP) identified in the CDA RMP (2007) as well as the rules pertaining to the Idaho Forest Practices Act (Idaho Administrative Code, Title 38, Chapter 13). In addition to the treatments included in the Forestry and Recreation sections above (Section 6.1), the following design features would be implemented to avoid or minimize potential impacts to resources:

Air Quality

- Conduct prescribed fires in accordance with the procedures outlined in the *Montana/Idaho State Airshed Group Operating Guide* (Montana/Idaho Airshed Group 2010) in order to minimize air quality impacts from smoke on local communities and individuals.
- Employ dust abatement measures on roads to reduce dust. Coordinate with East Side Highway District for implementation on county roads.
- Ensure that any hand or machine piles of combustible materials do not include any petroleum based products, as outlined in the Department of Environmental Quality 58-01.01 Rules for the Control of Air Pollution in Idaho.

Cultural

- Coordination with the BLM District Archeologist will occur in order to protect cultural sites. Buffering and/or avoidance around known sites would occur prior to and during, logging operations, recreation trail route modifications and riparian planting.

Invasive, Non-native species

- The BLM would reduce sources of weed seed and/or plant parts and minimize risk of spreading existing infestations by treating pre-existing weed populations prior to project activities as described for the Integrated Weed and Vegetation Management program in Environmental Assessment #ID-410-2008-EA-224 (BLM 2008a).
- Mechanized equipment would be cleaned by power washing at an approved location before entering public lands. All equipment would be cleaned before leaving the project site if operating in areas infested with weeds. Where mechanized equipment results in a trail wider than desired, the excess width would be rehabilitated with an appropriate seed mix to create desired tread width.
- Monitoring- After fuels treatment activities, the BLM 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 (BLM 2008a).

Rare and Special Status Plants, and Pollinators

- The BLM District Botanist will coordinate with the Project Leads and District Fuels staff throughout project implementation, to ensure the pine broomrape occurrences are not negatively impacted. The District Botanist will be on-site during prescribed burn activities as a Resource Advisor, if appropriate.
- A fence would be erected to protect the clustered lady's-slipper orchid population that grows next to a proposed "brown" trail on the east side of the project area.
- Weed treatments will be coordinated with the District Botanist to reduce potential impacts to the rare plant populations. Herbicides that may be used to reduce the weed threats associated with this project should be carefully planned and applied as described for the Integrated Weed and Vegetation Management program in Environmental Assessment #ID-410-2008-EA-224 (BLM 2008a); otherwise, they could have detrimental effects on non-target (especially BLM Sensitive) plant populations.
- The BLM will monitor the rare plant occurrences during and after the project is completed.
- The BLM would conduct post-project monitoring of pollinator habitat.

Safety

- Areas immediately around active treatments would be temporarily closed and signed to ensure public safety during the implementation phase; however, in order to maintain non-motorized recreational opportunities, areas that are not currently undergoing active vegetation treatments will remain open for use.

Soils and Water Resources

- Forest treatment activities will not occur when soil moisture is greater than 25%.
- To be sustainable, proposed trails would require curvilinear design principles to help prevent a fall-line type trail. (A curvilinear trail is one aligned to follow the natural contours of the slope.) This trail design would allow the trail to gain elevation gradually in conjunction with the natural contours of the terrain. This type of design generally minimizes maintenance, preserves the natural resource, and makes use of natural drainage patterns.
- Where practical trails would be built to meet the guidelines illustrated in the 2017 The Guidelines for a Quality Trail Experience (GQTE). The trails would be constructed in a fashion that would prevent fall-line type trails in order to minimize erosion.
- Where practical trail construction and corridors would be built in accordance with section six of IMBA Trails Solutions Guidelines and sections three and four of the USFS Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds. This includes switchbacks, insloped turns, bench cuts, corridor heights and widths, etc.
- Where practical grades would be controlled to create sustainable trails. IMBA's five essential elements of a sustainable trail would be implemented to control grade and prevent erosion. The five essential elements are as follows:
    - The Half Rule: A trail's grade would not exceed half the grade of the sideslope that the trail traverses, with rare exceptions.
    - The Ten Percent Average Guideline: Trails would be constructed such that their *average* grade would not exceed ten percent.
    - Maximum Sustainable Trail Grade: Grade would rarely, if ever, exceed 15 to 20 percent and then only if local conditions (rock armor, etc.) would support the grade as sustainable.
    - Grade Reversals: Incorporate grade reversals (spot at which trail levels out then changes direction for 10 to 50 feet before rising again) to force water to exit the trail at the lowest point before it can gain volume, momentum and erosive power.
    - Outslopes: Trails would be constructed such that lower edge of tread would tilt slightly down and away from the high side, allowing water to sheet across and off the trail rather than down its center.
- Loamy type soils would be targeted for the area where the trails would be built. Silt, clay, and sand would be avoided when possible.

Recreation

- Technical mountain bike trail features would be built in a manner that allows for optional lines. The users would be able to choose to ride the feature or simply stay on the trail. The technical trail features would be constructed while using the guidelines from the GQTE.
- In order to maintain non-motorized recreational opportunities, areas that are not currently undergoing active vegetation treatments will remain open for use.

Visual Resources

- Trees harvested within fifty feet of trail systems and parking areas will be severed at ground level to reduce the visual impacts of stumps following logging operations.

Wildlife

- To reduce impacts to Migratory Birds, vegetation cutting and piling will not occur between April 1 and July 15.
- Snags would be retained for wildlife purposes in accordance with the RMP, as shown in Table 4 below for the appropriate cover type. Snags may be left as individuals scattered throughout the harvest unit or left in unharvested patches of varying sizes within units. Silvicultural prescriptions would emphasize the retention of snags ≥14 inches in diameter across the harvested units.

Table 4. Snag retention guidelines for cover type identified in the CDA RMP

Cover Type	Tree Species Typically Represented	Snags/acre*
Wet Cold Conifer	Western white pine, lodgepole pine, western larch, grand fir, Douglas-fir	8.1
Dry Conifer	Ponderosa pine, lodgepole, Douglas-fir, grand fir, western white pine	3.3
Wet Warm Conifer	Western redcedar, western hemlock, western white pine	5.4

**Minimum Snag Height 30'*

- To provide or improve grouse habitat logs ≥ 14 inches (or largest available) would be maintained for the cover types specifications in Table 5:

Table 5. Log Retention by cover type

Cover Type	Logs/acre
Wet Cold Conifer	10.1
Dry Conifer	3.9
Wet Warm Conifer	7.8

- Logging activities would cease within the vicinity of any raptor nests that are found by loggers, contractors or field office personnel. Nests would be reported to the BLM Field Office Biologist who will flag a buffer around it. No activity will be permitted within the buffer until after the nesting attempt is complete.
- High value snags that are a hazard to loggers should be marked and a no-treatment safety zone established so that cutting them is unnecessary.
- Maintain a 75 foot buffer of vegetation around existing ponds.
- To address impacted habitat at the creek crossing in the meadow, riparian vegetation will be planted adjacent to the stream channel, downstream from the trail crossing. Plantings will include riparian shrubs and trees and will enhance and expand existing riparian habitat downstream from the area disturbed by recreational use.

6.2 Alternative B (No Forestry Treatment on Western Portion of the Ownership, No Prescribed Burning and No Parking Off Bonnell Road)

This alternative is the same as the proposed action, except it would include no forestry treatment on the western portion of the ownership and a recreation alternative removing the parking off Bonnell road. All design features would remain the same as in the Proposed Action for both forestry and recreation.

Forestry

This alternative considers timber harvesting only in the eastern portion of the ownership, not incorporating a prescribed burn, (Appendix E: Map 5 *Forestry Alternative B*) and creating a 200 foot fuel break on the western portion of the ownership. Areas not treated would be left as reserve areas. Compared to the proposed action of treating a total of 616 acres, this alternative would only be treating 483 acres (see Table 6 below) within 4 units. Timber harvest would remove approximately 1.6 million board feet from 412 acres. Haul roads for treatment on the eastern portion of the ownership would be the same as described in Alternative A (Appendix C: Map 3 *Forestry-Proposed Action Roads).* All of the techniques and design features included in the proposed action above would be carried through in this alternative.

Table 6. Alternative B: Units, Harvest Methods, and Vegetation Treatments

Unit	Harvest Method	Vegetative Treatment	Acres
4	Tractor/Short Cable	Variable Density	346
5	Tractor/Short Cable	Selective Cut	67
6	Hand Cutting	200' Fuel Break	70
8		Reserve Area	268*
		Total Treatment Area	**483**

**Not included in total treatment area*

Recreation

Alternative B would be similar to Alternative A except there would be no improved parking area (Appendix F: Map 6 *Recreation Alternative B*). Additionally, administrative roads discussed in Alternative A would be maintained for future site maintenance (Appendix D: Map 4-*Forestry Administrative Roads).*

6.3 Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Some public comments received during the review of the original EA proposed emphasizing mountain bike use on the east side of the WFCA and prohibiting mountain bikes on the west side. In response, the BLM developed Alternative C.

Forestry

Under this alternative the forest vegetation treatments would be the same as those outlined under Alternative A.

Recreation

Appendix J: Map 10 *Recreation Alternative C* shows the proposed trail designations and recreational developments under Alternative C.

Trails

All trails would be open to hiking. Trails on the east side of the WFCA would be designated closed to equestrian use, but open to all other non-motorized types of travel including mountain bikes. All of the trails located on the east side would have the same footprint as described under Alternative A for a total designation of 6.16 miles. The trails on the west side would be closed to mountain bike use, but open to all other non-motorized travel including equestrian. The west side trail system would be the same as Alternative A except there would be no additional trails developed north of the powerline. Total length of the designated trails on the west side would be approximately 4.73 miles. The 0.58 mile connector trail that bisects the meadow from the

meadow parking area to the Yellowstone Road parking area would be open to all non-motorized types of travel.

Skills Park
This area would be a special-use area that features a variety of technical trail features. These features are obstacles on the trail that require negotiation; the feature can be either built or natural, such as an elevated bridge or rock face (IMBA 2004). The footprint for the skills park would encompass 3.0 acres (Appendix J: Map 10 *Recreation Alternative C*) and would be developed on the east side near the E. Yellowstone parking area.

Trail Head/Parking
Parking areas would be developed as described under Alternative A, except there would be no parking area developed off of Bonnell Road. Existing parking off of E. Yellowstone Trail would remain available for equestrian users, who can access the west side via the proposed connection trail which would cross the meadow.

6.4 Alternative D (No Action)

Under this alternative, the BLM would not implement forest vegetation treatments, fuels reduction treatments or recreational developments.

6.5 Summary and Comparison of Alternatives

Table 7 summarizes and compares the major actions described under each alternative. Although not shown in the table, all of the action alternatives would include the design features described in Section 6.1.1.

Table 7: Summary Comparison of Alternatives

Action	Alt A Proposed Action	Alt B	Alt C	Alt D No Action
FORESTRY				
Total Vegetation Treatment (acres)	616	483	616	None
Fuel Break (acres)	33	70	33	None
Prescribed Burn (acres)	57	None	57	None
Wildlife Reserve (acres)	135	268	135	N/A
RECREATION				
Designated Trails West Side (miles)	3.25 Closed to Equestrian 2.54 Closed to Mtn Bike 1.48 Shared Use **7.27 Total**	Same as A	4.73 Closed to Mtn Bike/**Total**	None
Designated Trails East Side* (miles)	6.45 Shared Use/**Total**	Same as A	6.16 Closed to Equestrian 0.58 Shared Use **6.74 Total**	4.42 Shared Use
Other Recreation Features	Kid Friendly Loop (east) E/W Connection Trail Stream Crossing/Bridge	Same as A	Bike Skills Park (east) E/W Connection Trail Stream Crossing/Bridge	None
Trailhead/Parking Areas	E. Yellowstone (existing) Meadow (improved) Red Trail (improved) Bonnell Rd (new)	E. Yellowstone (existing) Meadow (improved) Red Trail (improved)	Same as B	E. Yellowstone (existing) Meadow (existing) Red Trail (existing)

**Includes previously designated trails*

6.6 Alternatives Considered but not Analyzed in Detail

6.6.1 Proposed Action from the Original EA

The proposed action (Alternative A) of this revised EA includes the same forest vegetation treatments that were outlined in the proposed action of the original EA. However, there are a number of changes to the recreation portion. The revised proposed action does not include single use designations for trails, a skills park around the parking area/trail head off Bonnell Road. The original proposed action did not include a kid-friendly trail on the east side or some of the additional design features to mitigate impacts that are included in the revised proposed action. The BLM did not carry the proposed action from the original EA forward for analysis because it did not address concerns raised during the public review and comment period.

6.6.2 Parking Area/Trail Head Located North of Yellowstone Trail.

The BLM considered an alternative that would include construction of a parking area/trail head north of Yellowstone Trail on the west side, near the intersection of Yellowtone Trial and Sunnyside Road. The intention would have been to provide an alternative to the proposed Bonnell Parking Area to support users of the west side trails. However, examination of this location indicates that this site would not support such a facility due to seasonally wet and erodible soil, and unsafe sight lines for access to Yellowstone Trail. Therefore, the BLM did not carry this alternative forward for detailed analysis.

7.0 Affected Environment and Environmental Effects

7.1 Scope of Analysis

Affected Environment

The purpose of the affected environment sections is to describe the existing environment potentially affected by the alternatives. The affected environment of this EA was considered and analyzed by an interdisciplinary team of resource specialists. The resources identified and discussed in this chapter were derived from the issues (see Section 5.2.1) and include the relevant physical and biological conditions that may be impacted with implementation of the alternatives and provides the baseline for comparison of the environmental consequences.

Environmental Effects

The potential consequences, or effects, of all alternatives are discussed after each resources affected environment. Impacts are defined as modifications to the existing condition of the environment and/or probable future condition that would be brought about by implementation of one of the alternatives. The intent is to provide the scientific and analytical basis for comparison of the effects of each alternative.

Impacts can be direct or indirect; direct impacts are those effects that are caused by the action or alternative and occur at the same time and place, while indirect effects are those effects that are caused by or would result from an alternative and are later in time or further removed in distance,

but that are still reasonably certain to occur. Cumulative effects are generally assessed using the environmental impacts of past, present, or reasonably foreseeable future actions within the project area.

The impact analyses in the following sections were based on knowledge of the resources and the project area, review of existing literature, information provided by experts and other agencies, and professional judgment.

7.1.1 General Setting

The project is located at Blue Creek Bay within the WFCA. The property contains 751 acres of BLM lands approximately 10 miles east of Coeur d'Alene, ID and is surrounded on all sides by privately owned land. High concentrations of houses are located on the western boundary along Bonnell Road and along the western shoreline of Blue Creek Bay.

Within the Blue Creek/Folsom Creek drainage the United States Forest Service (USFS) manages the upper portion of the drainage; the middle is a combination of commercial forest lands and other private lands, while the BLM manages the bottom of the drainage. Combinations of paved and gravel county roads (E. Yellowstone Road and the E. Landings Road) bisect or surround the ownership (E. Yellowstone Trail, Bonnell Road, E. Sunnyside Road, and Folsom Road).

The primary use of the WFCA is for recreational purposes. Currently a developed trail system exists within portions of the eastern side (4.2 miles) while a user created trail system exists on the western side. A developed trailhead/parking area is located off East Yellowstone Trail and is primarily used to access the upland trail system. A day-use area is located on the southeastern side of the bay with mooring docks, picnic tables and a vault toilet. In addition to the trailhead and day-use area, on the western edge of the meadow a trail leads to a viewing deck.

The project area includes a low elevation meadow at 2,100 feet elevation, comprised primarily of perennial grasses and riparian vegetation, as well as mid-elevation areas (2,200 to 2,800 feet) of mixed conifer forest types. The area contains all aspects and slopes varying from 0 to 60 percent.

7.1.2 Related Past, Present, and Reasonably Foreseeable Actions

Past Actions

Human caused and natural events have had varying levels of impacts on the resources and values affected by the proposed vegetation project. As described in the background section, in the past the area was used for a wide variety of purposes from haying and livestock grazing to logging. The channel within the meadow was straightened and bermed for hay production. Several range improvements, including a stock pond and a log-fence corral, were installed in the eastern portion of the area, and there is an old barn near the parking area and trail on the west side. The BLM has implemented or is planning several projects within the general area of WFCA.

Portions of the Mullan Road occur within the BLM ownership. The road was constructed between 1859 and 1862 and was the first engineered road connecting the Great Plains with the

Northwest. Yellowstone Trail, which runs through and adjacent to the area was part of the first highway through North Idaho and was built between 1914 and 1916 (Kootenai County 2016).

Prior to the BLMs acquisition several utility easements were granted to include:

- Buried Phone Cable - runs from western ownership across the meadow into the east side of the ownership.
- Power Transmission Lines - several lines bisect the western ownership and continue through the east side of the ownership.

Following the ice storms of 1996 and a series of wind events roughly 1 million board feet of volume were removed on 500 acres in the eastern portion of the BLM ownership. The material removed was primarily wind thrown, broken topped trees, and trees killed by insects.

In 2003, BLM and Eastside Highway District partnered on a project to reduce sediment loading from an actively eroding hillslope adjacent to Sunnyside Road (also referred to as Rocky Canyon). The road and creek were both moved laterally away from the slope and the toe was buttressed with rock. This has substantially reduced sediment input into Blue Creek.

As described in the previous section, the BLM has also constructed some recreational facilities and designated trails on the eastern portion of the area. The BLM also installed barbed wire fencing around portions of the eastern side and locked existing gates to prevent unauthorized motorized vehicle use. These facilities and their effects were described and analyzed by the BLM in and EA in 2008 (BLM 2008b). The BLM also recently issued a Special Recreation Permit in the area for a fat bike event which happens in early December. Letters of Agreement have been put into place for Kootenai County Search and Rescue training and for some local groups to conduct environmental education programs.

BLM and Eastside Highway District have also partnered on culvert upgrades where Blue Creek flows under Yellowstone Trail Road (2009) and where Folsom Creek flows under the landing road (2016).

Supplemental rules pertaining to the Blue Creek Recreation Management Area (WFCA) were published in the *Federal Register* in December 2010 (See Section 4.3).

Across the lake in Wolf Lodge Bay, the BLM recently conducted fuels reduction activities on 74 acres of BLM lands at the Mineral Ridge Recreation Area. Treatments included slashing and piling of small diameter understory tree species (primarily Douglas-fir and grand fir) and the creation of a fuel break to protect people, property, and legacy trees from wildfire, while retaining recreational values and uses of the area. It is anticipated that in the winter of 2016 piles created from slashing will be burnt.

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

In 2016, the BLM approved the location of an administrative access road to a designated brush/slash disposal site off Yellowstone Trail Road.

Present Actions

Gravel and paved County Roads run through and adjacent to the area and are used by local residents, recreational users, and for travel to other areas. Interstate 90 is a major thoroughfare that runs west to east and is within a tenth of mile from portions of the BLM ownership.

Rural trash collection occurs at the intersection of Yellowstone Trail Road and Blue Creek Road and serves the residents in the area.

Residents live along the western shoreline with docks and rural developments to the west and east of the project area; as well as several home sites located along the western ownership.

Blue Creek Bay has a high amount of recreational use which includes: boating, fishing, and other water recreational.

The Bureau of Land Management provided a letter of support to the Eastside Highway District (ESHD) for their proposal to improve roads in the area through the Federal Lands Access Program (FLAP) which provides safe and adequate transportation access to and through Federal Lands for visitors, recreationists, and resource users.

Reasonably Foreseeable Actions

Implementation from the 2009 Blue Creek Bay Recreation Project Plan Environmental Assessment, paving of the ADA trail should occur when funding becomes available.

7.1.3 Analytical assumptions

The BLM made the following assumptions when conducting the effects analysis:

- If the BLM provides more recreational facilities and parking areas, use of the area will increase.
- If no vegetation treatment occurs, an intense stand-replacing wildland fire would occur in the future.
- Under the No Action Alternative, current recreational use would continue and increase due to local population growth and recreation demand.
- Mountain bikers will likely prefer to use the shared use connector trial to return to the top of the west side trail system rather than using the main roads and competing with automobile traffic.

7.2 Air Quality

7.2.1 Affected Environment

The analysis area for air quality includes Idaho Airshed No. 11 as defined by the Montana/Idaho Airshed Group (See Figure 5) and adjacent airsheds 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 prescribe burn activities through meteorological scheduling in order to ensure that cumulative air quality impacts are minimized.

Figure 5. Idaho Airshed and Impact Zones (MT/ID Airshed Group Operating Guide).

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 8). The Idaho Department of Environmental Quality (IDEQ) has included an additional standard for fluorides, bringing the applicable standards in Idaho to seven.

Table 8. National ambient air quality standards for PM 10 and PM 25.

PM_{10}	24-hour average Annual arithmetic Mean	$150\mu g/m^3$ revoked
$PM_{2.5}$	24-hour average Annual arithmetic Mean	$35\mu g/m^3$ $*12\mu g/m^3$

**On January 15, 2013 the EPA revised the primary annual PM2.5 standard, strengthening it from 15.0 micrograms per cubic meter (μg/m3) to 12.0 μg/m3 (78 FR 3086).*

The Blue Creek Bay project is located within 0.3 miles southeast of the Fernan Impact Zone and 15 miles west of the West Silver Valley non-attainment area (See Figure 6). Impact zones are created for populated areas where air quality concerns to public health arise as NAAQS are sometimes exceeded or close to exceeding. The EPA designated the West Silver Valley area as nonattainment for the 2012 annual PM2.5 standard. Residential wood combustion in the cold, winter months is most responsible for elevated particulate matter in the area, while prescribed burning in the late autumn and in the spring also contributes substantially. Smoke from wildfires can affect the area in the summer. Smoke from crop residue burning is a negligible contributor to PM2.5 in the Silver Valley. Figure 6 also shows the CALPUFF domain boundary, which is the extent for the air quality dispersion model used for this analysis.

The closest Class I air quality area is the Cabinet Mountains Wilderness, approximately 52 air 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.

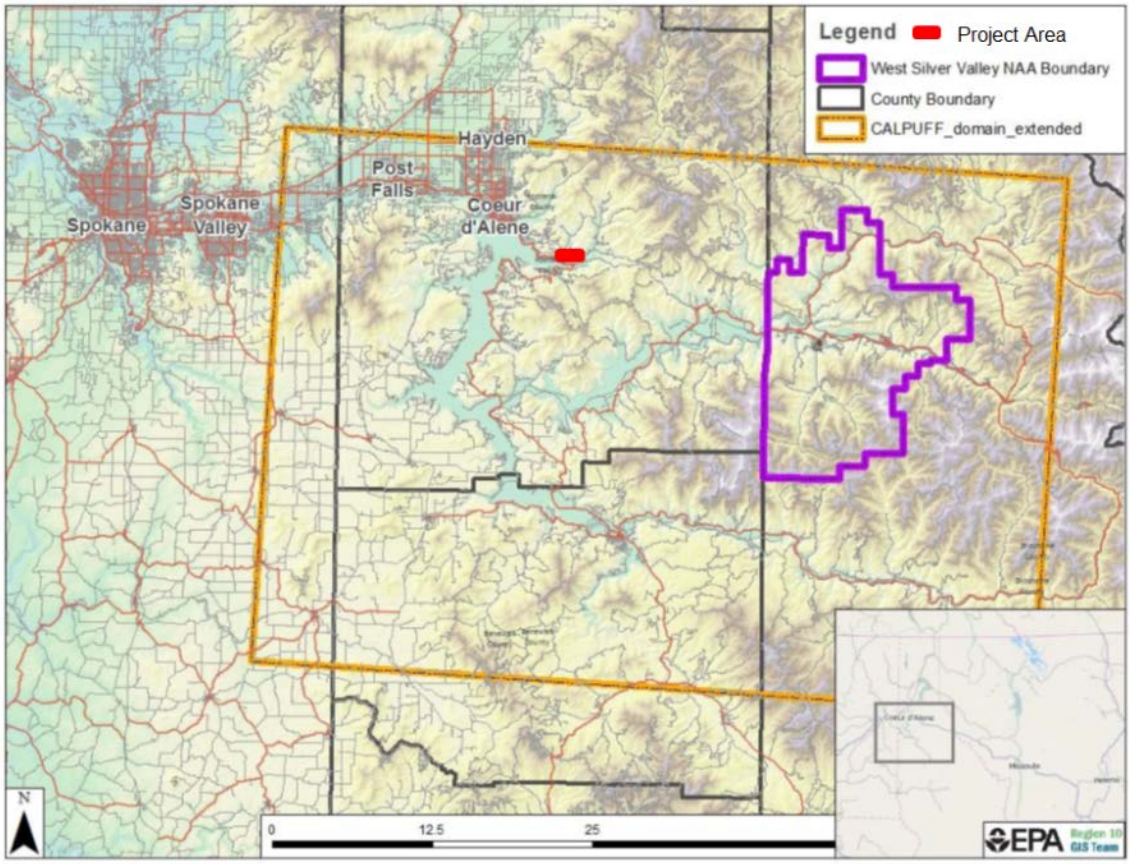


Figure 6. Location of the Blue Creek Bay project area in relation to EPA's Nonattainment boundary for the West Silver Valley Area.

7.2.2 Environmental Effects from Alternative A (Proposed Action)

The proposed action would include prescribed burning to reduce fuel loadings to an acceptable level. The resulting smoke would affect air quality. Three methods of prescribed burning would be used to accomplish fuel load reduction:

1. Landing pile burning would be used for timber sale activity created fuels. This type of burning concentrates slash in specific locations to minimize activity costs and reduce risk to residual trees. Slash is gathered and piled mechanically throughout the unit or at the landing. Piles are burned after a season of curing when the fuel moistures are low resulting in efficient combustion, thus lessened particulate matter. Due to the efficiency of fuel consumption in large piles, this type of burning has less effect on air quality compared to underburning slash.

2. Hand pile burning would be used for cleanup of fuels created from the understory thinning and pruning activities in the fuelbreak. Hand piles are generally small and are burned after a season of curing when the fuel moistures are low resulting in efficient combustion, thus lessened particulate matter. This method produces the least emissions.

3. Underburning would be used to reduce natural fuel accumulations on 57 acres. The objective is to reduce fuel loading while protecting the residual overstory trees from damage due to heat and flames. Choosing cooler prescription windows will limit the amount of fuel that in consumed as well as duration of the smoldering phase. This method of burning produces fewer emissions.

Particulate emissions production was calculated using the First Order Fire Effects Model (FOFEM). FOFEM predicts the quantity of natural or activity fuel consumed by prescribed fire and the resultant emissions. Fuel loadings are derived from forest cover type classifications as represented in the analysis area. FOFEM operates under the assumption that the entire area of concern experiences fire. For discontinuous burns, the results should be weighted by the percent of the area burned. For the purposes of this analysis, it is assumed that 60 percent of the acres to be treated by fire would actually produce particulate emissions.

The assumptions and methods used in FOFEM for modeling emissions were taken from Reinhardt et al. (1997). Emissions production depends both on fuel consumption and on the combustion efficiency of the fire. Therefore, it is important to note that emissions quantities are derived from tons of fuel consumed and not tons of fuel treated. FOFEM models emissions production, not visibility or dispersion. Categories of emissions estimated are PM 2.5 and PM 10. About 90 percent of PM 10 is actually in the PM 2.5 category (Peterson 2001). Idaho and Montana monitor for both categories, therefore the amount of both were modeled in this analysis. Emissions for pile burn were calculated using the online piled fuels biomass and emissions calculator (Wright et al. 2010).

Table 9. Expected smoke production for the Proposed Action (measured in PM 2.5 and PM 10) by burn type.

Burn Type	Acres treated	PM10 tons/acre	PM10 tons	PM2.5 tons/acre	PM2.5 tons
*Underburn natural fuels	57	0.1287	7.3359	0.1092	6.2244
**Burn landing piles	616	0.1308	80.5728	0.1112	68.4992
**Burn hand piles	33	0.0339	1.1187	0.0296	0.9768

**Emissions calculated using FOFEM*

***Emissions calculated using the online Piled Fuels Biomass and Emissions Calculator*

The Smoke Monitoring Unit coordinates prescribed burn activities through meteorological scheduling in order to ensure that cumulative air quality impacts are minimized. The different types of burning would be conducted during different burn windows, so would not impact the non-attainment area at the same time. Spring burning windows typically occur during warm weather, when there is less of a need for residents to burn wood to heat their homes.

Indirect effects would be a long-term decrease in fuel loading following implementation of the project. Therefore, there is likely to be a decrease in particulate matter emissions and the impairment of visibility from wildfires when they occur (See Table 10).

Table 10. Comparison of wildfire emissions between the Proposed Action and the No Action (FOFEM).

	Biomass Consumed tons/acre	PM10 tons/acre	PM2.5 tons/acre
Wildfire (Proposed Action)	5.8	0.15	0.177
Wildfire (No Action)	22.2	0.4615	0.545

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 from the proposed vegetation treatments would be limited to the project area and the access roads. Road dust from proposed recreation improvements would be limited to increased vehicular traffic on the main access road. The primary road through the project area is partially paved, the rest gravel surface and maintained by Kootenai County. It is utilized by private residents as well as recreationists. Air quality impacts from dust would be minor and short term with the application of BMP's, including dust abatement.

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 local roads. Production of dust is temporary and occurs only while activities are taking place within the project area. It would be the responsibility of the county to provide necessary dust abatement measures on the primary access road, if needed.

7.2.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Direct and indirect effects to air quality of Alternative B would be similar to Alternative A with slight reductions to acres of pile burning, with no understory burning, and thus less smoke production (See Table 11).

Table 11. Expected smoke production from Alternative B (measured in PM 2.5 and PM 10).

Burn Type	Acres treated	PM10 tons/acre	PM10 tons	PM2.5 tons/acre	PM2.5 tons
**Burn landing piles	412	0.1308	53.8896	0.1112	45.8144
**Burn hand piles	70	0.0339	2.3730	0.0296	2.0720

7.2.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Under Alternative C the forest vegetation treatments would be the same as Alternative A and the trail footprint would be the same as Alternative A therefore the impacts to air quality would be the same as described under Alternative A.

7.2.5 Environmental Effects from Alternative D (No Action)

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

Indirect effects would be that fuel loadings continue to increase and wildfires would continue to occur. Wildfires tend to burn much larger acreages than controlled prescribed fire does. Also, wildfires are not planned around other wildfire events or meteorological conditions that would allow for dispersion and transport away from impact zones. Wildfire occurrence without previous fuel reduction is likely to produce two to four times greater particulate matter emissions than would be generated by prescribed fire (Quigley and Arbelbide 1997) (see Table 10 above).

7.2.6 Cumulative Effects

The cumulative effects area for air quality is Airshed 11. Consideration of cumulative effects for air quality takes a different approach than for other resources. Past activities in the analysis area don't necessarily require consideration, except in the sense that use of existing roads and facilities may contribute to fugitive dust levels as described above. Present use of and activities in the analysis area are continuing with a current assessment of good to excellent air quality. Locally adverse and cumulative impacts to air quality could be expected if pile burning occurred in conjunction with on-going wildfires or other prescribed burning activities in and adjacent to the airshed. Other potential prescribed burning projects that could have an impact are listed in the beginning of this chapter (see Section 7.1.2). However, design measures and procedures outlined in the North Idaho Smoke Management Memorandum of Agreement are intended to increase the efficiency and effectiveness of communications about, and coordination of, prescribed burning to avoid adverse cumulative effects.

Dust impacts would be minimal during burning activities 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.

Under the No Action Alternative, 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 smoke emissions particulate matter to cumulative effects compared to the proposed action.

7.3 Cultural Resources

7.3.1 Affected Environment

An on-the-ground cultural resource inventory was completed. Five cultural resources were located and recorded. One site, Site 10KA0179, consists of sections of the Mullan Military Road characterized by deep trenches in the landscape. A historic log cabin, Site 10KA0646, was also located and is mostly deteriorated. Both of these sites are eligible to the National Register of Historic Places. Another site, Site 10KA0652, is a scatter of artifacts including cans and glass. The site is immediately adjacent to the private land boundary. Artifacts apparently have been tossed over the slope partially on BLM. Artifacts appear to continue into the 1960s. The dump is not associated with any historic structures or living areas on BLM. The dump is not considered eligible to the National Register of Historic Places. The fourth site, Site 10KA0645, is a concrete foundation with some associated historic artifact dumps. The concrete foundation has plumbing and an electrical pole. This site is not eligible to the National Register of Historic Places. Lastly, Site 10KA0619 is a corral that used railroad ties as posts. It is in poor condition now. There are no structures or living features associated with site. The site is not considered eligible to the National Register of Historic Places.

7.3.2 Environmental Effects from Alternative A (Proposed Action)

Timber management activities will not affect cultural resources because design features will be implemented to buffer any known cultural resources from potential impacts. Reducing the fuels loads should help to reduce the potential for wildfire and the associated fire suppression activities that can sometimes affect cultural resources.

Recreation activities proposed under this alternative that include designated trails and designated parking areas will not impact cultural resources since the designated trails and parking areas will avoid any known cultural resources. If any trail routes are modified a cultural resource evaluation will occur. Focusing recreation use on designated trails will benefit cultural resources by reducing the potential for uncontrolled user created trails across the landscape that could affect cultural resources.

7.3.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Although a high intensity fire is more likely to occur on the west side under this alternative it is assumed that there will be no significant effect to cultural resources from this alternative. A segment of the Mullan Road is located in this area and a fire burning over the road segment will not directly affect the physical characteristics of the road but could affect the setting of the site by changing the vegetation component of the area. Even with a potential change in vegetation

structure, it is not anticipated to be significant from the perspective of historic sites management. Fire suppression activities however could have a more detrimental effect to cultural resources. This likelihood could increase without some vegetation management and reduction of fuel loads on the west side.

7.3.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Effects will be the same as Alternative A (Proposed Action). Differing types of recreation use on the trails will have no effect to cultural resources.

7.3.5 Environmental Effects from Alternative D (No Action)

Although a high intensity fire is more likely to occur in the project area under this alternative it is assumed that there will be no significant effect to the Mullan Road from this alternative. A segment of the Mullan Road is located in this area and a fire burning over the road segment will not directly affect the physical characteristics of the road but could affect the setting of the site by changing the vegetation component of the area. Even with a potential change in vegetation structure it is not anticipated to be significant from the perspective of historic sites management. Fire suppression activities however could have a more detrimental effect to cultural resources. This likelihood could increase without some vegetation management and reduction of fuel loads on the west side and east side of the proposed project area.

The log cabin, 10KA0646, could be affected by a wildfire and the deteriorating logs could be destroyed. However, the buried archeological component could be left intact unless the intensity of the fire is so severe it burns deeper into the soil.

7.3.6 Cumulative Effects

Since there are no measurable effects to cultural resources there will be no cumulative effects.

7.4 Fisheries

7.4.1 Affected Environment

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

Thirteen native fishes inhabit the Coeur d'Alene Lake basin: northern pikeminnow (*Ptychocheilus oregonensis*), redside shiner (*Richardsonius balteatus*), cedar sculpin, *Cottus*

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

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

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

Currently, within the Coeur d'Alene Basin bull trout are found primarily in the upper portions of the St. Joe River subbasin (USFWS 2015a; USFWS 2015b), which contains spawning and rearing habitats. The current distribution is substantially less than the historical distribution. Bull trout were documented in nearly 60 streams and river reaches throughout the basin over 60 years ago (USFWS 2002), but have not been observed in many of these streams in recent years. Spawning and rearing appear to be concentrated in relatively few tributaries of the St. Joe River subbasin. Surveys conducted in 1994 and 1995, and more recently, have failed to detect the presence of bull trout within the Coeur d'Alene River subbasin. However, in 1998, two bull trout were caught in Black Lake, which is located in the lower portion of the Coeur d'Alene River subbasin and may provide coldwater refugia and a forage base for bull trout (USFWS 2002). Overall, within the Coeur d'Alene Basin, bull trout persist at low numbers in fragmented local populations (USFWS 2002; USFWS 2015a; USFWS 2015b).

Little is known about the role of Coeur d'Alene Lake in providing habitat for bull trout populations within the Coeur d'Alene Basin. Subadult and adult bull trout inhabit Coeur d'Alene Lake, which provides foraging, migration and overwintering habitat (USFWS 2010). Bull trout may use Blue Creek Bay in conjunction with the rest of Coeur d'Alene Lake though this has not been documented. Bull trout are not known or likely to use Blue Creek, which is

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

small, does not have suitable habitat to support bull trout spawning or rearing, and likely has water temperatures too warm to support bull trout for much of the year. Blue Creek is not bull trout designated critical habitat.

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

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

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

Other Fish Species: Many of the other fish species, both native and introduced, inhabit Blue Creek Bay and some likely use Blue Creek. As with bull trout and cutthroat trout, other native fish species have been affected to some extent by habitat degradation and introduction of non-native fish species.

7.4.2 Environmental Effects from Alternative A (Proposed Action)

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. Impacts to fish and aquatic habitat are most likely to occur if actions are conducted within RCAs.

Disturbance from timber and fuels management activities can result in impacts to fish and aquatic habitat. These activities have the potential to cause an increase in sediment and temperature in streams and to decrease the amount of large downed wood in the stream channel and riparian floodplain (Chamberlain et al. 1991; Everest et al. 1985; Meredith et al. 2014; Benda et al. 2003; Rieman et al. 2003; Wondzell and King 2003). However, since these actions are not proposed to occur within RCAs, fish and aquatic habitat would not be impacted. In addition, improving forest health and implementing fuels treatments would reduce the chance of

a large or stand replacing fire to occur in the project area, which would likely burn RCAs and could result in severe long-term impacts fish and aquatic resources (Rieman et al. 2003; Dunham et al. 2003; Gresswell 1999).

The proposed trailheads and trails all occur outside of RCAs with the exception of the trail connecting the east and west side trail systems. There are already several user created trails that cross Blue Creek, so encouraging use of only one of these would reduce impacts that are already occurring. Hardening the crossing and/or adding a footbridge would further reduce any sediment moving into the stream and no trees that provide shade or habitat would be removed. Adding trails to the system and increased parking will likely result in more recreational use of the area. However, since most of the use will be concentrated on the trail system, the additional use would not be expected to impact fish and aquatic habitat.

Threatened and Endangered Species: Lake Coeur d'Alene is designated critical habitat for bull trout and bull trout are known to inhabit the lake. Bull trout are unlikely to use Blue Creek, though subadult and adult bull trout may use Blue Creek Bay for foraging and overwintering. With the exception of improving the trail crossing Blue Creek, the proposed action would not occur within any RCAs and is not anticipated to impact fish or aquatic habitat. None of the proposed action would occur within bull trout critical habitat or would be expected to impact critical habitat. The project would have "no effect" on bull trout or bull trout designated critical habitat.

BLM Sensitive Species: Westslope cutthroat trout inhabit Blue Creek and Coeur d'Alene Lake (Streamnet). It is likely that cedar sculpin inhabit the stream and possibly the lake as well. The project is not expected to impact westslope cutthroat trout, cedar sculpin or their habitat because with the exception of improving the trail crossing Blue Creek, the proposed action would not occur within any RCAs and is not anticipated to impact fish or aquatic habitat.

Other Fish Species: Impacts on other fish species are not expected for the same reason described for sensitive species above.

7.4.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Impacts from Alternative B would be similar to those from Alternative A. There would be fewer disturbances due to less timber harvest, road renovation and trailhead construction. However, there may be a greater chance of a large or stand replacing fire occurring due to less forest health and fuels treatments. Alternative B would not be expected to impact bull trout, designated critical habitat or any other fish species.

7.4.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Under Alternative C the forest vegetation treatments would be the same as Alternative A and the trail footprint would be the same as Alternative A therefore the impacts to fish, aquatic species and habitat would be the same as described under Alternative A.

7.4.5 Environmental Effects from Alternative D (No Action)

Under this alternative no timber harvest, fuels treatments or recreation development would be implemented, so aquatic habitat conditions would remain in their current condition. However under both Alternative A and B the proposed actions were not anticipated to have impacts to fish or to adversely affect bull trout or their designated critical habitat. In addition, not implementing fuels and forest health treatments may result in a greater possibility of a large or stand replacing fire occurring, which could have harmful effects to the Blue Creek watershed and potentially Coeur d'Alene Lake, 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 or removal of streamside vegetation leading to increased water temperatures and reduced quality of aquatic habitat), it is possible that fish populations in the Blue Creek watershed, including westslope cutthroat trout and cedar sculpin, would be reduced. Impacts to Coeur d'Alene Lake could also occur, including adversely affecting bull trout designated critical habitat.

7.4.6 Cumulative Effects

Westslope cutthroat and bull trout stocks throughout the Coeur d'Alene Basin exist at a fraction of historic levels due to habitat degradation from activities such as logging, agriculture, development, and road construction. These activities have all occurred in the Blue Creek Bay Area, along with recreational activities, such as boating, fishing and hiking. Fishing pressure and introduction of non-native fish species have also contributed to reducing bull trout and cutthroat numbers (USFWS 2015a; USFWS 2015b; DuPont and Horner 2003). All these activities are expected to continue in the present and into the future. Mining, which probably has had the greatest impact on bull trout, westslope cutthroat trout, cedar sculpin and other native fish species, will likely have less of an impact in the future due to stronger regulations and ongoing restoration work occurring throughout the Coeur d'Alene Basin. Fishing pressure on bull trout and westslope cutthroat trout has been reduced due to catch and release regulations set by the Idaho Department of Fish and Game, so effects from fishing also should decrease in the future. Both of the action alternatives could incrementally add to these benefits by reducing the possibility of a large or stand replacing wildfire. Since adverse effects from the action alternatives are not anticipated to occur, no adverse cumulative effects are expected for fish or aquatic habitat.

7.5 Forest Vegetation

7.5.1 Affected Environment

Mosaics of almost all of the conifer tree species that occur in northern Idaho are present in the project area. The analysis area has a wide variety of geography and topography, from heavily forested mountainous areas to relatively flat prairie land to waterfront. Elevations range from 2100 feet up to 2800 feet.

The BLM Coeur d'Alene Field Office has identified current vegetation cover types for BLM managed lands and has correlated them to the Gap Analysis Program (US Geological Survey 2011) which mapped existing natural vegetation to the dominant and co-dominant plant species

within the area (BLM 2007). Within the WFCA four principal cover types exist and are represented in a mosaic across the area (see Appendix G: Map 7 *Cover Types*). The cover types mostly consist of dry conifer (524 acres), mixed conifer (82 acres), wet/cold conifer (55 acres) and perennial grass (90 acres) types. Vegetation cover types are used to describe the composition of forest vegetation thus relating to the condition (structure, composition and function) of the forested ecosystem.

Dry conifer types were historically dominated by open ponderosa pine forests that were maintained by low intensity fires occurring on average every 5 to 25 years. Fires consumed needle litter and killed understory trees. With the absence of fire due to suppression and early timber harvesting, a shift in composition from ponderosa pine dominated forest to denser forests of Douglas-fir and grand fir forest has occurred. Mixed conifer stands or wet/warm conifer types historically consisted of early seral species, western larch and western white pine; however currently this cover type is dominated by western red cedar, western hemlock and grand fir. Due to high stand densities, root diseases and blister rust this cover type is unhealthy. The wet/cold conifer type historically consisted of western white pine, western larch and lodgepole pine in lower elevations; however, due to introduction of the blister rust disease, logging and beetles over 90 percent of the white pine was lost (Neuenshwander et al. 1999). This cover type is now in poor health due to the loss of the white pine component and is being replaced by more disease susceptible species, primarily Douglas-fir and grand fir.

Quaking aspen is a widely distributed tree however; it only makes up two (2) percent of the Coeur d'Alene Field Office BLM managed lands and is a very small component of the WFCA. Aspen is an important species for wildlife as it provides habitat for birds and forage for ungulates. The species is relatively short lived and highly susceptible to competition from other understory plants and conifer encroachment. Aspen regeneration requires three fundamental factors hormonal stimulation, environment and protection (Shepperd 2001; Jones et al. 2005). Hormonal Stimulation can be through some type of disturbance (fire, mechanical). Environment references conditions necessary for growth and regeneration (increasing sunlight) and protection refers to protecting new aspen suckers from herbivory (fencing).

Vegetation within the project area prior to the acquisition had been disturbed by past forest management practices (logging, road construction, landings) and agricultural practices (haying and grazing); since BLM's management the primary use of the area has been geared towards recreational use (trails, trailheads, etc.).

The present forest composition is showing signs of decline in overall health and has become overstocked with Douglas-fir, grand fir, and small diameter ponderosa pine. The resulting condition is encroachment by small diameter trees into areas that were historically dominated by large diameter, lower density ponderosa pine and western white pine stands. Overstocking has increased fuel loadings, ladder fuels, and increased moisture stress in effect creating hazardous fuels conditions within the wildland urban interface. Moisture stress and overstocking have weakened the forest defenses and increased its susceptibility to insect attacks and pathogens (Clark et al. 2016), which continue to kill trees, many of which are located near county roads and along recreation trails.

7.5.2 Environmental Effects from Alternative A (Proposed Action)

Forestry

The proposed action would impact 616 acres of forest vegetation in the existing 751 acres of ownership and would transition the forest closer to its historical species mix, density, and vertical structure, making the area more resilient to insects, disease pathogens, drought stress, and wildfire. Immediately following harvest the residual trees should appear healthy with minimal damage from harvest activities.

Pre-Commercial Thinning (PCT)
Currently there are roughly 1125 trees per acre in the less than seven (7) inch size class with the primary species being grand fir. With the proposed action trees in the less than seven (7) inch size class would be thinned to a 16 x16 foot spacing leaving approximately 170 trees per acre favoring early seral ponderosa pine, western larch and western white pine. Early serial species would be more resilient to fire and insect and disease pathogens. By thinning when trees are young, diameter growth would be accelerated, a desired species composition would be maintained and there would be an increase of nutrient availability (Weiskittel 2009).

Variable Density Thinning (VDT)
The proposed action would retain approximately 32 trees per acre following implementation with the largest healthiest trees (≥24" diameter) remaining in the stand. Tree species favored (ponderosa pine, white pine and western larch) would be of a historic species mix creating a more fire resilient landscape. A combination of clumps and scattered individual trees based on prescriptions which would mimic clumped distributions and processes found in pre-settlement stands (Brown et al. 2004; Franklin 1997) allowing for better structure and function within the remaining stand. In thinned areas, growing space would increase following harvest activities allowing for more available light, water and nutrients to the residual trees (Oliver and Larson 1996) in effect creating a more defensible forest should a wildfire occur. By incorporating small scale skips, standing clumps of dead snags could be retained to provide habitat for wildlife, become future coarse woody debris which is important for nutrient recycling, and to maintain heterogeneity in the cover types across the area. Partial harvesting can often intensify root diseases therefore; small gaps (openings in the forest) can be beneficial in areas that have experienced extensive root diseases, primarily in the Douglas-fir and grand fir.

Aspen Release
Quaking aspen is a shade intolerant species that requires light and disturbance to reproduce and thrive. Without some disturbance aspen often deteriorates and dies. Deterioration results in a loss of soil organic material and thickness (Howard 1996; Rogers 2015) which is important for nutrient recycling. Within the WFCA the existing aspen is showing signs of deterioration where it has become shaded by mature ponderosa pine trees and competing vegetation. The proposed action would encourage aspen recruitment and increase vigor in the existing aspen.

Selective Cut
The dry conifer forest type historically was dominated by ponderosa pine but over time it has become encroached by Douglas-fir and smaller ponderosa pine. In order to maintain a more historic species distribution and an early seral structure, Douglas-fir and smaller diameter

ponderosa pine would be removed. Thinning from below would alter the potential fire behavior by reducing ladder fuels and improving vigor in the dominant and co-dominant overstory trees.

Prescribed Fire
Unit 7 is primarily low elevation, south facing, with slopes ranging from 0 to 65 percent, and has a large ponderosa pine component. Silvicultural prescriptions using fire typically are to reduce concentrations of fine, flammable dead wood from logging or windthrow, to enable reforestation, manage understory species and to protect property from fire (Tappeiner II 2007). Once harvesting is complete it is anticipated that the residual stand will be a more open primarily large diameter ponderosa pine stand with low residual ground fuels due to whole tree harvesting. It is recommended that the use of fire not occur until 1-2 years following harvesting to allow the fine fuels left on-site to decompose and to allow trees that were potentially damaged from harvesting to recover.

Recreation

The proposed action of building new trails in the forested environment could potentially damage root structures of trees adjacent to trails depending on the method of trail construction. It is anticipated that the footprint for the parking area located off of Bonnell Road would overlay the landing/staging areas utilized during harvest activities; therefore no additional impacts to the forest vegetation would occur.

7.5.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Forestry

Silvicultural prescriptions in Alternative B would primarily impact the eastern portion of the ownership (540 Acres). Alternative B would continue to increase and trend away from historical species composition, structure and function on the western portion of the ownership. Trees within the western ownership would be less resilient to fire, insect and pathogen activity and aesthetics could be compromised with increase mortality. Self-thinning would likely occur due to competition for resources potentially leaving an increase of standing dead and downed trees. In addition, leaving the western ownership untreated would increase the likelihood of a stand replacing fire due to the abundance of ladder fuels on-site.

Recreation

Impacts from trail building to the forested environment would be the same as with the Alternative A.

7.5.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Under Alternative C the forest vegetation treatments would be the same as Alternative A and the trail footprint would be the same as Alternative A therefore the impacts to forest vegetation would be the same as described under Alternative A.

7.5.5 Environmental Effects from Alternative D (No Action)

The no action alternative represents a continuation of the trend away from desired forest vegetation conditions. No harvesting activities would occur and trees would continue to compete for growing space, tree crowns would decrease in size and growth rates would be slowed. If no activities occur to increase the proportion of fire-resilient species and such as ponderosa pine, western larch and western white pine, the species composition would trend toward less resilient Douglas-fir and grand fir. Stands would continue to self-thin and snag numbers would increase. Increased numbers of snags would add to fire danger incrementally, put users at greater risk along trails and provide some habitat for snag associated species. Understory vegetation would decrease in abundance and species diversity due to the lack of sunlight on the forest floor. The crown fire risk would also increase over time as limbs of the understory trees grow into the crowns of the overstory old growth trees.

7.5.6 Cumulative Effects

The geographic scope (analysis area) for the analysis of cumulative effects (Figure 7) considers the sections adjacent to and encompassing the project area (5,952 acres). Project level analysis for existing condition and direct, indirect and cumulative effect of the alternatives is the 751 acre block of BLM lands defined in the project area. Based on Kootenai County records the primary ownerships surrounding the project area consist of both residential and commercial properties. Lands adjacent to the western portion of the ownership have seen the most development; typically lands have been used as home sites; however, a substation and powerline parallel the western boundary and bisect portions of the ownership. Forest vegetation has been removed along the 150 foot-wide powerline corridor. Lands to the north and south of the ownership are primarily forested with scattered home sites. The Interstate 90 corridor and Lake Coeur d'Alene border the sections to the south of the ownership.

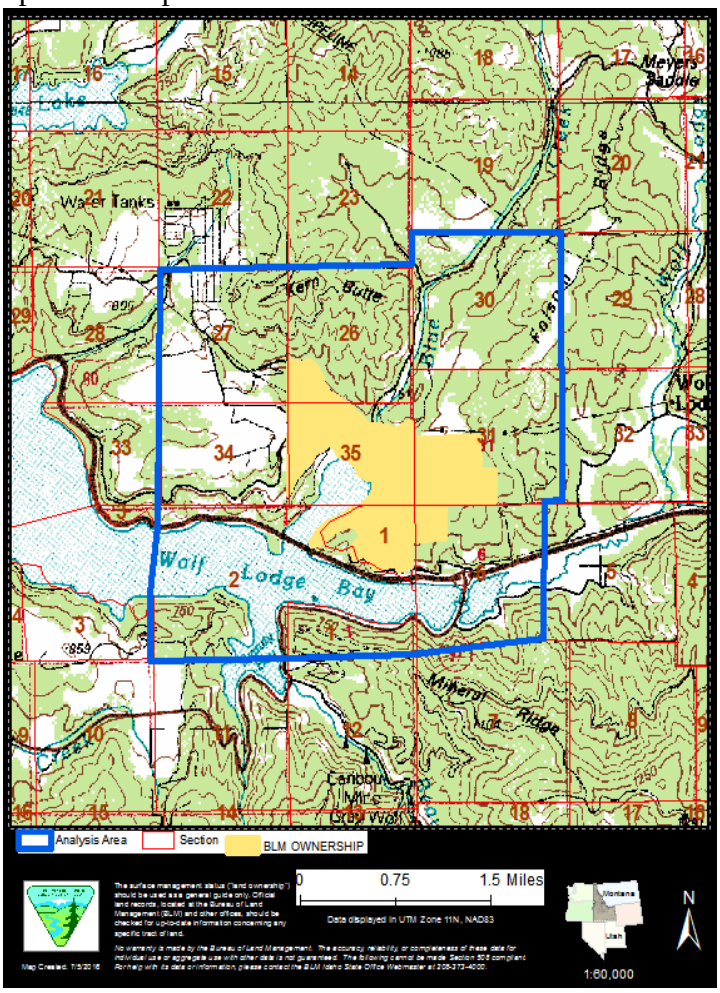


Figure 7. Forest Vegetation Cumulative Effects Analysis Area

Logging activities prior to the BLM acquisition have contributed to the shift in species composition on BLM managed lands. By incorporating any of the action alternatives, the area

would be better suited to handle the pressures of moisture stress, insect and disease pathogens and wildfire while trending the forest to a more resilient historic species composition, thus reversing and reducing some of the impacts from past actions.

7.6 Fuels

7.6.1 Affected Environment

Fire Behavior Fuel Models

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

Fire behavior not only effects the vegetation, but also the ability of firefighting resources to effectively manage or suppress the fire. Flame lengths of 4 feet are considered the threshold for firefighters on the ground to effectively and safely fight fire. Flame lengths above 4 feet require mechanized or aerial firefighting resources. Flame lengths above 8 feet are considered difficult for any firefighting resources to be effective (Andrews and Rothermel 1982).

Fuel conditions in the project area have been classified into 7 of the 40 fire behavior fuel models (FBFM) (Appendix H: Map 8 *Fire Behavior Fuel Models-LANDFIRE 2012*). FBFMs are used to predict surface fire spread and have several inputs that make up a particular FBFM. Fuels treatments mainly affect two inputs: Fuel load category and fuelbed depth. Fuel load category is the amount and size of live and dead fuels between 0-3 inches that carry the surface fire. This consists of grass, sticks and smaller down wood (dead) and branches (live branches). Generally, the less fuel, the slower the surface fire spread. Fuelbed depth is the depth of the fuel load. Generally the lower the fuel bed depth, the lower the flame lengths. By manipulating these fuels inputs via treatment, the potential for larger, fast-moving fires can generally be reduced to smaller, slower-moving fires. Table 12 identifies and describes the fuels types and FBFMs that occur within the analysis area.

The FBFMs, while based on the vegetative structure of the area, are classified on the surface fuels carrying the fire and should not be confused with the vegetative cover types listed in Forest Vegetation Section 7.5.1. For instance, a mixed conifer stand as a classified cover type could be a grass/shrub FBFM because the grass and shrubs would predominantly carry the surface fire. If the shrubs were removed, the FBFM would change to a timber understory or timber litter type. Yet the cover type would remain the same.

Table 12: Description of Fire Behavior Fuel Models (FBFM)

General Fuel Type	FBMS	FBMS Description	Spread Rate	Flame Length
GR (Grass): Nearly pure grass and/or forb type	GR2	Moderately coarse continuous grass, average depth about 1 foot	High	Moderate
GS (Grass-Shrub): Mixture of grass and shrub, up to about 50 percent shrub coverage	GS2	Shrubs are 1 to 3 feet high, moderate grass load	High	Moderate
SH (Shrub): Shrubs cover at least 50 percent of the site; grass sparse to nonexistent	SH7	Very heavy shrub load, depth 4 to 6 feet	High	Moderate
TU (Timber-Understory): Grass or shrubs mixed with litter from forest canopy	TU1	Fuelbed is low load of grass and/or shrub with litter	Low	Low
	TU5	Fuelbed is high load conifer litter with shrub understory	Moderate	Moderate
TL (Timber Litter): Dead and down woody fuel (litter) beneath a forest canopy	TL3	Moderate load conifer litter	Low	Low
	TL8	Moderate load and compactness may include small amount of herbaceous load	Moderate	Low

Approximately 48 percent of the project area is classified into timber fuel models TL3, TL8, TU1, and TU5 (see Table 13), while 52 percent of the project area is currently in a grass or grass/shrub fuel model (GR2, GS2, of SH7).

Four of these fuel models (GR2, TL3, TL8, and TU1) exhibit predominantly surface fire behavior under wildfire conditions, with limited opportunity for fire to get up into the crowns. Fuel model TU5, however, has a high surface fuel loading, in addition to a ladder fuel component that allows fire to move up into and become established in the crowns. Grass-shrub fuel model GS2 and shrub fuel model SH7 also exhibit high flame lengths due to the shrub, or seedling/sapling, ladder fuel component.

Fire behavior was determined for each fuel model using the BEHAVE Plus fire modeling system, under typical fire season weather conditions. Currently, 19 percent of the project area is subject to wildfire flame lengths of 8 feet or greater, where firefighting efforts would be greatly hindered, while only 30% of the project area would exhibit flame lengths below 4 feet, where ground resources are most effective at direct suppression efforts.

Table 13. Current expected flame length and probability of fire-caused mortality under typical wildfire scenario.

Fuel Model	Fuel Type	% of Area	Flame Length (Ft)*	% Probablility of Fire-Caused Mortality**		
				Larch	Ponderosa	Douglas-fir
GR2	Grass	8	5.7	0	0	0
GS2	Grass/shrub	43	7.1	16	15	41
SH7	Shrub	1	17.7	41	80	98
TL3	Timber	<1	1.2	0	0	0
TL8	Timber	29	3.9	0	0	0
TU1	Timber	<1	2.6	0	0	0
TU5	Timber	18	9.6	41	80	98

**BEHAVE Plus model input includes fuel moistures: 4% 1-hr, 5%10-hr, 6% 100-hr, 30% live herbaceous, 50% live woody; 20ft wind speed 30mph, 35% slope*
***80 ft. canopy height, 0.35 crown ratio, 16" dbh, 90 degrees F.*

Fire Severity – tree mortality

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

Open ponderosa pine stands on south-southwest facing slopes as well as open dry, mixed conifer stands of ponderosa pine, Douglas-fir, and western larch are typically resistant to the detrimental effects of fire. Occasional trees may succumb to fire, but the stands would remain largely intact. These open stand conditions were historically maintained by low to mixed severity fire, which reduced the surface fuel accumulations, reduced ladder fuels, and prevented the encroachment of less fire resistant species.

Species characteristics, such as bark thickness, root depth, and canopy base height make species such as western larch, ponderosa pine and Douglas-fir resistant to fire damage. Western Larch is most resistant to crown scorch due to the annual replacement of all needles. Douglas-fir is less fire-resistant due to its lower branching habit, which facilitates torching, and shade tolerance, enabling this species to grow in denser stand conditions.

Fire-caused tree mortality was determined for each fuel model using the BEHAVE Plus fire modeling system, under typical fire season weather conditions (See Table 13). Current conditions leading to high fire-caused mortality include smaller average diameter, lower tree height, and high crown ratio (lower limbs). Areas characterized by fuel models with a heavy shrub or small tree component (GS2 and SH7) or high concentrations of dead and down (TU5)

would experience high fire-caused mortality. Currently, 20% of the project area is at risk of high mortality (greater than 40%) in the desired ponderosa pine or larch trees and 62% of the project area is at risk of high mortality in the Douglas-fir trees.

7.6.2 Environmental Effects from Alternative A (Proposed Action)

Fire Behavior Fuel Models

Commercial harvest treatments in this alternative would open up canopy fuels, while pre-commercial thinning and understory slashing in the fuel break treatment areas would reduce the ladder fuel component. Piling slash and prescribed burning would reduce surface fuel loading across the treatment area.

In essence, by reducing the fuel loading and the fuel bed depth, the hazard of a larger, faster moving fire will be reduced to a potentially smaller, slower moving fire. The removal of a large portion of the shrub/ small tree understory (GS2) transitions this fuel type into a Timber Litter/Understory category. The pure grass (GR2) would remain the same. In general, the timber stands with higher fuel class loadings would transition to a lower timber fuel class loading category (see Table 14).

Wildfire flame lengths would be less than 4 feet across 82% of the project area, thus providing better opportunities for firefighting resources to directly suppress a wildfire.

Table 14. Post treatment (Proposed Action) expected flame length and probability of fire-caused mortality for desired tree species.

Fuel Model	Fuel Type	% of Area	Flame Length (Ft)*	% Probability of Fire-Caused Mortality**		
				Larch	Ponderosa	Douglas-fir
GR2	Grass	8	9.8	8	7	12
GS2	Grass/shrub	5	12.8	41	80	98
SH7	Shrub	0	33.8	41	80	98
TL3	Timber	67	1.6	0	0	0
TL8	Timber	2	5.6	0	0	0
TU1	Timber	15	4.0	0	0	0
TU5	Timber	3	14.4	41	80	98

**BEHAVE Plus model input includes fuel moistures: 4% 1-hr, 5%10-hr, 6% 100-hr, 30% live herbaceous, 50% live woody; 20ft wind speed 30 mph, 35% slope*
***95ft. canopy height, 0.35 crown ratio, 16" dbh, 90 degrees F.*

The creation, and maintenance, of the shaded fuel breaks adjacent to private property would provide for more successful fire suppression efforts, thus preventing fire from spreading between the BLM and private property.

Opening up these stands would lead to an increase in solar radiation to surface fuels and an increase in surface winds. Fuel moistures would dry out quicker making these fuels more available to burn, while increased surface winds could cause fires to spread quicker. The resulting fire behavior would see an increase in flame length (see Table 14), although the majority of the post treatment fuel model is a low fuel load timber litter fuel model that exhibits low flame lengths well below the 4' threshold.

Raymond and Peterson (2005) found that increased fire behavior (i.e. higher flame lengths and faster rates of spread) in these more open stand conditions would result in lower severity due to lower fuel accumulations and less likelihood of crown fire initiation and mortality. Additionally, Graham et al. (2005) found that increased solar radiation along with increased soil nutrient availability from prescribed burning would promote understory vegetation production in the form of forbs, grasses, and low shrubs. While these live fuels are still green, their higher foliar moisture would have a dampening effect on fire behavior (Agee et al. 2000), but once cured out would contribute to fire behavior.

Fire Severity – tree mortality

The three key drivers of fire behavior and severity are weather, topography, and fuels. Although weather may play a more important role in driving fire behavior, we have the greatest opportunity to influence fuel characteristics through changes in composition and structure. Fire behavior and size that is driven by extreme weather events may be less important than the severity of those fires and fuel treatments should be designed to save those ecosystem elements that have survived historical fires such as the large diameter, fire-resistant ponderosa pine and Douglas-fir trees (Reinhardt et al. 2008; Agee and Skinner 2005).

High probability of fire-caused mortality would be a threat across only 8% of the project area after treatment. The remaining 92% of the project area would see little or no tree mortality as a direct result of fire behavior. This does not account for post fire stress and secondary mortality from insects and pathogens, which can be expected to increase post fire mortality. Commercial thinning would result in release of the overstory trees, increasing tree height and diameter. Understory burning on the south-facing stands would additionally raise the canopy base height by killing the lower limbs of these trees.

7.6.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Fire Behavior Fuel Models

Changes to fire behavior fuel models under Alternative B would be similar to the proposed action, although with no acres treated on the west side of the project area and no understory burning. With the elimination of commercial harvest west of Blue Creek, there would be a 200 foot wide shaded fuel break along the paved road and the BLM property boundary. This fuel break would allow for better fire suppression options to prevent fire from spreading between BLM and private property. With the elimination of the understory burn, surface fuel loadings

would not be reduced on 57 acres. With the reduction in treated acreage, the transitions between FBFMs are lessened (see Table 15).

Table 15. Post Alternative B treatment expected flame length and probability of fire-caused mortality for desired tree species.

Fuel Model	Fuel Type	% of Area	Flame Length (Ft)*	% Probability of Fire-Caused Mortality**		
				Larch	Ponderosa	Douglas-fir
GR2	Grass	8	9.8	8	7	12
GS2	Grass/shrub	10	12.8	41	80	98
SH7	Shrub	1	33.8	41	80	98
TL3	Timber	48	1.6	0	0	0
TL8	Timber	14	5.6	0	0	0
TU1	Timber	15	4.0	0	0	0
TU5	Timber	4	14.4	41	80	98

**BEHAVE Plus model input includes fuel moistures: 4% 1-hr, 5%10-hr, 6% 100-hr, 30% live herbaceous, 50% live woody; 20ft wind speed 30 mph, 35% slope*
**95ft. canopy height, 0.35 crown ratio, 16" dbh, 90 degrees F.*

Wildfire flame lengths would be less than 4 feet across 64% of the project area (see Table 15), providing better opportunities for firefighting resources to directly suppress a wildfire, while 23 percent of the project area would still be subject to wildfire flame lengths of 8 feet or greater, where firefighting efforts would be greatly hindered.

Fire Severity – tree mortality

Fuel reduction treatments in Alternative B would result is similar changes to wildfire-caused tree mortality as the proposed action. With fewer acres treated on the west side of the project area, however, high probability of fire-caused mortality would remain a threat across 15% of the project area. The remaining 85% of the project area would see little or no tree mortality as a direct result of fire behavior.

7.6.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Under Alternative C the forest vegetation treatments would be the same as Alternative A and the trail footprint would be the same as Alternative A therefore the impacts to fire and fuels would be the same as described under Alternative A.

7.6.5 Environmental Effects from Alternative D (No Action)

Fire Behavior Fuel Models

Under the No Action Alternative, both surface litter and ladder fuels would continue to accumulate. As overstory tree species continue to convert from the fire resistant ponderosa pine and western larch toward less fire resistant fir species, increased crown closure and ladder fuels would increase the likelihood of crown fire initiation. Studies have shown that the no treatment option is ineffective in reducing fire severity (Stephens and Moghaddas 2005).

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

Fire Severity – tree mortality

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

7.6.6 Cumulative Effects

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

Although the effects of global climate change are not known at the local scale, it can be inferred that conditions in the region of the proposed action will trend toward warmer, drier conditions. This trend would slow down decomposition rates of biomass, leading to increased buildup of surface fuels. Climate change may also extend the length of fire season, leading to increased fire activity. It can be assumed, therefore, that fuels reduction treatments, particularly within the wildland-urban interface will become even more critical in the future.

However, this would not be true for the No Action Alternative. The No Action Alternative would have no immediate effect on fuel conditions in the project area. However, fuel loadings would accumulate, increased stand density and ladder fuels would continue to increase, and less fire resistant species would eventually dominate most stands. The result is that more of the landscape could sustain fires with greater crown fire potential, and increased tree mortality.

Over time fire suppression options would become even more limited, increasing the risk of property and resource damage, and firefighter and public injury.

7.7 Invasive, Non-Native Vegetation

7.7.1 Affected Environment

Invasive weeds threaten our public lands by outcompeting native vegetation and adversely affecting wildland plant and animal communities, damaging watersheds, and increasing soil erosion (Asher, J. and C. Spurrier 1998). Weeds can negatively alter ecosystem processes and impact forest health, sustainability and productivity (Levine et al. 2003; Moser et al. 2009). Historic activities in the project area (primarily roads, logging, and agriculture) created disturbances allowing the invasion of noxious weeds. The majority of the current weed populations are closely associated with these past activities. Main roads, old logging roads and skid trails are common areas to find noxious weed populations. Past agricultural activities (hay production, etc.) have introduced weeds into the meadow adjacent to Blue Creek. Despite these activities, the majority of the Blue Creek Bay property is weed free or has only minor weed infestations. Existing weed populations have been treated regularly for the past decade using both herbicide and biological controls under the BLM decision for the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments. These efforts have resulted in an overall reduction in noxious weeds in the area based on staff observations. Inventories of weed populations for the Blue Creek Bay property were conducted as recently as 2011. Listed noxious weeds identified in the project area are listed in Table 16 below.

Table 16. Listed noxious weed species found within the project area.

Spotted knapweed	*Centaurea maculosa*
Common tansy	*Tanacetum vulgare*
Dalmatian toadflax	*Linaria dalmatica ssp. dalmatica*
Meadow hawkweed	*Hieracium caespitosum*
Common mullein	*Verbascum thapsus*
Canada thistle	*Cirsium arvense*
Sulfur cinquefoil	*Potentilla recta*
Oxeye daisy	*Chrysanthemum leucanthemum*
Yellow toadflax	*Linaria vulgaris*
Bull thistle	*Cirsium vulgare*
St Johnswort	*Hypericum perforatum*
Orange hawkweed	*Hieracium auranticum*
Rush skeletonweed	*Chodrilla juncea*

7.7.2 Environmental Effects from Alternative A (Proposed Action)

The proposed vegetation treatments would likely have a direct effect by increasing the localized invasive plant invasion into the project area. Vegetation treatments and related activities including road maintenance, hauling, landing construction, tractor skidding, cable yarding, slash reduction, pre-commercial thinning, fuels reduction and prescribed burning would increase the risk of weed expansion into forest areas. These activities would remove existing vegetation, disturb soils, and increase light to the forest floor, all factors that favor weeds. These same activities can potentially provide transport of weed seeds and plant parts into these disturbed areas. 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 proposed prescribed burning is in a ponderosa dry forest types above Yellowstone Road. Broadcast burning in these habitat types has the potential to promote weed invasions through disturbances that increase light and nitrogen (Hunter and Omi 2006).

Established populations of spotted knapweed, rush skeletonweed and Dalmatian toadflax are present in the proposed prescribed burn area. The rocky outcrops and patchy fine fuels in this area would likely result in patchy burn pattern. Fine fuels tend to burn quickly at low temperatures leaving soil seed banks largely intact. There are likely to be significant areas of weeds left unconsumed by fire. These remaining weeds and the soil seed bank will provide a seed source that will likely facilitate weed invasion into newly disturbed areas. The combination of resource addition (light and nitrogen), decreased competition, and available seed source have potential to facilitate weed invasion (DeLuca and Zouhar 2000). Herbicide treatments in this area are very difficult due to the steep rocky terrain. Treatments would likely be limited to establish biocontrol insects in parts of the proposed prescribed burn area.

The proposed recreation trail and trailhead construction would likely have a direct effect by increasing the localized invasive plant invasion into the immediate area. Trail construction disturbs the soil creating available sites for invasive plant establishment. The trailhead construction will likely result in increased invasive species localized to the disturbed construction site. Minor populations of invasive plants exist at the proposed trailhead site. Minimizing the removal of trees and native vegetation during design and construction will reduce the likelihood of weed invasion and/or establishment. Short-term results would likely be an increase in invasive plants following construction of trails and trailheads.

Indirect effects would be caused by increased trail traffic and possible ongoing ground disturbance and possible introduction of new invasive species into the area. Once established, trails also provide a conduit for invasive species spread. Weed seeds or other reproductive plant parts may be inadvertently carried into new areas by cyclists, equestrian use, hikers, pets and/or wildlife. Monitoring of trails and trailheads will identify areas to be treated. Long-term results due to proposed recreation activities will likely be no net increase or a decrease in invasive species due to increased monitoring, treatments and minimization of unregulated ground disturbing activities.

7.7.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Impacts from forestry treatments described in Alternative A would not occur in the Western portion of the Project Area. Without forestry treatments in the western portion of the project area, fuel loading would continue to increase over time and with it increased risk of severe fire. A severe fire would remove competing vegetation and create areas of exposed soils leaving a burned area primed for noxious weed invasion. Noxious weed populations exist on BLM lands as well as on private lands adjacent to the project area. These populations of noxious weeds would likely provide a weed seed source and increase the likelihood of increased weed establishment following a fire. The increased fuel loading and existing weed populations combine to create a potential for weed infestation of burned areas following a fire event.

Impacts from treatments in the eastern portion of the project area would remain as described in Alternative A with the exception of prescribed burning impacts. No prescribed burning would allow weeds to continue to expand along the dry west-facing slope above Yellowstone road. However the rate of weed spread would be significantly less than the rate of weed spread following the prescribed fire proposed in Alternative A.

No parking area construction off Bonnell Road would reduce ground disturbance in the area and result in less opportunities for weed establishment. Impacts from trail construction and use would remain as described in Alternative A.

7.7.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Impacts from treatments in the project area would remain as described in Alternative A.
No parking area construction off Bonnell Road would reduce ground disturbance in the area and result in less opportunities for weed establishment. Impacts from trail construction and use would differ from Alternative A. These small differences would be largely due to changes in trail locations and use. On the west side weed seeds or other reproductive plant parts may be inadvertently carried into new areas by equestrian use, hikers, pets and/or wildlife. East side trails would be subject to weed seeds or other reproductive plant parts inadvertently carried into new areas by cyclists, hikers, pets and/or wildlife.

7.7.5 Environmental Effects from Alternative D (No Action)

No action would result in current population of weeds continuing to expand along roads and existing trails. In dry conifer forests weeds can expand from existing populations into forested areas often spread by wildlife and/or human activity such as recreational use. 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 create areas of exposed soils would leave a burned area primed for noxious weed invasion. Noxious weed populations exist on BLM lands as well as on private lands adjacent to the project area. These populations of

noxious weeds would likely provide a weed seed source and increase the likelihood of weed establishment following a fire. The increased fuel loading and untreated weed populations combine to create a potential for weed infestation of burned areas following a fire event.

7.7.6 Cumulative Effects

The cumulative effects analysis area is the Blue Creek Watershed because noxious weeds are a regional issue and weed infestations occur on adjacent lands. There are many factors in the analysis area that contribute to the spread of noxious weeds including: logging, wildlife, wildland fires, recreation, roads and other uses in the watershed area. It is anticipated that new weeds will continue to invade public lands and other lands from various sources. Existing infestations on BLM lands will continue to be treated aggressively until they are controlled, contained, or eradicated. Past events such as road-building and use; logging; and recreational activity have contributed to weed invasion on BLM and non-BLM lands. Where left untreated, these weeds may have persisted and continued to threaten native plant communities; although in areas where plant canopy has provided sufficiently shaded conditions, weeds may have not established or decreased in extent over time. Where effective treatment has occurred, weeds have been either eradicated or their spread into native vegetation was 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 recreational 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, established trails may provide avenues for weed seed dispersal into the project area.

Alternatively, the trails will provide increased access for weed control activities such as monitoring and treatment. The control efforts undertaken by BLM on public lands would reduce noxious weeds in the watershed. None of the alternatives would appreciable accelerate the spread of noxious weeds over the existing trend.

Noxious weed control efforts in the project area would be conducted as 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.

7.8 Public Health and Safety

7.8.1 Affected Environment

Interstate 90 (I-90) is a main traffic artery that travels east and west from the Coeur d'Alene area. I-90 receives a high amount of traffic and can become congested quickly. The project area is adjacent to I-90 with an exit (Exit 22) that leads to the WFCA via two lane Kootenai County

maintained roads. Several roads (E. Yellowstone Trail, E. Sunnyside, E. Bonnell and the Landing Road) provide access through and around the project area and vary in surface types, from paved to gravel. These roads have blind corners, few pullouts and often no shoulders. The roads are highly used by local residents that live in the area, by bicyclists and by the public that come to the WFCA to recreate and access Lake Coeur d'Alene. Traffic projections on these roads would continue to increase as a result of the anticipated growth in the greater Coeur d'Alene area and the development of the recreation area with minimal effects that would be slightly detectable but not expected to have an overall effect on traffic flow and/or traffic safety conditions.

As a result of public comment period, additional consideration and analysis in Public Health and Safety was conducted and included in this revised EA.

The Bureau of Land Management Law Enforcement and Kootenai County Sherriff's Department maintain cooperative relationships/agreements to provide law enforcement coverage/patrols on lands owned by the BLM utilizing foot, bicycle, boat and vehicle patrols.

The 2016 Idaho State Patrol Crimes Statistics (Idaho State Patrol, 2015) indicates that crimes associated with the location of "Field/Woods", like the proposal area are as follows:

- "Destruction of Property (including vandalism)" a total of 328 offenses or 3.8% occurred in the "Field/Woods" category, out of 21,407 reported statewide.
- "Larceny/Theft" (from a vehicle) a total of 70 offences or 0.81% occurred in the "Field/Woods category, out of 8,582 reported statewide.
- Crime Statistics Statewide from 2014 to 2015 show that "Destruction of Property" is down 1.1%, Larceny/Theft Offenses is down 1.9%.

A review of local crime data (CrimeReports 2017) for the WFCA and other similar local recreation areas (Blue Creek Bay, Canfield Mountain, and English Point) did not indicate that any type of reported crime was greater in the vicinity of the recreation areas compared to other rural areas in Kootenai County.

Given the current vegetation and fuels conditions (see Sections 7.5 and 7.6), potential for wildfire within the WFCA, and related difficulties for suppressing and controlling it are of concern. If a wildland fire started within, or spread to the WFCA, it would likely burn at high intensity and spread to adjacent private properties. Even though campfires are prohibited by the BLM's supplemental rule, recreational use in the area, and adjacency to county roads increases risk of fire starts.

7.8.2 Environmental Effects from Alternative A (Proposed Action)

The proposed vegetation treatments would increase logging traffic on the roads used daily by the local residents and recreationalists. The increase in logging traffic could result in a higher risk of traffic accidents with large trucks; however, only qualified commercial drivers would be hauling logs from the site to reduce the risk of traffic accidents. Additionally, in order to protect the

public during hauling operations, dust abetment measures would be implemented to reduce the impacts of excess dust on affected roadways and traffic warning signs would be utilized.

Visibility along I-90 and the county roads would temporarily be affected from the proposed prescribed burn. With the location of the burn being along the southern end of the property, smoke is likely to cross the Interstate and County roads hindering driver visibility. Due to the high traffic on the road throughout the year, a reduction in visibility would increase the risk of a traffic accident.

Portions of the hillside proposed for burning are very steep and rocky. Rocks are often dislodged and tumble to the county road. During burning activities firefighter personnel could be at risk due to falling rocks and reduced visibility. Following burning, the roadway is likely to have an increase in falling rocks due to lack of vegetation securing rocks on the hillside.

With more trails and parking areas proposed, recreation use is likely to increase. An increase in recreation use would also increase the amount of traffic on the local roads such as Yellowstone and Bonnell. Some of the roads that could see an increase in traffic have narrow travel surfaces with steep unprotected edges.

The potential increase in recreation use should have minimal to no impact on property or crimes against persons in the area based on Idaho State Patrol Statistics (Idaho State Patrol 2015, Crime Reports 2017). The potential increase in recreational opportunities increases the presence of the public in the local area and may actually reduce crime due to the physical presence of visitors.

Section 7.7.1 of the EA includes a reference to the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments. Weed treatment effects have been analyzed and all treatments are conducted following the best management practices described in the 2008 EA to reduce or eliminate impacts to humans.

As described in Section 7.6.2, the vegetation and fuels treatments would reduce a faster moving fire to a potentially smaller, slower moving fire. In addition, the creation, and maintenance, of the shaded fuel breaks adjacent to private property would provide for more successful fire suppression efforts, thus preventing fire from spreading between the BLM and private property. Although increased visitation due to recreation improvements may slightly increase the chance of fire starts, this would be more than off-set by the ability to suppress or control wildfire provided by the vegetation and fuels treatments.

7.8.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

With the reduction of harvest acres fewer log trucks would be operating thus reducing the exposure of log trucks on the roadways. All dust abatement and safety measures would remain the same for Alternative B.

Proposed prescribed burning would not occur; therefore there would be no issues with visibility or health due to smoke and vegetation would remain intact reducing the potential for increased rocks on the county maintained road system.

The west side of the property would likely see an increase in use with the construction of a new trail system. Parking is limited to the shoulder of Bonnell Road potentially resulting in more people likely to park on the shoulder of the road to access the new trails from the top. Without a developed parking area, visitors would be forced to park on narrow shoulders within the road right-of-way, thereby increasing the risk of motor vehicle related accidents.

Other potential impacts related to increased visitor use would be the same as described under Alternative A.

The potential for wildfire start due to increased recreational use would be about the same as under alternative A. Not including forest vegetation treatment on the west side or understory burn would result in more potential that intense wildfire would occur (see Section 7.6.3). However, the 200 foot wide shaded fuel break along the paved road and the BLM property boundary would allow for fire suppression options to prevent fire from spreading between BLM and private property.

7.8.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Under Alternative C the forest vegetation treatments would be the same as Alternative A and the trail footprint would be the same as Alternative A therefore the impacts to public health and safety would be the same as described under Alternative A. However, with no parking off of Bonnell Road the related effects would be the same as listed in Alternative B.

7.8.5 Environmental Effects from Alternative D (No Action)

No forestry treatments would occur, therefore no commercial truck activity would occur on the roadways and there would be no risk to the public. Without treating the dead and dying trees, mortality would continue to take place increasing the amount of dead trees (snags) near established trails thereby increasing exposure of recreational users. The existing conditions would continue to result in a potential for intense wildfire to occur and spread to adjacent private property.

7.8.6 Cumulative Effects

Overtime, continued population growth of the surrounding Coeur d'Alene/Spokane area would contribute to greater visitation and use of the WFCA. Such a shift could result in more traffic type accidents along with potential for recreation activity related accidents. According to the Idaho Transportation Department in 2015, 78% of fatal crashes occurred on rural roadways. Both Alternative A and B would address parking and trail use; with the anticipation of increased use of the roadways this could impact public safety by increasing drivers on rural roadways. Existing and continued use of county roads as well as activities on adjacent private properties could result in fire starts. The condition of vegetation and fuels on surrounding properties varies.

On some a fire could become intense and spread to neighboring properties and the WFCA. Proposed treatments on BLM lands would lower the potential for intense fire occurrence and spread to adjacent properties from public land, reducing the overall threat to residents and their properties.

7.9 Recreation

7.9.1 Affected Environment

The WFCA is located around Blue Creek Bay of Lake Coeur d'Alene which offers a variety of day-use non-motorized recreation opportunities which include hiking, mountain biking, horseback riding, wildlife viewing, water front activities, etc. The WFCA is located six miles east of Coeur d'Alene, ID. With the WFCA being close to the city, and within a short commuting distance, opportunities to visit the site to recreate are high.

The hiking trails consist primarily of looped trails with several opportunities to view the east end of Lake Coeur d'Alene. The trails are primarily used by the public to experience a forest setting and feel close to the environment where trees, plants, and animals are viewed in their habitat. The general public, schools, and other organized groups regularly use the site for outdoor activities and environmental education. Other groups have also used the area for search and rescue training purposes and some Special Recreation Permits have been issued for events. The parking areas allow for visitors and large groups to access the trail system with public amenities e.g., trash receptacles, parking and restrooms.

The WFCA has three trail heads currently being used as access for day-use recreation. The sites include graveled parking, vault toilets, information kiosks and signs, outdoor amphitheater, docks, and a picnic area located on the old log landing road. The picnic site includes picnic tables, trash receptacles, and grills with an ADA accessible dock.

The area receives visitors all year with visitation heavier in late spring, summer, and fall when conditions are relatively dry. The blue trail's counter data shows the winter months averaging 500 visitors per month with the visitor counts rising to 918 visitors per month in the summer (See Figure 13 below).

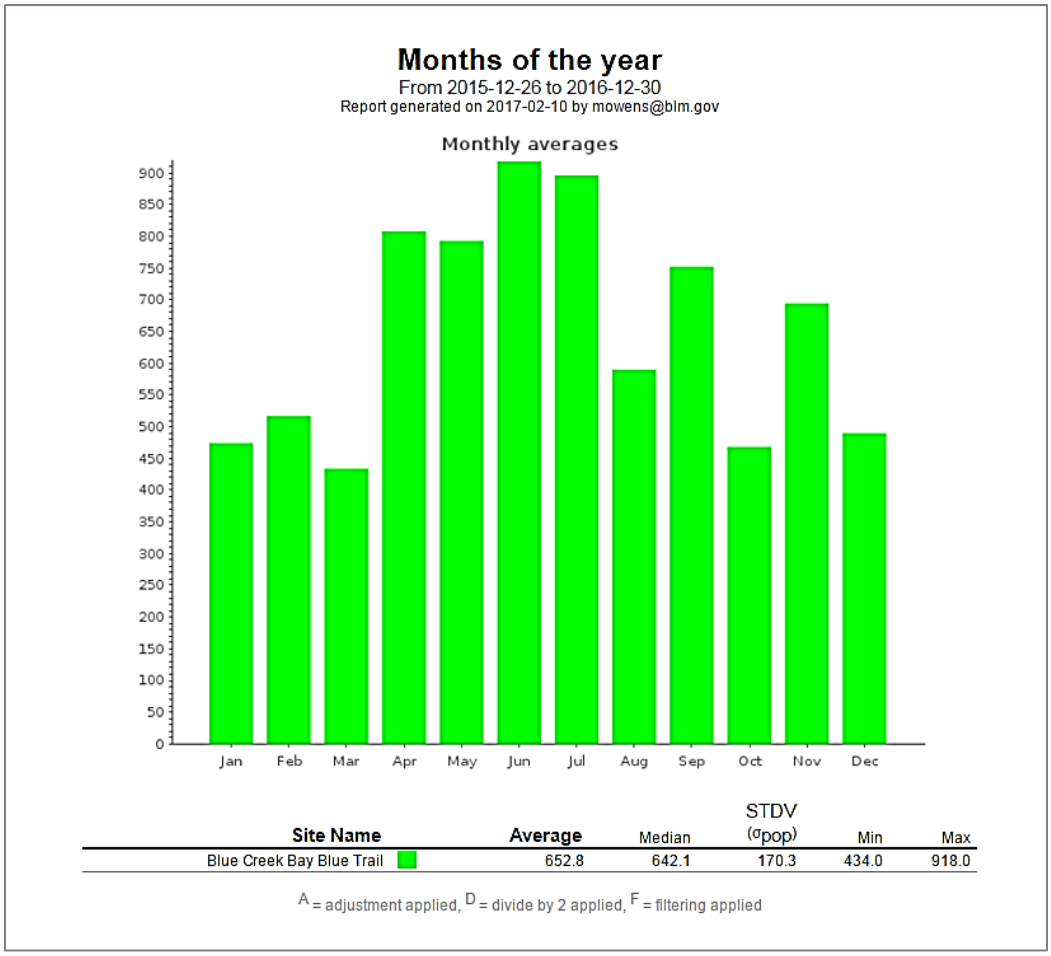


Figure 13. 2016 Blue Trail Visitor Counts

The WFCA's existing recreation improvements were planned in 2009 through the Blue Creek Bay Recreation Project Plan Environmental Assessment (EA). Later in 2010 supplementary rules were implemented due to concerns for public health and safety, and to provide long-term public recreational access to the property (see Section 7.1.2).

7.9.2 Environmental Effects from Alternative A (Proposed Action)

The WFCA is a popular recreation site within close proximity of Coeur d'Alene. Due to the popularity of the area, visitors are likely to show up at the trailheads and be in the area during project implementation when portions of the site are closed. For these visitors to find similar recreational opportunities on BLM lands they would need to visit other nearby recreation sites such as the Mineral Ridge Trailhead, Beauty Bay Recreation Site, or nearby Forest Service trails. These potentially displaced visitors would be informed and directed about other trails in the area via maps, bulletins, word-of-mouth, etc. The fuel and forestry projects would be accomplished in phases, and with the large size of the WFCA, portions of the WFCA could remain open. Leaving portions of the WFCA open would help minimize visitor displacement. The visitor impacts and displacement would be limited to the time and area within the phase and sections being treated. Once the sections are treated, and it is safe for recreating, the site would be reopened. Therefore,

impacts would not be significant with the consideration of long-term benefits of forest health and infrastructure protection.

With increased trails, parking, and infrastructure the potential for more visitor-use increases. Therefore, the amount of traffic in the Blue Creek Bay area would potentially go up. The traffic could also potentially increase on the Yellowstone and Bonnell Roads due to recreationalists shuttling the trail systems. However, providing a shared-use trail around the southern perimeter of the west side should help reduce traffic on the road. There would also be an increase in recreation opportunities with the expansion of trails and parking. The trail expansion would have designations to help reduce user conflicts. However, on shared-use trails where hiking, biking and equestrian use would occur, conflicts could still arise between the different user groups. Under the proposed action, mountain biking could also increase on the shared-use trails on the east side. However, developing and improving trails, especially on the west side, will increase opportunities and better distribute all types of use.

With increased trails, parking, and infrastructure the potential for more Special Recreation Permits e.g., commercial use, competitive events, and organized group events could also increase. Special Recreation Permit applications would be analyzed by the BLM on a case by case basis.

Due to the visitation at the WFCA a significant amount of routine maintenance is needed. The RMP classifies the site as a Maintenance Level 2 (ML 2: Moderate Maintenance Intensity). The RMP states (p.48) that, "Recreation facilities will be maintained in good condition (defined as safe, clean appearing, and functional for the intended use level and purpose) at the indicated maintenance level." (BLM 2007) The Proposed Action would help protect the trails, facility infrastructure, and surrounding forest from wildfire. The Proposed Action would also help protect the scenic and recreational values from the dangers of wildfire and forest health related issues.

With development of recreation facilities and increasing visitor use, negative impacts such as litter, improper waste disposal, vandalism, etc. could occur and become more frequent. However, the developments would have trash receptacles, restrooms, and BLM patrols in the area to help reduce these negative impacts. The public would also be involved with developing trails through volunteer/work days. When visitors, recreationalists, or volunteers participate in the outdoors, and are provided opportunities to work on public lands, they gain a sense of ownership and concern for the environment. Mayer and Frantz (2004, p. 505) explain that, "Given our previous reasoning that feeling a sense of connectedness to nature should give rise to greater environmental concern… This finding provides support for Leopold's assertion that feeling a sense of connectedness to nature, and not simply our cognitive beliefs, shape how we treat the environment." Hence, building a connection with our environment helps shape visitors' attitudes towards conserving outdoor opportunities on public lands for future generations.

By following the prescription described in the forestry proposed action (Section 6.1) the stand would be more open allowing for more snow to accumulate on the forest floor providing a better snow base on the trails for cross country skiing while also increasing the views of the landscape.

The forestry treatments would also provide future opportunities to add environmental education on forest health and recovery for visitors.

Hunting and trapping could be impacted by trail development and increased recreational use. Hunters and trappers that typically use the WFCA could be displaced to other public lands with less recreationalists in the area. Game species could be displaced further away from the trails, thus making it more difficult to archery hunt or trap from the designated trails.

7.9.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Impacts would be the same as those identified under the analysis for the proposed action with the exception of the Bonnell Parking being removed. Recreationalist would either continue to park on the shoulder of Bonnell road or park at one of the other trailheads to access the trails on the west side. Mountain bikers would have to travel uphill on the shared-use trail to access the mountain bike/hike trails. Benefits from forest vegetation treatments would not occur on the western portion of the area.

7.9.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

The trails on the east side of the WFCA have been used as multiple-use trails since the implementation of the 2009 Blue Creek Bay Recreation Project Plan Environmental Assessment. Within this earlier planning process the trailhead on the eastside was designed and constructed as an equestrian style trailhead (hitching posts along with space to accommodate trailers). Current equestrian users along the east side would be displaced. Trail corridors on the east side are wider with the majority of the trails following old roads which accommodates multiple trail user groups. Horseback riders would benefit from the development and maintenance of the west-side trails and hikers could continue to use all the trails.

7.9.5 Environmental Effects from Alternative D (No Action)

The site would continue to see visitors to the area with the current forest condition. The No Action Alternative would leave the fuel load as it is which increases the risk of a stand-replacing wildfire or decrease in forest health. These outcomes would lead to decreased recreation in the area and damaged infrastructure at the trailheads. Recovery may take decades for the forest habitat to regenerate. It would also take years to rebuild the recreation area due to the costs associated with replacing developed infrastructure if damaged or loss. The user-created trails would continue to be used, and none of the benefits from the recreation improvements would occur. Visitor use would continue to increase with the local population continuing to increase. User-created trails would also continue to increase.

7.9.6 Cumulative Effects

Newly developed trailheads and trails with: delineated parking, informative kiosks, hardened trails, restrooms, located near urban areas, and paved access, would likely attract recreationists to the areas increasing the use. The use could also increase due to population

growth, availability of a non-fee site and public land access within an urban area. The Yellowstone Road trailhead along with the lakeside day-use area were constructed in the WFCA and would likely see increases in use due to more recreational improvements.

Recreation activities occurring in the vicinity of the project area involve a broad spectrum of pursuits ranging from dispersed and casual recreation to organized, BLM-permitted group uses. Typical recreation in the region includes scenic driving, hiking, wildlife viewing, horseback riding, mountain biking, picnicking, and photography. The region also includes other BLM recreation areas such as the Mineral Ridge trail that receives thousands of visitors per month and is part of the National Trails System. There are also other trail systems in the area that provide opportunities for trail users e.g., Tubbs Hill, English Point, Canfield Mountain, etc. However, the WFCA trails provide a different experience due to the terrain, distance from the city, trail design and trail designations.

7.10 Socio-Economics

7.10.1 Affected Environment

The study area for social and economic effects of the proposed project encompasses Kootenai County (841,600 acres) and includes approximately 363,000 acres of public land (federal, tribal, and state) (Kootenai County 2010) . Over the last five years Kootenai County's population has risen 8.6% according to the US Census Bureau (2016) with the majority of growth occurring in Coeur d'Alene. In 2015 the gross domestic product of the Coeur d'Alene Metropolitan Area as approximately $5.19 billion. From 2013-2014 forestry and related activities produced only about 0.7% of this (Bureau of Economic Analysis 2017). During this year there were approximately 82,000 jobs in Kootenai County, of which forestry and related services accounted for about 1%. Total labor income was $3.2 billion, of which forestry and related services provided about 0.9% (Headwaters 2017)

The City of Coeur d'Alene's Comprehensive plan (2007) identifies four goals and objectives for the city over the next twenty years. The first two goals include: "supporting polices that preserve the beauty of the natural environment" and "promoting opportunities for economic growth". Year-round outdoor recreational opportunities that provide scenic view and vistas are considered silent economic drivers for the community.

The project is located within a rural area and is surrounded by private properties. Developments on the private properties varies from more dense residences along the southwestern shore of Blue Creek Bay, to less dense residences with some mixed agriculture in other areas. A mix of paved and gravel county roads provide access to the area. Traffic on these roads includes residents and visitors to the public lands and recreational facilities in the WFCA. During dry months, vehicles on gravel roads create fugitive dust. Views in the area include rural development and natural landscapes. There is also a very visible major transmission line which crosses the northwestern portion of the WFCA and a substation near the northwest end. Sounds can be a mix of activities on private properties and traffic, as well as occasional sounds from recreational visitors. In the summer months, boater use of Blue Creek Bay increases as do associated sights and sounds.

Recreational use of the WFCA recreational facilities and traffic along county roads also increase during this season. Interstate 90 crosses the south end of the bay and interrupts the rural and natural setting. Vehicles using the interstate contribute significant noise near the south end of the area.

The discussion below includes estimates of "real" dollars that would be derived from the project.

7.10.2 Environmental Effects from Alternative A (Proposed Action)

Forestry

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 (estimated 2 million board feet) to local sawmills and other manufacturers ranging from Kootenai County south to Benewah County and east to Shoshone 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 July 2016 average delivered log prices for sawlogs and hew wood, it is estimated that the value of saw logs and hew wood removed from the sale area would be approximately $800,000.00. Value is determined by delivered log price. This is the amount a mill pays to 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 other than for 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 $50,000 to $75,000 to the local economy. However, this is a very small contribution to the local economy considering the gross domestic product, total jobs, and total labor income for Kootenai County and the Coeur d'Alene Metropolitan area.

Also, reducing fuel loading on public lands would help protect adjacent landowner property from wildfires, potentially increasing property values.

While forest treatments are occurring, there will be noise from harvesting equipment and haul trucks. Haul trucks may also interfere with through traffic along the county roads and create

dust. See Section 7.2.2 for discussions about effects from dust. Changes to the view shed will be minor and not contrast with the existing landscape. For more details about the effects on visual resources see Section 7.13. The BLM intends to implement forestry projects through multiple phases over 6 years. Implementation would not be continuous due to the various design features and weather prohibiting conditions (Section 7.1.1). The prescribed fire and associated activities will create noise, as well as smoke. However, these impacts will be brief, likely lasting only a few days.

Recreation

Fulfilling the demand for recreation and by providing recreational opportunities, such as designated trail systems, communities often see economic boosts through increased tourism. *The Outdoor Recreation Economy,* a study by the Outdoor Industry Association (OIA), documented that outdoor recreation is a large and critical sector of the American economy and that the recreation market has many avenues to generate income. The OIA conducted their first major study in the early 2000s and reported it in 2006. However, due to the recession in the late 2000s they expanded their analysis of outdoor activities on the economy from 2005 to 2011 with a published study in 2012. This study went on further to report that the outdoor industry continued to grow during the recession and drives $646 billion in direct spending into the American economy. The direct spending helps fuel traditional sectors like manufacturing, finance, retail trade, tourism and travel. The economic benefits of outdoor recreation in Idaho are: 6.3 billion in consumer spending, 77 thousand direct Idaho jobs, $1.8 billion in wages and salaries, and $461 million in state and local tax revenue. The economic benefits of outdoor recreation are: $6.1 million in American jobs, $646 billion in outdoor recreation spending each year, $39.9 billion in federal tax revenue, and $39.7 billion in state/local tax revenue. The study also indicated that Americans spend $81 billion on bicycling gear and trips (Outdoor Industry Association 2012). The Western Governors' Association states in the report *A Snapshot of The Economic Impact of Outdoor Recreation* (2012) that outdoor recreation in 19 western states resulted in $256 billion in direct spending and 2.3 million jobs" (Western Governors Association 2012). Coeur d'Alene is a recreation destination for many travelers, and having attractive recreation areas brings in more visitors who spend outside dollars into the local economy.

Coeur d'Alene's increasing population would benefit from having more outdoor recreational opportunities in the WFCA close to the community. Adjacent property owners would also benefit from an increase in property values resulting from access to newly developed recreation facilities. There are businesses that rely on income generated from outdoor recreation related tourism. In addition, those businesses that provide food and lodging would also benefit if more visitors desired to recreate in the Coeur d'Alene area. The Teton County trail system generated an estimated $18 million in economic activity in 2010, with $1.1 million spent by local trail users and $17 million by non-local trail users (American Trail 2011). "Employment and wages relating to the trail system in Teton County totaled $3.6 million with approximately 213 workers employed in the summer and fall of 2010" *(*American Trails 2011*). Communities and homes near trail systems are sought after by new home buyers. They are an amenity that brings value economically and physically. In 2008, the National Association of Homebuilders stated, "Trails consistently remain the number one community amenity sought by prospective homeowners*" (National Association of Homebuilders 2013). The National Home Owner Association also

stated that, “Three community features that would seriously influence the purchase decision of at least half of all buyers: walking/jogging trails (60 %), a park area (54%), and an outdoor swimming pool (50%).” (National Association of Homebuilders 2013). *The surveys demonstrate the importance of having well designed and built trails near homes and communities.* The National Wildlife Federation stated, “Communities and counties near public lands outperform areas without public lands in economic performance measures including employment, income growth, and property values” (National Wildlife Federation 2013). The BLM is not aware of any studies or reports that indicate that development of recreation facilities adversely affect the value of adjacent properties.

The Proposed Action Alternative is expected to enhance opportunities for wildlife associated recreation, which may include such activities as birding, wildlife viewing, etc. While backyard birders are the most prevalent form of birding, many birders travel more than a mile from home to visit public lands. The network of trails in close proximity to population centers would facilitate birding and other wildlife viewing opportunities. Birders and other wildlife associated recreation can bring money into the local economies on a variety of goods and services for trip-related expenditures including food, lodging, and transportation. In 2011, the USFWS completed a comprehensive survey, which revealed that over 90 million U.S. residents 16 years old and older participated in wildlife-related recreation. During that year, 33.1 million people fished, 13.7 million hunted, and 71.8 million participated in at least one type of wildlife-watching activity including observing, feeding, or photographing fish and other wildlife in the United States (USFWS 2011 and USFWS 2011-1).

Recreation facility improvements and increased recreational use is unlikely to affect the rural and natural setting of the area. There could be a minor increase traffic from visitors. Non-motorized uses create little noise which does not carry far. Most of the increase in traffic and noise will be concentrated on the west side due to the development of a parking area off Bonnell Road and development of trails on the west side.

7.10.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Forestry

The project would still contribute to the local economy by removing approximately 1.6 million board feet on the eastern portion of the ownership, however; with the reduction of harvest acres and volume removed it is anticipated that approximately $200,000 would be lost to the local community. There would be fewer effects on the rural and natural setting from vegetation treatments since less acreage would be treated.

Recreation

Impacts would be the same as those identified under the analysis for the proposed action with the exception of the Bonnell Parking being removed. Recreationalist would either continue to park on the shoulder of Bonnell Road or park at one of the other trailheads to access the trails on the west side. Impacts to the rural and natural setting would be similar to Alternative A, except effects associated with the Bonnell parking area would not occur.

7.10.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Under Alternative C the forest vegetation treatments would be the same as Alternative A and the trail footprint would be the same as Alternative A therefore the impacts to socio-economics would be the same as described under Alternative A. There would be no change to the rural and natural setting. However, should an intense wildland fire occur, it could spread and impact adjacent properties. The strong potential of this happening could adversely affect property values.

7.10.5 Environmental Effects from Alternative D (No Action)

No forestry treatments or recreational enhancements would occur therefore; the economic benefits from Alternative A, B and C would not occur. In the event of an intense wildland fire occurring, it could spread and impact adjacent properties. The strong potential of this happening could adversely affect property values.

7.10.6 Cumulative Effects

Forestry

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 not expected to contribute to 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. However, considering that forestry and related services is such a small part of the local economy, many other factors, including shifts in regional and national economies would play much larger and important roles in effecting the local economy.

Recreation

The Coeur d'Alene, ID and Spokane, WA areas receive outside money through tourism and tourism related activities. These areas will likely see benefits from the increased use of the trails by people that live outside the area. An authorized trail network that functions well is appealing to recreationalists, therefore boosting the amount of traveling outdoor enthusiasts to stop in the area to recreate.

7.11 Soils and Water

7.11.1 Affected Environment

Water Resources, including Water Quality

The mean annual precipitation in the project area is 25 inches per year. Primary drainages within the project area are Blue Creek, Sunnyside Creek and Folsom Creek. The latter two are intermittent tributaries and are conveyed through culverts under East Yellowstone Trail to their confluences with Blue Creek. In addition, there are several springs, seeps and ephemeral channels within the project area.

These streams and their contributing drainage areas have been heavily impacted by many past and present factors including: straightening and berm construction along lower Blue Creek (within the meadow) to create a hay field; livestock grazing; road encroachment and residential development along upper Blue Creek (above the Yellowstone Road crossing), Sunnyside Creek and Folsom Creek; timber harvest, and flooding. There have also recently been activities and projects within the vicinity that have improved water quality by reducing sediment input to Blue Creek Bay (see Section 7.1.2 above).

Soils

As described in the Natural Resource Conservation Service (NRCS) soil survey (USDA 2002), soils on the project area are generally classified as deep and well-drained loams. Landforms range from ridges to mountain slopes with stony loams, to silt loams in the meadow and drainage ways. The project area soils consist of weathered material derived from meta-sedimentary bedrock or from basalt. All have a mantle of volcanic ash and loess. 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.

Previous road building, development, and timber harvest activities have impacted soils in the project area (see Section 7.1.2).

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" (USDA 2002).

Within the project area, all of the soil types have a "low" rating for susceptibility to potential damage by fire.

Susceptibility to compaction
Compaction tends to reduce water infiltration which affects plant production and composition, increases runoff which 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.

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).

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

7.11.2 Environmental Effects from Alternative A (Proposed Action)

Water Resources, including Water Quality

The proposed action would result in short term and minimal impacts to water quality. Re-establishment of grasses and shrubs in the first year after completion of timber hauling will typically reduce temporary surface erosion, provided proper drainage BMPs are applied. The 2.6 miles of haul roads that would be maintained post- harvest would only be used for administrative use. Generally, under this limited frequency and type of use, although increased over existing conditions, with re-establishment of grasses, surface erosion from these roads would be minimal. Use of no- harvest buffers will also effectively limit sediment delivery efficiency to streams from harvest activities as well as recreational trails.

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 45% 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.

Section 7.7.1 of the EA includes a reference to the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments. Weed treatment effects have been analyzed and all treatments are conducted following the best management practices described in the 2008 EA to reduce or eliminate impacts to water.

The possibility of a large stand replacing fire occurring is reduced under this alternative, this would result in a reduced potential of post-fire soil loss and sediment delivery to the stream channels in the project area.

There may be short-term, localized erosion related to trail development, as well as trail use under moist soil conditions. However, this is not likely to result in significant changes or impacts to water quality in Blue Creek or Lake Coeur d'Alene due to the relatively long distances between trails and concentrated water courses capable of transporting sediment. With well- designed and maintained trails, crossings of intermittent channels will not be a significant sediment source. The proposed trail crossing of Blue Creek (in the meadow) would utilize a wooden bridge and rock armoring of the abutments to reduce water quality impacts.

Soils

Reconstruction of roads would have the greatest impact on soils, followed by tractor and cable logging. In addition, construction of parking areas would result in a loss of soil productivity.

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. Road and skid trails would contribute most to cumulative erosion per acre of ground disturbance, but erosion would decline to negligible levels after decommissioning.

Much of 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.

An exception would be the proposed broadcast burn in unit 7: portions of this unit are prone to rock fall directly on to East Yellowstone Trail. There is very little vegetation other than grass to stop or slow a rolling rock. The lower portion of the slope dips steeply towards the road. Burning would exacerbate the existing danger of falling rocks and increased surface erosion.

This alternative would reduce the potential of a stand-replacing fire and the related impacts to soil, such as physical alteration of soil structure and development of hydrophobic layers, as well as effects from mechanized suppression activities and subsequent salvage logging.

In regards to erosion the effect of horse use of trails appears to be greater than other uses. One cause of this differential impact is likely to be a significantly greater weight putting pressure on a smaller surface area of soil than other users. An additional summary addressing erosion impacts by horses from this report follows (Marion 2006):

"A horse carries a heavy weight on a small, usually shod, hoof. This weight exerts approximately 18 lbs/in2 ground pressure for unshod horses to 62 lbs/in2 for shod horses, compared to 2.9 lbs/in2 for a hiker in boots (Liddle 1997). Thus, horse traffic causes significant compaction to the underlying soil layers, reducing water infiltration and increasing surface runoff. In addition, the action of a horse hoof tends to puncture and dig up the soil surface (McQuaid Cook 1978). Loose, unconsolidated soil is more prone to erosion than compacted soil and as a result, the potential for erosion increases on horse trails as compared to hiker trails. An evaluation by Deluca et al. (1998) of the mechanisms by which trail traffic leads to accelerated erosion suggested that soil loosening and detachment of soil particles by horses contributed to the higher erosion rates. Soil compaction and decreased infiltration were not considered as important, a finding supported by the work of Wilson and Seney (1994)."

A National Park Service study of 327 miles of trails compared trail condition and quality between different uses. This study found that the lower weight and ground pressure of hikers

and bikers, compared to horses, created less disturbance to vegetation and soils along trails and that these trails had fewer problems with widening, erosion, and muddiness (Marion 2006). In this study, soil loss on horse trails was approximately 8 times higher than that of trails whose primary use was by hikers.

It should be noted that the same report indicated that impacts to trails and habitat, regardless of the type of user, can often be avoided through proper trail design:

"McQuaid Cook (1978) found trail impact to be more a function of slope and trail location than a result of user type. Nagy and Scotter (1974) concluded that although horse use generally causes more damage than hikers, the degree of difference depends on the soil, vegetation, topographic and climate characteristics. Summer (1980) identified the most influential landscape factors governing trail deterioration as parent material, grade of trail and side-slope, soil texture and organic content, rockiness, vegetation, and drainage."

7.11.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Water Resources, including Water Quality

Effects to water quality would be similar to those described for Alternative A above, except there would be no effects from prescribed burning, and the untreated 135 acres would remain vulnerable to stand-replacing fire and its effects.

Soils

Effects to soils would be similar to those described for Alternative A above, except there would be no effects from prescribed burning, and the untreated 135 acres would remain vulnerable to stand-replacing fire and its effects. Also, there would be less effects to soil (compaction) without construction of the parking area on Bonnell Rd.

7.11.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Water Resources, including Water Quality

Effects to water quality would be similar to those described for Alternative A above.

Soils

Effects to soils would be similar to those described for Alternative A above, except there would be less effects to soil (compaction) without construction of the parking area on Bonnell Rd.

7.11.5 Environmental Effects from Alternative D (No Action)

Water Resources, including Water Quality

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.

Soils

Under the No Action alternative**,** no soil compaction or displacement would occur as a consequence of road reconstruction, 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 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. If wildfire occurred, mechanized suppression activities and subsequent salvage logging could create severe soil impacts, depending on fire characteristics and administrative decisions.

Reasonably foreseeable future natural disturbances and land use actions that would affect soils in the analysis area include: road use by passenger vehicles; fire suppression; mountain bike and equestrian use of roads and trails; and powerline corridor maintenance.

7.11.6 Cumulative Effects

Water Resources, including Water Quality

Within the Blue Creek watershed, historic and recent activities that affect water quality (such as past stream alteration, logging, road construction, grazing and wildfires (see Section 7.1.2) continue to occur, although at diminishing intensities. Public roads continue to encroach on Blue Creek, Sunnyside Creek, and Folsom Creek, limiting the size and proper functioning of their flood plains, elevating sediment delivery to the streams and Blue Creek Bay. The proposed action as well as Alternatives B and C would contribute only short term and minimal increase to the existing sediment conditions. Under Alternative D, should a stand-replacing fire occur, the impacts identified above would constitute a major contributor to cumulative impacts to water quality.

Soils

Past and present activities affecting soil resources would be similar to those identified for water quality. The parking area and permanent road construction and improvements would result in small additional area of lost soil productivity, slightly less under Alternatives B and C due to no construction of Bonnell Parking area. Loss of soil productivity from temporary road construction would be mitigated by road reclamation following project activities. Under Alternative D, should a stand-replacing fire occur, the impacts identified above would constitute a major contributor to cumulative impacts to soil resources.

7.12 Vegetation Communities, including Special Status Plant Species

7.12.1 Affected Environment

Vegetation Communities

A mosaic of plant communities currently grows in the project area, primarily due to differences in plant growth requirements; soil type/geology; moisture gradient; changes in slope aspect; and disturbance history, particularly fire, logging, and small-scale agriculture. The driest sites support primarily shrub and/or herbaceous plants, with only widely-spaced trees present, though tree density is increasing, as the interval between disturbance events has lengthened. In general, warm, dry forest habitats in the project area are dominated by a mixture of ponderosa pine, Douglas-fir, and shrubs and herbaceous species typically found in northern Idaho. However, where ecological succession has resulted in more moderate forest stand conditions, especially as the tree canopy moves toward closure, species with a higher moisture requirement, such as grand fir, have successfully established. Plant density also has increased where the fire return interval has lengthened, resulting in more ingrowth of small-diameter trees and shade tolerant species. These habitats can be vulnerable to invasion and spread of weeds, which compete with native species for growing space, light, water, nutrients, or pollinators. Section 7.8 describes the existing condition and trend of invasive species in the project area. Project area upland forest communities that occupy warm, moist sites are characterized by the presence of grand fir, western redcedar, western hemlock; and associated shrub and herbaceous species. Where succession has re-started after recent disturbance, such as a fallen tree, these areas may have become quite dense with sapling and pole-sized trees as well as site-adapted shrubs. The forest communities at Blue Creek Bay have been impacted by a variety of disturbances including insect and disease outbreaks, and extreme weather events. The project area also includes riparian, wetland, aspen, and meadow (formerly used as a hayfield) communities.

Idaho BLM Special Status Plants

The Idaho Natural Heritage Program database was searched for known occurrences of rare plants in the project area. Field work has been done the past two years at Blue Creek Bay.

No water howellia (*Howellia aquatilis*-threatened) individuals, populations, or potential habitat occur in the project area. This species will not be affected and there is no further discussion about it in this document.

No individuals or populations of Spalding's catchfly (*Silene spaldingii*-threatened) were found in the project area, although suitable habitat occurs in Unit 7 in the grass-dominated and open Ponderosa pine communities on the ridgeline above East Yellowstone Trail and Interstate 90. (USFWS 2007) Shrubs and trees are invading portions of this habitat due to change in the natural disturbance regime, which has allowed ecological succession to proceed. Portions of these drier habitats also have been invaded by weeds, usually where disturbance has occurred.

No whitebark pine (*Pinus albicaulis*-candidate) individuals, populations, or potential habitat occur in the project area. This species will not be affected and there is no further discussion about it in this document.

Bank monkeyflower (*Mimulus clivicola*) is a member of the figwort or snapdragon family. A population has been documented about five miles southeast of the project area in the vicinity of Red Horse Mountain. This is a tiny annual plant found only in north and central Idaho, and far eastern Oregon. This species generally occupies sunny, steep slopes, growing on bare mineral soil among shrubs and scattered trees. Bank monkeyflower appears to be somewhat tolerant of smaller-scale disturbance such as that which is associated with game trails. No bank monkeyflower individuals or populations have been found in the project area, but potential habitat occurs in the grass- and shrub-dominated plant communities and driest, open forest stands. (Lorain 1991)

Clustered lady's-slipper (*Cypripedium fasciculatum*) is a perennial, terrestrial, wild orchid. 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. A small population occurs within the project area, and a second, smaller population grows within the Mineral Ridge recreation site. The locations of both populations indicate that this species can also occur in drier seral stands of Douglas-fir, often underneath larger shrubs. This species grows from elevations of 1,700 to 4,600 feet. (Lichthardt 2003; Hammet 2008)

Deerfern (*Blechnum spicant*) is a perennial, evergreen fern, which usually grows in moist, shaded forests. This is a wide-ranging species, occurring in the boreal regions of both western and eastern hemispheres. In North America, deerfern is chiefly found west of the Cascade Mountains of the Pacific Northwest but does extend south into northern California. Disjunct populations are known from northern Idaho, including the Deception Creek area northeast of the project area. No deerfern individuals or populations occur in the project area, though potential habitat occurs in the more moist forest stands. (USDA Forest Service 2015)

Pine broomrape (*Orobanche pinorum*) is a plant that lacks chlorophyll and obtains its nutrients by parasitizing other plants. It occurs only in western North America, from northern California to Oregon and north to central Washington and through northern Idaho (Ellis et al. 1999). Pine broomrape is uncommon throughout Idaho, Washington, and British Columbia but is apparently secure in Oregon. In Idaho, it is a root parasite of oceanspray shrubs (*Holodiscus discolor*). (NatureServe 2015) Two small occurrences of this plant have been found in the project area.

7.12.2 Environmental Effects from Alternative A (Proposed Action)

Vegetation Communities

Forestry
The proposed action would change the species composition, vertical structure, and density of forest vegetation on approximately 616 acres through selective harvest, thinning, mechanical fuels treatment, burning, and reforestation.

Harvest Operations, Thinning, and Mechanical Fuels Treatment
Some site vegetation would be killed (for example, trees that are cut; ingrowth that is thinned) or injured during project operations (for example, retention trees marred by logging equipment or

by felling activities). Reducing the average number of trees per acre in the project area would open the forest canopy and favor plant species adapted to warmer, drier growing conditions, while other shade-tolerant plant species would be negatively impacted, such as by sun scalding. (Hagle et al. 2003) Vegetation treatments such as timber harvest and/or burning that open the forest canopy would promote the growth of certain native understory wildflowers and shrubs, which would benefit pollinator species. Thinning dense trees would reduce the intense competition for water, sunlight, and nutrients which the desired tree species and size classes are currently experiencing. Conifer tree species composition would shift toward those species favored for retention, as described in the Proposed Action, and toward those early seral species that would be planted during reforestation efforts. Shade intolerant vegetation species would proliferate in the gaps between trees following treatment, until altered by ecological succession or future disturbance. (Cooper et al. 1991; USDA Forest Service 2015) Due to succession, the fuelbreak discussed in Section 7.2.2 may require periodic thinning of the understory to help retain its fire-break characteristics. The larger diameters western white pine and western larch on the north and east sides of the main ridgeline are fire-dependent, seral species. Historically, periodic, stand-replacing fire or other disturbance occurred to remove competing vegetation and allowed western white pine and western larch to establish and persist (Cooper et al. 1991; USDA Forest Service 2015). Because the natural fire regime has been disrupted in the project area, harvest, thinning, and mechanical fuels treatment would be used to re-create the stand conditions which favor these two species. (BLM 2007)

Removal of smaller diameter tree in-growth and intermediate and suppressed trees, as well as the salvage harvest of trees affected by insects and disease, would visibly change the current forest structure. Retention and management of larger diameter trees would maintain and develop the large tree structural component, especially in the units where large ponderosa pine, western white pine, and western larch trees are already present. Where thinning occurs, spacing between residual trees would reduce crown contact, and would create openings initially dominated by shade-intolerant shrub and herbaceous species, until re-planting or natural regeneration of trees occurs. Retaining larger woody debris on the forest floor would be important for tree seedling establishment, soil carbon cycling, nutrient and water storage, and animal activity. The post-treatment structure of harvested and thinned areas would change as ecological succession proceeds or when a future disturbance occurs. (Cooper et al. 1991; Smith and Fischer 1997; BLM 2007)

On the acreage 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 in landing areas. Logging with ground-based equipment would cause more ground disturbance and injury to plant communities, when compared with cable logging. However, measures such as restricting skid trails and yarding corridors to appropriate spacing intervals, respectively, and minimum necessary width, plus using designated landings, would concentrate the most intense impacts into certain areas, helping reduce more widespread disturbance to vegetation. Impacts to vegetation also could be reduced if tractor operations occurred on two feet or more of snow; even operating over frozen, snow-free ground probably would not reduce damage to the above ground portions of non-target understory plants. Removal of trees within root disease “centers” can intensify the disease through fungus colonization of stumps and roots of harvested trees. These areas then provide food bases for a

pathogen, allowing it to infect and kill other nearby trees. However, without any management actions, root disease centers continually regenerate with brush species followed by susceptible tree species, which are subsequently killed at relatively young ages. Not all conifer tree species are equally susceptible to root disease; therefore, planting disease tolerant species in root disease areas following harvest would help break the cycle of continued regeneration of susceptible tree species and return productivity to the site. This strategy promotes restoration of disease-resistant species composition in the project area by favoring trees that are less susceptible to root disease, such as ponderosa pine, western larch, and western white pine. (Idaho Dept. of Lands 2015)

Vegetation and ground disturbance associated with harvesting and mechanical fuels treatment would create sites favorable for weed invasion and would produce conditions that allow more sunlight to reach the forest floor. Therefore, weeds, which currently occupy sites in or adjacent to the units and tend to do extremely well in warmer, drier environmental conditions, may spread or at least maintain their present level of infestation. However, inventory, treatment and monitoring of the project area and access roads would reduce potential impacts to native vegetation from weeds. Treatment of project-related noxious weed infestations, especially, would assist re-establishment of native vegetation in disturbed areas by reducing competition for sunlight, water, nutrients, and pollinators. (BLM 2007)

Treatment Using Fire

Live plant response to treatment with fire, particularly underburning, depends on many factors, including soil and duff moisture, plant vigor, phenological state (for example, dormant; flowering; releasing seed) at time of burning, and fire severity (Agee 1993; Smith and Fischer 1997). Response also depends on stand history. As organic material accumulates between fire events, seedlings and new rhizomes of some species become established in the organic horizons, where they are more vulnerable to fire than plants established in mineral soil (especially if heavy fuels have accumulated) (Smith and Fischer 1997).

Mature ponderosa pine and western larch trees have several fire-resistant characteristics such as very thick, insulating bark, relatively deep roots, and open foliage which increase chances of surviving lower intensity fire (Smith and Fischer 1997); therefore, lower intensity fire may be lethal to only small-diameter saplings and seedlings. Either species may be vulnerable to fire if pitch has collected around old fire scars, or fires burning in deep surface fuels or deep duff affect the fine roots (Smith and Fischer 1997).

Douglas-fir trees also develop fire-resistant bark as they mature, so only seedling, sapling and small-pole size trees may be vulnerable to lower intensity surface fire. However, the resistance offered by a thick layer of bark may be offset by shallow roots susceptible to fire damage, growth of closely spaced branches along the trunk, and pitch-streaked lower trunks (Agee 1993; Smith and Fischer 1997).

Mature western white pine trees have moderately thick bark, moderately flammable foliage, and self-pruning lower limbs, which provide this species with moderate fire resistance. White pine is more susceptible to fire when it grows in dense stands; is festooned with lichen growth; and due to its characteristically resinous bark. Young western white pine trees have thin bark, which does not provide fire resistance. (USDA Forest Service 2015)

In comparison, other tree species in northern Idaho such as subalpine fir, grand fir and western redcedar do not possess characteristics that protect them as well from fire and, therefore, are less resistant to its effects and are more likely to suffer mortality from burning. (USDA Forest Service 2015)

Lower intensity fire may not be lethal to many of the shrub and herbaceous species that occur in the action area. It is recognized that some plants or their means of reproducing themselves, such as seeds, may die as a result of fire treatments, but it is anticipated that site populations adapted to fire would survive, and some species' growth actually would be enhanced (USDA Forest Service 2009). Although aerial portions of fire-tolerant shrubs or herbs may be killed, the plants would survive by resprouting from roots, stems, rhizomes, or stored seed (Smith and Fischer 1997; USDA Forest Service 2009). Fire may also remove competing vegetation, facilitating regeneration by decreasing competition for light, water, nutrients, and pollinators.

As fire intensity increases, though, impacts to vegetation would be expected to become more severe. For example, areas of dense tree regeneration and heavy fuels resulting from disease-caused mortality would increase potential for higher intensity fire. (Smith and Fischer 1997). Also, fuels outside of root rot "pockets", such as down logs, rotting stumps, or piled, thinned trees would produce more concentrated fire intensity that would kill or injure nearby live plants. Where fuels are piled and burned, the concentrated intensity of fire would kill plants directly under the piles, and kill or injure plants immediately adjacent to the piles. Over time, burn pile sites within project units would likely be recolonized by surviving seed and adjoining, surviving native vegetation, but additional replanting or seeding may be necessary to inhibit post-burn weed invasion. Soil beneath burn piles located at landings may be compacted, which could inhibit plant re-growth, though certain native pioneer species, as well as weeds, may be able to produce a sparse, post-burn vegetative cover.

Over time, sites in the project area treated with fire would likely be reseeded or recolonized by surviving native vegetation, although replanting or seeding may be necessary to inhibit post-burn weed invasion. Microsites in the native plant community that do not recover within one to two years following burning, perhaps due to more severe fire effects, would continue to be vulnerable to weed invasion or expansion.

Project features such as burn intensity, combined with site characteristics such as plant community response to fire, would contribute to a post-project mosaic of species, structures, and densities. For example, common native plant species that are less tolerant of burning or opening of the forest canopy may not be as well-represented in the post-treatment plant community, resulting in a change in the composition of site habitats over time. Establishment of new populations or persistence of existing weed infestations could also alter this mosaic. The post-project mosaic would change as ecological succession proceeds or a future vegetation disturbance occurs.

Treatment with fire perpetuates dominance by tree species that are resistant to both fire and root disease, especially the pine species and western larch. Conditions ideal for the spread of root disease tend to develop in forests where fire exclusion and selective logging have increased

dominance by Douglas-fir and the true firs. (Smith and Fischer 1997) Therefore, burning that approximates historic fire frequencies converts stand composition back to early successional stages and is an effective tool for managing root disease (Rippy et al. 2005). The amount of root disease in the project area would likely be reduced as a result of burning. Removal of understory vegetation, small-diameter in-growth, as well as shade tolerant trees by burning would reduce competition for water, nutrients, and sunlight, which would increase the vigor of the remaining trees.

Bark beetles prefer stressed trees to vigorous trees, especially in dense stands where the target tree species dominates (Smith and Fisher 1997). Injuries to trees caused by burning can also affect the tree's ability to withstand attacks by insects and pathogens. Stress to trees caused by fire-damaged roots, cambium or foliage can weaken the tree and predispose it to attack by bark beetles and root pathogens. (Demars and Roettgering 1982; Rippy et al. 2005; Hood et al. 2007). Trees weakened by fire can contribute to increased beetle populations; however, less damaged, surviving trees would have better defenses to withstand bark beetle attacks because reduced competition for water and nutrients increases overall tree health.

Treatments using fire can create areas of vegetation and ground disturbance which are vulnerable to weed invasion, especially where post-burn conditions allow more sunlight to reach the forest floor. (USDA Forest Service 2015) Therefore, weeds, which currently occupy sites in or adjacent to the project area and tend to do extremely well in warmer, drier environmental conditions, may spread or at least maintain their present level of infestation. However, inventory, treatment and monitoring of the project area would reduce potential impacts to native vegetation from weeds. Treatment of project-connected noxious weed infestations, especially, would assist re-establishment of native vegetation in disturbed areas by reducing competition for sunlight, water, nutrients, and pollinators (BLM 2007)

Reforestation

Re-introduction and maintenance of ponderosa pine, western larch, and western white pine in the project area would aid re-establishment of diverse, resilient, and resistant forest vegetation. (Cooper et al. 1991; Smith and Fischer 1997; USDA Forest Service 2015) Managing for seral tree species would require subsequent actions to discourage re-growth of species such as grand fir, western redcedar, and Douglas-fir.

Road Construction/Renovation/Decommissioning

Plants growing along the road segments to be used during this project would be injured or killed by clearing and/or construction. Equipment and vehicle use of the roads, plus periodic maintenance, would discourage vegetation from re-establishing, although a swath of lower stature plants would eventually re-grow adjacent to the road running surface. Reducing the number of miles of maintained road to just what is needed for administrative use once the project is completed would reduce the longer term ecological and economic (maintenance costs) impacts associated with permanent roads.

Opening existing road segments that are blocked by brush or down logs, for example, would disturb plants that have established since the road corridor was last actively maintained. Road renovation of existing roads, plus blading and maintenance of roads during the life of the project,

would disturb any vegetation that may have encroached onto the road surface since maintenance was last done. Use and maintenance of the existing roads would deter vegetation from re-colonizing and closing-off the corridors.

Construction, renovation, use, and maintenance of roads in order to implement the project would disturb plant communities and soils along the road corridors, increasing the threat of weed invasion and/or expansion. Weeds presently growing in the project area would have newly disturbed areas into which they could expand. Passenger vehicles and equipment, off-highway vehicles, wildlife movement, or wind currents could transport weed seed or fragments from existing infestations into native vegetation communities within the project area. Weeds may out-compete and displace desirable, native vegetation, altering plant community composition, structure, and function both in the present and future.

However, inventory, treatment and monitoring of project roads would reduce potential impacts to native vegetation from weeds. Treatment of project-connected noxious weed infestations, especially, would assist re-establishment of native vegetation in disturbed areas by reducing competition for sunlight, water, nutrients, and pollinators. In addition, road closures implemented at the end of the project would keep full-size and trail-size vehicles out of recently disturbed areas and help limit weed invasion and spread. Gates or barriers would need to be monitored periodically to reduce the possibility that they have been breached or bypassed, allowing vehicles to transport weeds into closed areas.

Recreation

Impacts associated with building, improving, and/or maintaining the proposed trails would be similar to those discussed for roads; but on a smaller, narrower scale.

Four to six miles of trails would be designated on the west side of the project area. The equestrian/hiker trails (2.53 miles) are user-created; therefore, impacts to vegetation have occurred over time, as use has continued. Proposed trail improvements to this corridor would cause additional impacts (clearing; trimming; compaction of trail tread) to trail-side vegetation. The mountain bike/hiker trails (3.25 miles) would be primarily new construction; so, initially, there are likely to be more intense impacts (clearing; trimming; compaction of tread) to vegetation currently growing in the trail corridor. Construction of 0.88 miles of shared-use trail would cause impacts to vegetation similar to those occurring due to construction of the mountain bike/hiker trails. Another 0.60 miles of shared trail would follow an old roadbed.

On the east side of the project area, 4.2 miles of trail are already designated as shared-use and are maintained by the BLM. User impacts to trailside vegetation such as trampling, flower-picking, or grazing would continue. Where the blue trail is proposed to be re-routed, impacts to vegetation would be similar to those described for new construction on the west side of the project area. About 1.25 miles of upland trail would be newly designated (brown trail). A portion of the brown trail travels the ridge which looks down toward Interstate 90 and Wolf Lodge Bay. This section of trail already exists as an informal, user- and/or game-created and maintained route. Vegetation impacts along the newly designated brown trail would be similar to those discussed for the west side equestrian/hiker trails. Construction of a kid-friendly trail (0.29

miles) near the Yellowstone Trail Road trailhead would result in vegetation impacts similar to those mentioned for the mountain bike/hiker trails on the west side.

The newly designated purple trail (0.58 miles), proposed to link the west and east side trail systems, would cross the former hayfield, the riparian zone, and Blue Creek itself. This route has been used in the past primarily by horseback riders. Vegetation along this corridor has been trampled and some compaction has occurred. Establishing a designated route through this area would concentrate user impacts into a single maintained corridor instead of various informal trails meandering through the vegetation. Armoring the stream-crossing area would reduce erosion of soils and sediment, which, in turn, would protect vegetation. Installing a bridge at the crossing might have more impacts (clearing; cutting; trimming) initially, but over time, adjacent vegetation would likely recover, as long as trail users do not bypass the bridge and travel directly through the streambed. Planting site-appropriate shrubs and trees would assist recovery of the riparian area from past land-use related disturbances.

Construction of the Bonnell Road Trailhead would destroy vegetation currently growing within the site footprint (0.5 acres), except for plants kept to provide screening. Once the trailhead is built, additional plants would be installed, where needed, to enhance screening of the parking lot from Bonnell Road. Site maintenance would discourage re-establishment of plants in the developed area. Expansion of the Meadow Trailhead to 0.3 acres would have impacts to vegetation similar to those mentioned for the Bonnell site. Relocating and upgrading the parking area for the red trail would move impacts from the parking area further up a minimally maintained, existing road. Improvement and expansion of amenities would result in impacts to vegetation similar to those that would occur at both the Bonnell and Meadow Trailheads.

An expanded recreational trail system is likely to bring more people into the project area, as they use the proposed parking areas, trailheads, and trails; which could increase the risk of introducing or spreading weeds. However, implementing Design Features related to weed management would help to minimize impacts from weeds due to this increased use.

Idaho BLM Special Status Plant Species

Impacts to Spalding's catchfly potential habitat in Unit 7 would be similar to those described under "Vegetation Communities". Before the 20th Century, these dry sites were characterized by frequent underburns that eliminated most tree regeneration, thinned young stands, and perpetuated open stands dominated mainly by ponderosa pine. Fire exclusion has altered the historic fire regimes in these stands and has increased fuel loadings. Underburning, often in combination with partial cutting, can be used to maintain vigorous, open ponderosa pine stands (Smith and Fischer 1997), which in turn, creates habitat conditions which benefit Spalding's catchfly. The potential habitat in the project area does contain some weed infestations, and treatment with fire might maintain or expand them. However, inventory, treatment and monitoring of weeds in the project area would reduce potential impacts to suitable habitat for Spalding's catchfly by decreasing competition for sunlight, water, nutrients, and pollinators.

The proposed action would not affect bank monkeyflower, or deerfern individuals or populations, though potential habitat for each of these species would be disturbed by harvest,

thinning, or burning treatments. Effects to potential habitat would vary according to individual species' ecological requirements. For example, bank monkeyflower thrives in open canopy, bare mineral soil environments and would likely benefit from a project that "opens up" a forest stand. In contrast, a species such as deerfern which grows in shady habitats may be more sensitive to canopy removal.

The clustered lady's-slipper population would be buffered from project actions; therefore, no direct effects would be expected. An indirect effect to this population, which could occur due to the expected increase in recreational use, would be from people attracted to the proposed brown trail that follows the main ridgeline north of East Yellowstone Trail road and Interstate 90. During the growing season, mountain lady's-slipper (*Cypripedium montanum*), which co-occurs with the rare species is quite showy, and might attract curious observers. The potential impacts to clustered lady's-slipper would be from trampling (injure or kill), picking, or collecting (remove entire plant(s) from population).

Data describing pine broomrape's response to disturbance are scarce. Rare species monitoring by the U.S. Forest Service during the first year after a wildfire in north-central Washington included pine broomrape; however, preliminary results concerning this species' response to disturbance were inconclusive, and the study was not funded in subsequent years. (Harrod et al. 1997; Harrod pers.comm. 2009) Its host plant, oceanspray, is described in the Fire Effects Information System database (USDA Forest Service 2015) as being favored by disturbance. The database states that oceanspray prefers open sites; is a "light- demanding, early successional" species; and is promoted by disturbances that open the canopy. Based upon the regenerative abilities of oceanspray, it is possible that the obligate root parasite pine broomrape also exhibits some resiliency similar to that of its host. Because of the uncertainty surrounding this species, close coordination would occur between the District Botanist and two Project Leaders during project implementation, so that effects to the broomrape plants would be minimized.

Regarding the possibility that weeds would invade or expand into habitat for each of the special status plant 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 can favor invasive species. (USDA Forest Service 2009, 2015) Weeds are highly competitive and can often out-compete native vegetation, especially on recently disturbed sites. (BLM 2007) However, proposed monitoring and weed treatment would reduce deleterious effects of weedy species on populations and/or potential habitat for bank monkeyflower, clustered lady's-slipper, deerfern, and pine broomrape.

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

7.12.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

Vegetation Communities

Forestry treatment impacts would be similar to those described for Alternative A, except they would occur on fewer acres. Forest succession would proceed on the untreated acres. Insect and disease concerns would not be treated, possibly leading to an increase in the number of acres affected by these types of disturbances. Burning would not occur in Unit 7; therefore, a fire-maintained vegetation community would continue to shift away from natural (historic) conditions as ecological succession proceeds. Because Unit 7 would not be burned under this Alternative, impacts to common, native plant communities and rare plants from a wildfire may be more severe due to the amount of fuels accumulated in untreated areas, and possibly spread beyond the boundaries of the proposed action. A wildfire has the potential to be stand-replacing but may also create a mosaic of burned and unburned vegetation, depending upon factors such as variation in fire behavior. A wildfire in the project area could affect a greater number of acres than the proposed action, putting more acres at risk from weed invasion.

Recreation development impacts would be similar to those described for Alternative A, minus the impacts from an improved parking area on Bonnell Road.

Idaho BLM Special Status Plant Species

Forestry treatment impacts would be similar to those described for vegetation communities. Recreation development impacts would be similar to those described for Alternative A, minus the impacts from an improved parking area on Bonnell Road.

7.12.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Vegetation Communities

Forestry treatment impacts would be similar to those described for Alternative A. Limiting recreation user groups to trails in certain parts of the project area would not change much the impacts to vegetation communities from trail improvement, construction, and use; except perhaps vegetation along the westside trails may be more likely to be trampled and/or grazed. Impacts due to trailhead and parking area construction would be similar to Alternative A, minus the impacts from establishing a parking area off of Bonnell Road.

Idaho BLM Special Status Plant Species

Forestry treatment impacts would be similar to those described for vegetation communities. Recreation development impacts would be similar to those described for Alternative A, minus the impacts from an improved parking area on Bonnell Road.

7.12.5 Environmental Effects from Alternative D (No Action)

Vegetation Communities and Idaho BLM Special Status Plant Species

Plant succession would continue toward the potential natural community, where possible, in the absence of disturbance. Over time, sites in the area capable of supporting more dense forest vegetation would become dominated by shade-tolerant species, until a future disturbance such as logging, wildfire, insect infestation, disease, or weather event creates openings in the forest community. Undesirable numbers of Douglas-fir and grand fir trees vulnerable to insect and disease outbreaks would continue to compete with ponderosa pine, western larch, and western white pine. Insect and disease outbreaks would continue within the project area. Weeds would still remain in and adjacent to the project area and compete with desirable native species.

Although no management actions would occur in suitable habitat for Spalding's catchfly, ecological succession would continue to proceed, resulting in more tree invasion and less favorable environmental conditions for both the catchfly and bank monkeyflower. However, as succession proceeds, habitat for shade tolerant rare species such as clustered lady's-slipper, Constance's bittercress, or deer fern would persist and possible expand into more acreage. No harvest or burn treatment would occur near the pine broomrape plants; however, as succession proceeds, a reduction would occur in the early successional habitat favored by its host plant, oceanspray, which could, in turn, affect the broomrape plants.

Impacts to common, native plant communities and rare plants from a wildfire may be more severe due to the amount of fuels accumulated in unthinned areas, and possibly spread beyond the boundaries of the proposed action. A wildfire has the potential to be stand-replacing but may also create a mosaic of burned and unburned vegetation, depending upon factors such as variation in fire behavior. A wildfire in the project area could affect a greater number of acres than the proposed action, putting more acres at risk from weed invasion.

7.12.6 Cumulative Effects

The analysis area for vegetation communities and Idaho BLM Special Status Plant Species is defined as the Blue Creek drainage (8 square miles) plus about two square miles of the "face" or slopes north and east of and above Interstate 90—about 6400 acres.

Alternative A, Proposed Action

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

Present human-caused and natural disturbances in the analysis area which affect vegetation include homesite development; road building, use and maintenance; trail use and maintenance; firewood cutting; recreational activities; fire; wind blow-down events; and insect and disease outbreaks.

Reasonably foreseeable future actions and natural disturbances in the analysis area include road building, use and maintenance; trail use and maintenance; firewood cutting; recreational activities; fire activity; wind blow-down events; and insect and disease outbreaks. The fuel break segments proposed for the project area would also need to be thinned periodically to retain their fire-break characteristics.

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 rare species such as bank monkeyflower, pine broomrape, and pine broomrape, though habitat condition would be degraded by the presence of weedy species. Ecological succession would proceed where vegetation is left undisturbed and would influence vegetation species composition, vertical structure, and density. Plant communities that revert to earlier ecological succession stages due to disturbance such as insect infestation or disease would begin the process of maturing all over again and include habitat characteristics favorable for rare species like bank monkeyflower and pine broomrape. Ongoing and proposed activities that impact vegetation would open up sites favorable to weed invasion due to ground disturbance and/or reduction of tree canopy cover. Where left untreated, weeds would continue to threaten native plant communities, including Idaho BLM Special Status Plant Species.

Alternative A, the proposed action, would treat approximately 616 acres of about 6,400 acres of forest vegetation; and build and designate approximately 6-7 miles of recreation-use trails, in the analysis area; therefore, this project is unlikely to contribute cumulative effects to common, native plant communities, bank monkeyflower, clustered lady's-slipper, deerfern, or pine broomrape; due to the relatively small area of disturbance and its staggered timing of implementation, when compared to the overall analysis area.

Alternative B

In comparison to the proposed action, forestry treatments proposed for Alternative B would affect about 412 acres of 6,400 acres; no prescribed burning would occur. Fires on adjacent unthinned lands could also spread to untreated vegetation in the project area. Where left untreated, weeds would continue to threaten native plant communities, including rare plant populations. Effects from recreation development would be similar to Alternative A except the Bonnell Road Trailhead would not be built.

Alternative C

Effects of forestry treatments would be similar to Alternative A. Effects of recreation developments would be similar to Alternative A, except the Bonnell Road Trailhead would not be built.

No Action Alternative

Under this Alternative, zero acres of vegetation in the project area would be disturbed by forestry treatments or recreation developments. Vegetation composition and structure on adjacent lands

in the analysis area could be altered by a future wildfire. The number of acres burned and severity of fire effects would be dependent upon many variables, including whether or not any treatments have been implemented to lessen the severity of those fire effects. Fires on these lands could also spread to untreated vegetation in the project area. Where left untreated, weeds would continue to threaten native plant communities, including rare plant populations.

7.13 Visual Resource Management

7.13.1 Affected Environment

The Coeur d'Alene RMP designated the landscape in and around the project area as Visual Resource Management (VRM) Class II. The objective for this management class is to retain the existing characteristic landscape. The level of change to any of the basic landscape elements due to management activities should be low and not evident. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

There are numerous locations from which people are likely to observe the project area. For this analysis the BLM selected five locations, or key observation points (KOPs), from which the highest number of people are likely to observe the project area and that also provide a range of views representative of those from other locations. The locations of the KOPs are depicted in Figure 14.

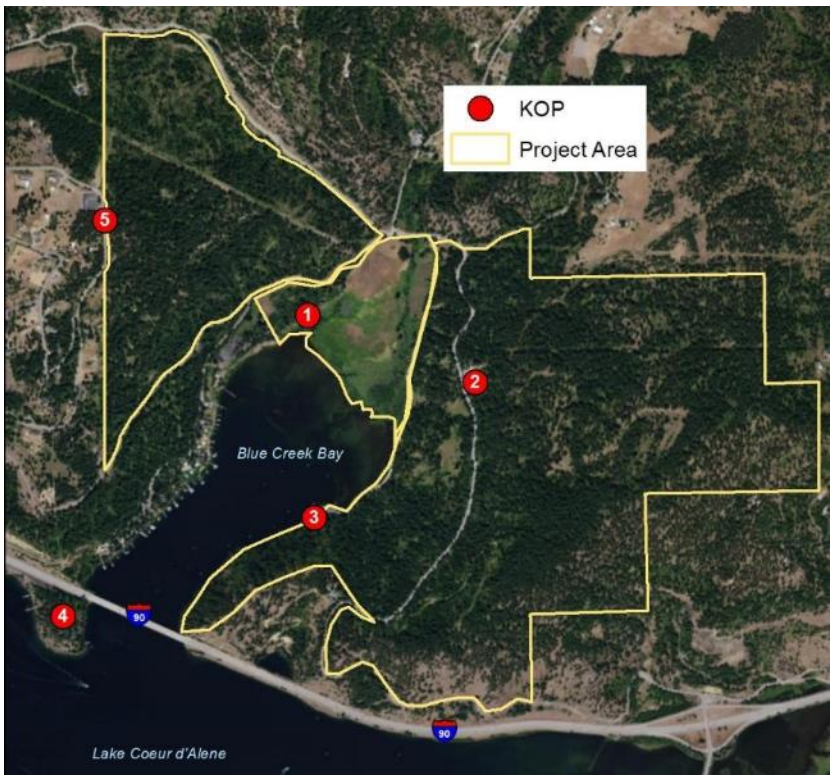


Figure 14. Key Observation Point Locations.

KOP-1 is located at the viewing platform north of Blue Creek Bay near the intersection of Sunnyside Road and East Yellowstone Trail. From this KOP only the eastern portion of the project area is visible. The landscape consists of the blue-black water of Blue Creek Bay, the curved shoreline meeting the light green-yellow grass and shrubs of the meadow with the dark green vertical conifers with occasional openings providing the backdrop and ridgeline horizon. The boat launch on the east side of the bay is also visible. Figure 15 shows a portion of the view from KOP-1.

Figure 15. View of Project Area from KOP-1.

KOP-2 is located at the parking area and trailhead east of Blue Creek Bay adjacent to East Yellowstone Trail. This KOP is within the eastern portion of the project area. Looking eastward, the project area is immediately in front of the observer. Beyond the parking area and facilities tall green-yellow grass, some ferns, and sparse shrubs merge with the edge of the reddish-brown vertical trunks and coarse dark green crowns of conifers. Looking westward, across the gray gravel parking area and adjacent gravel road, the near view is similar to the eastward view. Beyond this the dark green conifers of the ridgeline on the west side of the project area provides the backdrop and form the horizon. Figure 16 shows the westward view from KOP-2.

KOP-3 is located at the parking area and the landing boat dock on the east side of Blue Creek Bay at the end of Landing Road. This KOP is on the western edge of the eastern portion of the project area. Looking eastward the view is very similar to the eastward view from KOP-2 described above. Looking westward, the blue-black water of the bay dominates most of the near view. Across the bay green lawns, multi-colored houses, and docks are visible. Beyond them and to the north, the hills rise above covered with coarse dark green conifers. The trees are less dense in some areas on the hills and lighter green-yellow understory or red-brown soil is visible through irregular openings. Figure 17 shows the westward view from KOP-3.

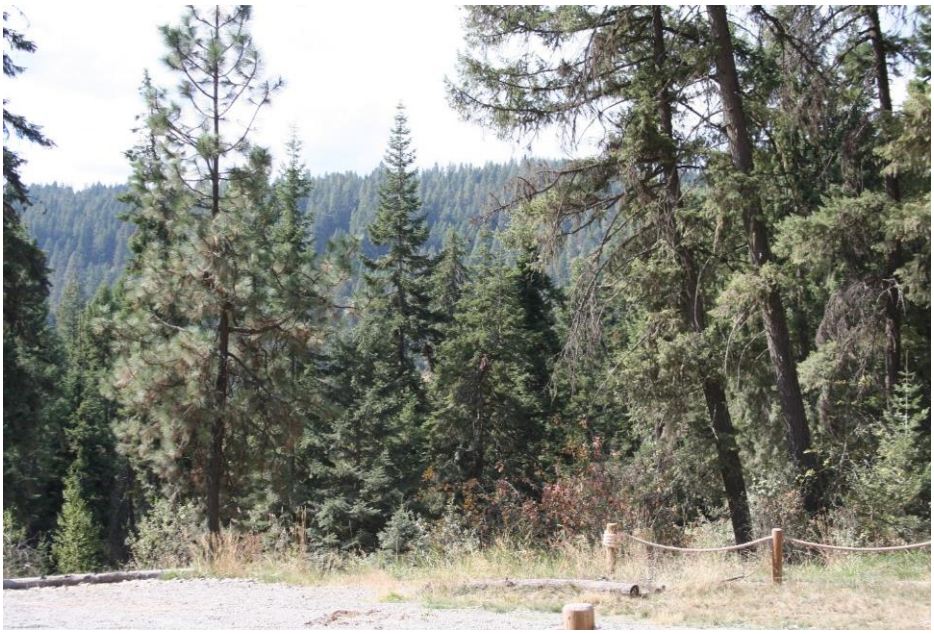


Figure 16. Westward View from KOP-2.

Figure 17. Westward View from KOP-3.

KOP-4 is located at the Higgins Point day-use picnic area south of Interstate 90, southwest of Blue Creek Bay. Only the western portion of the project area is visible from this KOP. Looking toward the northeast, first the gray linear interstate highway is visible. Then the blue-black flat water of Blue Creek Bay dominates the view. Light green grass and irregular shrubs, along with

light brown soil occur along the irregular shoreline and meadow. Hills in the project area rise above the shoreline and are covered with dark green coarse conifers with occasional openings that reveal light green understory and light brown soil. Figure 18 shows the view of the project area from KOP-4.

Figure 18. View of the Project Area from KOP-4.

KOP-5 is located on Bonnell Road. This KOP was added in response to comments regarding the proposed parking area and trailhead that would be located adjacent to the road under the proposed action. Looking northward, the paved gray county road with yellow center stripe and light green grassy berms runs forward from the view point and dominates the view. To the west is a light green grassy lawn shaded by sparse pines. A transmission line with gray wood poles runs parallel to the western side of the road. Some light gray structures of an electric substation are visible just ahead on the west side. The project area is to the east of the road and is covered by more dense dark green conifers. Further to the north a conifer covered rolling ridgeline forms the horizon. Figure 19 shows the view of the project area from KOP-4.

Figure 19. Northward View from KOP-5.

7.13.2 Environmental Effects from Alternative A (Proposed Action)

The proposed action would meet the RMP objective for VRM Class II in the long term. The vegetation treatments would mostly involve removal of smaller diameter trees, with some thinning of the overstory and opening the canopy. The BLM repositioned treatment unit boundaries after the initial scoping period to follow more natural features and topographic breaks (see Appendix A: Map 1 Forestry Treatments). Fuels treatments would transition into other forest treatment areas to reduce unnatural looking boundaries. In addition, variable density thinning will occur over the majority of the project area in order to mimic more natural processes. Where overstory trees are removed, more of the light green understory grass and shrubs would be seen. The fuel break would include removal of more vegetation increasing the view of the understory. However, none of this would be distinct from the surrounding landscape and would not attract the attention of the casual observer. Burning of slash piles and implementation of the prescribed burn would result in smoke that would likely be highly visible and attract the attention of any observer. However, this would only last 2 to 3 days while burning occurs. Exposed soil and gravel from improvement and use of linear haul roads would contrast with the surrounding natural setting, but this would be less intrusive to the viewer after some roads are reclaimed and vegetation regrows. Indirectly, the vegetation treatments would reduce the risk of intense stand-replacing wildland fire, which would have more dramatic effects on the visual landscape (see discussion in Section 7.13.4 below). The recreational improvements and uses would not likely be observable, except in the immediate vicinity of the improved trails or parking areas. However, since there are already facilities and roads adjacent to these areas, the improvements would not contrast with the rest of the landscape.

From KOP-1 (Viewing Platform) the irregular canopy openings created by vegetation treatments on the eastern portion of the project area would be visible, making lighter green understory visible, contrasting slightly with the vertical dark green conifers. However, these would not contrast with the larger landscape which already includes irregular openings exposing the understory and soils. It is unlikely that any of the recreation improvements would be visible

from this KOP, except possibly a portion of the connector trail that would run across the northern portion of the meadow. However, most of the trail would be hidden by grass and shrubs and would not distract a viewer.

From KOP-2 (BLM Parking Area and Trail Head) the effects on the westward view would be similar to those described for KOP-1. However, looking eastward, the stumps and removal of vegetation would be visible. However this would be only temporary and would become less noticeable once the understory vegetation and new shrubs begin to grow. Also, trees harvested within one hundred feet of trail systems and parking areas will be severed at ground level to reduce the visual impacts of stumps. If there are any slash piles near the parking area, these would also attract attention and contrast with the natural setting of the forested background. However, the number of piles would be reduced by whole-tree yarding, and the piles that are left would only be temporary until burned. Any trail improvements or signs would not likely be noticeable. Two existing trails already connect to this point.

From KOP-3 (BLM Boat Launch) looking westward the effect would be similar to that from KOPs 1 and 2 (westward). Looking eastward the effect would be similar to that described for KOP-2 (eastward). Recreation improvements would not be visible.

From KOP-4 (Higgens Point) the effect would be similar to that described for KOP-1, except slightly less due to the greater distance from the project area.

From KOP-5 (Bonnell Road) the effects of the forest vegetation treatments along the east side of the road would be similar to that described for KOP-1, except less of the project area would be visible. A small portion (25 – 50 yards) of the improved administrative road used to haul timber out of the project area onto Bonnel Road (see Appendices C and D) may be visible through the screen of remaining trees. This would become less noticeable over time as vegetation regrows along the road. In addition, portions of the proposed parking area and trailhead would be seen. Some of the trees between the road and the parking area would be retained to partially screen the view. However, some of the gray driving surface of the parking area, and possibly some of the information signs would be visible from the road. Considering the existing man-made-structures within view, it is unlikely that the parking area would attract attention, affect the visual setting, or present noticeable contrast with the landscape.

7.13.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

The impacts would be similar to those from the proposed action, except that eastward views from KOP-2 and KOP-3. There would be no parking area off Bonnell Road; however, from KOP-5 the area along the east side of the road would appear more open with less dense trees, as a result of the shaded fuel break. The haul road would also be slightly more visible. This should not contrast with the rest of the landscape, which already includes other open areas with less dense trees, and man-made structures.

7.13.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

Effects to visual resources would be the same as those described under Alternative A, except the minimal effects from the Bonnell Parking area would not occur.

7.13.5 Environmental Effects from Alternative D (No Action)

While the effects from vegetation treatments described above would not occur, there would be an indirect effect of increased potential for occurrence of intense stand-replacing wildfire. Should this occur, the viewshed from all KOPs would change dramatically due to removal or charring of most of the trees. This would take decades to recover.

7.13.6 Cumulative Effects

The project area is surrounded by privately owned forested lands and residences, visible from all KOPs. Some adjacent land owners have already conducted treatments similar to those under the proposed action. It is likely that other private land owners would implement vegetation treatments over the next few years on their lands. Depending on the types of treatments, the effects on visual resources could be similar to, or more severe than those in the project area. However, these too would likely blend with the rest of the landscape and not attract attention. If adjacent land owners burned slash piles from vegetation treatments at the same time as the BLM burns slash piles from the proposed action, there would be more smoke obscuring the view from some KOPs, attracting attention from all observers. However, as previously stated this would likely only last a few days until burning is completed. Also, given the visible development that exists in the area (e.g., exiting roads, residences, transmission lines, substation, and boat docks) the proposed facilities, such as parking areas and trails, would not appear out of place or attract attention.

7.14 Wildlife

7.14.1 Affected Environment

The Blue Creek Bay project area includes a variety of habitat types. From dry coniferous forest to lake shore line and a wetland meadow, the diverse vegetation communities support an equally diverse array of wildlife species. (See Vegetation Communities and Forest Vegetation Sections 7.12 and 7.5)

North and east-facing slopes are characterized by 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, and cordilleran flycatcher. 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, 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.

The meadow and lake habitat, which lies between the east and west sides of the project area, includes riparian plant communities like black cottonwood, willow, hawthorn, and other shrubs that provide important food sources for many birds, as well as other wildlife. The meadow area is largely composed of non-native grasses such as reed canary grass. However, even degraded meadow habitat provides nesting areas for species such as mallards, song sparrows, and savannah sparrows.

Because forest insects and disease are already present on the site, snags are available to wildlife that require cavities. Bats, birds, and other mammal species such as flying squirrels that use snags for a portion of their life-cycle are present on the site. Larger diameter trees can also be found throughout the project area. These will become valuable future snags. An inventory of wildlife trees was conducted in 2014. Appendix I: Map 9 *Inventoried Snag Locations* shows the locations of snags and other high-value wildlife trees found during the survey. At this time, most of the project area is not meeting the objectives for snag availability that are outlined in the RMP.

Logs and other coarse woody debris provide habitat for invertebrates, salamanders, western skinks, and other small animals. In 2016, surveys were conducted to determine if the proposed project area is currently meeting the objectives for logs per acre as outlined in the Fish and Wildlife Section of the RMP. Plots that were 1/10 acre in size were surveyed on both the west and east side portions of the project area. Many of the survey points were not meeting the standards outlined in Section 6.1.1 Environmental Design Features.

Moist areas resulting from springs and man-made ponds, as well as riparian areas associated with perennial and intermittent streams provide valuable habitat for salamanders, bats, and numerous other wildlife species. These habitats are particularly valuable to wildlife during dry summer months and during drought years.

The impact of human uses on wildlife in the project area is fairly significant, and more so on the east side of Blue Creek Bay. The proximity to Coeur d'Alene makes the area popular for recreation, though Blue Creek Bay receives a fraction of the use that nearby Mineral Ridge has. Because recreational opportunities have only recently been developed and improved, there is not as much use of the project area as one might assume. Much of the use is by local people living adjacent to or nearby the project area. Current use is limited to hiking, horse-riding, hunting, and biking. BLM lands on the east side of Blue Creek Bay have the highest levels of public use for recreation (See Recreation Section 7.9). More developed trail systems, signage, and parking areas currently concentrate use of the Blue Creek Bay site on the east side. While the west side has undeveloped trails, access to this area is largely limited to local use by people living nearby. There are no authorized trails in this portion of the project area. However, access to this area is common and has been facilitated by the creation of unauthorized trails and the improvement and maintenance of game trails, old roads, and skid trails. Horse-riding, hunting, and hiking are the most common activities in this area. Motorized public access is not allowed in the project area except on County maintained roads. Access to administrative roads is controlled by gates. The power line intersects the project area on the east and west sides and full size vehicle access is needed for power line maintenance and monitoring.

Activities on surrounding lands also impact wildlife within the project area. Historic timber harvest has altered the structure of forests near the project area. As a result, adjacent forest stands are generally younger in age with fewer mature, large diameter trees. Canopy cover on adjacent lands is typically lower than the canopy cover within the project area.

The greatest current impact to wildlife in the surrounding area is habitat loss from home development and fragmentation resulting from roads and home sites. Roads and trails within and adjacent to the project area can disturb wildlife and serve as vectors for the spread of weeds which degrade wildlife habitat (Mace et al. 1996; McLellan and Shackleton 1988; Van Dyke et al. 1986; and Rost and Bailey 1979).

Table 17. Summary of the Special Status Species that may be found in the project area.

Species	Likely to Inhabit	Uncommon-May Inhabit or potential habitat	Encountered on Site Visit	Not present No suitable habitat
Grizzly bear** (*Ursos arctos horribilis*)				X
Canada lynx** (*Lynx Canadensis*)				X
Woodland caribou** (*Rangifer tarandus*)				X
Wolverine** (*Gulo gulo*)				X
Bald Eagle*** (*Halialeetus leucocephalus*)			X	
Northern Goshawk*** (*Accipiter gentilis*)	X			
Flammulated owl*** (*Psiloscops flammeolus*)		X		
Cassin's finch*** (*Haemorhous cassinii*)	X			
Lewis's woodpecker*** (*Melanerpes lewis*)		X		
Common nighthawk*** (*Chordeiles minor*)	X			
White-headed woodpecker*** (*Picoides albolarvatus*)		X		
Willow flycatcher*** (*Empidonax traillii*)			X	
Fringed Myotis*** (*Myotis thysanodes*)		X		

Species	Likely to Inhabit	Uncommon-May Inhabit or potential habitat	Encountered on Site Visit	Not present No suitable habitat
Townsend's big-eared bat*** (*Corynorhinus townsendii*)		X		
Long-eared myotis*** (*Myotis evotis*)	X			
California myotis*** (*Myotis californicus*)		X		
Hoary Bat*** (*Lasiurus cinereus*)		X		
Silver-haired bat*** (*Lasiurus noctivagans*)		X		
Long-legged myotis*** (*Myotis volans*)		X		
Western small-footed myotis*** (*Myotis cilliolabrum*)		X		
Yuma myotis*** (*Myotis yumanensis*)	X			
Little brown myotis*** (*Myotis lucifigus*)	X			
Coeur d'Alene Salamander*** (*Plethodon idahoensis*)		X		

****Type 2** BLM Designated Special Status Species or IDFG species of Greatest Conservation Need*
*** **Type 1** Threatened, Endangered, Proposed, or Candidate Species under the Endangered Species Act*

Type 1 Species - Threatened, Endangered, Proposed, and Candidate Species under the Endangered Species Act (ESA)

There are currently four Type 1 species that occur in north Idaho; grizzly bear (*Ursus arctos*), woodland caribou (*Rangifer tarandus*), Canada lynx (*Lynx canadensis*), and wolverine (*Gulo gulo*). Grizzly bear and Canada lynx are listed as threatened under the ESA. The woodland caribou is an endangered species. The wolverine is a candidate species. None of these 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 species will not be included in the analysis of effects.

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 et al. 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. Habitat 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). This area is not within a Lynx Analysis Unit or considered to be Lynx Habitat. This species will not be included in further analysis.

Of the four Type 1 species, the grizzly bear has the highest likelihood of using the project area, though that likelihood is still low. The project area lies approximately 40 miles southwest of the Cabinet Yaak Recovery Zone and more than 100 miles from the northwest of the Bitterroot Ecosystem which have been outlined as areas important to the recovery of grizzlies throughout their historic range (USFWS 2012a). The project area is not within a Grizzly Bear Management Unit and is not considered Core habitat. Currently the project area is considered to be "unoccupied" by grizzlies (USFWS 2016). However, one young male was killed inadvertently near Rose Lake in 2010 (18 miles away). Otherwise, no grizzlies have been verified in the analysis area in several decades or more. Grizzly bears are flexible in their habitat requirements. Their main habitat requirement is sufficient prey, forage, thermal cover, and denning habitat. These requirements 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). In general, higher human activity reduces habitat suitability for grizzlies. Human bear conflicts often result in a higher likelihood of mortality for bears (Neilson et al. 2004, Benn and Herrero 2010) and the disturbance to these two species would increase stress levels (Boubonnais et al. 2013, Stewart et al. 2016).

Wolverines were recently determined to be not warranted for protection under the ESA (USFWS 2014). However, a lawsuit decision in 2016 requires that the USFWS review the listing decision again. Thus, we are including this species in the analysis for this project. A wolverine was documented near St. Joe Baldy (44 miles away) in 2003 (IDFG 2003). 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, the rural development, 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 grizzly bear or wolverine may pass through or temporarily use the site, but it is not likely that either of these species would inhabit the site with any regularity as habitat for both would be considered marginal because of the high degree of human development and disturbance.

BLM Type 2 – BLM Designated Special Status Species and Idaho Species of Greatest Conservation Need (SGCN)

Very often, species that are habitat specialists are BLM Special Status (Type 2) Species or Idaho State Listed Species of Greatest Conservation Need (SGCN). Their populations tend to be less secure because loss of their specialized habitat results in more dramatic population declines and higher rates of extinction (Smith 1992). With its variety of habitat types, the project area provides suitable habitat for, and may be occupied by, several of these Special Status Species.

Some of the species listed in Table 17 prefer denser, interior forest stands. While some require more open, mature forest with an abundance of large trees. Other species are primary or secondary cavity users, so they require snags.

Birds

While not all of the species described below have been found in the project area, there may be suitable habitat for these species or vegetation treatments may create suitable habitat for these species.

Bald Eagles are fairly common in north Idaho now. Declining populations were listed under the ESA until 2004. This raptor hunts fish on the lakes and rivers of North Idaho and will also feed on waterfowl and scavenge dead animals. Pairs mate for life and reuse the same nest year after year. There are no documented nesting pairs within the project area, but they can often be found on the shoreline of Blue Creek Bay, particularly in winter. Important habitat components for this species include large diameter trees with large horizontal branches for perching and hunting from. Live large diameter trees that can support the large nests that eagles build are also required for breeding success. Healthy and abundant fish populations are also a necessary component for Bald Eagles. Roosting sites for Bald Eagles in ponderosa pine habitat tend to have higher basal area, are east-facing, have a higher density of trees and a higher density of large diameter trees (Joshi 2009). While there are no known roosting sites for Bald Eagle in the project area, documented night roosts occur and are used during the winter months in nearby Wolf Lodge Bay.

Northern Goshawks are forest raptors that nest in relatively dense forest stands with canopy closure greater than 75% (Moser 2007). Goshawk territories can be as large as 420 acres and require a mixture of high canopy cover forest for nesting and more open forest, or small forest openings for hunting. Goshawks prey on smaller bird species and small mammals such as tree squirrels. Goshawks return to their nests as early as March or early April and egg laying can begin shortly after. Pairs maintain 1-8 nests in a territory and may use alternate nests in sequential years (Rodewald 2015). Research indicates that forest treatments can be conducted in goshawk nesting habitat without negative impacts if at least 39% of the territory maintains the 70% forest cover standard (Squires and Reynolds 1997 and Moser and Garton 2009). However, none of the 2014 Forest Vegetation Inventory (FORVIS) plots conducted in the project area met the canopy cover requirements of 70 percent. Nevertheless, the project area does provide some of the denser forest stands within the analysis area. And while it is possible that some areas proposed for treatment might meet the 70 percent canopy cover standard, it is unlikely that the

project area would meet the 39% of the total territory area threshold referenced above. Thus project area currently provides foraging habitat and marginal, or possibly unsuitable, nesting habitat for goshawks.

Flammulated Owls are a small migratory owl that eats insects, mice, shrews, and other small vertebrates. However, their diets are almost entirely insects, especially crickets, moths, and beetles. They hunt at night, gleaning insects off of vegetation. This explains their migratory behavior. This species prefers mature pine forests where it nests in cavities created by woodpeckers (Rodewald 2015).

Cassin's Finches feed primarily on tree buds and seeds, and they mix with other montane finches such as crossbills and siskins. Cassin's Finches live in evergreen forests in the mountains up to about 10,000 feet elevation. In winter, they may move to lower elevations. They feed heavily upon seeds of pines and quaking aspen (Rodewald 2015).

Lewis's Woodpeckers are unique because they catch insects in the air during the breeding season and store mast (e.g., seeds, acorns, and corn) during the winter. According to the Idaho Draft State Wildlife Action Plan (IDFG 2016), "breeding sites generally occur in burned ponderosa pine forests, cottonwood riparian forests, and aspen groves. This species appears to prefer nesting in large diameter, well-decayed snags in relatively open forests with a well-developed understory. Nests are sited in natural cavities or abandoned nest of primary excavators".

The White-headed Woodpecker can be found in pine-dominated forests in the mountainous regions of the West. In its northernmost range, this species typically inhabits dry coniferous forests dominated by ponderosa pine (Rodewald 2015). Historically this species would have been more common in the Idaho Panhandle but the gradual conversion of mature pine forest into mixed coniferous densely stocked forest has made much of the habitat in north Idaho unsuitable. Preferred forest stands are typically multistoried and open-canopied mature and old-growth ponderosa pine. They will also use recently burned or logged areas where large pines remain. Healthy populations of this species are an indicator of the quality of mature ponderosa pine habitats, which are used for breeding, roosting, and foraging. This species requires an abundance of large-diameter pines, relatively open canopy (50–70%), and availability of snags and stumps (mostly high-cut) for nest cavities (IDFG 2016).

Common nighthawks typically nest on the ground in open forests, logged or slash-burned areas of forest, woodland clearings, and rock outcrops. The Common Nighthawk is a crepuscular (dawn and dusk) forager that feeds on flying insects such as moths, beetles, and caddisflies. This species may forage in large groups (IDFG 2016).

Willow Flycatchers are closely associated with riparian shrub habitat, as their name implies. This species migrates to north Idaho for the nesting season where it breeds in moist shrubby areas often with standing or running water. Willow flycatchers are aerial insectivores that capture insects in the air or glean them off of plants (Rodewald 2015).

Bats

The bat species in Table 17 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. Some species that use snags, loose bark, cavities, or foliage for roosting may also be present on the site. Hoary bats are migratory and roost in the foliage of live trees. Silver-haired bats are also migratory and roost in small colonies in trees. 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.

Amphibians

The Coeur d'Alene salamander (*Plethodon idahoensis*) 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). The type locality for this unique endemic is just across the lake in Wolf Lodge Bay. 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, this species would be located in perpetually wet areas, such as a seep, spring, or creek. These salamanders are primarily nocturnal and so are less likely to be encountered by surveyors or the public.

Migratory Birds

Almost any species of bird one might encounter in the project area would be considered a migratory bird and would be protected by the Migratory Bird Treaty Act. A variety of habitats in the project area provide foraging and nesting habitat for numerous neo-tropical migrants in spring and summer and resident birds throughout the year. These habitats include mixed coniferous forests, the shrubby forest understory, sunny forest openings with grasses and shrubs, wet and dry meadows, and riparian plant communities. Birds may nest in coniferous trees, from near to ground level up to the highest branches. They may be secondary cavity nesters, nest on the ground, or nest in small trees or shrubs. The project area is part of a designated Important Bird Area. The designation recognizes the diversity and number of birds found in Wolf Lodge and Blue Creek Bays and the phenomenon of the large winter gathering of bald eagles for the kokanee spawn in Lake Coeur d'Alene. Volunteers from the local Audubon chapter have conducted monthly bird counts at 4 sites the project area for more than a decade. These surveys have documented 145 bird species in the project area.

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, black-capped, mountain and chestnut- backed chickadees, Chipping sparrow, brown creeper, and Townsend's warbler were among the species documented during several site visits to the forested portions of the project area.

The meadow area north of the lake and between the east and west sides of the project area includes seasonally flooded habitat adjacent to the lake shore. Thus in fall and spring this area is important to migrating and nesting waterfowl. The riparian habitat that borders the meadow as well as the meadow itself support species like cedar waxwing, song sparrow, northern flicker, gray catbird, belted kingfisher, red-tailed hawk, and yellow warbler.

Osprey can also be found near the lake between April and October. This raptor feeds exclusively on fish. Thus abundant fish populations are necessary for osprey to nest and thrive in the project area. Many Osprey nests are located on pilings on Lake Coeur d'Alene. However this species, which prefers to nest at the top of trees, poles, or pilings, has also been found nesting on top of snags in forests adjacent to open water habitats.

While many migratory bird species may be found on the project site, this analysis will focus on those bird species of particular concern, including BLM Type 2 species and Idaho Fish and Game SGCN. However, a broader analysis of the impacts to migratory birds and their habitats will also be discussed.

Other Wildlife

There are several ponds within the project area. Some of the smaller ponds are seasonal, while the larger, deeper ponds have at least some water throughout the year (presumably the ponds are manmade). But regardless, they now provide habitat for amphibians such as spotted frogs (*Rana pretiosa*) and are an important water source for other animals like bats, deer, birds, and small mammals.

Sign of elk (*Cervus Canadensis*), moose (*Alces alces*), deer (*Odocoileus virginianus*) and black bear (*Ursus americanus*) were found in 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 et al. 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. Recreational use of the project site, particularly on the east side, reduces suitability for elk which often respond to human disturbance by leaving an area until the disturbance has passed (Ciuti et al. 2012, Wisdom et al. 2004, Knight and Cole 1991, Edge and Marcum 1985). However, because the project area is so close to human

developments, traffic, and moderate levels of recreation, it is likely local elk populations are somewhat accustomed to human activities. This is supported by reports from local residents about elk use of landscaped yards and water sources located near homes. Bow hunting is allowed within the WFCA, however BLM is unaware as to the levels of harvest, though we expect it to be low as no reports of harvest on the WFCA have been shared with the BLM. Despite the relatively high level of human activity within the WFCA, the low elevation of the project site, combined with the high levels of human development around BLM lands make this area valuable to big game, especially white-tailed deer.

This project site provides necessary habitat components for wolves (*Canis lupus*), mountain lion (*Puma concolor*), black bear, ruffed grouse (*Bonasa umbellus*), wild turkey (*Meleagris gallopavo*), bobcat (*Lynx rufus*), and numerous small mammal species like raccoons (*Procyon lotor*), skunks (*Mephitis mephitis*), and coyotes (*Canis latrans*). As habitat generalists, these species utilize many vegetation communities and their presence is often 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).

7.14.2 Environmental Effects from Alternative A (Proposed Action)

Vegetation Treatment and Fuels Treatments

The following table indicates the medium to long term effects of the project on Special Status Species resulting from the forest treatment prescription outlined in Alternative A. 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.

Table 18. Medium to long term effects of Alternative A on Special Status Species in the project area.

Species	Positive Effect	No Effect	Negative Effect
Grizzly bear**		X	
Wolverine**		X	
Bald Eagle***	X		
Northern Goshawk***			X
Flammulated owl***	X		
Cassin's finch***	X		
White-headed woodpecker***	X		
Lewis's woodpecker***	X		
Common nighthawk***		X	
Willow flycatcher***			X
Fringed Myotis***		X	

Species	Positive Effect	No Effect	Negative Effect
Townsend's big-eared bat***		X	
Long-eared myotis***		X	
California myotis***		X	
Hoary Bat***		X	
Silver-haired bat***		X	
Long-legged myotis***		X	
Western small-footed myotis***		X	
Coeur d'Alene salamander***		X	

** ***Type 1*** *Threatened, Endangered, Proposed, or Candidate Species under the ESA*
******Type 2*** *BLM Designated Special Status Species or Idaho Species of Greatest Conservation Need*

Type 1 - Threatened, Endangered, and Candidate Species under the ESA
The project area could potentially provide habitat for grizzly bear and wolverine because these two species are fairly general in their habitat requirements. It is possible that grizzly bear or wolverine may pass through or temporarily use the site during dispersal, but it is not likely they would inhabit the site with any regularity. The high density of existing development around the project area and the consistent use by people for recreation make the habitat in project area and vicinity marginal at best (Ruggerio et al. 2007, McClellen and Shackleton 1988, Mace et al. 1996, Hornhocker and Hash 1981). If a grizzly bear or wolverine did pass through the area at the time of implementation, they would likely be disturbed enough to leave. This is highly unlikely, but if it did occur, it would not result in any significant or long lasting impact to the animal. Any effects to the animal would be of very short duration and low to moderate intensity. Based on the wide variety of habitats that can be exploited by these two species, changes to habitat from the proposed vegetation treatment outlined in Alternative A would neither benefit nor have negative indirect impacts to the transitional habitat that may be present in the project area.

No denning habitat for either species is found within or near the project area. Also no significant impact to forage or prey availability would occur if Alternative A were implemented. No new roads would be constructed or opened to the public as part of this alternative and thus no negative impacts to wolverine or grizzly bear would be expected from implementation of Alternative A.

Type 2 – BLM Designated Special Status Species and Idaho SGCN

Habitat Impacts
The proposed vegetation treatments, including timber harvest, fuels treatments, and prescribed burning would modify habitat for wildlife resulting in positive impacts for some species and negative impacts for others. Generally, those species that prefer a more open forest canopy would benefit from the proposed treatments, while those that prefer a more densely stocked

forest with higher canopy cover would be negatively impacted. In total 616 acres would be treated under this Alternative, while 135 acres would be kept in reserve and left untreated. Use of the variable density thinning method to harvest timber would result in a mosaic of canopy cover across the site. Some areas where disease is more prevalent or where there are few early seral species (larch, ponderosa pine, etc.) would be more heavily harvested and would likely become forest openings or low canopy cover forest with a vigorous understory of shrubs, forbs, and grasses. Areas that have very little merchantable timber, are located near ponds or springs, or have been determined to have high value as wildlife cover areas would not be treated as heavily and would retain some of their character as more dense forest with a less vigorous understory and high canopy cover. Species that prefer more dense forests would be limited to these pockets of lightly or untreated forest or reserve areas. While species that prefer open canopy would find there is significantly more suitable habitat available for their use.

The impacts of the vegetation treatments proposed in Alternative A on specific species or groups of species are discussed in greater detail below. However, there are some impacts from logging activities that can be universally applied regardless of the species or habitat type in question. Logging activities often result in the introduction of weeds throughout project areas. Weeds can be introduced and spread throughout a project area by boots, tracked equipment, and wheeled vehicles. A more detailed discussion of the proposed alternatives impacts on weed presence in the project area can be found in section 7.7. Conservation measures to minimize the spread of weeds into the project area will be implemented. Still an increase in weed presence is likely to occur under each of the Alternatives A, B, and C. Weeds replace valuable native vegetation that wildlife depend on, with exotic vegetation that is typically less palatable, is occasionally toxic, and very often decreases habitat suitability.

Birds

Direct impacts to Special Status bird species are largely related to human disturbance and vegetation and snag removal. Repeated disturbance can cause nesting birds to abandon their nests or increase the likelihood of nest failure (Littlemore and Barlow 2005, Larson et al. 2016, Fernandez et al 2001). Likewise, removal of vegetation where birds are nesting would destroy nests and result in mortality to offspring and potentially adults (in the case of cavity nesting birds).

To reduce the likelihood of direct mortality to nesting birds no vegetation would be removed between April 1st and July 15th. This design feature in the prescription should help avoid the loss of nests, eggs, and nestlings for the majority of birds in the project area. However, some species may attempt a second clutch and their nests may still be active after July 15th. Also it is possible some cavity nesting resident species may initiate their nest attempt before April 1st. In this case, loss of eggs and nestlings would be expected. However, this should only apply to a small proportion of nesting birds as most nest attempts have been completed by July 15th and do not start before April 1st (Bird Studies Canada 2013).

Indirect effects to special status birds are dependent upon how the silvicultural prescription modifies habitat. Removing diseased and dying trees and reducing canopy cover would support the growth of dominant large-diameter trees. Preferred tree species for retention in this Alternative include western white pine, ponderosa pine, larch and large diameter Douglas-fir.

Removal of smaller diameter shade tolerant trees would reduce competition for the tree species that are preferred by Lewis's woodpecker, white-headed woodpecker, and flammulated owl for nesting cavities. Conversely, removing any large diameter diseased and dying trees would also remove a future source of snags that could be utilized by these species. Implementing the snag objectives outlined in Objective FW 2.2.1 of the RMP and in the Environmental Design Features Section of this document will preserve nest cavities and retaining large diameter pines will ensure the future availability of suitable snags for nesting for these species. Because the WFCA is currently not meeting the snag objectives outlined in the Coeur d'Alene RMP, retaining high value snags and buffering them, if necessary, should be a high priority. In addition, creating large diameter snags by girdling may increase the habitat suitability in the project area for these species. Girdling to produce snags is not proposed with this project, but may be considered in the future, depending on the results of post-treatment monitoring.

Retaining and promoting the dominance of large pine trees would protect, and increase the availability of a necessary food source for Cassin's finch, white-headed woodpecker, and Lewis's woodpecker. Promoting the growth and expansion of aspen would create more diversity in the project area and would benefit species status species that are associated with aspen stands like flammulated owls and Lewis' woodpecker (Rodewald 2015).

If there are goshawks nesting in the project area, they may be impacted by logging activities. Adults may begin laying eggs in late April or early May. The breeding season from egg-laying to fledging is about 80 days. It is possible that nesting attempts for this raptor may continue beyond July 15th (Rodewald 2015). If the nest is not found prior to tree falling the nest could be destroyed or individuals could be disturbed enough that the likelihood of survival for offspring would decrease. The RMP prescribes a buffer of 100 yards for any active raptor nest. Evidence of nesting would be reported by the logger, contractor, or field office personnel to the biologist so a buffer can be flagged and all activities can be suspended within the buffered area. Logging activities would then resume once the nesting attempt is complete.

Negative indirect impacts to the Northern Goshawk can be expected in the project area. Goshawks prefer interior closed canopy forests for nesting (Moser 2007; Rodewald 2015). Goshawks nest in closed canopy forests on moderate slopes (Moser 2007). 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. This Alternative would impact about 616 acres of forested habitat which currently does not meet the standard of 70% canopy cover recommended for goshawk nesting habitat. However, the project area does represent some of the highest canopy cover left within the analysis area and forests would likely move toward suitability if left untreated. Thus treatments in the project area that open up the forest canopy would further reduce future suitability for nesting. Even the variable density thinning prescribed in Alternative A is unlikely to leave enough untreated forest to provide the 39% of forest with 70% canopy cover that this species prefers. The project area would transition to foraging habitat for this species habitat, which is already in greater abundance within the analysis area.

While silvicultural treatments would not be implemented in habitat for willow flycatcher the lower landing road which follows the shoreline of Blue Creek Bay would be used for transporting equipment and hauling logs. The provision that does not allow tree falling or

vegetation removal between April 1st and July 15th does not disallow equipment staging or hauling of logs. If these activities were to occur during the nesting season for willow flycatcher, disturbance of nesting adults may result in decreased nest success (Miller et al. 1998). The area of impact for this species is so limited that at most 1-2 pairs would be impacted if they are present (Rodewald 2015).

As a habitat generalist, nesting and foraging habitat for the common nighthawk is unlikely to be impacted by the proposed silvicultural treatments in Alternative. The dates for harvest should avoid impact to nesting nighthawks within the project area. Common nighthawks rarely attempt a second clutch, so the likelihood of nest failure, direct impacts and mortality is further reduced (Rodewald 2015).

Impacts to bald eagles would not be significant under Alternative A. The retention of large diameter trees would maintain suitable nesting and perching sites for this species. Disturbance to bald eagles may occur during implementation but would not occur during the nesting period. In the unlikely event that active nests were found in the project area, they would be buffered to avoid disturbance to adults and offspring. There is no occupied roosting habitat for bald eagles in the project area, however, the proposed vegetation treatments would reduce roosting habitat suitability.

Bats

In the short term, bats like the myotis species listed in Table 18 that use dead or dying trees as roosting sites would 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 would be retained and sufficient recruitment of new snags resulting from insects and disease would provide roosting habitat needed to support bat populations in the project area. The proposed vegetation prescription in Alternative A would not substantially impact bat foraging habitat. The bat species likely to be found within the project area are generalists when it comes to foraging and the proposed vegetation removal is not likely to significantly impact the availability of insect prey for bats.

Amphibians

None of the alternatives includes construction of new roads and all existing roads would be closed to motorized use after implementation. If existing roads are not properly constructed or maintained, then erosion into streams may increase as a result of logging activity. This would decrease habitat quality for aquatic species that use low- sediment stream habitats. This alternative includes stream buffers for intermittent and perennial streams and a 75-foot buffer for ponds where vegetation would be untreated. Negative impacts to the Coeur d'Alene salamander would be avoided by stream and pond buffers and road construction standards. As proposed, the project should have little to no impact on any aquatic species, including the Coeur d'Alene salamander.

Migratory Birds

Executive Order 13186 requires Federal Agencies to consider impacts of projects and land management planning on migratory bird populations. In addition an MOU between the U.S Fish and Wildlife Service and the BLM dated April of 2010 (BLM MOU WO-230-2010-04) also

requires the BLM to incorporate conservation measures during project planning to reduce incidental take of migratory birds

Vegetation removal would not occur between April 1st and July 15th. This design feature would significantly reduce direct impacts to migratory birds nesting in the project area. There would be no loss of nests, eggs, or nestlings during this time period and no disturbance to adults. There could be some birds that attempt a second clutch and these birds may have active nests after July 15th. These birds would be negatively impacted by vegetation removal. However, limiting logging activities during the specified time period would cover the first nest attempt for the majority of migratory bird species within the project area.

Indirect effects on migratory birds would 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 pacific wren, Townsend's warbler, and Hammond's flycatcher (Rodewald 2015). However yellow warbler, orange-crowned warbler, and MacGillivray's warbler would benefit from tree removal once the shrub community responds to increased sunlight and decreased competition with trees (Rodewald 2015). Removing smaller diameter shade-tolerant trees would hasten the growth of the existing dominant trees. This would benefit species like pygmy nuthatch and calliope hummingbird. Opening the canopy should also benefit any existing hardwood trees like birch and aspen. The targeted treatment to expand existing aspen stands would have benefits to many wildlife species such as red-naped sapsucker, northern goshawk, and flammulated owl (Rodewald 2015). None of the vegetation treatments in this alternative are expected to negatively affect migratory bird populations. Though individual birds may be impacted, effects would not rise to the level of negative impacts to the local or regional population.

Impacts to cavity nesting birds are discussed in the section below.

Other Wildlife Species

Raptors

Raptor species, such as Osprey, Merlin, Sharp-shinned Hawk, Barred Owl, and Great-horned Owl that are nesting during implementation may be disturbed by logging activities. Owls, in particular, may begin courtship and nesting activities as early as March. Actions 2.3.1 and 2.3.2 in the CDA Resource Management Plan require that forest structure and activities around any active raptor nests in the project area be buffered by 100 yards. This would 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 would increase the likelihood that raptors have fledged their chicks before nest trees are felled. Any raptor nests that are found by loggers, contractors or field office personnel would be reported to the BLM biologist so that a buffer can be flagged. Activities would be prohibited within the buffer until the nesting attempt is complete.

Cavity Users

Short-term direct impacts to cavity dependent wildlife would occur at the time of harvest- when birds, bats, and other small mammals like flying squirrels may be using the cavities for nesting or roosting. Prohibiting logging between April 1st and July 15th should mitigate most of the losses for resident and migratory birds, as many species would have had at least one nesting attempt by that time. Other wildlife species, mostly small mammals, would likely die if they are inside cavities and a snag has to be felled.

Currently the project site, on average, is not meeting the snag objectives outlined in the Coeur d'Alene Resource management plan. Removal of dead and dying trees would further reduce snag resources available to wildlife, such as woodpeckers that use these insect infested trees as a food source and nesting habitat. 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. Mortality of trees due to root rot, insects, and disease will continue but would be reduced after the vegetation treatment. There would still be dead and dying trees available for cavity dependent wildlife, most likely with a larger average dbh, but their abundance would likely be reduced. Minimizing the loss of large diameter snags that must be cut by loggers for safety reasons, and minimizing post project loss of snags due to blow down, would reduce the potential negative impacts to cavity users. As specified in the design features, high value snags that are a hazard to loggers would be marked and buffered from treatment so that cutting them is unnecessary.

Big Game

Opening up the canopy and reducing tree density would reduce thermal cover and security cover for big game. At the same time opening up the canopy would create more productive foraging areas for deer, elk, and moose. Productive forage where cover is scarce has reduced value if hiding and thermal cover is in short supply (Peek et al.1982). For portions of the project area that are adjacent to private lands lacking in cover due to historic timber harvest, tree removal is not likely to benefit big game in this forage rich environment.

The proposed prescriptions for harvest would take mostly small diameter trees, and leave large healthy trees. Use of the variable density prescription would leave some patches of untreated forest and also create small forest openings which benefit many wildlife species, including ungulates. Some level of canopy cover would remain and recovery of brush in the understory would not eliminate hiding cover entirely. Retaining cover as islands between trails and high human use areas would give deer and elk secure areas to avoid human disturbance. Overall however, there would be an increase in foraging habitat and a loss in thermal cover for big game animals.

In general, elk avoid roads with human activity and avoid disturbances created by active logging and fuels reduction operations (Edge and Marcum 1985, 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. During logging activity it is likely that elk and deer would leave the active area. In some instances, this may mean leaving the project area where logging activities are occurring during day light hours and returning at night and early morning

when there is no human disturbance. Some may leave the area until logging operations are completed. A study by Edge and Marcum (1985) of elk in Montana indicated that they tended to avoid areas of active logging, but returned to use logged areas on weekends or during non-active periods.

Often the most significant impact of logging is the construction of new roads. Thomas et al. (1979) found that road density negatively impacted habitat suitability for elk. Because no new road construction is proposed that would allow access to motorized vehicles, security of big game animals is not expected to increase as a result of the proposed vegetation treatments. Ensuring that new and existing roads are effectively closed would help maintain security of elk in the project area.

Other Wildlife

Like elk and deer, other wildlife species are likely to avoid areas where vegetation treatment activities are occurring. However, if suitable habitat remains for these species, they would be likely to return to logged areas when activities cease.

Wolves and other predators of big game such as mountain lions 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. Small carnivores such as coyotes and bobcats are habitat generalist and would not likely be negatively impacted by the proposed vegetation treatment. Prey availability for these species may increase where brush communities are rejuvenated. Small prey availability could decrease in areas where much of the lower canopy and ground cover are removed, for example the fuel breaks or prescribed burn area.

Snags are used by many wildlife species and Alternative A is likely to decrease snag resources in the project area. Species like flying squirrels that use snags for roosts and eat fungi associated with dead and dying trees would be negatively impacted by the proposed forest treatments.

Logs also provide habitat for animals like salamanders and invertebrates that are a food source for other wildlife. Logs are also used by ruffed grouse for courtship displays during the nesting season. Because much of the project area is not meeting the standards for logs per acre outlined in the RMP, no firewood should be removed by the contractors or the public. This is already prohibited by the supplementary rules for the area (see Section 4.3). Logs greater than 14" diameter would be retained (see Table 5, Section 6.1.1). Cutting and leaving live low value trees that are 14 inches or greater in diameter would help the area achieve the standards. In areas that have an abundance of snags (exceeding the objectives in the RMP) smaller snags (closer to 14 inches dbh) may be cut and left to fulfill the logs/per acre requirement if the area is deficient.

Prescribed Burning and Fuels Reduction Treatments

Type 1 - Endangered, Threatened, and Candidate Species under the ESA

Effects of prescribed burning and fuels reduction treatments are very similar to the other vegetation removal methods described above in the silvicultural treatment section. Equipment and human disturbance would cause some animals to leave the area temporarily. It is unlikely

that grizzly bear or wolverine would be present in the project area during implementation and no direct impacts to these two species are expected as a result of fuels treatments. Changes in habitat from fuels treatments would not dramatically change the character of the habitat that could be used by grizzly bears or wolverine if they were passing through the site.

BLM Type 2 – BLM Designated Special Status Species and Idaho SGCN
Only small diameter fuels (8 inches and less) would be removed by slashing and construction of the fuel break, and slashing would occur outside of the nesting season for most birds. Therefore, no impacts to SGCN or Type 2 species are expected to result from these activities. Likewise, no mortality to any Type 2 Species or SGCN would be expected from implementation of piling or pile burning. Large diameter trees and snags used by cavity nesting birds should not be impacted by broadcast burning. If there are high value snags in the broadcast burn area, fuels would be pulled away from the tree to reduce the likelihood of the snag burning and falling over. Smoke may irritate and disturb birds and roosting bats, but the disturbance would be temporary. No fuels treatments would be conducted within the riparian buffers, thus no impacts to Coeur d'Alene salamander are expected.

Changes to habitat as a result of the proposed fuels treatments would restore white-headed woodpecker, Lewis's woodpecker, and flammulated owl habitat. In addition, maintaining large diameter pine and reducing the likelihood of a stand replacing fire that could kill large pines would benefit Cassin's finch.

Migratory Birds
Species that nest on the ground, in shrubs or prefer shrubby habitat for foraging would be directly and indirectly negatively impacted by fuel break construction, slashing and piling, and broadcast burning. Slashing vegetation would take place outside of the nesting season for most bird species and so no direct impacts would be expected from these activities. However, if prescribed burning is implemented in spring, as it often is, widespread nest loss and abandonment can be expected. Examples of species most likely to be impacted include spotted towhee, ruffed grouse, song sparrow, chipping sparrow, yellow warbler, cedar waxwing, and gray catbird (Kaufman 1996). Delaying these activities as much as possible (until after July 15th) or implementing broadcast burning prior to April 1st would best protect nesting resident and migratory birds.

The removal of small trees and brush has the potential to destroy habitat for some species and create habitats for others. Refer to the effects section for Silvicultural Treatments for greater detail on the indirect effects of habitat changes. In general, fuels treatments would favor those bird species that prefer a more open understory and a more open canopy. Initially there would be little understory left available for nesting and hiding cover. This would especially affect ground nesting and shrub nesting bird species like spotted towhees, ruffed grouse, song sparrows, warblers, and dark-eyed juncos. Within about three years, shrub species would recover and the habitat would again become suitable for many ground nesting birds species.

Other Wildlife Species
Initially fuels treatments would negatively impact deer and elk. The loss of hiding cover and the disturbance to fawning habitat may have direct impacts on the survival of white-tailed deer in

particular. Hiding cover would be restored in most cases within 3-5 years. Existing brush would have higher forage value once burned, benefitting deer and elk. Where the understory has not been vigorous because of shade, burning would induce vigorous growth of the shrub, forb, and grass understory (Innes 2011; Hooker and Tisdale 1974).

Active raptor nests would be disturbed during implementation of burning. However, impacts are not expected to rise to level of mortality or reduced nesting success. Small mammals may experience high levels of mortality if they are using piles for cover or cannot escape broadcast burning. This could indirectly impact other species that prey on small mammals like owls and raptors. However, populations of small mammals would be expected to recover quickly and the broadcast burning area is small enough that population level impacts to raptor prey would not be expected.

Recreation Developments

Impacts to Habitat
Increasing human activity in wildlife habitat has many negative but often unintended consequences to habitat suitability. These impacts are discussed in detail below and elsewhere in this document.

Weeds
Increased use by humans facilitates the transport of weed seeds into an area. Weed seeds hitchhike on shoes, mountain bike tires, on horse hooves and in horse manure. See Section 7.8 for a detailed discussion regarding the potential for introduction and spread of invasive species and noxious weeds. Weeds degrade wildlife habitat by replacing important food sources with less valuable vegetation. Weeds can also compete with native vegetation used as cover for wildlife species. The proposed vegetation treatments in Alternatives A, B, and C will open up the forest and reduce the density of vegetation. This may result in an increased likelihood of recreation use off of established trails which could result in further spread of weeds into more areas away from trails.

Section 7.7.1 of the EA includes a reference to the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments. Weed treatment effects have been analyzed and all treatments are conducted following the best management practices described in the 2008 EA to reduce or eliminate impacts to wildlife.

Vegetation Trampling
Alternative A proposes both combined use trails (all non-motorized uses allowed) and trails that are designated closed to equestrian use and closed to mountain bike use. Recreational use is likely to result in vegetation trampling adjacent to and away from trails. A report produced by the National Park Service (Marion 2006) assessed trail degradation and also summarized research and literature related the various recreation uses and their impacts on a variety of resources. A literature review of the impact of vegetation trampling by various user types was summarized as such:

"Thurstan and Reader (2001) found no significant differences between the vegetation and soil impacts from hiking and mountain biking…… Trampling and erosional impacts caused by horses have been found to be significantly higher than hikers, llamas, mountain bikes and even off-road motorcycles (Cole & Spildie, 1998; DeLuca et al., 1998; Wilson & Seney, 1994). Many studies demonstrate that trampling by a horse is more destructive to vegetation than trampling by foot (Nagy and Scotter 1974; Weaver and Dale 1978; Whittaker 1978). Whittaker (1978) found vegetation on horse trails to be churned up and often cut off at the roots, instead of flattened, as on hiking trails. An experimental trampling study by Nagy and Scotter (1974) found vegetation loss to be four to eight times greater from horse trampling than hiker trampling. The greater vegetation loss from horse use tends to widen horse trails, which are often two to three times the width of hiker trails (Weaver and Dale 1978)."

The Soils and Water Section of this document (Section 7.11) discusses impacts to soils, streams, and the lake in more detail. This analysis indicates that erosion related to trail development and use is not likely to result in significant changes or impacts to water quality in the project area, thus impacts to aquatic wildlife would be considered insignificant as well.

All Species

Alternative A includes significant recreational developments on the west side of the project area. In addition, a trail would be constructed at the northern end of the meadow crossing Blue Creek and connecting the east and west side trail systems. Trails on the eastside of the project area would also be expanded, improved and a family-friendly skills development area would be created near the primary trailhead.

The direct impacts resulting from trailhead and trail construction are largely vegetation removal and wildlife disturbance during construction. During construction trees, shrubs, grasses, and forbs would be removed to create compacted surfaces for human use. While the amount of habitat removed would not be significant, wildlife present during construction would be displaced, either temporarily or permanently. Deer, elk, and other large animals would likely leave the area but may return shortly after construction depending on the subsequent level of recreational use.

To reduce impacts to migratory birds and Special Status Birds, Vegetation cutting and removal associated with trail and trailhead construction would not occur between April 1st and July 15th. This would allow most nesting birds to complete their nesting effort prior to vegetation removal.

The indirect impacts of recreational developments are far more significant to wildlife than the direct impacts of trail construction (Cuiti et al. 2012). While much of the area already receives moderate recreational use, public use of the area is likely to increase as recreational opportunities increase and knowledge of the improved recreation opportunities increases. All wildlife species are susceptible to disturbance and the impacts to the species vary by recreation type, level of recreational use, species, individual, and time of year. While some wildlife may be unaffected, it is reasonable to say that very few species benefit from the increased presence of humans in their habitats.

The east side trail system is already well developed and trailheads were constructed to facilitate use of the area. Further improvements proposed in Alternative A are likely to increase use of this portion of the project area. Though relative increases here are not expected to be as significant as increases that would occur on the west side of the project area where no authorized trail system exists.

Currently there are no authorized recreational developments in the western portion of the project area. However, unauthorized trails have been created or improved by illegal clearing of vegetation and modification of game animal trails, historic roads, and skid trails. These trails that were primarily used only by wildlife have been improved to make them more accessible for hiking and equestrian use. Thus, while wildlife that use the west side of Blue Creek Bay experience less disturbance than wildlife that use the east side, there is still some level of human intrusion into habitat currently on the west side.

Disturbance

In all, the forested west side, the meadow, and the riparian habitat within the meadow along Blue Creek would be most impacted by changes in the level of human disturbance to wildlife under Alternative A. Development of mountain biking trails, and trails for use by hikers and horse-riders would result in far more relative human disturbance to wildlife in this portion of the project area. However, recreation in this area is likely to increase as well. Recreation impacts to habitat in the riparian area in the meadow have been considered and measures to replace impacted habitat are proposed. A riparian planting downstream of the proposed trail would increase the suitability and area of habitat available to wildlife in this area, eventually offsetting the reduced suitability of habitat near the trail crossing.

Disturbance increases vigilance in almost all wildlife species and the costs of vigilance has been well studied (Cituti et al. 2012). Empirical studies have shown that disturbance and the associated increased levels of vigilance in ungulates can reduce reproductive success and impact populations (Phillips and Aldredge 2002, Yarmoloy et al. 1988). In response to increased disturbance, larger animals, like elk and deer, would likely move to more secluded habitats when recreation levels are high (Knight and Cole 1991, Burgin and Hardiman 2012, Audrey and Knight 2003, Macarthur et al. 1982, Ciuti et al. 2012, Wisdom et al. 2004). During daylight hours, for example, deer and elk may stay in islands of higher cover habitat farther from trails. At night, use of habitat adjacent to trails would likely increase. Some animals may choose to leave the area entirely for all or portions of the year when use is particularly high (summer and fall) (Ciuti et al. 2012).

The differing impacts to wildlife and their habitats of the various types of recreation have been the subject of numerous studies. The conclusions of some of these studies are described below, though they sometimes conflict. However, the most important conclusion that can be made from this analysis is that any increase in human access to wildlife habitat can generally be described as having negative impacts on most wildlife species. It is widely understood that, for most species, more human access results in more human disturbance, and decreased suitability of habitat, regardless of the type of access. Research supporting this conclusion is summarized and referenced below.

Smaller animals, like birds, may continue to use habitat adjacent to the new trail networks and trailhead developments. In the case of birds, nesting success may decrease near trails if they are frequently disturbed by increased recreation. Miller and Knight (1998) studied responses of multiple species of birds to recreational activities including mountain biking. They found that the presence of trails and activity along them led to change in species composition in in the two habitats studied. Generalist species such as American Robins *(Turdus migratorius*) were found to be more common along recreational trails. However, nests for all species were less likely to occur and were more susceptible to predation in areas close to trails. They did not compare the impacts of the different types of recreation. Disturbance to nesting birds can also result in delayed or decreased food delivery and increased exposure of eggs and nestling to predators and harsh environmental conditions (Miller at al. 1998). Interruptions to nesting also increase the likelihood of nest parasitism by cowbirds (Miller at al. 1998, Airola 1986).

In general, most of the research that has addressed recreation impacts to wildlife has shown that hikers elicit a higher intensity disturbance response than other forms of recreation, to big game animals and birds in particular (Citui et al. 2012, Littlemore and Barlow 2005, Larson et al. 2016, Knight and Cole 1991). Cituti et al. (2012) found no significant difference in the levels of vigilance for elk between equestrian use and mountain biking use. Similarly, the amount of time elk spent travelling in the study area did not differ between equestrian and mountain biking use, but it was significantly higher where the frequency of use by hikers was higher. Importantly, this study found that elk behavioral response to *all types of human activity* exceeded response to natural predators and other environmental factors.

Studies of the impacts of recreation on wildlife are numerous and have occurred across a wide variety of habitats and wildlife species. However, no such studies have occurred within the vicinity of the project area, thus the synopsis of research below may be limited in its applicability to wildlife in the project area. These studies are provided to give a general idea of how recreation of various types may impact wildlife under the Alternatives provided in this document.

Taylor and Knight (2003) examined the response of bison (*Bison bison*), mule deer (*Odocoileus hemionus*), and pronghorn antelope (*Antilocapra americana*) to hikers and mountain bikers at Antelope Island State Park, Utah. They compared alert distance, flight distance, and distance moved by wildlife in response to hiking and mountain biking. The study did not reveal a significant difference between hikers and mountain bikers with respect to the reaction of any of the three species. Papouchis et al. (2001) found that big horn sheep exhibited a greater probability of flushing, longer distances moved, and longer response durations when disturbed by hikers compared to mountain bikers or vehicles. A study by Naylor & Wisdom (2009), however, produced contrary results, in their study of disturbance impacts on elk. In a controlled experiment, the behavioral changes by 13 female elk (*Cervus elaphus*) were monitored in response to four types of recreational disturbance: ATV riding, mountain biking, hiking, and horseback riding. Travel time for the female elk increased in response to all recreational disturbances, but ATV use followed by mountain bike use elicited the greatest increase in travel time, while hiking and horseback riding elicited the least. Both mountain biking and hiking activities were found to significantly reduce resting time for elk.

Theories to explain the apparent greater response by wildlife to humans on foot have suggested that this response can be explained by the unpredictable nature of people on foot who are more likely to leave trails, approach wildlife, or linger in areas being used by wildlife (Audrey and Knight 2003). Another possible reason for this is that humans on foot appear more like a human to animals than those in a vehicle, on a bike, or on an ATV (Richens and Lavigne 1978, Eckstein et al. 1979, MacArthur et al. 1982, Freddy et al. 1986).

BLM does not record instances of hunting or trapping within the WFCA. However, we believe that harvest levels are low, if not negligible. This assumption is based on a lack of anecdotal evidence that would indicate high of use of the WFCA by hunters or trappers. Still, these activities do occur as is evidenced by trees stands that have been found within the project area, infrequent reporting of encounters with trappers or traps, and public comments received on the original EA. It is possible that a more developed trail network could result in higher use by hunters and trappers. In this case it is possible that mortality to species like deer, raccoon, or bobcat could increase. Conversely, increased use by non- consumptive recreation users like hikers and mountain bikers could deter use by trappers and bow hunters who typically prefer to use areas that are lower in human traffic, where user conflicts are less likely, and wildlife are less disturbed. In this case mortality due to trapping and bow hunting would decrease.

In addition to human disturbance, public lands users also bring with them other unwelcome guests and unintended impacts when it comes to wildlife. Many hikers bring their dogs with them and often they do not obey leash laws. Dogs chase and harass wildlife and in some cases kill wildlife while out on public lands. A study conducted by Length and Knight (2008) concluded that several wildlife species (mule deer, squirrels, rabbits, prairie dogs, and bobcat) altered their utilization patterns in response to the presence of domestic dogs on and off nearby trails. Activity levels and the density of species were significantly higher near trails where domestic dogs were not allowed. If increases in recreation levels include an increase in dog presence in the project area, it is likely that wildlife would be further disturbed and habitat use for some species would change.

7.14.3 Environmental Effects from Alternative B (No Forestry Treatment of Western Portion of Ownership, No Prescribed Burning and No Parking off Bonnell Road)

All the impacts described under Alternative A would continue to apply to this proposal for the *east side* of the project area where the vegetation treatment prescription and recreation developments would remain unchanged.

On the west side, only a fuel break would be constructed. Impacts to wildlife from the construction of the fuel break are described in more detail under the Effects of Fuels Treatments for Alternative A (7.1.4.1). If no forest treatment is conducted in this portion of the project area, the habitat characteristics would remain unchanged until forest insects, disease, or wildfire change the forest stand. The area would continue to provide more hiding and thermal cover for big game animals. Those wildlife species that prefer a more closed-canopy forest would benefit from Alternative B. Species such as northern goshawk, Townsend's warbler, and Hammond's flycatcher would continue use the area. While the west side forest stand does not uniformly meet

the >70 percent canopy cover that is characterized by goshawk nesting territories, leaving the area untreated would move this stand closer to suitable goshawk nesting habitat.

Those species that prefer a more open forest structure with dominant large trees would not benefit from Alternative B. Species that prefer a more open understory with lower canopy cover and larger diameter trees like flammulated owls, brown creeper, and white-headed woodpecker would not colonize this portion of the project area in the future. Instead they would find suitable habitat on the east side of the project site, or in surrounding areas.

This Alternative includes all of the recreational developments outlined in Alternative A except no parking area on Bonnell Road. The one-acre area described in Alternative A would not be impacted and no habitat would be lost. It is also possible that the levels of recreation would be different if there were no parking on Bonnell Road. Certainly the level of disturbance to the proposed parking area and the surrounding habitat would be less because use would be more transitory. Rather than parking, staging, unloading equipment and reloading equipment use would be largely limited to hikers, bikers, and horse riders passing nearby on trails in the area. The disturbance to wildlife would continue at levels higher than are currently occurring but not as high as if there were an official parking area and trailhead there.

For the remainder of the project area all direct impacts to wildlife from recreation would remain the same. Because there would be no tree harvest, and only a fuel break on the west side under this proposal, there would be more cover available to wildlife. This would lessen the impacts of increased disturbance resulting from increased recreational use by giving animals more places to hide from users.

7.14.4 Environmental Effects from Alternative C (Forestry Treatment Same as Proposed Action, No Equestrian Use on Eastern Trail System, No Mountain Bike Use on West Side Trail System, and No Parking Off of Bonnell Road)

All effects from the vegetation treatment would be the same as those discussed under section 7.14.2 (Alternative A). Similarly, the effects of not creating a parking area on Bonnell Road are discussed in section 7.14.3 (Alternative B).

The primary difference between Alternative C and Alternatives A is how the various recreational uses will be distributed across the landscape. Limiting equestrian use to the west side of the project area will concentrate the impacts of this type of use to the west side. These impacts are discussed in detail in section 7.14.2. Likewise, limiting mountain bike use to the east side of the project area would concentrate those impacts to the east side (see section 7.14.2). Hiking use would be allowed throughout the project area. It is not known how much of an increase in recreation would occur (regardless of user type) under any of the Alternatives.

Without information on how different uses will increase, making assumptions about how redistributing use type will change impacts to wildlife and their habitats is difficult. If use by all user types were to increase equally under each alternative, the following conclusions could be reasonable:

- Vegetation trampling and soil movement impacts to habitat would be greater on the west side of the project area based on concentrated and higher use by horses and hikers.
- Mixed use by hikers and mountain bikers on the east side could result in higher levels of disturbance impacts to wildlife in that area (see section 7.14.2 as varying disturbance impacts by recreation type are mixed and conflicting in the literature).

7.14.5 Environmental Effects from Alternative D (No Action)

Impacts of Recreation

Without recreation improvements proposed in Alternatives A and B, and C, Alternative C has the least likelihood of increasing recreation within the project area. This would be a benefit to all wildlife species. While some tolerate human presence better than others, species such as the northern goshawk, are particularly sensitive to human disturbance, especially during nesting. A lower the level of human presence, would result in a lower likelihood of mortality and/or stress for many wildlife species. The negative impacts of increased recreation are discussed in detail under the analysis of effects for Alternative A. If considering only the impacts to wildlife and their habitats from recreation, Alternative D would be best. A more detailed discussion of these effects on Special Status Species is included in the text below.

Impacts to Vegetation
If the No Action Alternative is selected, the likelihood of a stand-replacing fire in the project area would increase. Until that eventuality occurs, the habitat suitability for wildlife would be different if no vegetation or fuels treatments were to occur. Tables 19 and 20 summarize the impacts to Special Status species before a stand-replacing fire occurred (Table 19), and after stand-replacing fire (Table 20). These effects are discussed in more detail within the text.

Type 1 - Endangered, Threatened, or Candidate Species under the ESA
Of the listed species in the Idaho Panhandle, 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 dispersing grizzly bears in the unlikely event one was in the project area. If no forest is thinned and no prescribed burn occurs, ungulates would 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.

Increased recreational use would be a negative impact to grizzly bears and wolverines if they were dispersing through project area. While the chance of human encounters with these two species is very low, the probability would be even lower if recreation levels stayed the same as they are now. Use of the area is expected to increase as the population surrounding Coeur d’Alene increases. However, the “no action” alternative would not further increase recreational use because no improvements to recreation opportunities would be made.

BLM Type 2 – BLM Designated Special Status Species and Idaho SGCN
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 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. Where there is less forest cover available nearby, "no action" would benefit those species requiring more forest cover. Examples include pacific wren and Townsend's warbler.

Northern goshawks, a Type 2 special status species, prefer a more densely stocked, closed canopy forest, and Alternative D would result in more of this type of habitat. However, benefits to these species would be negated in the long term if a stand- replacing fire were to occur that reduced large diameter trees in the project area.

Special Status Species that prefer more open stands with large diameter pine trees and a brushy understory or the presence of hardwoods would not benefit from selection of the "no action" alternative. There would be no increase in habitat suitability for white-headed woodpecker, flammulated owl, Lewis' woodpecker, or Cassin's finch. Migratory birds that prefer open canopy forests with large diameter trees and aspen would also not see the benefits of the vegetation treatments proposed in Alternatives A, B, and C. Examples include red-naped sapsucker, calliope hummingbird, MacGillivray's warbler, and yellow warbler.

Bats within the project area would not be significantly impacted under Alternative D. The project area would continue to be productive habitat providing both roosts and foraging habitat.

Other Species
If the "no action" alternative is selected, none of the negative or positive effects described in Alternatives A or B would influence ungulate habitat, habitat for raptors, or other wildlife species. Unless a stand-replacing fire was to impact the project area, the forest would continue to age. Dominant trees would continue to get larger, but at a slower rate because of competition with shade tolerant trees increasing in the understory. Species that prefer a more dense forest with a closed canopy would benefit from these changes. Pacific wren is a good example of a species that would be positively impacted by such changes. There would be no direct disturbance or mortality to migratory birds.

Table 19 below, illustrates the projected medium to long-term effects on the special status species that would occur if no action is taken. This table summarizes impacts to Special Status Species prior to any stand-replacing fire. The table does not consider the impact to wildlife of lower levels of recreational use in the project area.

Table 19. Projected medium to long-term effects on Special Status Species with No Action Alternative.

Species	Positive Effect	No Effect	Negative Effect
Bald Eagle		X	
Northern Goshawk*	X		
Flammulated owl			X
Lewis's Woodpecker			X
White-headed woodpecker			X
Cassin's finch		X	
Common nighthawk		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	
Coeur d' Alene Salamander*		X	

**BLM Designated Special Status Species*
***Threatened, Endangered, Proposed, or Candidate Species under the ESA*

If the forest vegetation is left untreated, and no fuel break is constructed, and no small diameter fuels are removed from the understory, the likelihood of a stand-replacing fire would increase. Unlike the table above, which assesses impacts prior to any stand-replacing fire, Table 20 below indicates the effects of stand-replacing fires on Special Status Species.

For many Special Status Species, a stand-replacing fire would have a negative impact. Northern goshawk, Coeur d'Alene salamander, and Cassin's finch would be negatively impacted because of their requirements for either moderate to high canopy cover, or the requirement for live trees as a food source. A stand- replacing fire would also negatively impact water quality, reducing the suitability of aquatic habitat for the Coeur d'Alene Salamander.

Other wildlife species, such as migratory birds, ungulates, small mammals, and carnivores would be negatively impacted by the loss in cover and food sources that would result from a stand-replacing fire. Over time, as shrub species recover, the habitat would again become suitable for species that prefer early-seral conditions, such as lazuli bunting. Likewise, species that are generalists would begin to recolonize the area, such as coyote and white-tailed deer.

Some species, such as woodpeckers and bats may actually see a benefit to a stand-replacing fire, depending on the intensity and the geographic extent. An abundance of snags and dead and dying trees can provide a high-density food source and nesting habitat for woodpeckers. Woodpecker use of burned areas for foraging is often limited to the first 2-3 years after a fire (Farris and Zack 2005), while nesting can occur in fire-burned snags for many years post fire (Farris and Zack 2005). Bats would benefit from the high density of roost availability, but may see negative impacts if the insect community decreases drastically with the loss of vegetation.

Table 20. Projected medium to long-term effects on Special Status Species with No Action Alternative assuming a stand-replacing fire would occur.

Species	Positive Effect	No Effect	Negative Effect
Bald Eagle			X
Northern Goshawk*			X
Flammulated owl	X		X
Lewis's Woodpecker	X		
White-headed woodpecker	X		
Cassin's finch			X
Common nighthawk			X
Fringed Myotis*			
Townsend's big-eared bat*	X		X
Long-eared myotis*	X		X
California myotis*	X		X
Long-legged myotis*	X		X
Western small-footed myotis*	X		X
Coeur d' Alene Salamander*			X

**BLM Designated Special Status Species*
***Threatened, Endangered, Proposed, or Candidate Species under the ESA*

7.14.5 Cumulative Effects

Alternative A-Proposed Action

The cumulative impacts analysis area for wildlife is the Blue Creek watershed. Blue Creek is the main tributary flowing into Blue Creek Bay, and drains an area of approximately eight square miles. The watershed is mountainous and forested with limited residential development extending for several miles upstream of the project location. Elevations range from 2,150 feet at the site, up to 4,050 feet near Kelly Mountain. This area encompasses 8 square miles (5120 Acres) 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, conversion of forest to agricultural uses and home sites, the power line, noise, pollution, movement barriers, and traffic hazards from Interstate 90, and the human activity associated with the town of Coeur d'Alene have all 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, and rural and urban development along Blue Creek Bay and nearby East Yellowstone Trail and Wolf Lodge Bay. All of these activities have the potential to negatively affect wildlife species, while some have positively benefited wildlife species.

Logging and forest health projects on non-BLM lands within the analysis area temporarily increase disturbance, can result in direct mortality of wildlife, and may permanently increase access to hunters and recreationists. Adjacent private land owners likely do not avoid the nesting season for birds thus impacts to local bird populations may be significant depending on the timing and scale of implementation. Indirectly, these projects have the potential to both positively and/or negatively affect wildlife species depending on their habitat requirements. For example, northern goshawk 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 in some areas.

Reasonably foreseeable actions in the analysis area include timber harvest where merchantable timber remains, forest health projects, and further fragmentation of habitat by development of home sites and rural forest conversion to agricultural uses. Consumptive and non-consumptive recreation can be expected to increase over time as the permanent and seasonal population of Coeur d'Alene and surrounding areas continues to grow. 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.

In general, the loss of interior unfragmented and mature forested habitat is a concern for species like northern goshawk in the analysis area. If a catastrophic fire is avoided because of the reduction of dead and dying fuel proposed in Alternative A, the benefit of the project could outweigh the reduction in cover. The reduction in cover would be far less than a reduction seen after a forest fire. Otherwise the effects of this project on interior forest species is negative and these species are likely to decrease over time in the analysis area.

White-headed woodpecker, Lewis' woodpecker, and flammulated owl are species that prefer more open, mature, dry site forests. Alternative A should benefit these species. If large trees are retained in future forest projects and developments in the analysis area, these species will benefit over time. Likewise, if large pines are left as reserve species in future projects that impact forest stands, Cassin's finch will benefit within the analysis area as well.

If large trees are not retained and future harvest is aggressive, leaving little to no canopy cover, species that prefer very open forest stands or open brush fields are likely to increase in the analysis area. Continued forest projects that reduce the canopy and the eventual loss of trees due to insects and disease will make habitat more suitable for these species.

Alternative A would have cumulative effects on Special Status Species and migratory bird populations, and their habitats, in the analysis area. Dense forest stands are unlikely to increase within the analysis area, given the reasonably foreseeable actions. The forest treatments proposed would prevent the project area from becoming suitable or more suitable for goshawk nesting. In addition, migratory bird species that prefer denser forest would have reduced habitat availability in the analysis area, which currently provides little habitat of this type. The project would impact about 616 acres, which represents about 1 northern goshawk territory. Meanwhile, suitable habitat for 4 other special status species (Lewis's woodpecker, white-headed woodpecker, flammulated owl and Cassin's finch) would be maintained or restored if Alternative A is implemented. Given small scale of the project, coupled with the already disturbed landscape, and the impacts of the proposed project, the cumulative impacts to special status species and migratory birds are not expected to rise to the level of significance.

Alternative B

The cumulative effects for this alternative are very similar to those for Alternative A. The main difference is that more interior forest would be maintained under this alternative, supporting those wildlife species that prefer this habitat type. Reasonably foreseeable actions described under this section for Alternative A will ultimately result in lower availability of unfragmented interior forest habitat. So for those species, such as northern goshawk, Alternative B would be best as far as the impacts of the Alternative coupled with reasonably foreseeable actions. However, some Special Status Species would not benefit from the restoration of habitat on the west side of the project area that would benefit from the additional forest treatments proposed in Alternative A. The forest on the west side of Blue Creek Bay would continue to be impacted by insects and disease. Shade tolerant species would continue to fill in the canopy and understory of the existing stand and this habitat would continue to be unsuitable for white-headed woodpecker, Lewis's woodpecker, and flammulated owl. While the Special Status Species and migratory bird species (and their habitats) that are analyzed in this document would be affected by any of the Alternatives, the scale of the project and the number of individuals that would be affected would not rise to the level of significant cumulative impacts to the local population.

Alternative C

The cumulative impacts of implementing Alternative C would not be substantially different from those impacts discussed under Alternative A. The change in distribution of recreational users by type would not significantly increase or decrease the contribution of this Alternative to cumulative impacts. The elimination of the Bonnell Road parking area would reduce the impact of this Alternative, but not enough to make it significantly better or worse than Alternative A or B. There would be no significant contribution to cumulative effects in the analysis area from implementation of Alternative C.

Alternative D

Habitat changes from vegetation treatments would not occur under the 'No Action" alternative. The benefits to species that require large diameter open, and mature pine forests would not occur and these species would continue to decline in the analysis area. Conversely, the loss of interior forest habitat would not occur and this would benefit northern goshawks. Under the no action alternative the eventual build-up of fuels would continue and could potentially result in a stand-replacing fire. This result would be negative for many species in the short term. Regardless of any eventuality, given the size of the project and the impacts of implementing "no action", coupled with the reasonably foreseeable actions in the analysis area; negative effects do not rise to the level of cumulative impacts to any Special Status Species or migratory bird species within the action area.

8.0 Tribes, Individuals, Organizations, or Agencies Consulted

Tribal Consultation
Coeur d'Alene Tribe

Individuals, Organizations and Agencies Consulted
Avista Corporation
Adjacent Neighbors/Residents
Backcountry Horseman
Coeur d'Alene District Resource Advisory Committee
Congressional Representatives
- Honorable U.S. Congressman Raul Labrador
  - North Idaho Representative, Judy Morbeck
- Honorable U.S. Senator Mike Crapo
  - North Idaho Representative, Karen Roetter
- Honorable U.S. Senator James Risch
  - North Idaho Representative, Sid Smith

Idaho Conservation League
Idaho State Historic Preservation Office
Kootenai County Commissioners
Representatives from the local mountain biking community
U.S. Fish and Wildlife Service

9.0 List of Preparers

Name	Title	Resource
Debbie Paul	Forester	Project Lead, Forestry
Mitch Owens	Outdoor Recreation Planner	Co-lead, Recreation
LeAnn Abell	Botanist	Vegetative Communities: Threatened, Endangered, and Sensitive Plants

Name	Title	Resource
Doug Graves	Fire Use Specialist	Air Quality, Fuels
Doug Evans	Natural Resource Specialist	Invasive, Non-native Plant Species
Carrie Hugo	Wildlife Biologist	Wildlife Threatened, Endangered, and Sensitive Animals Migratory Birds
Scott Pavey	Planning and Environmental Coordinator	Visual Resources
David Sisson	Archaeologist	Cultural
Mike Stevenson	Physical Scientist	Hydrology/Soils
Cindy Weston	Resource Coordinator/Fisheries Biologist	Fisheries
Shawn Wise	District Safety Office	Health and Safety

10.0 References Cited

Bureau of Land Management. 2007. Coeur d'Alene Approved Resource Management Plan and Record of Decision. U.S. Department of the Interior, Bureau of Land Management, Coeur d'Alene, ID. http://www.blm.gov/id/st/en/prog/planning.html

Bureau of Land Management. 2008a. Integrated Weed and Vegetation Management Environmental Assessment. U.S. Department of the Interior, Bureau of Land Management, Coeur d'Alene, ID. http://www.blm.gov/id/st/en/prog/planning.html

Bureau of Land Management. 2008b. Blue Creek Bay Recreation Project Plan Environmental Assessment. U.S. Department of the Interior, Bureau of Land Management, Coeur d'Alene, ID.

Bureau of Land Management. 2009. Blue Creek Bay Recreation Project Plan Environmental Assessment. U.S. Department of the Interior, Bureau of Land Management, Coeur d'Alene, ID. http://www.blm.gov/id/st/en/prog/planning.html

Bureau of Land Management. 2013. Pile Burning Program Programmatic Environmental Assessment. U.S. Department of Interior, Bureau of Land Management, Coeur d'Alene, ID.

Kootenai County. (2016) *History of Kootenai County.* Coeur d'Alene, ID. http://www.kcgov.us/community/history/

Air Quality

Peterson, J.L. 2001 Regulations for Smoke Management. Pages 61 – 74 in *Smoke Management Guide for Prescribed and Wildland Fire, 2001 Edition*. C.C. Hardy, R.D. Ottmar, J.L. Peterson, J.E. Core, and P. Seamon, eds. National Wildfire Coordination Group, PMS-420-2.
Quigley, T. M., and S. J. Arbelbide, technical editors. 1997. An assessment of ecosystem components in the interior Columbia Basin. USDA Forest Service. Volumes I-V. Pacific Northwest Research Station. General Technical Report PNW-GTR-382. 303pp.

Reinhardt, E.D., R.E. Keane, and J.K. Brown. 1997 First Order Fire Effects Model: FOFEM 4.0 User's Guide. USDA Forest Service, Intermountain Research Station Gen. Tech. Rep. INT-GTR-344. 65pp.

Reinhardt, E. 2003. Using FOFEM 5.0 to estimate tree mortality, fuel consumption, smoke production, and soil heating from wildland fire. USDA Forest Service, Missoula Fire Sciences Lab, Missoula, MT. 6pp.

Sandberg, D.V., R.D. Ottmar, J.L. Peterson, and J. Core. 2002. Wildland Fire in Ecosystems: Effects of Fire on Air. Gen. Tech. Rep. RMRS-GTR-42 vol. 5. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 79p.

Wright, C.S., C.S. Balog and J.W. Kelly. 2010. Estimating volume, biomass, and potential emissions of hand-piled fuels. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 23 p.

Fisheries

Benda, L., D. Miller, P. Bigelow and K. Andras. 2003. Effects of post-wildfire erosion on channel environments, Boise River, Idaho. Forest Ecology and Management 178: 105-119.

Buchanan, D.M., and S.V. Gregory. 1997. Development of water temperature standards to protect and restore habitat for bull trout and other cold water species in Oregon. Pages 1-8 *in* W.C. Mackay, M.K. Brewin and M. Monita (eds). Friends of the Bull Trout Conference Proceedings. Bull Trout Task Force (Alberta), c/o Trout Unlimited Calgary, Alberta, Canada.

Chamberlain, T. W., R. D. Harr and F. H. Everest. 1991. Timber Harvesting, Silviculture, and Watershed Processes. *In* Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication 19:181-205.

Dunham, J. B., M. K. Young, R. E. Gresswell and B. E. Reiman. 2003. Effects of fire on fish populations: landscape perspectives on persistence of native fishes and nonnative fish invasions. Forest Ecology and Management 178: 183-196.

DuPont, J. and N. Horner. 2003. Regional fisheries management investigations, Idaho Department of Fish and Game, Federal Aid in Fish Restoration, F-71-R-28, Job c-2, 2003 Performance Report, Cutthroat Trout Trend Assessment. Boise, Idaho.

Everest, F. H., J. R. Sedell, N. B. Armantrout, T. E. Nickelson, S.M. Keller, J.M. Johnston, W. D. Parante, and G. N. Haugen. 1985. Chapter 10: Salmonids. In E.R. Brown ed. Management of Wildlife and Fish Habitats in Forests of Western Washington and Oregon. 1985. U.S. Department of Agriculture, Forest Service, Pacific Northwest Region, and U.S. Department of Interior, Bureau of Land Management.

Fraley, J.J. and B.B. Shepard. 1989. Life history, ecology and population status of migratory bull trout (*Salvelinus confluentus*) in the Flathead Lake and River system, Montana. Northwest Science 63:133-143.

Furniss, M.J., T.D. Roelofs, and C. S. Yee. 1991. Timber Harvesting, Silviculture, and Watershed Processes. *In* Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication 19:297-323.

Gresswell, R. E. 1999. Fire and Aquatic Ecosystems in Forested Biomes of North America. Transactions of the American Fisheries Society 128: 193-221.

Hendriks, P. 1997. Status, distribution and biology for sculpins (Cottidae) in Montana: a review. Montana Natural Heritage Program. Helena, MT. 29 pp.

Lemoine, M., M. K. Young, K. S. McKelvey, L. Eby, K.L. Pilgrim, M.K. Schwartz. 2014. Cottus Schitsuumsh, a new species of sculpin (Scorpaeniformes: Cottindae) in the Columbia River Basin, Idaho-Montana, USA. Zootaxa. 3755(3): 241-258.

May, C.L. and R. E Gresswell. 2003. Large wood recruitment and redistribution in headwater streams in the southern Oregon Coast Ranges, U.S.A. Can. J. For. Res. 33(8): 1352-1362.

Meredith, C., B. Roper and E. Archer. 2014. Reductions in Instream Wood in Streams near Roads in the Interior Columbia River Basin. North American Journal of Fisheries Management, 34:3, 498-506.

Murphy, M. L. and K. V. Koski. 1989. Input and depletion of woody debris in Alaska streams and implications for streamside management. N. Am. J. Fish. Manage. 9: 427-436.

Pratt, K.L. 1992. A review of bull trout life history. Pages 5 - 9 *in:* Howell, P.J. and D.V. Buchanan, eds., Proceedings of the Gearhart Mountain bull trout workshop. Oregon Chapter of the American Fisheries Society, Corvallis, Oregon.

Rieman, B.E. and J. D. McIntyre. 1993. Demographic and habitat requirements for conservation of bull trout. USDA Forest Service, Intermountain Research Station, GTR INT-302, Ogden, Utah.

Rieman, B.E. and J. D. McIntyre. 1995. Occurrence of bull trout in naturally fragmented habitat patches of varied size. Transactions of the American Fisheries Society 124(3): 285-296.

Rieman, B.E., D.C. Lee, and R.F. Thurow. 1997. Distribution, status, and likely future trends of bull trout within the Columbia River and Klamath River basins. North American Journal of Fisheries Management 17:1111-1125.

Rieman, B. E., D. Lee, D. Burns, R. Gresswell, M. Young, R. Stowell, J. Rinne and P. Howell. 2003. Status of native fishes in the western United States and issues for fire and fuels management. Forest Ecology and Management 178: 197-211.

U.S. Fish and Wildlife Service (USFWS). 1999. Status Review for Westslope Cutthroat Trout in the United States. U.S. Fish and Wildlife Service. Portland, Oregon and Denver, Colorado.

U.S. Fish and Wildlife Service (USFWS). 2002. Chapter 1, Introduction. 137p. *In*: U.S. Fish and Wildlife Service. Bull Trout (*Salvelinus confluentus*) Draft Recovery Plan. Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2010. Bull Trout Critical Habitat Justification: Rationale for Why Habitat is Essential and Documentation of Occupancy. U.S. Fish and Wildlife Service, Idaho Fish and Wildlife Office, Boise, Idaho, Pacific Region, Portland, Oregon.

U.S. Fish and Wildlife Service (USFWS). 2015a. Recovery Plan for the coterminous United States population of bull trout (*Salvelinus fontinalis*). Portland, Oregon. xii + 179 pages.

U.S. Fish and Wildlife Service (USFWS). 2015b. Columbia Headwaters Recovery Unit Implementation Plan for Bull Trout (*Salvelinus fontinalis*). ii + 179 pages.

Wondzell, S. M. and J. G. King. 2003. Postfire erosional processes in the Pacific Northwest and Rocky Mountain regions. Forest Ecology and Management 178: 75-87.

Forestry

Brown, R. T., Agee, J. K. and Franklin, J. F. (2004), Forest Restoration and Fire: Principles in the Context of Place. *Conservation Biology,* 18: 903–912.

Chase CW, Kimsey MJ, Shaw TM, Coleman MD (2016) The response of light, water, and nutrient availability to pre-commercial thinning in dry inland Douglas-fir forests. *Forest Ecology Manag*ement 363: 98–109.

Clark, J.S.; Iverson, L.; Woodall, C.W. and others. 2016. The impacts of increasing drought on forest dynamics, structure, and biodiversity in the United States. *Global Change Biology* 22: (7) 2329-2352.

Franklin, J.F.; Berg, D.R.; Thormburgh, D.A.; and Tappeiner, J.C. (1997). Alternative silvicultural approaches to timber harvesting: variable retention harvest systems. Pages *111–139* in K. A.Kohm *and* J. F.Franklin, editors. Creating a forestry for the 21st Century. Island Press, Washington, D.C.

Graham, R., A. Harvey, M. Jurgensen, T. Jain, J. Tonn, and D. Page-Dumroese. 1994. Managing coarse woody debris in forests of the Rocky Mountains. Research Paper INT-RP-477. USDA Forest Service Intermountain Research Station. 12 pages.

Harrington, C.A. 2009. Variable-Density Thinning-What the heck is it, and why should I care? *TimberWest* July/August p. 54.

Howard, J. L. 1996. Populus tremuloides. Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). March 18 2015.

Jones, B.E., Rickman, T.H., Vazquez, A. and others. 2005. Removal of Encroaching Conifers to Regenerate Degraded Aspen Stands in the Sierra Nevada. *Restoration Ecology* 13:(2) 373-379.

Neuenschwander, Leon F.; Byler, James W.; Harvey, Alan E.; McDonald, Geral I.; Ortiz, Denise S.; Osborne, Harold L.; Snyder, Gerry C.; Zack, Arthur 1999. White pine in the American West: A vanishing species - can we save it? Gen. Tech. Rep. RMRS-GTR-35. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 20 p.

Rogers, Paul C., "Building Resilience Intro Quaking Aspen Management" (2015). Aspen Bibliography. Paper 7312. http://digitalcommons.usu.edu/aspen_bib/7312

Oliver, C.D. and B.C. Larson. (1990). *Forest Stand Dynamics*. McGraw-Hill Inc. New York, NY.

Shepperd, W.D. 2001. Manipulations to regenerate aspen ecosystems. Pages 355-365 in Shepperd, W. D., Binkley, D. L. Bartos, T.J. Stholgren, and L.G. Eskew, compilers. 2001. Sustaining aspen in western landscapes: symposium proceedings, 13-15 June 2000; Grand Junction, CO. Proceedings RMRS-P-18. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 460 p.

Shepperd, W. D.; Rogers, P. C.; Burton, D.; Bartos, D. L. 2006. Ecology, biodiversity, management, and restoration of aspen in the Sierra Nevada. Gen. Tech. Rep. RMRS-GTR-178. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 122 p.

Stevens, Victoria. 1997. The ecological role of coarse woody debris: an overview of the ecological importance of CWD in B.C. forests. Res. Br., B.C. Min. For., Victoria, B.C. Work. Pap. 30/1997.

Tappeiner II J.C., Maguire, D.A., Harrington, T.B. (2007). *Silviculture and Ecology of Western U.S. Forests*. Oregon State University Press. Corvallis, OR.

US Geological Survey, Gap Analysis Program (GAP). August 2011. National Land Cover, Version 2.

Weiskittel, A.R., Kenefic, L.S., Seymour, R.S. & Phillips, L.M. 2009. Long-term effects of precommercial thinning on the stem dimensions, form and branch characteristics of red spruce and balsam fir crop trees in Maine, USA. *Silva Fennica* 43(3): 397–409.

Fuels

Agee, J.K., B.B. Bahro, M.A. Finney, P.N. Omi, D.B. Sapsis, C.N. Skinner, J.W. van Wagtendonk, and C.P. Weatherspoon. 2000. The use of shaded fuelbreaks in landscape fire management. Forest Ecology and Management 127: 55-66.

Agee, J.K., Skinner, C.N., 2005. Basic principles of forest fuel reduction treatments. Forest Ecology and Management 211, 83–96.

Andrews, P.L. and R.C. Rothermel. 1982. Charts for Interpreting Wildland Fire Behavior Characteristics. USDA Forest Service Gen. Tech. Rep. INT-131.

Barrett, Stephen W. 1994. Fire Regimes on the Payette National Forest, Bear analysis Area. 18pp.

Graham,R. and T. Jain, 2005. Ponderosa pine ecosystems. USDA Forest Service Gen. Tech. Rep. PSW-GTR-198.

LANDFIRE: LANDFIRE 1.1.0 LANDFIRE.US_130FBFM40. U.S. Department of the Interior, Geological Survey. [Online]. Available: http://landfire.cr.usgs.gov/viewer/ [2012].

Raymond, Crystal L. and David L. Peterson, 2005. Fuel treatments alter the effects of wildfire in a mixed-evergreen forest, Oregon, USA. Can. J. For. Res. 35: 2981–2995.

Reinhardt, E.D., R. E. Keane, D.E. Calkin, J.D. Cohen, 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. Forest Ecol. Manage. 256:1997-2006.

Scott, Joe H.; Burgan, Robert E. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.

Stephens, S.L. and M.A. Finney. 2002. Prescribed fire mortality of Sierra Nevada mixed conifer tree species: effects of crown damage and forest floor combustion. Forest Ecology and Management 162 (2002) 261–271.

Stephens, Scott L. and Jason J. Moghaddas. 2005. Experimental fuel treatment impacts on forest structure, potential fire behavior, and predicted tree mortality in a California mixed conifer forest. Forest Ecology and Management 215 (2005) 21–36.

Van Mantgem, Phillip and Mark Schwartz. 2003. An experimental demonstration of stem damage as a predictor of fire-caused mortality for ponderosa pine. Canadian Journal of Forest Restoration 34: 1343–1347.

Invasive, Non-Native Species

Asher, J. and C. Spurrier. 1998. The spread of invasive weeds in western wildlands: A state of biological emergency. The Governor's Idaho Weed Summit. Boise, Idaho. May 1998.

BLM. 2008. Programmatic Environmental Analysis for Vegetation Treatments. BLM, Coeur d'Alene Field Office. Coeur d'Alene, Idaho.

DeLuca, T.H. & Zouhar, K.L. 2000. Effects of selection harvest and prescribed fire on the soil nitrogen status of ponderosa pine forests. Forest Ecology and Management, 138, 263–271.

Hunter, M. E., and P. N. Omi. 2006. Response of native and exotic grasses to increased soil nitrogen and recovery in a postfire environment. Restoration Ecology 14:587–594.

Levine, J. M., M. Vil`a, C. M. D'Antonio, J. S. Dukes, K. Grigulis, and S. Lavorel. 2003. Mechanisms underlying the impacts of exotic plant invasions. Proceedings of the Royal Society of London B 270:775–781.

Moser, W. K., E. L. Barnard, R. F. Billings, S. J. Crocker, M. E. Dix, A. N. Gray, et al. 2009. Impacts of nonnative invasive species on US forests and recommendations for policy and management. Journal of Forestry 107:320–327.

Public Health and Safety

CrimeReports. 2017. [Online]: https://www.crimereports.com

Idaho Transportation Department. 2015. *Idaho Traffic Crashes*. http://www.itd.idaho.gov/ohs/2014Data/Analysis2014final.pdf

Idaho State Patrol. 2015. *Crime in Idaho 2015*. https://www.isp.idaho.gov/BCI/CrimeInIdaho/CrimeInIdaho2015/Complete.pdf

Recreation and Socio-Economics

American Trails. 2011. *Jackson Hole Trails Project Economic Impact Study.p.7* http://www.mlppubsonline.com/publication/?i=81590

Brunson, Mark W., "Conflict Among User Groups: An Overview of Major Issues and Opportunities" 1998. Outdoor Recreation: Promise and Peril in the New West (Summer Conference, June 8-10). http://scholar.law.colorado.edu/outdoor-recreation-promise-and-peril-in-new-west/12

Bureau of Land Management. 2017. *Guidelines for a Quality Trail Experience.* https://www.blm.gov/sites/blm.gov/files/uploads/Travel-and-Transportation_Guidelines-for-a-Quality-Trail-Experience-2017.pdf

Coeur d'Alene Comprehensive Plan. 2007. [Online]: https://www.cdaid.org/files/planning/2007complan.pdf

Headwaters Economics. 2017. Economic Profile System: A Profile of Socioeconomic Measures, Selected Geographies: Kottenai County, ID. [Online] Accessed April 25, 2017: https://headwaterseconomics.org

IMBA. 2004. "Trails Solutions, IMBA's Guide to Building Sweet Singletrack"

IMBA. 2007. "Managing Mountain Biking, IMBA's Guide to Providing Great Riding"

Kootenai County Comprehensive Plan. 2010. [Online]: http://www.kcgov.us/departments/planning/newcompplan.asp

Mayer, Stephan F. and Frantz, Cynthia M. 2004. The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology* 24: 503–515.

National Association of Homebuilders. 2013. *What Homebuyers Want.* https://www.nahb.org/en/research/housing-economics/special-studies/what-home-buyers-want-2013.aspx

National Wildlife Federation. 2013. *Valuing Our Western Public Lands: Safeguarding Our Economy and Way of Life.* http://www.ourpubliclands.org/sites/default/files/files/NWF_PublicLands.pdf

Outdoor Industry Association. 2012. "The Outdoor Recreation Economy Report" https://outdoorindustry.org/pdf/OIA_OutdoorRecEconomyReport2012.pdf

Outdoor Industry Association. 2016. "The Outdoor Recreation Economy" https://outdoorindustry.org/images/ore_reports/ID-idaho-outdoorrecreationeconomy-oia.pdf

U.S. Department of Commerce, Bureau of Economic Analysis. 2017. [Online] Accessed April 24, 2017: https://bea.gov

U.S. Fish and Wildlife Service. 2011. Birding in the United States: A Demographic and Economic Analysis Addendum to the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation Report 2011-1

U.S. Fish and Wildlife Service. 2011. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

United States Census Bureau. 2016 *Quick Facts: Coeur d'Alene city, Idaho* [Data File]. Retrieved from http://www.census.gov/quickfacts/table/PST045215/1616750,16055,16

United States Forest Service. 2007 *Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds*. https://www.fs.fed.us/t-d/pubs/pdfpubs/pdf07232816/pdf07232816dpi72pt00.pdf

Western Governors Association. 2012 A Snapshot of the Economic Impact of Outdoor Recreation. https://outdoorindustry.org/images/researchfiles/SnapshotEconomicImpact.pdf?160

Soils and Water

Marion, Jeffrey L. 2006. Assessing and Understanding Trail Degradation: Results from the Big South Fork National River and Recreation Area. National Park Service. Blacksburg, VA.

Megahan, Walter F. and John G. King. 2004. *Erosion, Sedimentation, and Cumulative Effects in the Northern Rocky Mountains*. Pages 201-222 in George G. Ice and John D. Stednick editors. A Century of Forest and Wildland Watershed Lessons. Society of American Foresters, Bethesda, Maryland.

USDA Natural Resources Conservation Service (NRCS). 2002. *Soil Survey of St. Joe Area, Parts of Benewah and Shoshone Counties, Idaho.*

Vegetation communities, including special status plants

Agee, J.K. 1993. Fire ecology of Pacific Northwest Forests. Island Press, Washington, D.C. 493pp.

BLM. 2007. Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report. BLM, Nevada State Office, Reno, Nevada.

Cooper, S.V., Neiman, K.E., and D.W. Roberts. 1991. Forest habitat types of Northern Idaho: A second approximation. Gen.Tech.Rep INT-236. USDA Forest Service, Intermountain Research Station. Ogden, Utah.

Demars, Jr. C.J.and Roettgering, B.H. 1982. Western pine beetle. Forest Insect and Disease Leaflet 1. USDA Forest Service 7 p

Ellis W.M, J.R. Taylor J, and R. J. Harrod. 1999. The reproductive biology and host specificity of *Orobanche pinorum* Geyer (Orobanchaceae). Madroño 46 (1): 7-12.

Hagle, S.K., Gibson, K.E., and Tunnock, S. 2003. Field guide to diseases and insect pests of northern and central Rocky Mountain conifers. Report No. R1-03-08. USDA Forest Service; State and Private Forestry; Northern Region, Missoula, Montana; Intermountain Region, Ogden, Utah. 197 p.

Hammet, E. A. 2008. Tumbledown Project—Threatened, Endangered, and Sensitive Plants and Forest Species of Concern (Rare Plants) Report. USDA Forest Service, unpublished report on file at Sandpoint Ranger District Office.

Harrod, R. J., D. E. Knecht, E. E. Kuhlmann, M. W. Ellis, and R. Davenport. 1997. Effects of the Rat and Hatchery Creek fires on four rare plant species, in Greenlee, J. M., Proceedings: First Conference on Fire Effects on Rare and Endangered Species and Habitats. Coeur d'Alene, Idaho. International Association of Wildland Fire, Fairfield, WA. p. 311-319.

Hood, S., Bentz, B., Gibson, K., Ryan, K., and Denitto, G. 2007. Assessing post-fire Douglas-fir mortality and Douglas-fir beetle attacks in the northern Rocky Mountains. Gen. Tech. Rep. RMRS-GTR-199. Fort Collins, Colorado: USDA Forest Service, Rocky Mountain Research Station.

Idaho Department of Lands. 2015. Annosus root disease information pamphlet. Accessed as: http://www.idl.idaho.gov/forestry/forester-forums/id8.pdf; December 2015.

Lichthardt, J. 2003. Conservation Strategy for Clustered lady's-Slipper Orchid (*Cypripedium fasciculatum*) in U.S. Forest Service Region 1. Idaho Department of Fish and Game. Boise, Idaho. June 2003. 25 p. plus appendices.

Lorain, C.C. 1991. Species management guide for Mimulus clivicola (bank monkeyflower) on the Clearwater and Nez Perce National Forests. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 16 p. plus appendices.

NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available at:http://explorer.natureserve.org. (Accessed: January 15, 2016)

Rippy, R.C., Stewart, J.E., Zambino, P.J., Klopfenstein, N.B., Tirocke, J.M., Kim, M., Thies, W.G. 2005. Root diseases in coniferous forests of the Inland West: potential implications of fuels treatments. Gen. Tech. Rep. RMRS-GTR-141. Fort Collins, Colorado: USDA Forest Service, Rocky Mountain Research Station.

Smith, J.K. and W.C. Fischer. 1997. Fire ecology of the forest habitat types of Northern Idaho. Gen. Tech. Report INT-GTR-363. USDA Forest Service, Intermountain Research Station, Ogden, Utah.

USDA Forest Service. 2009. Fire effects information system. Available: http://www.fs.fed.us/database/feis (July 24, 2009)

USDA Forest Service. 2015. Fire effects information system. Available: http://www.feis-crs.org/beta/faces/index.xhtml;jsessionid=58EE5EB33003F1A4AB9CE400CFA15B98 (accessed December 2015).

U.S. Fish and Wildlife Service. 2007. Recovery Plan for *Silene spaldingii* (Spalding's Catchfly). U.S. Fish and Wildlife Service, Portland, Oregon. xiii + 187 pages.

Wildlife

Adams, R.A. 2003. Bats of the Rocky Mountain West. University Press of Colorado. Boulder, CO. USA. 289pp.

Airola, D. A. 1986. Brown-headed Cowbird parasitism and habitat disturbance in the Sierra Nevada. Journal of Wildlife Management.50:571-575.

Audrey, T.R. and Knight, R. L. 2003. Wildlife response to recreation and associated visitor perceptions. Ecological Applications. 13(4), 2003, pp. 951–963

Benn B, Herrero S (2002) Grizzly bear mortality and human access in Banff and Yoho National Parks, 1971–98. Ursus 13: 213–221.

Bird Studies Canada (BSC). 2013. *Project NestWatch*. Bird Studies Canada / Études d'Oiseaux Canada, URL: http://www.bsc-eoc.org/volunteer/pnw/?lang=en

Bock, C.E. and J.H. Bock. 1983. Responses of birds and deer mice to prescribed burning in ponderosa pine. Journal of Wildlife Management, vol 47, no. 3, pp 836-840. Allen Press.

Bourbonnais ML, Nelson TA, Cattet MRL, Darimont CT, Stenhouse GB (2013) Spatial Analysis of Factors Influencing Long-Term Stress in the Grizzly Bear (Ursus arctos) Population of Alberta, Canada. PLoS ONE 8(12): e83768. https://doi.org/10.1371/journal.pone.0083768

Burgin, S., & Hardiman, N. (2012). Extreme sports in natural areas: Looming disaster or a catalyst for a paradigm shift in land use planning? Journal of Environmental Planning and Management, 55(7), 921–940.

Ciuti S, Northrup JM, Muhly TB, Simi S, Musiani M, Pitt JA. 2012. Effects of Humans on Behaviour of Wildlife Exceed Those of Natural Predators in a Landscape of Fear. PLoS ONE 7(11): e50611. doi:10.1371/journal.pone.0050611

Copeland, J.P., J.M. Peek, C.R. Groves, W.E. Melquist, K.S. McKelvey, G.W. McDaniel, C.D. Long, and C.E. Harris. 2007. Seasonal habitat associations of the wolverine in central Idaho. Journal of Wildlife Management, Volume 71, Issue 7, Pages 2201-2212.

Eckstein R.G., T.F. O'Brien, O.J. Rongstad and J.G. Bollinger. 1979. Snowmobile effects on movements of white-tailed deer: a case-study. Environmental Conservation Volume 6 (1979) pages 45–51.

Edge, W. D., and C. L. Marcum. 1985. Movements of elk in relation to logging disturbance. Journal of Wildlife Management. Volume 49 pages 926-930.

Farris, KL and S. Zack. 2005. USDA Forest Service Gen. Tech. Rep. PSW-GTR-198. 2005.

Fernández-Juricic, E., Jimenez, M.D. & Lucas, E. 2001. Alert distance as an alternative measure of bird tolerance to human disturbance. Implications for park design. Environmental Conservation, Volume 28, pages 263–269.

Freddy et al., 1986 D.J. Freddy, W.M. Bronaugh and M.C. Fowler, Responses of mule deer to disturbance by persons afoot and snowmobiles, Wildlife Society Bulletin. Volume 14 (1986), pages 63–68.

Hahn, T. P. 1996. Cassin's Finch (Carpodacus cassinii). In The Birds of North America, No. 240 Poole and F. Gill, eds.). The Birds of North America Online, Ithaca, New York.

Hash, H.S. 1987. Wolverine. Pages 574-585 in M. Novak, J.A. Baker, M.E. Obbard, and B. Malloch, editors. Wild furbearer management and conservation in North America. Ontario Ministry of Natural Resources, Toronto.

Hooker, L. L. and E. W Tisdale. 1974. Effects of prescribed burning on a seral brush community in northern Idaho. University of Idaho. Forest, Wildlife, and Range Experiment Station. Paper no. 14. Moscow, ID.

Hornocker, M.G. and H.S. Hash. 1981. Ecology of the wolverine in northwestern Montana. Canadian Journal of Zoology, Volume 59, Pages 1286-1301.

Idaho Conservation Data Center. 2010. Elements of occurrence database. Idaho Department of Fish and Game, Boise, Idaho.

IDFG. 2003. Wolverine Survey Project Report December 2002-April 2003. Idaho Department of fish and Game Region 1.

Idaho Department of Fish and Game. 2005. Idaho Comprehensive Wildlife Conservation Strategy. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. http://fishandgame.idaho.gov/cms/tech/CDC/cwcs.cfm

Idaho Department of Fish and Game. 2016. DRAFT Idaho Comprehensive Wildlife Conservation Strategy. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. https://idfg.idaho.gov/swap/2015-revision-draft

Innes, Robin J. 2011. Cervus elaphus. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2014, June 3].

Interagency Lynx Biology Team. 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19, Missoula, MT. 128 pp.

Joshi, Prabin K. 2009. Night Roosts of Bald Eagles (Haliaeetus leucocephalus) Wintering in Northern Arizona. Master of Science Thesis. Northern Arizona University.

Kaufman, Kenneth. 1996. Lives of North American Birds. Houghton Mifflin. New York, NY. 675pp.

Knight and Cole, 1991 R.L. Knight and D.N. Cole, Effects of recreational activity on wildlife in wild lands, Transactions of the North American Wildlife and Natural Resources Conference 56 (1991), pp. 238–247.

Larson CL, Reed SE, Merenlender AM, Crooks KR (2016) Effects of Recreation on Animals Revealed as Widespread through a Global Systematic Review. PLoS ONE 11(12): e0167259. doi:10.1371/journal.pone.0167259.

Lenth, B.E., R.L. Knight and M.E. Brennan. 2008. The effects of dogs on wildlife communities. Natural Areas Journal 28(3): 218-227.

Littlemore, J. and Barlow, C. 2005. Managing public access for wildlife in woodlands – ecological principles and guidelines for best practice. Quarterly Journal of Forestry 99, 271–286.

MacArthur et al., 1982 R.A. MacArthur, V. Geist and R.H. Johnston, Cardiac and behavioral responses of mountain sheep to human disturbance, Journal of Wildlife Management 46 (1982), pp. 351–358.

Mace, R. D., J. S. Waller, T. L. Manley, L. J. Lyon and H. Zuuring. 1996. Relationships among grizzly bears, roads and habitat in the Swan Mountains, Montana. Journal of Applied Ecology 33: 1395-1404.

Marion, Jeffrey L. 2006. Assessing and Understanding Trail Degradation: Results from the Big South Fork National River and Recreation Area. National Park Service. Blacksburg, VA.

McLellan, B. N. and D. M. Shackleton. 1988. Grizzly bears and resource-extraction industries: Effects of roads on behaviour, habitat use and demography. Journal of Applied Ecology 25: 451-460.

Miller et al., 1998 S.G. Miller, R.L. Knight and C.K. Miller, Influence of recreational trails on breeding birds communities, Ecological Applications 8 (1998), pp. 162–169.

Miller et al., 2001 S.G. Miller, R.L. Knight and C.K. Miller, Wildlife responses to pedestrians and dogs, Wildlife Society Bulletin 29 (2001), pp. 124–132.

Montana Fish, Wildlife, and Parks. Montana Animal Field Guide [Internet]. Available from: http://fwp.mt.gov/fieldguide/.

Moser, B.W. 2007. Space use and ecology of goshawks in northern Idaho. Dissertation,

University of Idaho, Moscow, USA. Nature Serve. Nature Serve Explorer [Internet]. Available from: http://www.natureserve.org/explorer/.

Moser B.W and E.O. Garton Source. 2009. Journal of Raptor Research, 43(1):1-10. 2009. Short-Term Effects of Timber Harvest and Weather on Northern Goshawk Reproduction in Northern Idaho.

Naylor , L.M., Wisdom, M.J. and Anthony, R.G. (2009). Behavioral responses of North American elk to recreational activity. Journal of Wildlife Management 73, 328–338.

Papouchis et al., 2001 C.M. Papouchis, F.J. Singer and W.B. Sloan, Responses of desert bighorn sheep to increased human recreation, Journal of Wildlife Management 65 (2001), pp. 573–582.

Peek,J. M., M. D. Scott, L.J. Nelson, D.J. Pierce,and L. L. Irwin. 1982. Role of cover in habitat management for big game in northwestern United States. Transactions of the North American Nature Resource Conference 47:363-373.

Phillips, G. E., and A. W. Alldredge. 2000. Reproductive success of elk following disturbance by humans during calving season. Journal of Wildlife Management 64:521–530.

Richens, V. B., and G. R. Lavigne. 1978. Response of white-tailed deer to snowmobiles and snow- mobile trails in Maine. Can. Field-Nat. 92:334- 344.

Rodewald, P. (Editor). 2015. The Birds of North America
Online: http://bna.birds.cornell.edu/BNA/. Cornell Laboratory of Ornithology, Ithaca, NY.

Rost, G. R. and J. A. Bailey. 1979. Distribution of mule deer and elk in relation to roads. Journal of Wildlife Management 43: 634-641.

Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, L. J. Lyon, and W. J. Zielinski (eds.). 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine. USDA Forest Service General Technical Report RM-254.

Ruggiero, L.F., K.S. McKelvey, K.A. Aubry, J.P. Copeland, D.H. Pletscher, and M.G. Hornocker. 2007. Wolverine conservation and management. Journal of Wildlife Management, Volume 71, Issue 7, Pages 2145-2146.

Schwartz, C.C., S.D. Miller, and M.A. Haroldson. 2003. Grizzly bear. Pages 556-586 in G.A. Feldhamer, B.C Thompson, and J.A. Chapman, editors. Wild Mammals fo North America: Biology, Management, and Conservation. Second Edition. Johns Hopkins University Press. Baltimore, Maryland. USA.

Servheen, G., and J.L. Lyon. 1989. Habitat Use by Woodland Caribou in the Selkirk Mountains. Journal of Wildlife Management 53:230–237.

Skovlin, J. M, P. Zager, and B. K. Johnson. 2002. Elk habitat selection and evaluation. In North American elk: Ecology and management, eds. D. E. Toweill, and J. W. Thomas, 531–55. Washington, DC: Smithsonian Institution Press.

Smith, R.L. 1992. Elements of Ecology. Third Edition. Harpers Collins Publishers Inc.
Thomas, J.W. 1979. Wildlife habitats in managed forests in the Blue Mountains of Oregon and Washington. USDA, Forest Service, Agriculture Handbook No. 553. 512 pp.

Snyder, S. A. 1991. Ursus americanus.
http://www.fs.fed.us/database/feis/animals/mammal/uram/index.html

Steidl, R.J., Powell, B.F., 2006. Assessing the effects of human activities on wildlife. George Wright Forum 23, 50e58

Squires, J.R. and R.T. Reynolds. 1997. Northern Goshawk, No. 298 *in* Birds of North America series, c/o Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA. 31 pp.

Taylor, A.R. and Knight, R.L. (2003). Wildlife responses to recreation and associated visitor perceptions. Ecological Applications 13, 951–963.

Thomas, J.W.; Black, H., Jr.; Scherzinger, R.J.; Pedersen, R.J. 1979. Deer and elk. In: Thomas, J.W., ed. Wildlife habitats in managed forests-the Blue Mountains of Oregon and Washington. Agric. Handb. 553. Washington, DC: U.S. Department of Agriculture: 104-127.

USDA Forest Service. 2009. Fire effects information system. Available from: http://www.fs.fed.us/database/feis (accessed February 2011).

USID, Fish and Wildlife Service (USFWS). 1993. Grizzly Bear Recovery Plan. U.S. Fish and Wildlife Service, Missoula, Montana.

USFWS. 2008. 12-month finding on a petition to list the North American wolverine as endangered or threatened. Federal Register, March 11, 2008, Volume 73, Number 48, Pages 12929-12941.

USFWS 2012a. Designation of Critical Habitat for the Southern Selkirk Mountains Population of Woodland Caribou (Rangifer tarandus caribou): Proposed rule; availability of supplementary documents and announcement of public hearing. Federal Register 77(105):32075–32080.

USFWS 2012b. Regional Fact Sheets: Wolverine. http://www.fws.gov/mountain-prairie/factsheets/Wolverine-122010.pdf. Accessed August 2012.

USFWS 2014. Endangered and Threatened Wildlife and Plants; Threatened Status for the Distinct Population Segment of the North American Wolverine Occurring in the Contiguous United States; Establishment of a Nonessential Experimental Population of the North American

Wolverine in Colorado, Wyoming, and New Mexico. Federal Register, Vol. 79, No. 156, Pages 45722-47545, Wednesday, August 13, 2014 Proposed Rules.

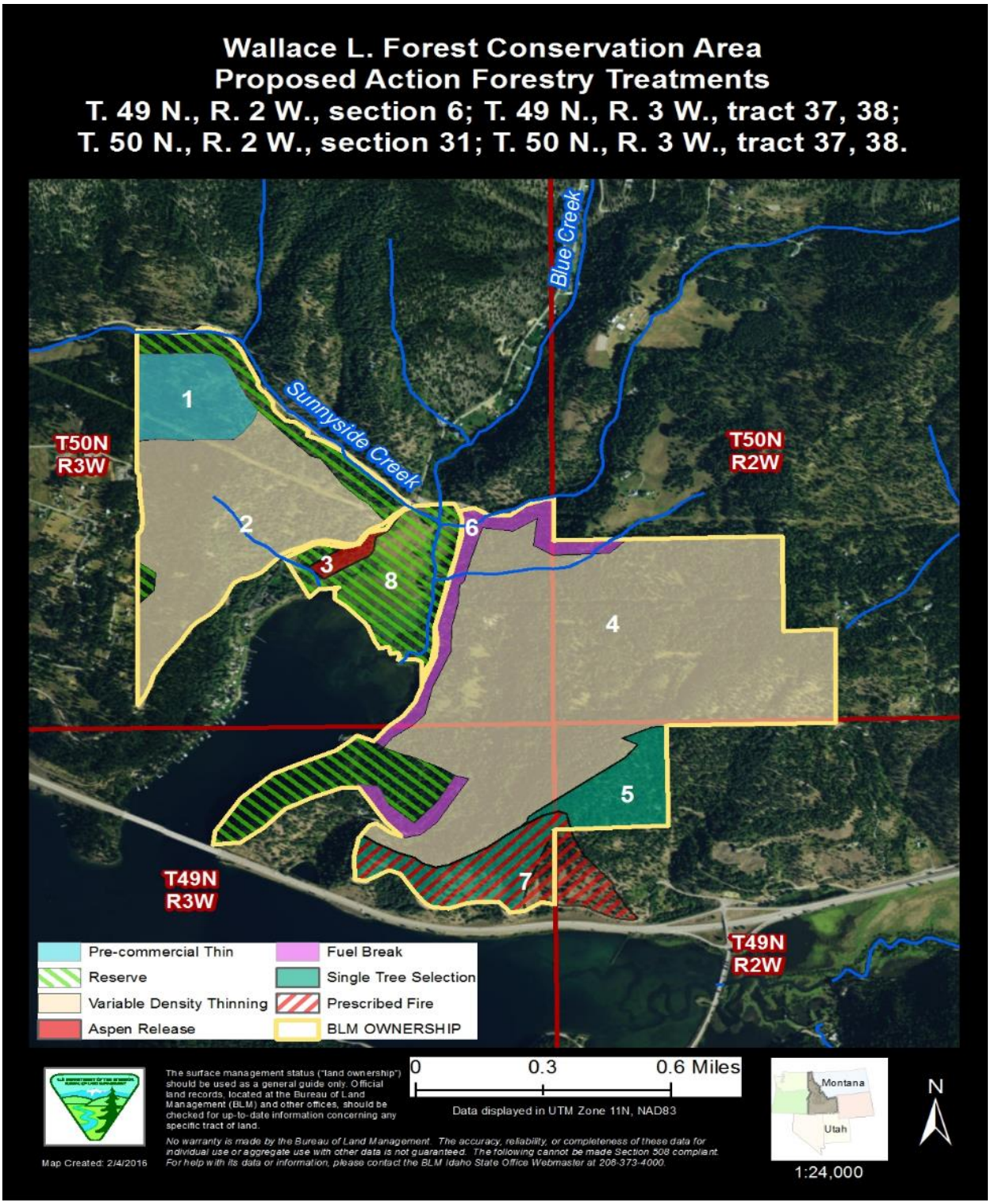
USFWS. 2016. Environmental Conservation Online System. Species Profile Grizzly Bear (Ursos arctos horribilis). https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A001

Van Dyke, F. G., R. H. Brocke and H. G. Shaw. 1986. Use of road track counts as indices of mountain lion presence. Journal of Wildlife Management 50: 102-109.

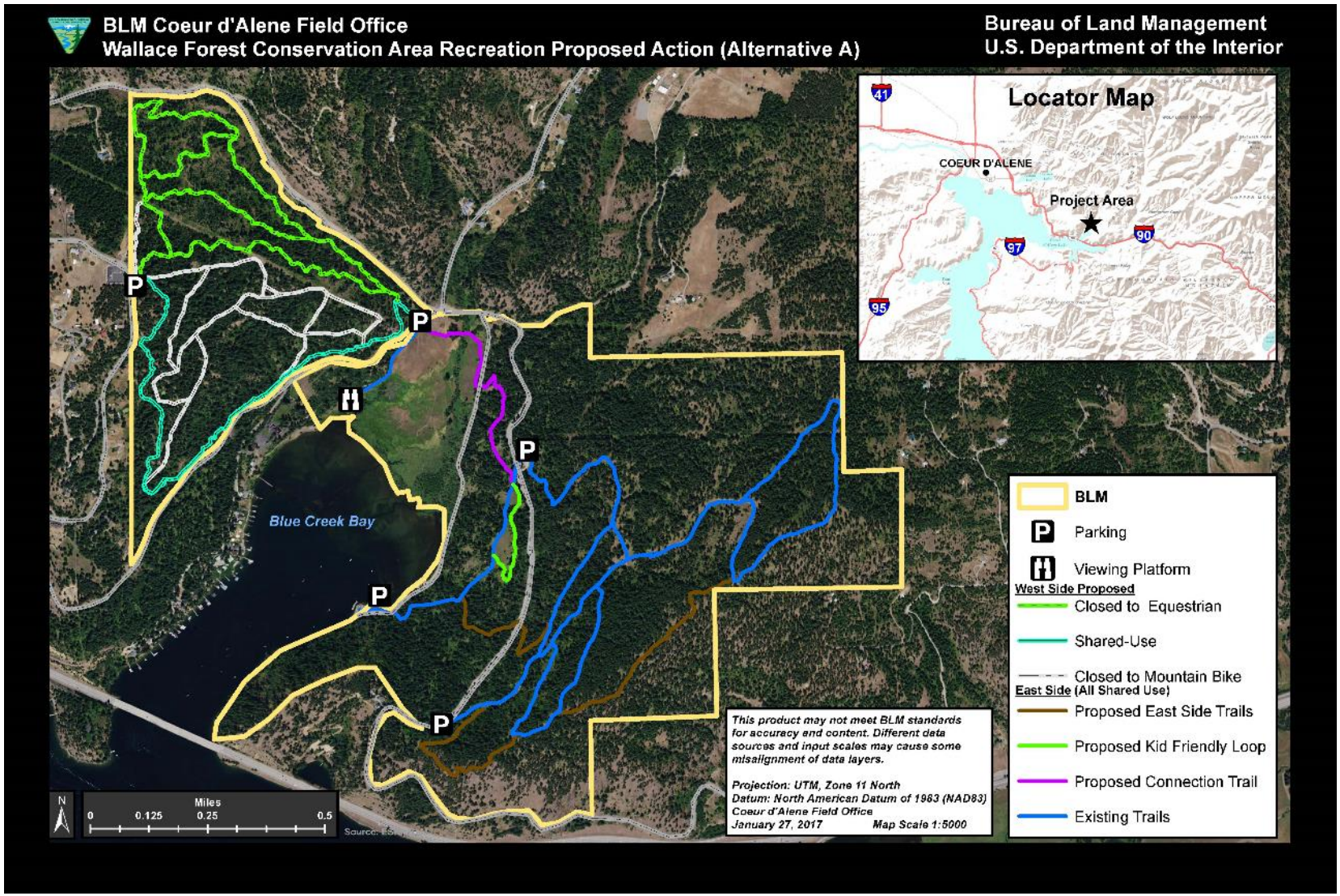
Wisdom, M. J., A. A. Ager, H. K. Preisler, N. J. Cimon, and B. K. Johnson. 2005. Effects of Off-Road Recreation on Mule Deer and Elk. Pages 67-80 in Wisdom, M. J., technical editor, The Starkey Project: a synthesis of long-term studies of elk and mule deer. Reprinted from the 2004 Transactions of the North American Wildlife and Natural Resources Conference, Alliance Communications Group, Lawrence, Kansas, USA.

Yarmoloy et al., 1988 C. Yarmoloy, M. Bayer and V. Geist, Behavior responses and reproduction of mule deer, Odocoileus hemionus, does following experimental harassment with an all-terrain vehicle, Canadian Field-Naturalist 102 (1988), pp. 425.

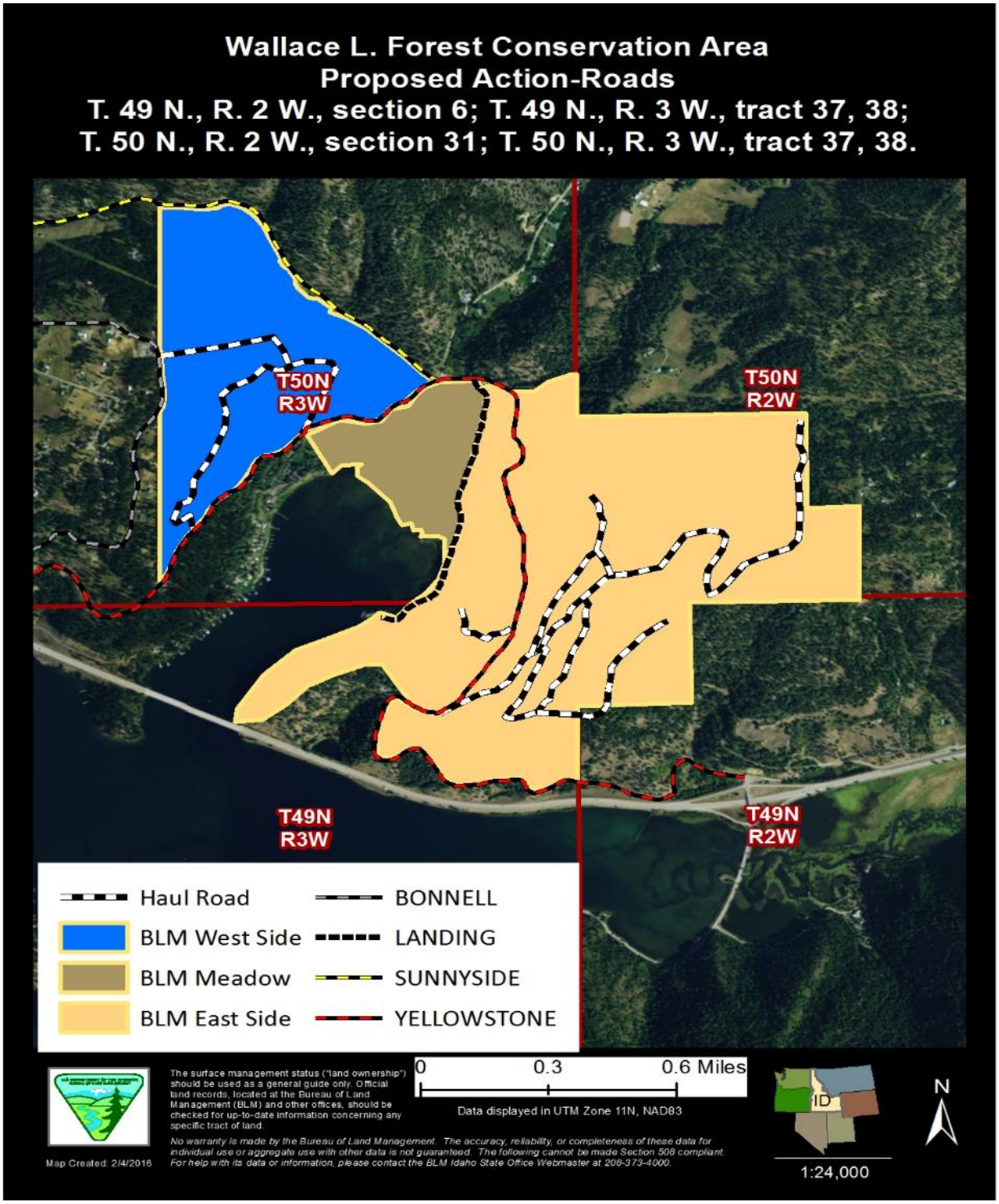
Appendix A: Map 1 Forestry Treatments –Proposed Action (Alternative A)



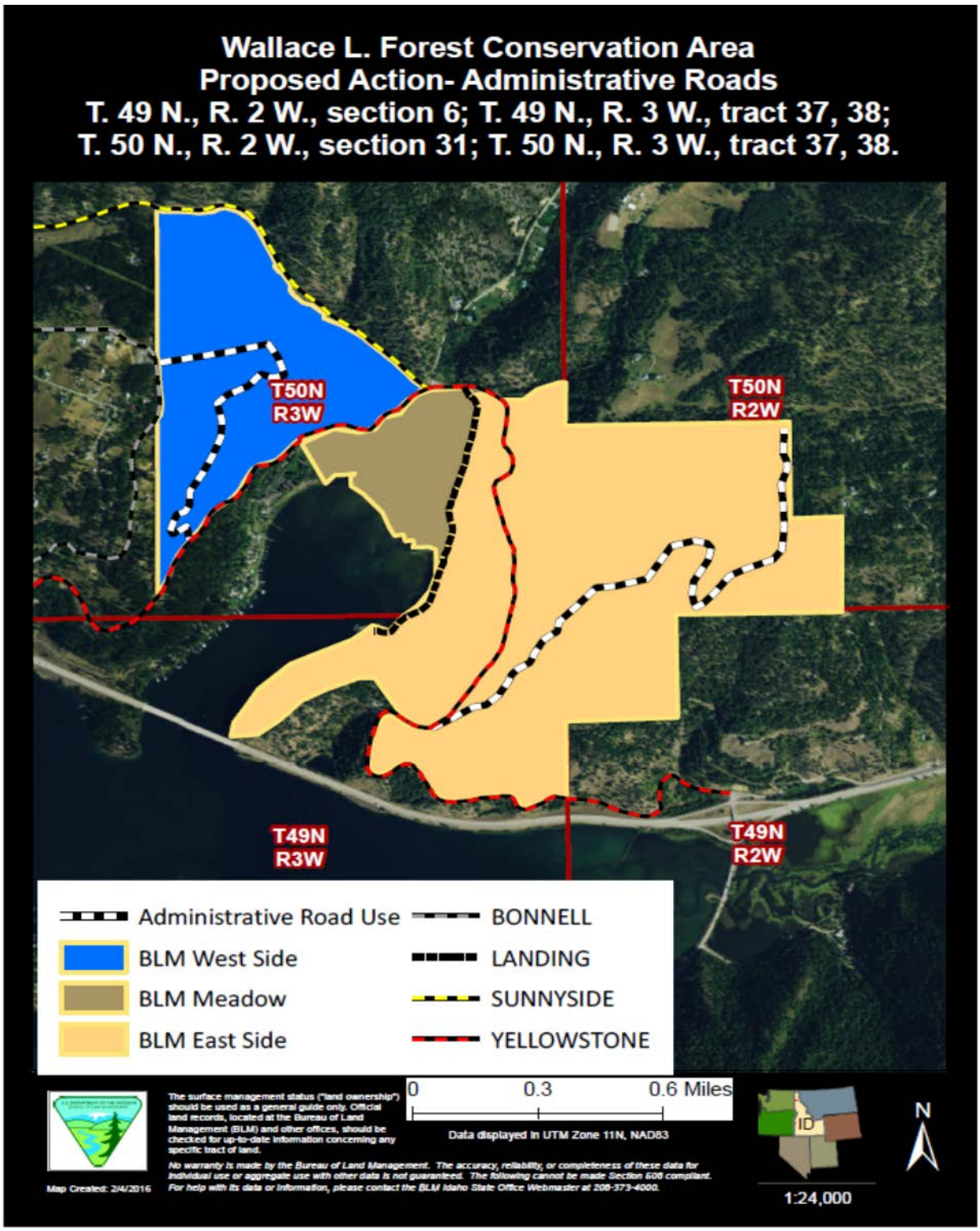
Appendix B: Map 2 Recreation - Proposed Action (Alternative A)



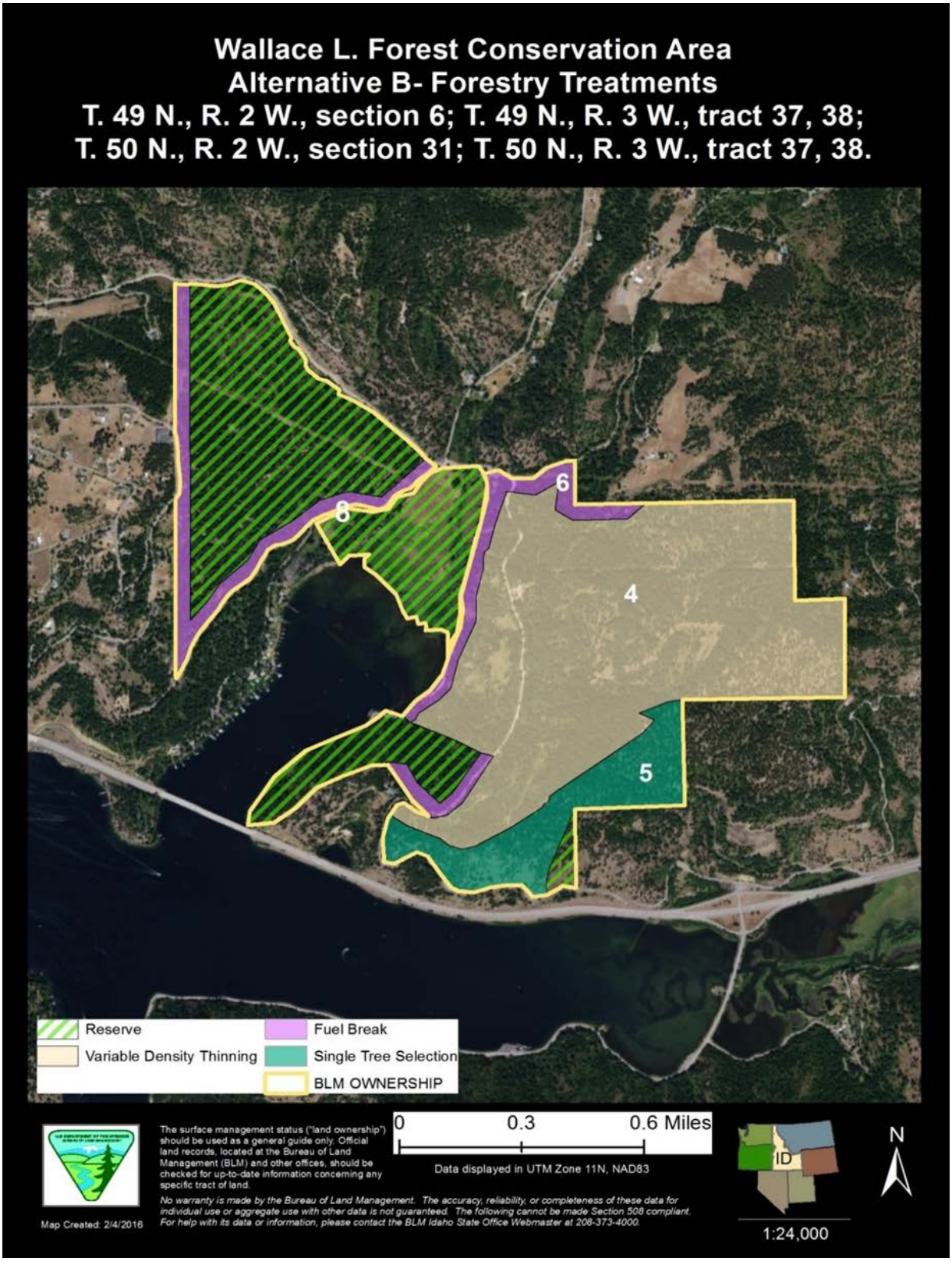
Appendix C: Map 3 Forestry Roads – Proposed Action (Alternative A)



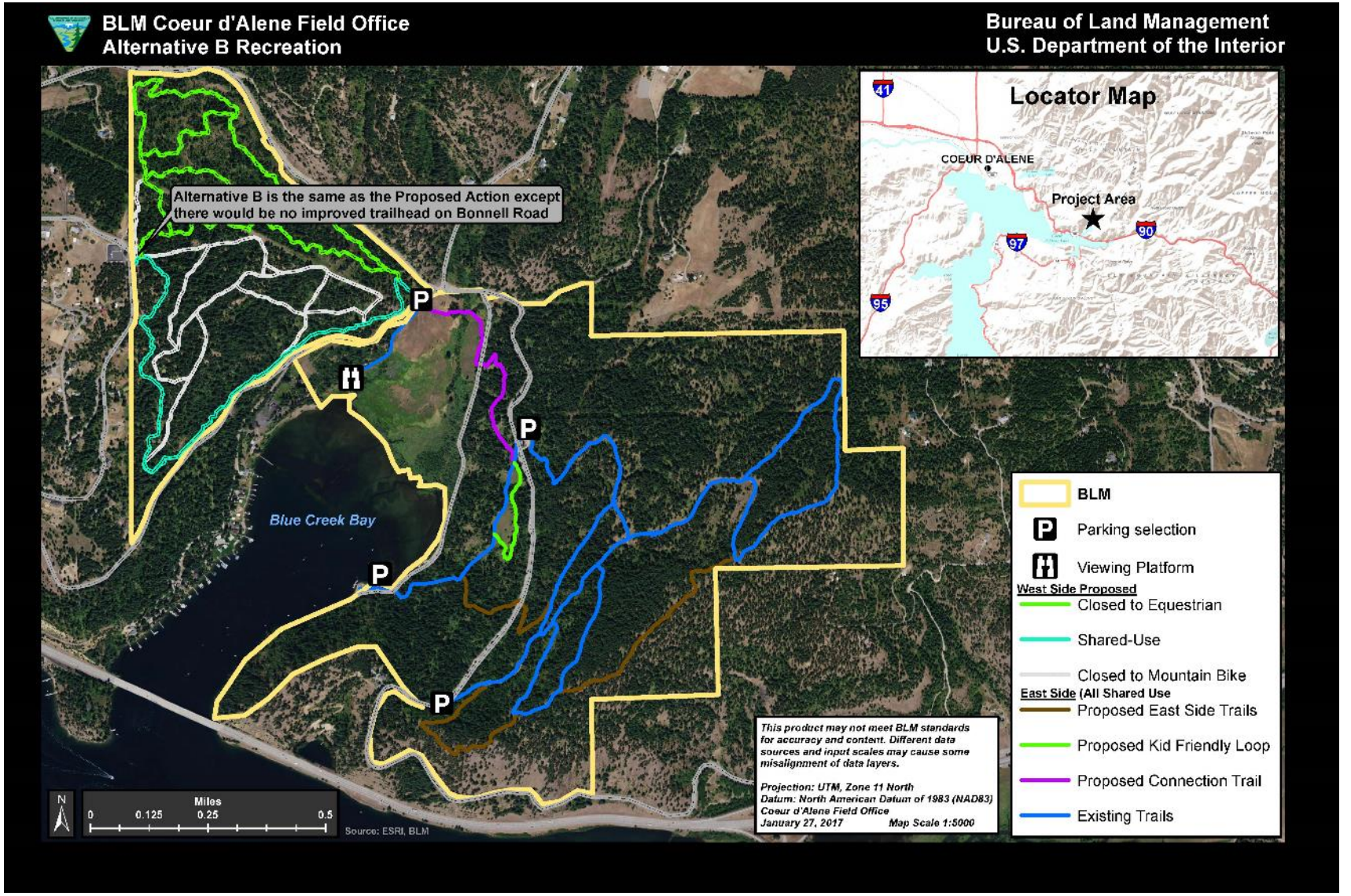
Appendix D: Map 4 Forestry Administrative Roads



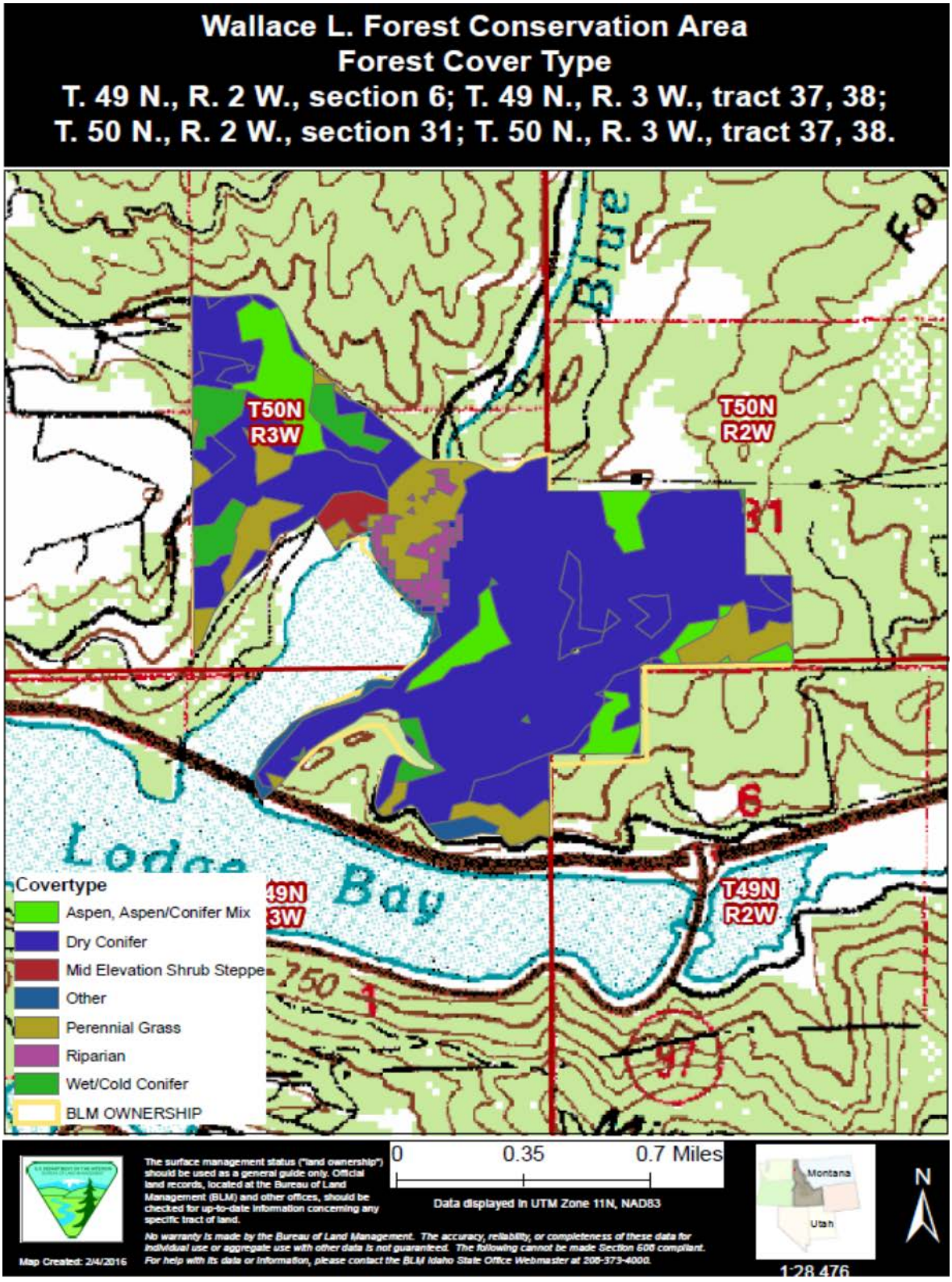
Appendix E: Map 5 Forestry - Alternative B



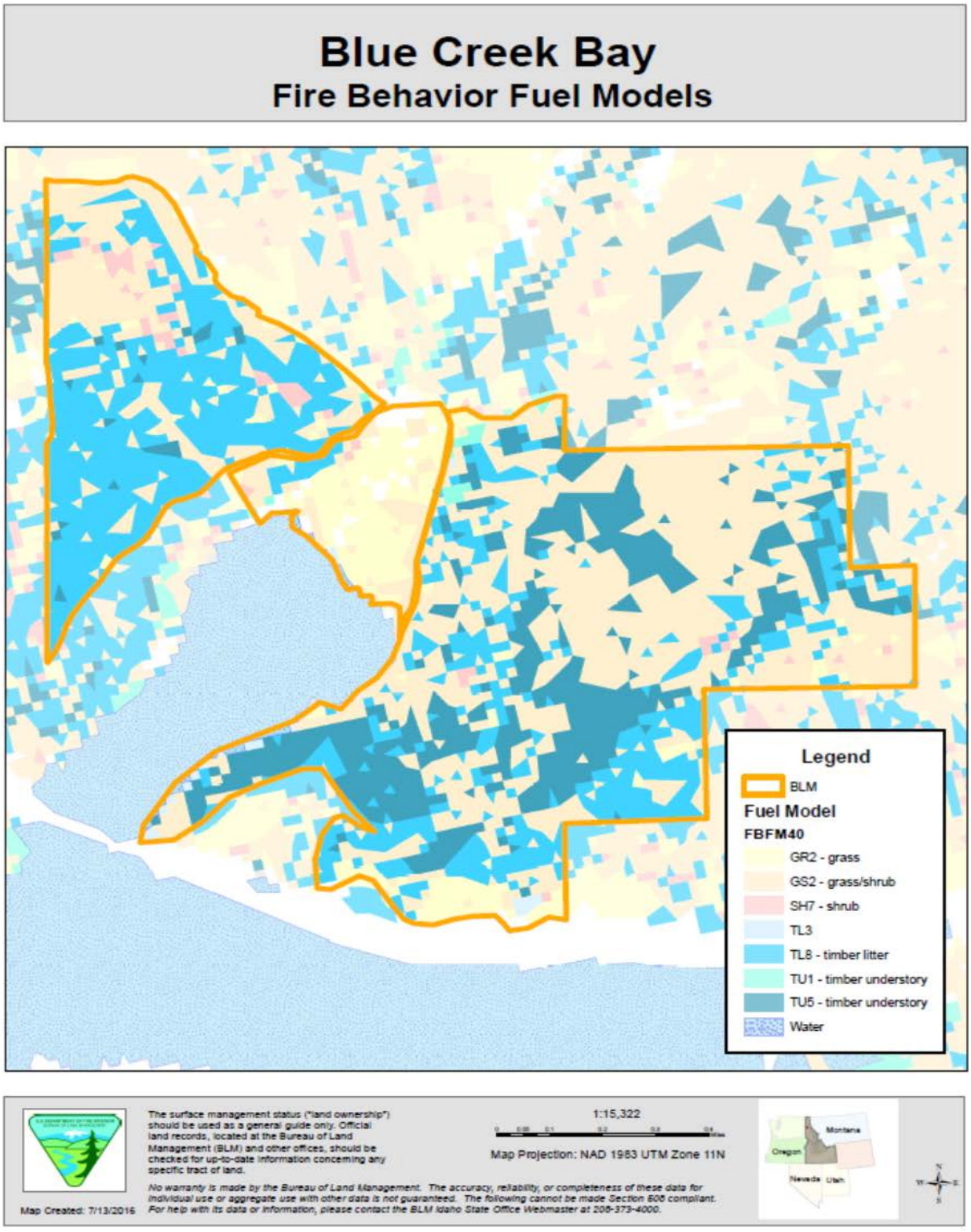
Appendix F: Map 6 Recreation - Alternative B



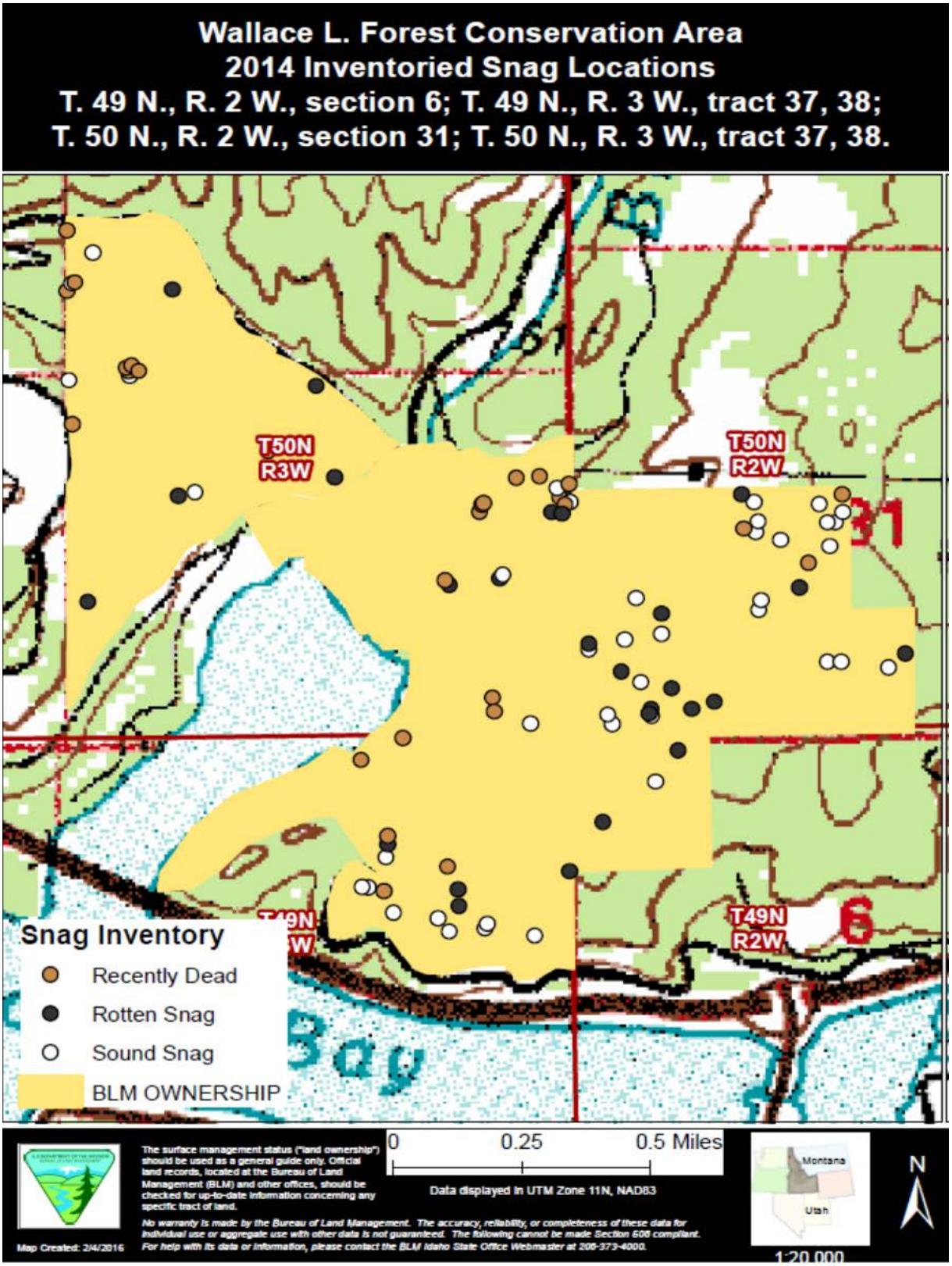
Appendix G: Map 7 Forest Cover Types



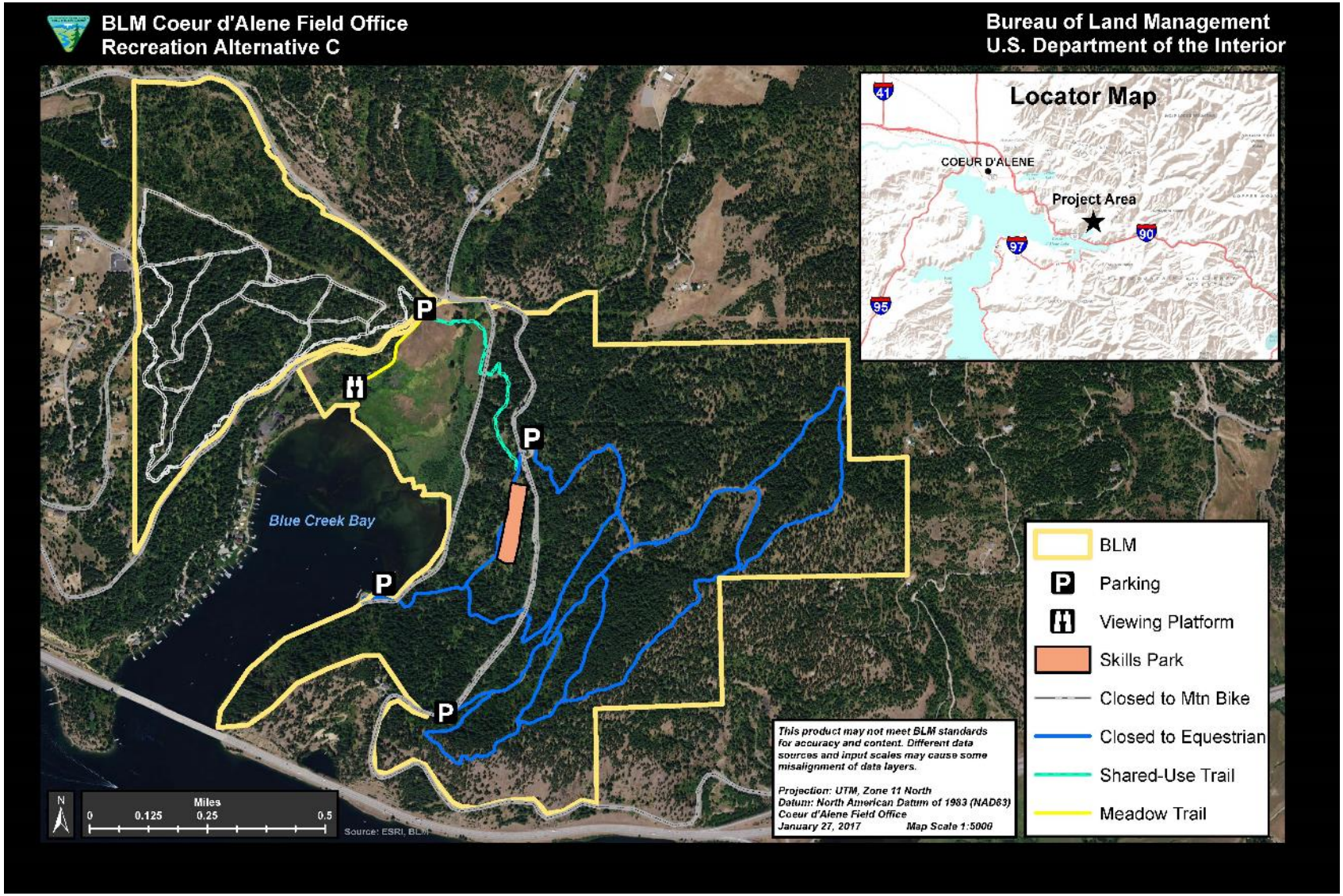
Appendix H: Map 8 Fire Behavior Fuel Model-LANDFIRE 2012



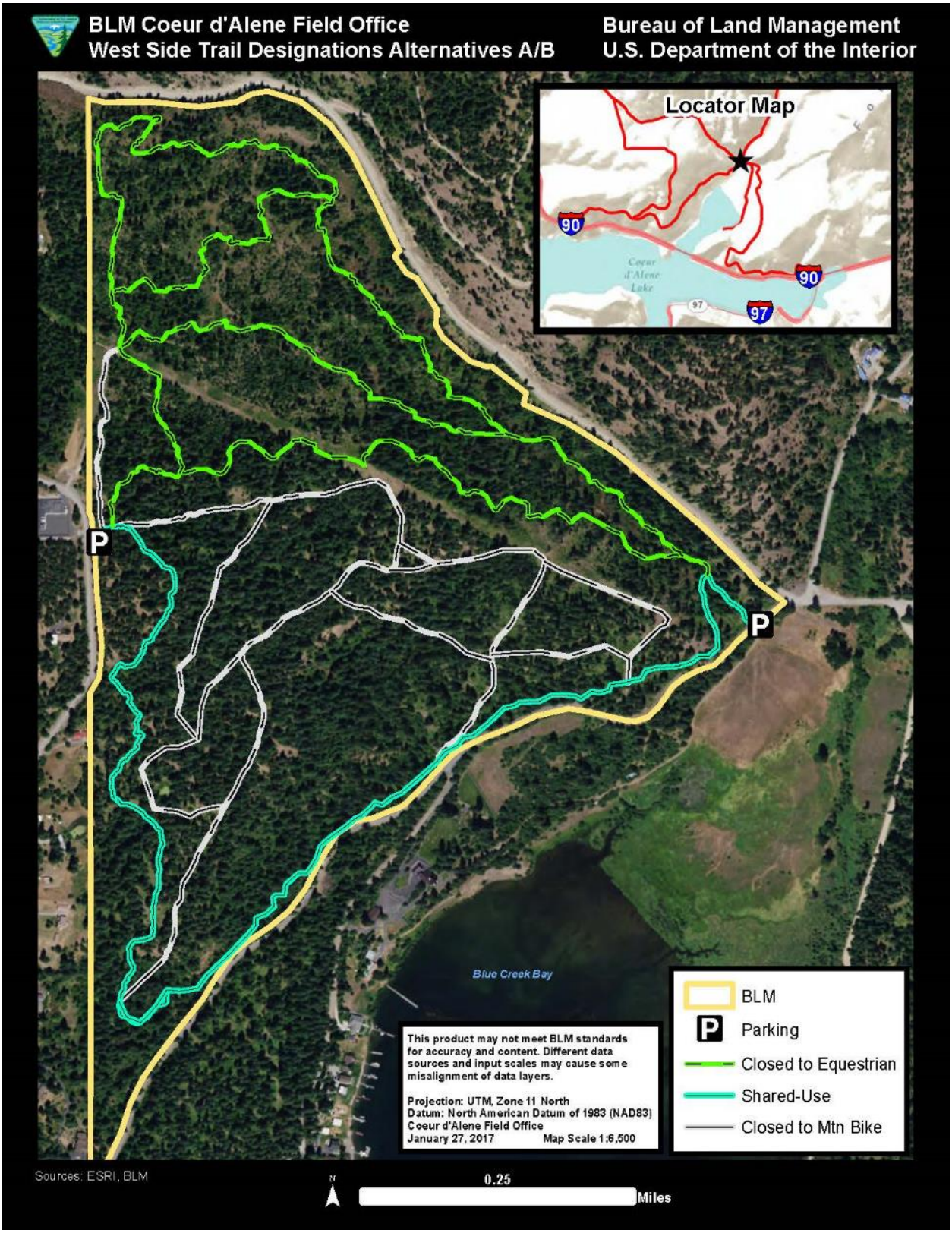
Appendix I: Map 9 Inventoried Snag Locations



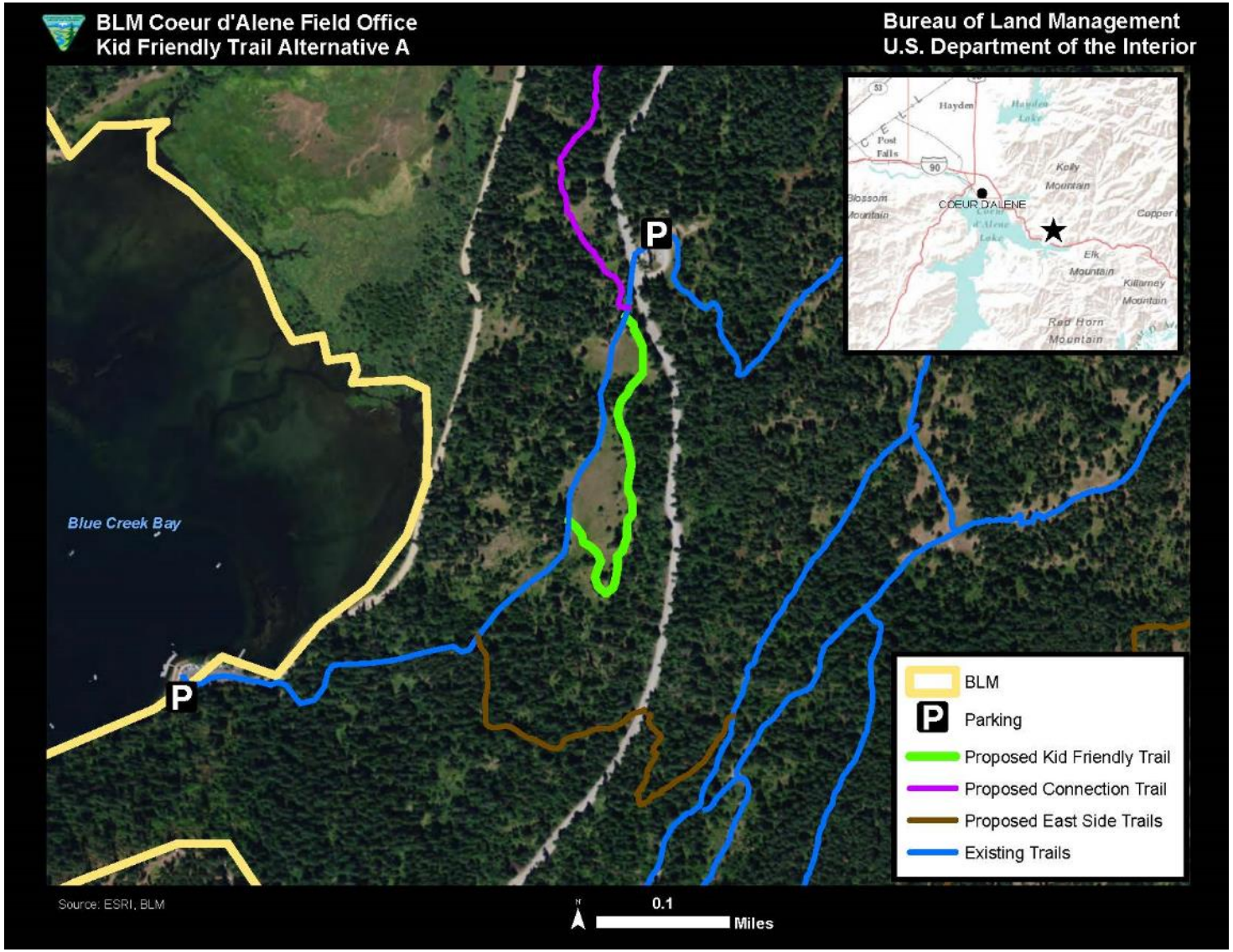
Appendix J: Map 10 Recreation - Alternative C



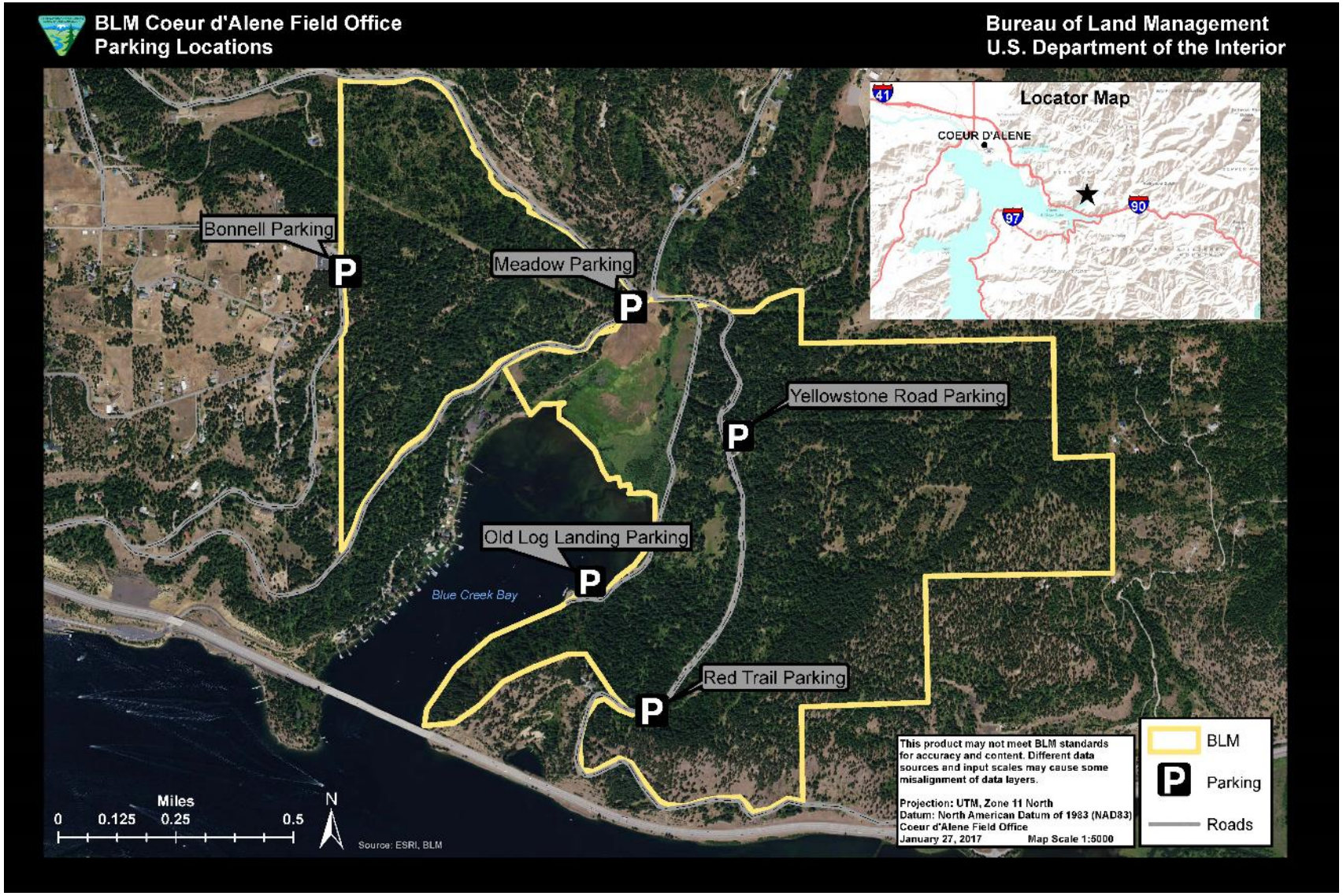
Appendix K: Map 11 West Side Trail Designations (Alternatives A and B)



Appendix L: Map 12 Kid Friendly Trail Alternative A

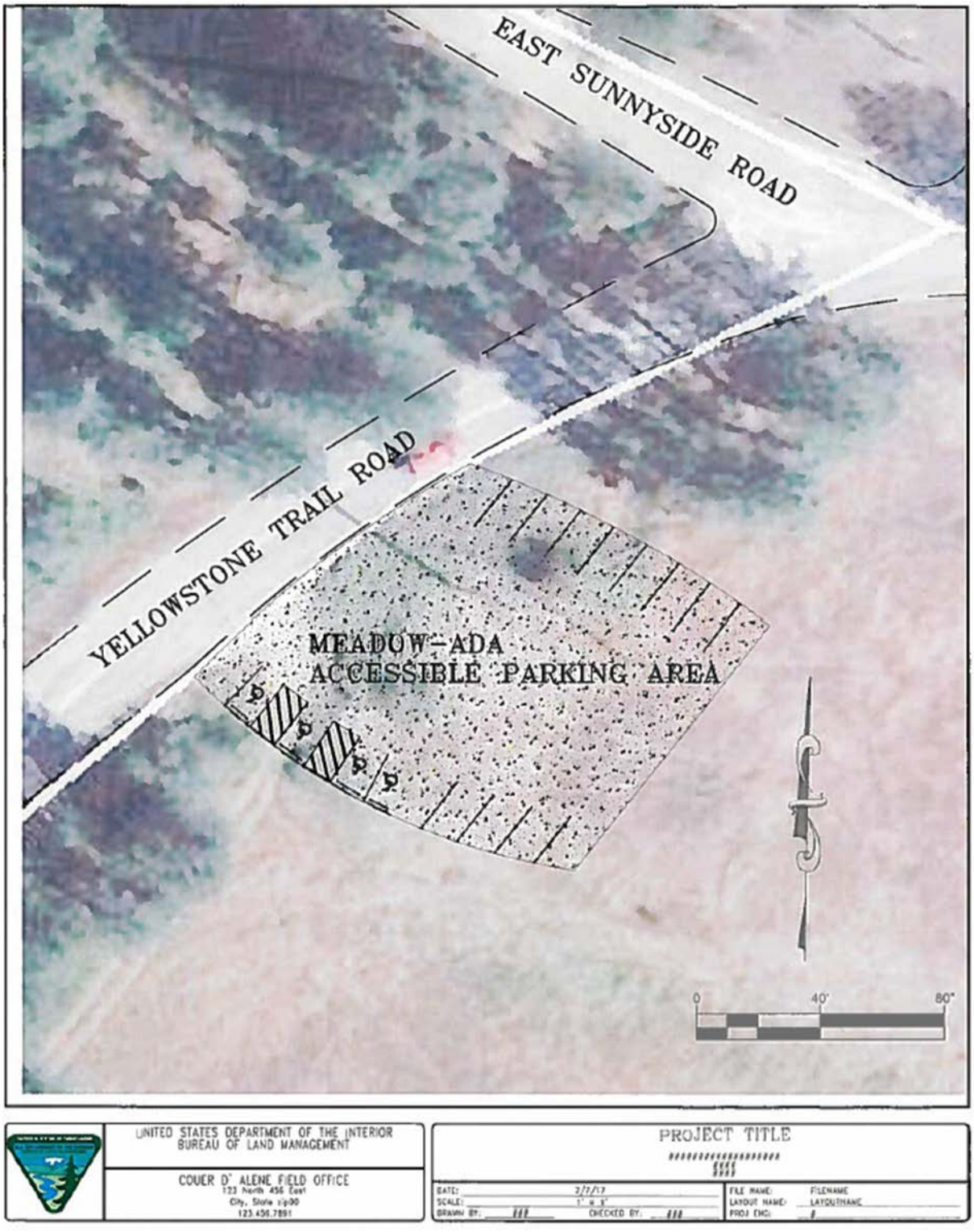


Appendix M: Map 13 Parking Locations

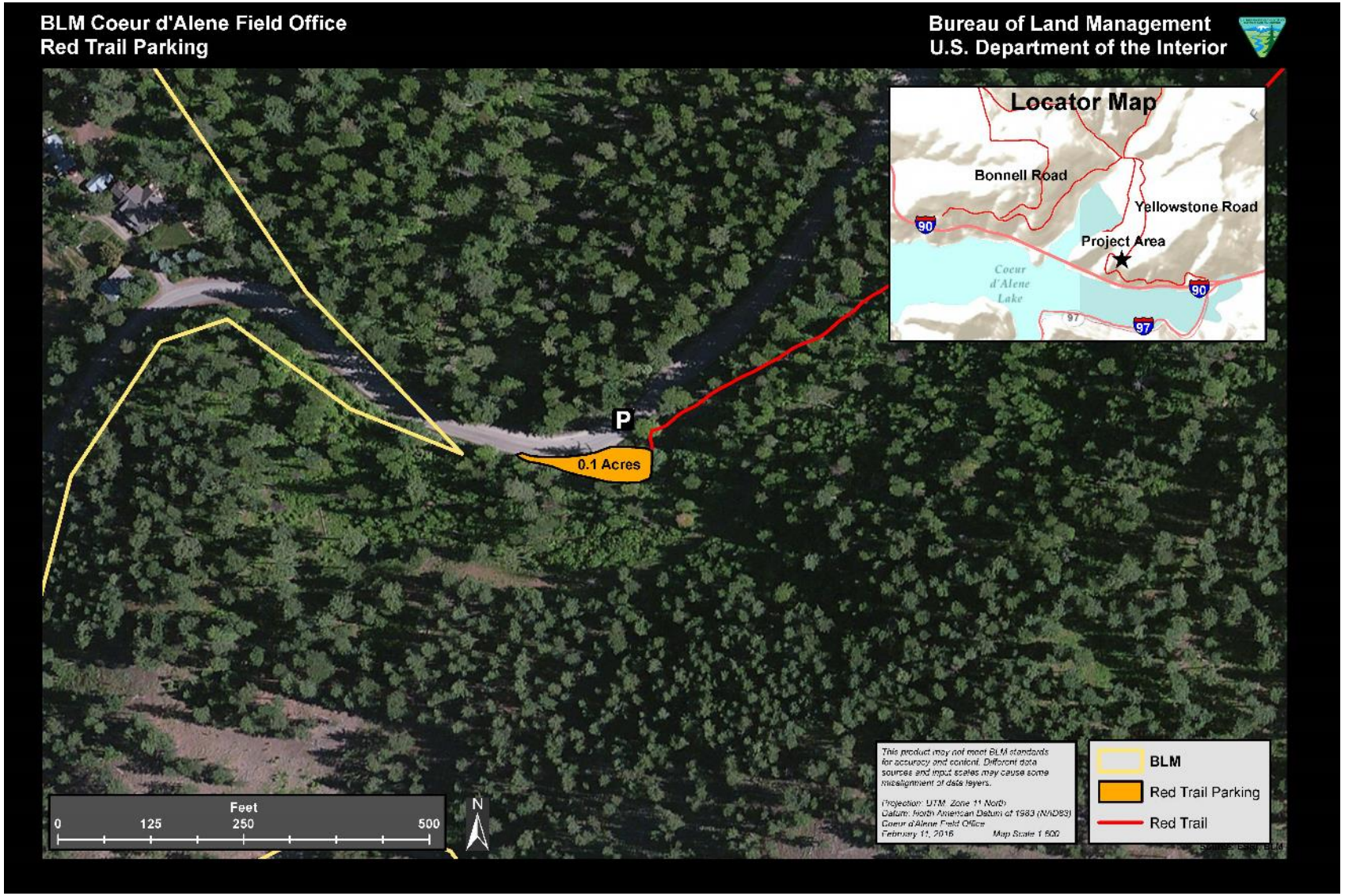


Appendix N: Bonnell Parking Concept

Appendix O: Meadow Parking Concept



Appendix P: Map 14 Red Trail Parking



Appendix Q: Comment Response

During the public review period for the REVISED EA, the BLM received 257 submissions in the form of letters and emails. Many of these submissions contained multiple individual comments. The BLM is only required to respond to substantive comments. As described in the BLM NEPA Handbook (BLM 2008a), substantive comments are those that:

- question, with reasonable basis, the accuracy of information in the EIS or EA.
- question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis.
- present new information relevant to the analysis.
- present reasonable alternatives other than those analyzed in the EIS or EA.
- cause changes or revisions in one or more of the alternatives.

Comments that are not considered substantive include the following:

- comments in favor of or against the proposed action or alternatives without reasoning that meet the criteria listed above.
- comments that only agree or disagree with BLM policy or resource decisions without justification or supporting data that meet the criteria listed above.
- comments that don't pertain to the project area or the project.
- comments that take the form of vague, open-ended questions.

The CEQ regulations at 40 CFR 1503.4 recognize several options for responding to substantive comments, including:

- modifying one or more of the alternatives as requested.
- developing and evaluating suggested alternatives.
- supplementing, improving, or modifying the analysis.
- making factual corrections.
- explaining why the comments do not warrant further agency response, citing cases, authorities, or reasons to support the BLM's position.

The BLM reviewed all submissions received and identified the substantive comments they contained. The BLM used the above criteria as a guide, but applied these loosely to provide the greatest opportunity to have public comments acknowledged in the EA.

From each substantive comment, the BLM then determined the issue raised by the comment. Some of the submissions raised issues that were the same or similar to those in other submissions. Table S-1 lists the issue topics, identified from submissions, to which the BLM has prepared responses.

Table S-1. Comment Issue Topics

#	Topic	#	Topic
1	Access	10	Public Involvement
2	Air Quality	11	Public Safety
3	Cultural and Historic Resources	12	Recreation
4	Fire	13	Socio-Economics
5	Forestry/Vegetation	14	Soil and Water
6	Invasive Species	15	Visual Resources
7	Noise (Rural and Natural Setting)	16	Wildlife
8	Planning/Alternatives		
9	Pollinators		

Table S-2 identifies those who submitted comments and the number codes assigned to the comment issues raised in their submissions.

Table S-2. Commenter Index

Commenter	Issue #	Commenter	Issue #
Aaron Davis	1	Alan Nelson	1, 10, 11
Andy Morsell	1, 11	Arnold Marquardt	1, 4, 7, 11, 14, 16
Austin Mullen	5, 11	Barbara Hansen	7, 8, 12, 15
Ben Martin	12	Bill Singleton	5, 11, 16
Bill Welsh	8	Bob Grammer	1, 5, 8, 14, 16
Bob Martin	11, 12	Bob Mattfeld	5, 8, 11
Bonnie Martinelli	11	Bryant Bushling	14, 17
Catherine Stirling	11, 12, 15	Cheryl Marcheso	12, 16
Coeur d'Alene Audubon	11, 12, 16	Cory Martinelli	11, 12
Darla Wessel	1, 11, 12, 13	Dave Fay	11
Deb Hicks	11	Deborah Skinner	11, 12, 14
Deon Borchard	4, 11, 12, 14	Donald Gauthier	15
Douglas DeAndre	8	Duane Stensrud	1, 6, 11, 16
Eric Nelson	1, 11	Erik Johnson	11, 12
George Lyes	11, 16	Glenn Wessel	4, 11, 12
Gregory Samson	4, 5, 8, 11, 12	Idaho Conservation League (ICL)	5, 16

Commenter	Issue #	Commenter	Issue #
Idaho Fish and Game	9, 14, 16	James Loy	11, 14
Jane Veltkamp	11, 16	Janet Heine	11
Jared Howerton	1, 2, 11	Jason Oman	8
JoAnn Schaller	1, 11	Jojo Johnson	11
Josette Herdell	11	Judy Johnson	11
Kelly Ross	11, 14	Ken Paxson	11, 12, 14, 16
Kim Brown	3, 11	Kootenai County Water District #1	14
Kootenai Environmental Alliance	14	Kris Buchler	17
Laura Templeman	8, 11, 14	Len Hodge	11, 12
Linda Littlejohn	8	Loretta Zabka	1, 5, 7, 8, 11, 16
Lorna Casey-Kaiser	1, 4, 11, 12	Louise Gutenburg	12
Lu Peterman	11	Madeline Singleton	5, 11, 16
Malissa Mccaffery	11	Marcheso-Stensrud	11
Margee Fay	11	Michael Waterhouse	12, 14
Michele Stalker	11	Miracle Kaiser	14
Nancy LaRose	14	Nathan Cook	12
Neil Harris	11	Norman Milem	1, 16
Patrick Dufour	8, 10, 11, 12	Raven Pikey	1, 12
Robert Wheeler	11, 12	Robert Zabka	1, 12
Rod Cayko	1, 2	Rod Parks	12
Ron Grigsby	12, 14, 16	Ross Skinner	11, 12, 14
Rusty Bailie	12	Sandy Emerson	5
Sandy Kruger	12, 16	Shane Myr	12
Sherie Barber Phillips	12, 14	Steve Doyle	1, 4, 5, 11, 12, 16
Stuart Norberg	1, 2, 11, 12, 14	Sydney Doyle	1, 4, 5, 11, 12, 16
T.J. Ross	1, 2, 5, 11, 12, 16	Tammy Puga	11, 12, 14, 16
Taylor Thompson	1, 12	Terri Jett	5, 12
Terry Borchard	4, 11, 14	Tia Flynn	
Wesley Hanson	5, 14	WFCA Advisory Committee	4, 9, 11, 13, 14, 16

Commenter	Issue #	Commenter	Issue #
William Welsh	8		

**Commenters are not listed if the BLM found that their submissions only included comments that did not require a direct response (e.g. comments expressing support or opposition to an alternative or components of alternatives).*

Comment Issues and Reponses

The following pages contain the comment issues in numerical order, the description of each, and the BLM's responses. The description of the comment issues primarily uses the text from submissions, but may include minor changes for clarification or context. When multiple commenters raised the same issue, the description of the issue may include text from one or more of the submissions.

Issue 1: Access

Issue Description	Response
A) All citizens have the right to use and enjoy federal public lands. it seems to me to be a fairly clear case of a very vocal and very small amount of the ""public"" being very upset at no longer being able to have free reign over lands that rightfully belong to the entirety of the ""public"" (and even to the ""public"" not even from the greater area, such as those that might be visiting the area on vacation...) B) I am opposed to restricting the majority of the public from using large sections of this area. I am specifically opposed to Proposal A including the designated mountain bike area. C) My understanding is this plan is for mountain biking and all other uses is off limit. So the residents of this area will not be able to ride their horses or walk in this area and enjoy the wild life that will move on to a safer area. As you can tell I'm not in favor of this exclusive use by one group and we the people who live in this area are denied. D) Please do no designate areas to one activity. E) - "" ... sustain the health, diversity, and productivity ... "" - With this as the heart of the BLM's mission statement, I do not understand how this squares with designating a major portion of the West section to mountain bikers ONLY. This only restricts, narrows, and un-diversifies the usage of this tract of land. Why would the BLM take rights away from others for a single-purpose, special group? How about designating Blue Creek Bay for kayakers and non-motor vehicles only if you really want to preserve the environment and give special treatment to a specific group of recreationers? F) Making shared use trails for hikers, horses and bikers is termed shared used. Singled out for a non-shared use only for bikes is a violation of the intent and charter of BLM use area. G) Why limit the usage to only 2% or 3% of the local population that have the ability and resources to use a 'Skills Park'? It should not be so limited that hikers and horses could not also share it. It does not make any sense to spend so much of 'our' money for just a select few users. Bikers could still use it, but it must be a 'shared use'.	A, B, C, D, E, F, G) The BLM acknowledges that in the original proposed action it was unnecessary to designate trails for exclusive use for one type of recreation. However, some restrictions are necessary to provide for safe use of the trails. Therefore, in the revised proposed action (see Revised EA Section 6.1) certain specific uses are excluded on specific trails (i.e., mountain bikes or equestrian). Except for the excluded use, all other uses would be allowed on these trails. G) The skills park has been removed from the Proposed Action. H) An shared-use trail from the powerline corridor has been added to the Proposed Action (see section 6.1 of the EA and the Proposed Action Maps in the Appendix) to allow for equestrian access from that area.

H) The way we access the Conservation land keeps us off the street; the trail runs adjacent the power lines, and then we proceed down to the east side to Blue Creek area.	

Issue 2: Air Quality

Issue Description	Response
A) The clearing and burning will cause visual problems with drivers, but for people like my wife, this will very negatively affect her health. B) The landing area is serviced by 'Dirt Roads' that are not oiled or treated for dust abatement with Magnesium Chloride. I read through your proposal and it briefly mentioned 'minimal dust impact' during the creation of the improvements. However, it says NOTHING about the year round need for dust abatement and control. If the BLM truly wants to be 'Good Neighbors' they need to give strong consideration to the wishes and concerns of their actual neighbors, and finally fix the dust created by increased WFCA and landing usage. C) The road that travels through the WFCA (Yellowstone Trail) going from the dumpster's and ending at the I-90 on ramp is also a dirt road until you reach the top of the hill above the old Shady Rest. Thinning the trees along this roadway with clear cuts and gaps as proposed would eliminate (or greatly reduce) natures own 'dust filters' and create additional dirt and dust blowing onto our properties. The dirt portion of Yellowstone Trail should be paved (preferred) or at the very least oiled religiously and yearly as increased usage and vehicle traffic in this area is almost guaranteed. D) The increased traffic caused by the development of this land would make the dust from the road so bad that I may have to consider moving. The dust is already bad enough. E) Increased pollution (air, noise, dust, etc.) due to years of construction activities. F) Pollution form increased traffic not stated. G) Coordinated effort with East side Road district to oil the road running from Yellowstone (by the dumpsters) to the landing. The improvements to the landing in 2007/2008 have generated nice public use but it has also significantly increased the road traffic. The amount of	A, B, C, D, E) In the Revised EA Section 6.1.1 Environmental Design Features identifies mitigation measures to reduce impacts to air quality during implementation of the project are addressed. Section 7.2 of the Revised EA discusses the imacts on air quality from each of the alternatives. Design features/mitigation measures include. <u>Smoke:</u> • Conduct prescribed fires in accordance with the procedures outlined in the Montana/Idaho State Airshed Group Operating Guide (Montana/Idaho Airshed Group 2010) in order to minimize air quality impacts from smoke on local communities and individuals. This group monitors current and forecasted weather, on-going smoke emissions in the area and other factors. From this information, they forecast the estimated smoke production from proposed burning and the probability of good smoke dispersion away from the area. When conditions are favorable such that conditions will not fall below a ‘good’ air quality rating they will issue a ‘go’ decision, allowing the burning to proceed. Without a ‘go’ decision burning will not occur. The majority of the smoke produced will come from piles generated from logging landing piles and handpiles. This type of burning can be staged over time if necessary to limit smoke production and the BLM will follow all rules outlined in the Department of Environmental Quality 58-01.01Rules for the Control of Air Pollution in Idaho. Efforts are made to inform the public prior to any burning activities. If you would like to be personally informed ahead of burning activities, please contact your local BLM our office. <u>Fugitive dust</u>: • Employ dust abatement measures on roads to reduce dust. Dust abatement during the implementation will be mitigated by contractual provisions with the contractor and supervised by an on-site BLM representative. Beyond the implementation of

dust generated from that traffic creates an unsatisfactory air quality condition for those of us on the west side of the bay. There should be funds from the sale of the trees to support a dedicated fund to manage this each year.	the project, fugitive dust is regulated by the Idaho Department of Environmental Quality (IDEQ). The Coeur d'Alene area is not a listed 'non-attainment' zone for air quality as defined by IDEQ. To qualify as a non-attainment zone, any of several chemical or natural pollutants (of which fugitive dust is one) must exceed a pre-determined level. Yearly monitoring by IDEQ determines the status of attainment/non-attainment. If dust becomes a nuisance, public complaints may be referred to IDEQ for investigation. See this website for more information: http://www.deq.idaho.gov/assistance-resources/compliance-enforcement/ or contact your local IDEQ office. F) Traffic volume cannot be accurately predicted and therefore pollution increases cannot be fully determined. These effects are identified in Section 7.2. G) All roads bisecting or surrounding the WFCA are controlled and maintained by the East Side Highway District. The landing road would not be utilized during harvesting operations. However, during logging operations the BLM will coordinate with the Highway District to ensure dust abatement measures are utilized to prevent excess dust and reduced visibility. A small portion of the timber receipts go back to the states for distribution. However, there is currently no regulatory mechanism by which the BLM could transfer funds from the timber sales directly to the East Side Highway District for road maintenance.

Issue 3: Cultural and Historic Resources

Issue Description	Response
A) Has anything been done with the National Register nomination of the Mullan Road segment? B) Has there been any historic signage at any of the parking areas? There aere some good transportation history, Native American, logging, and post-mullan transportation history. C) My concerns remain in the clearing and management of vegetation and trees that include remnants of the old Mullan Road or the early telegraph poles.	A) The Idaho State Historic Preservation Office has been contacted. See Section 7.3 for more detailed discussion of cultural and historic sites. B) The proposed action includes providing information at trail heads. See Section 6.1. C) Buffering and/or avoidance around known cultural sites will occur during logging operations (See Section 6.1.1.)

Issue 4: Fire

Issue Description	Response
A) I'm a retired Fire Chief and concern for the increase fire danger that will surely come to this area due to the increase use by humans who come and leave. B) Increased chance of wildfire. As it is, many of us 'hilltoppers' are aware of the lack of escape routes available to us, should we ever experience the dreaded fire. Increased public use of this area would, I'm afraid, also increase the odds against us. C) The BLM does not adequately address the highly flammable logging slash and opening up the forest canopy; more wind and increased temperatures dry out the forest floor. The BLM plans on planting trees they are generally the same age and much more flammable than the older forest, this creates a fire hazard. Not addressed. Human presence always increases the danger of fire. D) There is little fire protection in the area. We propose that fire hydrants and pumps from the lake should be added to assist with fire protection.	A, B) See Section 7.8 Public Health and Safety for a detailed discussion of the effects related to fire. In that analysis and discussion the BLM recognizes that increase recreational use could increase risk of fire starts. However, the forest vegetation and fuels treatments would lower the potential that a high intensity fire would occur on public lands, and improves the opportunities to suppress and control a wildlife. C) Short term increases in fire intensity in treatment areas has been analyzed and the effects disclosed under all of the alternatives (See Section 7.6). In summary the analysis references "Raymond and Peterson (2005) that found increased fire behavior (i.e. higher flame lengths and faster rates of spread) in these more open stand conditions would result in lower severity due to lower fuel accumulations and less likelihood of crown fire initiation and mortality. Additionally, Graham et al. (2004) found that increased solar radiation along with increased soil nutrient availability from prescribed burning would promote understory vegetation production in the form of forbs, grasses, and low shrubs. While these live fuels are still green, their higher foliar moisture would have a dampening effect on fire behavior (Agee et al. 2000), but once cured out would contribute to fire behavior." The short term increases in fire behavior have been analyzed and disclosed, in addition to the long term benefit that the action alternatives also analyze showing a decrease in potential fire severity and intensity that promotes forest health and increased opportunity for successful fire suppression. D) In addition to the response in comment A, wildland fire suppression agencies do not have the infrastructure, budget, or capability to support a hydrant network for protection of the wildlands. Specific to the WFCA, there is an adequate water source being adjacent to Lake Coeur d'Alene that could be used to fill wildland fire engines, and support pumps and hose lays. In addition, the protection agency contracts with multiple aviation resources that could also use the lake for support of helicopter and fixed wing aircraft that are used for wildland fire suppression.

Issue 5: Forestry/Vegetation

Issue Description	Response
A) There needs to be an Alternative D that includes forestry and fuels treatments and excludes recreation improvements. B) Again, why is there no "Option 4" that takes care of the environment without the necessity of building a busy trail system and infrastructure? C) Who instigated and is pursuing this project? Any commercial or associative entities? The International Mountain Bicycling Association (or the like)? Again, why is there no "Option 4" that takes care of the environment without the necessity of building a busy trail system and infrastructure? D) The proposed Vegetation Treatment of the Forest would utilize chemicals that would contaminate our water supply including our pond and the soil. E) I commented that the BLM should consider adjusting treatment unit boundaries to follow topographic features or changes in forest stand composition and structure. Many of the proposed treatment unit boundaries follow unnatural features, such as power line corridors, roads, or in the case of fuel breaks, a uniform setback from BLM property boundaries. Adjusting treatment boundaries to align with natural features or conditions would result in a more visually appealing outcome. Transition zones between treatment prescriptions would also enhance the visual appearance. Unfortunately, it does not appear that this recommendation was incorporated into the preferred alternative. F) The BLM [should] consider using local forest management companies and/or loggers that have a connection to the area. There are several companies/individuals that have a connection to the project area that will have more investment in maintaining the integrity of the overall area. G) What are you doing to support re-growth? H) Timber harvest in some areas to open up views and to create openings for gathering areas as well as along some of the trails that would result in the accumulation of snow cover for X-C	A, B) Two separate decision documents will be issued, one for Forestry and for Recreation; each will provide the decision maker with a range of alternatives to choose from, therefore; a forestry only alternative could be considered as described in Alternative A Section 6.1. (See Section 5.2.2 Issues Eliminated from further Analysis). C) The BLM identified a need to propose this project in August of 2015 (Section 2.0, Purpose and Need) based on both forest health issues and the demand for recreational opportunities in the WFCA. During the NEPA process a desire for additional recreation uses on the west side were identified which helped to develop the range of alternatives. A complete description of the process and how the alternatives were developed can be found in Section 5.1, Scoping. D) There would be no use of chemicals during the proposed vegetation treatments; therefore, no contamination would occur to water sources or soil. (Section 6.1, Forestry). Post-project treatment of invasive species and measures to ensure safe use of pesticides are described in Sections 6.1 and 7.7. E) Unit boundaries were repositioned after the initial scoping period to follow more natural features and topographic breaks (see Appendix A: Map 1 Forestry Treatments). Fuels treatments would transition into other forest treatment areas to reduce unnatural looking boundaries. In addition, variable density thinning will occur over the majority of the project area in order to mimic more natural processes. (See Section 6.1, Forestry and 7.13 Visual Resources Management). F) If any of the forestry alternatives are selected, regulations outlined in 43 CFR 5401 will be followed. G) Section 6.1 Forestry in the Revised EA describes how reforestation will be addressed. H) By following the prescription described in the forestry proposed action (Section 6.1) we will essentially be opening up the stand allowing more snow to accumulate on the forest floor and increase views of the landscape.

skiing and snowshoeing would be a possible consideration that I and others I know could support if done with the aforementioned "light touch." I) As to logging, some light touch select harvesting might be ok in some clearly overstocked areas where openings and thinning could be a benefit, especially with diseased, damaged, and dying trees are evident, but this is one of the only natural areas with big trees and native tree stands on public land in close-in proximity to the population centers, so preserving that character (that the Forest family nurtured for generations, and sees as part of the legacy of this land preserve) is an important element to the outdoor appeal and experience provided by this special aptly named Forest Family Forest Preserve. J) First, in the attempt to reduce the risk of wildfire, you may be detrimentally altering the character of the Blue Creek Bay preserve. By this I mean if you significantly harvest trees to thin them and introduce more fire tolerant trees, the forest will change and for awhile what is now a forest of varied aged trees will look like a tree farm. In line with this, creating a 200 foot wide fuel break in areas adjacent to residences might created quite a bit of denuded acreage. A 200 foot wide buffer extended 200 feet along the perimeter equals one acre. If this clearing is extended along the perimeter very far, many denuded acres will be created. How many? K) The massive commercial cutting indicated on your maps is also very invasive. The disruption to our lives, wildlife, etc. needs further discussion. L) Horse and hiking follow game trails with no damage to existing fauna and foliage, on the other hand extreme biking would.	I-K) The proposed forestry action favors retaining trees greater than or equal to 24 inches in diameter (Section 6.1). The area is also has a visual resource management classification of a 2 therefore the level of change altering the environment would be low as discussed in Section 7.13 of the Revised EA. J) In areas proposed for fuels breaks the BLM is proposing to reduce surface and ladder fuels by thinning understory vegetation and small diameter trees up to 8 inches in DBH to reduce the potential for a fire to start and get into the canopy of the larger trees that are left on-site. (Section 6.1, Forestry) K) A combination of harvesting techniques would be used across the entire BLM ownership to mimic natural forest patterns therefore, the effects of the treatments would have less effects on visuals, and wildlife. For information regarding treatments and effects please see Section 6.1, Forestry; Section 7.13, Visual Resource Management; and Section 7.14 Wildlife. L) All recreational users will be required to stay on designated trails reducing the impacts to fauna and foliage. See sections 7.12.2, Vegetation Communities and 7.14.2 Wildlife for further information.

Issue 6: Invasive Species

Issue Description	Response
How will the use of toxic and hazardous pesticides affect wildlife, water, and the health of local residents?	Section 7.7.1 of the EA includes a reference to the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments. Weed treatment effects have been analyzed and all treatments are conducted following the best management practices described in the 2008 EA to reduce or eliminate impacts to native plants, wildlife, water, and humans. Also see Sections 6.1 and 7.7.

Issue 7: Noise (Rural and Natural Setting)

Issue Description	Response
A) This 6 year project brings many other problems to our peaceful area such as noise, traffic, crime etc. B) In addition, I don't believe effects to local residents of increased noise, dust, traffic, and human activity of increased recreation development were adequately discussed. C) a massive one acre parking lot is almost unbearable to think about. The traffic that would result on our rural road, the disruption, noise and potential vandalism to our properties is left unmentioned in your 131 page document... D) In addition the removal of trees called commercial cutting would also lead to additional noise carry and strip the forest of the sheltered quietness; as the trees act as a buffer."	A, B, C, D) Section 7.10 Socio-Economics includes a discussion of the analysis of effects on the rural and natural setting of the area. This includes noise and visual impacts as well as traffic. For a discussion regarding traffic safety and crime see the Public Health Section 7.8.

Issue 8: Planning/Alternatives

Issue Description	Response
A) If you are hell bent on doing something with land build a few trails that folks can walk on or ride horses or even ride a bike on but don't make a large parking lot and professional race course/ training facility complete with obstacles, jumps and down hill speed trails for professional mountain bike organizations. B) I would propose another alternative that would include vegetative treatments as described, a small gravel parking area to relieve shoulder parking off Bonnell road, and elimination of the toilet, kiosk, and skills park at Bonnell. I also suggest engaging the local community in development of west-side trail designations and use restrictions. C) I am unsure why the parking lot would be put in at Bonnell, which is a highly residential area. Why not put it off lower Sunnyside where less people live, or not widen the parking area at Blue Creek. Why not skip it entirely or use other access points (someone mentioned the Wolf Lodge access). Please do not put a bathroom site at the Bonnell parking area. A 5 10 car	A) The BLM acknowledges that in the original proposed action it was unnecessary to designate trails for exclusive use for one type of recreation. However, some restrictions are necessary to provide for safe use of the trails. Therefore, in the revised proposed action (see Revised EA Section 6.1) certain specific uses are excluded on specific trails (i.e., mountain bikes or equestrian). Except for the excluded use, all other uses would be allowed on these trails. B, C) Recognizing the potential impact on adjacent residences, the BLM reduced the size of the parking in the revised proposed action and would continue to be a graveled parking area. The parking area would be within the footprint of the old log landing and require minimal disturbance to provide parking off of the paved road. The amenities at the trailhead would be necessary to provide information regarding the trail network and help keep the area sanitary (see Section 6.1). The parking area would need a toilet due to the distance from the nearest vault toilet which is on the other side of the WFCA. Unsanitary waste would become a

unpaved lot does not need a toilet facility or an informational kiosk. As long as this is the verbiage that is left in the document, this is what will happen, not a 510 car small lot. D) My only thought/concern about the proposed system is the lack of climbing trail. There are three trails that best serve downhill traffic, and only one (if I remember correctly) to climb. I would prefer to see either an additional climbing trail (that could ride either direction) or design one of the three down trails in a manner that makes it climbfriendly. E) The way we access the Conservation land keeps us off the street; the trail runs adjacent the power lines, and then we proceed down to the east side to Blue Creek area. F) I think it is important to have trails for the mountain bikers, separate from horse trails, as in the past I have had issues with people on bikes using trails clearly marked for horses only, no bikes, with nearly catastrophic results. G) A) 1- No Boat Launch 2- No overnight mooring with tie downs or docks 3- No overnight camping anywhere on property. 4- No new road construction	problem near the trailhead without a restroom. D) The trail that is furthest to the south is a shared-use trail where mountain bikes would be limited to uphill traffic starting at the Meadow Trailhead traveling to the Bonnell Trailhead (see Section 6.1). No additional mountain biking climbing trails were analyzed due to potential for user conflicts. E) A shared-use trail from the powerline corridor has been added to the Proposed Action (see Section 6.1 and the Proposed Action Maps in the Appendix). F) The BLM acknowledges that in the original proposed action it was unnecessary to designate trails for exclusive use for one type of recreation. However, some restrictions are necessary to provide for safe use of the trails. Therefore, in the revised proposed action (see Revised EA Section 6.1) certain specific uses are excluded on specific trails (i.e., mountain bikes or equestrian). Except for the excluded use, all other uses would be allowed on these trails. G) None of the numbered items listed are being proposed for this project.

Issue 9: Pollinators

Issue Description	Response
We recommend monitoring for pollinators and considering native pollinator habitat improvements, particularly in meadow and roadside habitats to be seeded following burning and weed control.	The BLM would conduct post-project monitoring of pollinator habitat. Vegetation treatments such as timber harvest and/or burning that open the forest canopy would promote the growth of certain native understory wildflowers and shrubs, which would benefit pollinator species. Portions of the meadow were used as a hayfield by the Forest family and were converted to grass species suitable for hay. Other areas of the meadow are dominated by reed canarygrass. Habitat improvements must first address the dominance by non-native grass species in order to promote the growth of native wildflowers and shrubs suitable for pollinator species. Regarding weed control, Sections 6.1.1 and 7.7.1 of the revised EA includes a reference to the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation

	Treatments. Weed treatment effects have been analyzed and all treatments are conducted following the best management practices described in the 2008 EA to reduce or eliminate impacts to native plants, wildlife, water, and humans.

Issue 10: Public Involvement

Issue Description	Response
A) This proposal needs far more public consideration than the one month comment period provided since the 8/26/2016 release of the Environmental Assessment given the fact that the public notice of this comment period failed to reference what appears to be a previously undisclosed plan for the dedicated mountain bike only area. B) Did the original requests to the local land owners for input contain the mountain bike proposal? C) It is the policy of the BLM that individuals, communities, and governments working together toward commonly understood objectives yield a significant improvement in the stewardship of public lands. "The opportunity for participation by affected citizens in rule making, decision making, and planning with respect to the public lands, including public meetings or hearings . . . or advisory mechanisms, or other such procedures as may be necessary to provide public comment in a particular instance" (FLPMA, Section 103(d))." BLM Land Use Planning Handbook While the committee recognizes the BLMs authority to make land use decisions, it is incumbent on the BLM to coordinate, cooperate and collaborate with interested parties when seeking solutions. Those solutions must be beneficial to the general public and not favor one group over others.	A, B) There was much more opportunity for public participation than the initial scoping period. The initial scoping period began in July of 2015, and it urged the public to participate in an on-site public meeting held on August 18, 2015. The meeting gathered initial information on trail ideas for the west side. From this initial scoping period, the BLM drafted a Proposed Action that included mountain bike and equestrian specific trails. This Proposed Action was described in detail in the Draft Environmental Assessment which was completed August 2016 and then went out to the public for a forty five-day comment period. (See section 5.1). During this period the BLM held an additional public meeting to explain the proposal and our analysis. Section 5.1 of the Revised EA provides details on the process the BLM employed both internally and externally to develop the alternatives identified in the document. As previously stated, the BLM has provided ample opportunity for public input. In this case, the general public includes local residents, mountain bike riders, hikers, hunters, trappers, wildlife viewers, horseback riders, boaters, fisherman, etc. from Coeur d'Alene, Spokane, and other communities. The BLM considered the comments we received from this general public when preparing this EA.

Issue 11: Public Safety

Issue Description	Response
A) The first sharp switchback heading up to the trails from the main parking area needs to be addressed asap before people, horses, or cyclists get hurt. Trail erosion is making the area unsafe for the public. B) Proposal fails to address the enforcement of safety and orderliness for hikers and property	A) The revised Proposed Action would reroute this portion of the referenced Blue Trail (see Section 6.1). B) The skills park was removed from the Proposed Action, and the trails would be signed. BLM staff and law enforcement would make periodic patrols. While the BLM has proposed

owners adjacent to skills park and trails. Safety of my children should they accidentally venture into the mountain biking only portion of the WFCA. The BLM representative testified that for safety reasons the mountain biking activities should be kept separate from hiking and equestrian activities and that signs would be placed to indicate the desired use. However, these signs are merely suggestions as there is no regulatory mechanism or ordinance or personnel for enforcement. Adding any Mountain Bike course will increase the probability of accidents and/or fatalities. C) The trails with both horses and bicycles crossing does not appear to be well designed. Also, the power line access is in in the middle of the North West WFCA that will be mountain biking only, has been purposely not stated. There is no access on the South side. The proposed trail design will require equine and hiking access to move to the public road or to transition through the mountain biking only area near the power line easement. Either condition increases the risk to the equestrian or hiking users. D) An amateur or child is just an opportunity for a bad or fatal accident given the obstacles described as well as the speed associated with the down hill nature of the area. E) The connecting trail to the creek and across to the east side is another hazard, because you indicated another parking lot. F) The development of this property would turn it into beacon hill recreational area in Spokane, war. I would never go up there with my family to walk the dogs because it is none stop mountain bikers coming down the mountain, out of control, as fast as they can go. I would worry one of us would be hit by a mountain biker. These trails are primarily used by hikers and horses. Most of the local residents own horses. Mountain bikes and horses do not go together. Horses frighten when descended on by mountain bikes going 40 miles an hour. The proposals A and B would make the trails I and my other equestrian neighbors currently travel on, many years now impassable and dangerous, as bikes and horses do not mix. G) There has been very little effort to keep the public off surrounding private property, i.e. I was nearly attacked by dogs while deer hunting on my land Nov. 2015. Any domestic animals need to be on a leash! A permanent fence with game crossings would be a start. H) We live on the east side. We have had dogs and hikers on our property.	multiple measures to provide for safe use of public lands, users must recognize that there remains some risk. See Section 7.8 for more detailed discussion of potential safety impacts. C) See the revised Proposed Action for the trail changes (see Section 6.1). D) The trails would be designed for amateur riders, and the more difficult trail features would be optional lines from the main trail (lending to skill progression). E) The trail would have a bridge as it crosses the creek (see Section 6.1). F) Because of the recreation use conflicts and visitor safety, the trails would have designated use. G, H) This project does not include building boundary fences, but in the future problem areas where visitors are leaving public land can be signed or fenced if needed Most of the public land boundary on the east side is already fenced and signed. I,J, K, L, M) Refer to 7.8.1 Public Health and Safety Affected Environment in the revised EA. N) Development of proposed recreation opportunities will likely increase traffic volume in the area and increase the potential for accidents. However the development of parking areas should reduce or alleviate the need to park on the shoulder area of affected roads, thus reducing the potential for accidents. Additionally, mountain bikers will likely prefer to use the shared use connector trail return to the top of the trail system, rather than using the main roads and competing with automobile traffic (see Section 7.1.3). O) The Proposed Action (Alternative A in the Revised EA) extends the multi-use trail to the northwest allowing equestrian access from the equestrian/hiking trails to the powerlines (see Section 6.1 and Appendix K). P, Q, R, S, T) Development of proposed recreation opportunities will likely increase traffic volume in the area and increase the potential for accidents. However the development of parking areas should reduce or alleviate the need to park on the shoulder area of affected roads, thus reducing the potential for accidents. Parking area at intersection of Sunnyside and Yellowstone trail road (ADA) will be expanded as well (as shown in Figure 7 in document) and Alternatives B and C do not include the Bonnel Parking Area (see Sections 6.2 and 6.3).

Please increase the signage to alert users they are encroaching private property, or build a permanent fence. I) This 6 year project brings many other problems to our peaceful area such as noise, traffic, crime etc.. The sheriff has made clear that they cannot police the area; yet the influx of people is will bring crime, not only occur on the developed area especially vehicle burglaries in the parking areas but also the areas surrounding the development. J) As a neighboring landowner I have had several incidents of vandalism and property damage in the area under the current usage. At present there is no public destination on Bonnell road which is the main access from CDA. Any car in the area either lives here, works here, visits someone here, is lost or up to no good. Our neighborhood watch is effective and has demonstrated its effectiveness by getting a seven member daylight robbery gang caught quickly. Strangers stick out and are noticed by residents. The creation of a public destination on Bonnell road will increase foreign traffic and degrade the ability to spot troublesome activity. K) With the added vehicle and bike traffic, who will be responsible for the theft and home burglaries to this area? You propose putting two (2) 1 acre or less un-paved parking lots in two separate areas, who will patrol (police) these parking areas during the day and especially after dark (pot smoking and lovers favorite parking areas)? L) The BLM stated that they have one enforcement agent for the 11 northern counties and that they have a reciprocity agreement with the Sheriff's department. The Sheriff's department reported that they do not have any additional funding to increase deputy patrols in the area. M) The public and the committee have significant concerns about the proposed Bonnell parking area, toilets and fire rings. There is a known transient encampment near Kingswood Lane and Yellowstone Trail at an abandoned housing development. Clearly the prospect of running water, toilets and fire rings a short walk away would encourage transients to occupy the area. Furthermore, a public parking area in a secluded rural setting close to town would be an attractive place for teenagers to gather at night. N) If the dedicated mountain bike only area were to proceed as proposed, many of the mountain bikers will use the roadway, most likely up Yellowstone Trail road to Bonnell, to return to the top of the hill rather than using the shared use trail system. This will create an	In addition, while improving and maintaining county roads is not within the BLM's jurisdiction, the BLM has issued a letter of support to the ESHD for their proposal through the Federal Lands Access Program (FLAP) which provides safe and adequate transportation access to and through Federal Lands for visitors, recreationists, and resource users (see Revised EA Section 7.1.2). See Section 7.8 for a discussion of potential traffic impacts.

extremely dangerous situation with bicyclists merging with automotive traffic on a very narrow winding road with very steep inclines on both sides and limited shoulder area. There will also be additional traffic on Yellowstone Trail, Sunnyside, and Bonnell roads adding to the congestion with mountain bikers. O) If the Mountain Bike Area is built as proposed, the Powerline trail would join the BLM land at the middle of the Mountain Bike Area's west border. Because equestrian traffic would be prohibited from entering the Mountain Bike Area, equestrian traffic would be forced to use Bonnell or Sunnyside Road to get to the Shared Use Area. P) I fear heightened traffic, more road maintenance will be needed (which would personally affect me), vandalism and noise. Proposed parking on Bonnell Road will have several adverse effects that include: large amounts of traffic on a road not built to handle it and biker safety on the road. I would propose, if you must move forward, put the parking area on the lower section where Yellowstone trail and Sunnyside meet so visitors can be more centrally located and use both areas. The BLM has not stated the amount of vehicles that will be driving back and forth on the local dirt and narrow roadways. Q) - Along with Going to the Sun Road in Glacier National Park, Yellowstone provides one of the most harrowing driving experience I have had. The road is narrow with no shoulder, and death inducing drop-offs that occur when meeting oncoming cars and bicyclists along the way as you travel 'away from Coeur d'Alene. · With no funds available for road improvement, serious accidents are certain to increase. - SUNNYSIDE ROAD - We are grateful for the job that the East Highway District does with their limited funding. However, Sunnyside Road is very difficult in the spring, summer and fall with washboarding nearly shaking a vehicle off the road, and in winter becomes more dangerous as well. Improvement to that road is limited to grading the washboard once or twice a year. With much increased traffic, this will only deteriorate further. R) The road is terrible especially from the east, but also from the west. It CANNOT handle any more traffic safely. The amount of construction necessary to fix the road and establish the proposed areas will have a very negative impact on the soul, the plants, trees, animals and wildlife in the area.	

S) The additional wear-tear on our local roads, especially with the larger trucks over the next proposed 6 yr. building period as we had to fight with the Eastside Highway District over the LID proposal up here. Who will cover the additional highway cost? T) The primary road between trail heads is E. Sunnyside Road which is a narrow gravel road next to a Blue Creek tributary. Each mountain bike trip down the trail system will require multiple car trips between trail heads and would significantly impact the roads with respect to safety, maintenance and water contamination. Even a small increase in mountain bike use will result in a significant increase in road traffic. There is also the anticipated additional traffic due to spectators during organized group events. East Side Highway District (ESHD) testified that there is no mechanism to recover costs associated with the increased wear and tear on the roads and that those costs would be borne by the local community.	

Issue 12: Recreation

Issue Description	Response
A) The trails that exist are adequate and provide access for the public to enjoy the scenery. B) Who will clean up the additional trash from the mountain bike trail users? Improving the existing "usermade trails" has many concerned, not only for erosion, destroying the beauty of the primitive area, but also who is going to maintain these trails after bicycles, horses and people destroy them? C) While I understand that 74 acres of the WFCA would be designated as mountain biking only, I am concerned that mountain biking on all trails within the WFCA would become more common. I do not think it realistic to expect that mountain biking would occur only (or even predominantly) in the mountain biking only portion of the WFCA. D) The thought of having a large parking lot and skills course at the bottom of our property is truly devastating, and it would completely alter the serenity of our area that we cherish so much. Skills park and mountain bike trails would cause excessive noise. E) Any additional discussions of building a boat launch at the landing site should not be implemented. Blue Creek bay is a small contained area. There is very little water flow. Already the water has been polluted by way too many boats putting gas and oil exhaust into the	A) There are approximately four miles of designated trail in the WFCA. There are also about four miles of pioneered user-created trails within the WFCA which indicates that demand and use have exceeded the capacity of the existing designated and maintained trails (See Sections 6.1 and 7.9 of the EA). B) Trails will be maintained by the BLM recreation staff, seasonal staff, and volunteers. There are currently trails in the area and the trails would be improved to be more sustainable and cause less erosion. C) Under the proposed action, mountain biking could increase on the shared-use trails on the east side. However, developing and improving trails, especially on the west side, will increase opportunities and better distribute all types of use. D) The parking area has been reduced in size and the skills park has been removed from the Proposed Action. E) The Proposed Action does not include building a boat launch.

water, dumping their sewage and garbage, urinating in the water, etc. The last thing the bay needs is more boats. Wolf Lodge Bay has No docks, no private land on either edge. It is open lake and has good water flow and deeper water. It is a much better place to have a boat launch there is already one there as well as one by Higgens Point. No reason to put one in Blue creek Bay. F) We strongly recommend that any improvements to the trail system be made with the intent to maintain existing archery hunting and trapping opportunities. To prevent user conflicts between hunters and non-hunters, we recommend signage at all trailheads emphasizing that the area is multi-use. We recommend parking areas have bear-proof containers, strictly enforced waste management policies, and signage to not feed wildlife. G) Recommend having two up hill trails back to the top, have no dogs on mountain bike trails to reduce conflict, add more cross country type trails, and have good maps to help keep people from being lost. H) One suggestion on existing trail The blue trail from parking area is way to hard for us to ride up we had to push bikes up that one. Second ride we went up the road to the red trail to skip that steep part. A less steep go around there would be sweet. I) Public testimony was given that there are multiple facilities and dozens of existing mountain biking opportunities in the area including Canfield, Schweitzer Mountain, Silver Mountain, Anderson Lake, Thompson Lake, Trail of the Coeur d'Alene's, Tamarack Ridge Route, Dudley Saddle loop, Dobson Pass Loop, Beefcamp Jewel Loop, Saltese Loop, Pearson Avery Figure Eight, Wall Road Loop, NorPac Trail, Kellogg Silverton Loop, Pine Creek Cataldo Loop and many others. J) The development of a "skills area" is also worrisome because of the destruction of the vegetation and bird habitat it would cause. (Perhaps moving this skills area to the Canfield Biking Area - Nettleton Gulch Site- which has less potential for negative effects on residents and already has significant bicycle use and damage.) If a "skills area" is allowed at Wallace Forest Conservation Area, we request a "no sporting events" clause be written-in; these would undoubtedly lead to a larger number of bikers during a concentrated time, and would cause greater upset to the wildlife/birds/plants in that area.	F) The trails would all be open for hiking and provide access throughout the area. The effects on hunting and trapping was addressed in section 7.14.2 of the EA. This information would be considered when developing the trailheads and trails. G) At this time the BLM believes one return trail will be sufficient for mountain bikers. The terrain near the powerline does not provide for a suitable uphill trail. The eastside provides shared-use cross-country trails that allow for uphill opportunities. The BLM will consider suggestions during implementation. The area currently has cross country trails on the east side that are available for mountain biking, and the area would have signs installed to help direct recreationalists and describe trail ethics e.g., picking up dog waste from the trail and using a leash. H) The proposed action includes a reroute on that portion of the Blue Trail. (See Section 6.1) I) The WFCA trails provide a different experience due to the terrain, distance from the city, trail design and trail designations. J) The skills area has been removed from the revised proposed action. Commercial use of the area and organized events are required to apply for a Special Recreation Permit (SRP). These permits would be analyzed by the BLM on a case by case basis. (See Section 7.9) K) The area is closed to camping, and a gate is not currently planned for implementation. However, if problems with overnight camping and vandalism become a reoccurring problem, then gates for the parking areas would be considered in the future. L) The WFCA is 751 acres of public land has a demand for trails displayed by the number of user-created trails that have surfaced. The west side of the WFCA offers an opportunity with the rolling terrain to allow for directional trails that lend to different skill levels.

K) This area should be gated, closed and locked after 10:00 PM as it is a 'Day Use' area only, correct? There is no other good way to stop the late night parties and vehicle traffic at all hours of the night. A gate across the road would be simple and inexpensive solution. L) Why wouldn't it just be better and simpler to do this major construction project in an area that's NOT a neighborhood? M) A quiet wildlife viewing station or two in the upper parts of a few of the protected draws that would be at spur trail ends in some of the glen-like areas and protected overlooks might be considered for bird and wildlife watchers and photographers (not necessarily archers-?-). N) Emphasizing that aspect of the property [Forest family conservation of native stands with large trees] with interpretive signing would be important to the education aspect and benefit of this property. Provide signage and education for all user groups. My experience encountering bicyclists on the road and trails is that they are not aware of how a horse will respond to them. A horse only thinks the bicyclist is a "monster" out to get them. When a bicyclist speaks to alert the horse rider that they are approaching, regardless of direction, the horse recognizes the human voice and calms down. This allows both the horse rider and the bicyclist to pass in a safer manner. Even hikers should alert a horse rider of their presence. Horse riders, also, should alert others that they are on the trails. O) A parking area or areas along and near the junctions of the roads at the lower part of the hill by Blue Creek, Sunnyside, and Yellowstone Roads and at the north side of the meadow would be desirable as well, not necessarily to encourage a high number of users all at once, but to provide more direct access to the different parts of the whole property. P) Instead of creating a parking area at the top of the project off Bonnell Road, consider creating the parking area at the bottom off Yellowstone Trail Road. (across from the current ADA parking area) • Easy access trails could be created for mountain bike users to access the upper section trails. • This would limit the amount of bike traffic on Yellowstone Trail Road which in its current state is not safe for bike and vehicle traffic.	M) Benches and wildlife viewing areas may be considered as future projects within the trail corridors. N) Interpretive material is being considered (see section 6.1 of the EA) which will include information about trail etiquette. O) An expansion of the Parking area towards the north portion of the meadow is in the Proposed Action (see section 6.1 of the EA). P) The BLM considered this area as a possible option, but dismissed it due to vegetation removal, sight lines near road, and seasonally wet soils (see Section 6.6.2). The Meadow parking area would be expanded because it serves as a trailhead for the Meadow Trail (ADA), and has better improved sight lines due to a lack of vegetation. Q) The two restrooms on the east side would continue to be available, and a restroom at the Bonnell Parking area is being considered (see Section 6.1).

• If the parking area remains at the top of the proposed project area (off Bonnell Road) consider paving Sunnyside Road as an alternative to bicyclists to return to the parking area. Again, this will limit the bicyclist traffic on Yellowstone Trail Road. Q) If the lower area is not conducive for the proposed restroom due to the proximity to the creek, consider putting the restroom near the ADA parking area. R) Since many horse riders use the power line to access the trails from the upper side, use the power line as the boundary between the two types of usage. The power line is a fairly wide area that is more conducive for the different types of usage groups to pass safely. i.e. horses don't like bikes and passing on narrow trails is an accident waiting to happen for both groups. S) The Backcountry Horseman submitted a comment letter regarding suggestions for equestrian trails design standards. The design standards were outlined in the USFS guidebook *Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds.* T) We suggest that the East Side of the FCA be dedicated to MTB and that MTB be excluded from the West Side - totally! In order for this to work, the East Side Trails will need to be redesigned and improved and a MTB Skills Park of some sort be planned for the lower area of the eastern slopes.! I would like to see the BLM with help from mountain bike user groups and trail building groups continue to expand this trail system. There are already trails build on both the upper and lower side of the road dividing the east side property. This would let the equestrian user groups have the entire west side for their trails. This will keep user group conflicts to an almost zero incident rate. This will also keep the current residents happy that are against new MTB trails being built on the west side. They do not want to see a new parking lot build and seem to be against any increase in traffic near the more residential area. This plan seems to be the most logical solution to any user group conflicts and objections brought fourth by residents living near the west side property U) More off-road ATV, snowmobile, etc. traffic in the forest. We realize that the plan is for non-motorized. We also know through experience: if you build it (groomed trails), they will come.	R) Access from the powerline for equestrian use has been added to the Proposed Action (see section 6.1). S) These trail design standards have been added to the Proposed Action (see Section 6.1). T) See Alternative C. U) The area has been designated for non-motorized use, and the area will be signed and enforced as such.

Issue 13: Socio-economics

Issue Description	Response
A) Bonnell Road will have several adverse effects: decreased property values for residents. Committeeman Austin Mullen is a retired real estate appraiser. He assured the committee that the proposed mountain biking facilities would have a negative impact on property values as a function of proximity to those facilities. Increases in property values usually only occur when properties adjoin BLM managed land that is natural and otherwise unused. It is the privacy that this situation offers that may enhance property values. B) Who is the "huge economic benefit " for. The bicycle shops? The BLM recognizes in their EA that area property values would be negatively affected and that road maintenance and law enforcement costs would increase but that the overall economic value of the proposal would be positive due to the increase in 'Mountain Bike Tourism.' The committee is not convinced this is the case as there was no evidence offered to support the claim. Rather, with all the other mountain bike facilities nearby it is unlikely that any Mountain Bike tourist would make a destination decision based on this one facility. C) How will forestry treatments affect adjacent property values?	A) See section 7.10 of the EA. Well-built parks and trails are among the most desired amenities by future home buyers. Mr. Mullen's opinion is unsupported. The BLM is not aware of any study or data indicating adverse affects to property values due to proximity to recreation facilities. B) See response A) above regarding property values. Areas with desirable trails bring in tourism dollars for the community e.g., bicycle shops, cafes, gas stations, hotels, merchandise shops, etc. See Section 7.10 for further detail and references supporting this conclusion. C) Reducing fuel loading on public lands would help protect adjacent landowner property from wildfires, potentially increasing property values. See Section 7.10 for more information.

Issue 14: Soil and Water

Issue Description	Response
A) The EA needs to show the analysis relating to the Clean Water Act and Clean Air Act. Ground disturbances should be minimized in the wetland area. There should be no plastic left behind in pile burning, and if there is any sediment release data from previous logging that should be included in the EA B) Building a connection trail through the meadow may impact wildlife or result in erosion and sediment delivery at the stream crossing. BLM should consider an alternative route to avoid the meadow and stream crossing. At a minimum, a bridge should be installed at the stream crossing to accomodate all recreational users so that no one has to ford the stream. Fords often result in a source of erosion and sediment delievery to the stream. This area becomes very swampy ground in the spring and early summer. Any trail work needs to hold up to the ground	A) Potential impacts to water quality and air quality have been analyzed in the EA (see Section 7.1). Implementation of the project would comply with the requirements of both the Clean water Act and the Clean air Act. No petroleum based (e.g. plastic) products will be burned in the slash piles (see Section 6.1.1). B) The proposed connection trail across the meadow has been located to minimize impacts to wildlife and stream banks. Where practical, the trail approaches leading into the riparian area crossing would be situated on higher ground, including the top of existing berms. The proposed crossing site was selected based upon the most stable stream channel and stream bank location. The proposed action includes an option for a small foot bridge next to the armored crossing (See Revised EA Section 6.1). We concur that there are seasonally wet

conditions as not to waste any resources. C) I'm concern about increase soil erosion and water quality that will effect our lake, as we get our drinking water from Coeur d'Alene Lake. The Lake would likely be contaminated through soil disturbance caused by excessive, organized downhill mountain biking. It seems clear that water quality, at a minimum, would be affected. It also seems clear that erosion from the bicycle tire ruts on dirt trails would occur, but the extent has been neither studied nor quantified. Given all the burning that will ensue for six long years, runoff from the affected forest areas will be substantial and will go into drinking water sources and our lakes. The effect of that will extend for many years. D) What about the erosion caused by the added mountain bike trails that will get excessive future use along with the added mountain bike races that will be scheduled for this area? All of us residing up in this particular area are on piped drinking water from the Lake and the mountain bike trails could cause water pollution for many of us that depend on the piped water. Who is responsible for pollution if this occurs? The Board is very concerned about runoff from the Blue Creek Bay area, influenced by the construction and use of the proposed building of and use of bike trials in the mountains surrounding the subject bay. With the increase of automobile traffic on the roads, which are narrow and without shoulders, leading to the subject property, and the trash discarded by individuals using the proposed bike park, it is only a matter of time before the runoff, which helps to supply our drinking water, is contaminated by these activities. E) The majority of new trail development is located on the east side, in moderately erodible soils on slopes of 20-30% (1 Om Digital Elevation Model). The EA references erosion issues that occurred above Sunnyside Road (Rocky Canyon) in assumedly similar surficial geology. With heavy equipment use during logging, trail construction and subsequent foot, bike, and horse traffic, we recommend specific BMP's be identified that will protect hillside stability and minimize sedimentation in to Sunnyside Creek and Blue Creek Bay on the east side of the project area. Folsom Creek is not identified as an RCA however we recommend this stream receive the same 150 ft buffer afforded to non-fish bearing streams covered in the RMP. F) I have seen the erosion caused by mtn bikes over the years as well as shortcuts made by mtn bikers to avoid sharp turns on the original trail. I am also seeing diminished wildlife. Having owned a mtn bike myself since 1985, I am not against them but I do have issues as mentioned	areas of the meadow extending variable distances from Blue Creek. Generally, the width of these wet areas increase in a downstream direction. The upper (upstream) end of the meadow was chosen as a trail location because it is generally higher and drier, with substantially less wetland area than the downstream portion of the meadow. The BLM would monitor the trail across the meadow for problems and maintained flowing construction. If extra measures are needed, such as a seasonal closure, they would be implemented to control erosion. C, D) The EA analyzes potential effects to water quality from soil disturbance associated with the proposed project (see Revised EA Section 7.1). We share your concern for minimizing sediment impacts to Lake Coeur d'Alene. Our analysis indicates that the trails as proposed would not have a substantial adverse impact on water quality. We have in the past, and will continue in the future, look for opportunities to enhance water quality and reduce sediment loading into Lake Coeur d'Alene via Blue Creek and its tributaries. These efforts will continue to include partnering with Eastside Highway District and others when possible. A common concern with burning immediately adjacent to a lake or stream is the potential for introduction of nutrients into the water from runoff. However, adequate buffers and design measures to control runoff will effectively prevent runoff from burned areas from reaching Blue Creek or Lake Coeur d'Alene (See Revised EA Section 7.11). E, F) Design measures and BMPs would include extra protection for areas with steeper slopes, where erosion potential is higher and slope stability can be an issue. The EA identifies some of the relevant BMPs and design measures in Section 6.1.1. The riparian buffers identified in Section 6.1 would be applied to all streams, to include Folsom Creek. G) Section 7.7.1 of the EA includes a reference to the 2008 Coeur d'Alene Field Office Programmatic Environmental Analysis for Vegetation Treatments. Weed treatment effects have been analyzed and all treatments are conducted following the best management practices described in the 2008 EA to reduce or eliminate impacts to native plants, wildlife, water, and humans. (Sections 7.14). H) A design feature was added to Alternative A to address the impacts to bird habitat at the creek crossing (Section 6.1.1, Environmental Design Features). Habitat improvement work, other than mitigation, is not within the scope of this proposal which is defined by the purpose and need (see Section 2).

above. As for the proposal for the East side, I believe the existing trail network is more than sufficient as is the availability of parking at the upper gate. The far eastern unofficial trail (up the ridge) has seen much increased traffic in the last 2 years and and designation as an official trail is unnecessary and only invites more usage. This increased usage involves the potential for erosion on the lower reach of the trail (especially with mtn bikes) as well as conflict with adjoining private property holders and decreased wildlife sightings. G) I am concerned about the pesticides used in the fire safety and clearing procedures. If any gets into the lake, this is our drinking water, and I do not think our system can remove pesticides. Water contamination from this and other aspects of this project are a huge concern. (This is part of Fernan Lake's algae bloom issue as well.) There will be erosion in the downhill biking area. No studies have been done to examine the migration of herbicides and pesticides into the lake which is the source of drinking water for many area residents. These chemicals [pesticieds] will runoffin rains and spring snow melts directly into Blue Creek and its protected we ands. The herbicides will destroy the vegetation and the herbicides and pesticides will kill the tland wildlife. some ofwhich does remain there year round. The chemical will also find its ay into the bay and Lake Coeur d'Alene which both have bull and cutthroat trout and will kill t em and their spawning areas and endanger the birds that feed on them. Furthermore e lake is watched by the EPA because ofthe rivers in the Silver Valley and will further cont inate the Bay and Lake which are under EPA watch. H) Habitat improvement work could entail reed canary grass abatement, adding channel sinuosity, and planting woody riparian vegetation. Reed canary grass provides some value as forage and cover for wildlife however this dense, invasive weed prohibits natural hydrologic processes, wetland plant diversity, and establishment of native vegetation. Restoration efforts would improve floodplain connectivity, shading, and filtering of sediment and nutrients before reaching the stream and lake. We encourage you to consider incorporating this type of work into the project.	

Issue 15: Visual Resource Management

Issue Description	Response
A) A proposed one acre parking lot on Bonnell Road would hamper that rural appearance of our neighborhood.	A, B, C) See Section 7.13 for a detailed discussion of the BLM's analysis of effects on visual resources. As stated there, and in your comment, the analysis is based on changes and contrasts with the existing characteristic landscape that could result from implementation of

B) As stated in the EA, the landscape in and around the project area is designated as Visual Resource Management (VRM) Class II. The objective for this VRM is to retain the existing characteristic landscape. C) Changes due to management activities should be low and not evident and should not attract the attention of the casual observer. Visual effects of timber harvest are muted over time, but a large parking area, developed trailhead, and skills park with bridges, teeter totters, pump track, and berms will have permanent visual impacts that are certainly evident and will attract the attention of the casual observer. These actions would not meet the objectives for the Class II VRM."	the proposed action or alternatives. The analysis was based on observations from the five identified key observation points (KOPs) from which the highest number of people are likely to observe the project area and that also provide a range of views representative of those from other locations. In response to these comments, the BLM added KOP-5 for analysis of the effects of the proposed parking area off Bonnell Road. As described in Section 7.13.2, given the existing man-made-structures within view from KOP-5, it is unlikely that the parking area would attract attention, affect the visual setting, or present noticeable contrast with the landscape. The BLM concluded that after implementation of the forest vegetation treatments and recreation improvements, the area would continue to meet the objective for Visual Resource Management Class II. The skills park is no longer part of the revised proposed action and the size of the parking lot has been reduced (See Section 6.1).

Issue 16: Wildlife

Issue Description	Response
A) Would the proposed WFCA changes have effects on the mule deer populations within the WFCA? And has the BLM consulted with the IDFG about the Mule Deer Initiative? Would there be effects on bobcats? B) Logging and fire hard on animal habitat, but fire leaves some habitat behind, logging does not. C) The effect on wildlife in the area has not been quantified, even though it is clear that there would be some affect; the housing development on Mullan Trail, for example, has affected the elk movement and there is no reason to believe that this development would not also have an impact on wild life. D) Horse and hiking follow game trails with no damage to existing fauna and foliage, on the other hand extreme biking would. E) Wild birds of different species nest in the area; some on the protected species list. A skilled mountain biking course would determinately affect the wildlife. As outlined in Proposal A and B this area will be uninhabitable for wild game.	A) The project area is not recognized as critical mule deer habitat. And while mule deer may occasionally be found within the WFCA, they are not expected to be differentially negatively impacted by the proposed project more than any other ungulate species. In fact, the proposed vegetation treatments In Alternatives A-C would benefit any mule deer that may use the area by releasing the shrub community for more vigorous growth and higher nutritive value and opening up the canopy which is typically preferred by mule deer. IDFG has provided comments and gave no indication of concern for mule deer, specifically, in the project area. Bobcats are a generalist carnivore. A discussion of “other wildlife species” can be found in the Section 7.14. Bobcats and mule deer are included in this category. B) Logging activities will temporarily displace wildlife during implementation, as will fire. Both actions modify habitat, but do not eliminate it. Please see Section 7.14 for a more detailed discussion of changes to habitat. C) As discussed in the Effects Analysis (Section 7.14), there will be impacts on wildlife species that currently use the project area. Habitat suitability will improve for some species and decrease for others. Higher levels of human disturbance will alter the behavior of animals depending on their sensitivity and their level of exposure to disturbance (see Wildlife Section-Effects Analysis). It is difficult to quantify the effect on wildlife that can be expected. Instead the impact to acres of habitat can sometimes be approximated. For this project, the

F) WFCA is habitat for Bald eagles and Osprey the mountain biking park and traffic will scare them off. G) The adult, terrestrial lifestage can be found near streams, seeps, and waterfall spray zones as the EA suggests (pp. 88), but can also be found far from standing water. Providing safe road crossings and moist refugia from logging and fire will provide the most benefits to the Coeur d'Alene salamander. Small animal crossings through placement of culverts and drift fences can decrease road mortality, particularly for herptofauna. The value of moist areas to wildlife is identified on page 82 however specific protection measures are unclear beyond the Riparian Conservation Areas (RCA's). H) While bat use of the Blue Creek area is not well-documented, installing roosts is a low-cost mitigation step in addition to snag retention. I) While grizzly bear, wolverine and goshawk are cited in the literature, I found no mention of several species that are more likely to be found in the area the bald eagle and the osprey. The presence of these two raptors is evident, albeit seasonal. J) The strong presence of both resident and wintering bald eagles in the area is prominent. The later, dependent upon wintering spawning cycles of the Kokanee salmon found in Wolf Lodge Bay, could be adversely effected by the proposed changes. These small spawning landlocked salmon are dependent upon the current conditions found there in the bay. This may also be an important roosting site for the wintering bald eagles. K) Increased pesticide and herbicide spraying will endanger already endangered and protected species of fish, birds and other susceptible animals. The 1,000 year old ancient Elk Trails that several hundred Elk use multiple times every year will be wiped out from logging and bike trail construction. These are active herds and the trails are in current use. L) Alternative C (now D) benefits all wildlife species. Goshawks are sensitive to human disturbance. A lower the level of human presence would result in a lower likelihood of mortality and/or stress for many wildlife species. M) With the additional mountain biking trails that are planned, the additional bike riders and the normal street bike riders up in this area, the natural wild-life that we look out our windows and see, take our daily walk and see and drive slowly along our narrow roads and see, will be	acres that will be treated and the methods used for treatment have been outlined in the Alternatives section. Please also see Section 7.14 for more information. D) All methods of recreation impact wildlife and their habitats. A detailed literature review and analysis of impacts from recreation on wildlife and habitat can be found in Section 7.14. E) Special Status birds that may nest in the project area include Willow Flycatcher, Common Nighthawk, Bald Eagle, Lewis's Woodpecker, and Northern Goshawk. There is no documentation of these species nesting in the project area, although some may have been found during the breeding season. A skilled mountain biking course would impact nesting birds, as discussed in Section 7.14. Please see this section for a more detailed analysis of the impacts to Special Status Birds, Migratory Birds, and Raptors. Habitat suitability would change for some species under Alternatives A and B. A detailed discussion of these changes can be found in Section 7.14. F) Impacts to both Bald Eagles and Osprey are discussed in Section 7.14. G) From the Montana Field Guide: "The occupied habitat for Coeur d'Alene Salamanders in Montana is like that for the entire global range, and includes the three major habitat categories: springs and seeps, waterfall spray zones, and stream edges (Wilson and Larsen 1988, Werner and Reichel 1994, Boundy 2001, Maxell 2002). More specifically, primary habitats are seepages and streamside talus; they also inhabit talus far from free water (deep talus mixed with moist soil on well-shaded north-facing slopes). In wet weather, it occurs also in leaf litter and under bark and logs in coniferous forests. The species is a terrestrial breeder, with eggs presumably laid in underground rock crevices, although no nest sites have been found in the wild. All plethodontid salamanders respire through their skin; terrestrial species lose water to the environment through evaporation and are therefore restricted to cool, damp environments. Because Coeur d'Alene Salamanders may live in the harshest climate of any northwestern plethodontid (Nussbaum et al. 1983), they are highly dependent on the thermal and hydrologic stability provided by wet habitats in otherwise inhospitable surroundings. For this reason, Coeur d'Alene Salamanders are closely tied to water and are considered among the most aquatic plethodontids (Brodie and Storm 1970).

scared off. You said this wild-life would return, but with habitat disturbed and much underbrush cover cleared, much of it would re-locate to quieter and less trafficked areas. N) There will be loss of local wildlife in the area, which will most likely not return to this high usage area. O) There is TOO MUCH human interference with nature. The Wallace Forest Conservation area is supposed to be exactly that a Conservation Area for Wildlife. That is why Wally Forest willed the area to BLM to CONSERVE AND PROTECT THE WILDLIFE AND THE BAY!!! Not for Mountain biker to abuse the terrain, not for hunters, not for boaters! P) The trails for mountain bikers on the western portion which I hope will not infringe on our count area on the south-facing slope. Everyone seems to agree that the cyclists do not stay on designated trails. A trail across the meadow which is in the best bird habitat for passerines and bisects our count area. This will have a serious effect on nesting. Q) I fear that wildlife currently residing in the WFCA will feel less secure and potentially relocate due to decreased security resulting from increased wildlife and human interactions. I recognize that wildlife is resilient; however, it is no secret that essentially all wildlife prefers to not have interaction with humans. In fact, most wildlife will actively avoid such interactions, when possible. I am referring to the increased use of the WFCA by the mountain biking community. As opposed to hiking and equestrian, mountain biking is louder and more disruptive, by nature, and I fear that this may affect wildlife use of the WFCA. R) The Environmental Assessment discusses significant impacts to the area species but contends that those impacts will be mitigated over time and the species will return. There is significant public concern that the impact will not be mitigated due to the increased use of mountain bikes in the area which would drive off wildlife. S) We request that the concept of any trail through the wetland meadow area be abandoned. This land is within an Audubon Important Bird Area where bird counts have occurred every month for the past fourteen years. A trail here would cause serious negative impact on the nesting places and habitat of passerines. If a trail is absolutely necessary, consider, please, instead, a trail adjacent to the already present roadway.	Stream corridors, springs, and ponds would be protected from vegetation treatments by reserve (RCA) buffers, which should protect the habitat where Coeur d'Alene Salamanders could be expected to be present in the project area. These buffered and protected areas would serve as refugia during implementation of the project and should continue to support the species if they are currently present. Therefore, further mitigation is not warranted. Prescribed burning would occur largely on the driest portion of the project area which is dominated by rocky exposed soils and ponderosa pine. This area would be least likely to support CdA salamanders, thus impacts to the species from the prescribed burning should not occur. The close association with perpetually moist areas and its nocturnal habits make it unlikely that collisions with vehicles are, or would be, a significant source of mortality for this species in the project area. Traffic levels are relatively low along these roads which are managed by the East Side Highway District. Any changes to the roadway, including culverts would have to be implemented by the East Side Highway District. H) While installation of roosts has not been proposed as part of the project, creation of snags through girdling may be implemented. In addition, it will be a priority to retain all snags in the project area that do not pose a safety threat to the timber harvest contractors or the public. High value snags that may be unsafe to work around will be buffered so that they do not have to be cut (see Section 6.1.1). I) The Original and Revised (Section 7.14) EAs include analysis of impacts for bald eagles that may use or currently use the project area. Osprey was not analyzed specifically because it does not fall into any of the above categories. However, to help address this concern, a brief discussion of impacts to osprey has been added to the Revised EA. Impacts and design features for this species would fall under the general heading of "Raptors" which are covered in the analysis section. J) Bald Eagles can be found in Blue Creek Bay year-round, though there are no documented nests within the project area. The proposed vegetation treatment would leave the largest healthiest trees which are preferred by Bald Eagles for nesting. Also all snags would be retained unless the pose a safety threat to contracted loggers implementing tree removal. Implementation of the forest health project is not expected to result in increased erosion into Blue Creek Bay over that which already occurs, thus impacts to spawning kokanee are not

T) Horse and hiking follow game trails with no damage to existing fauna and foliage, on the other hand extreme biking would. U) I and plenty of others enjoy bow hunting on the WFCA, and a large majority of that hunting activity occurs in the portion currently proposed to become mountain biking only. Having been hunting for nearly twenty years now, I am confident that the hunting opportunity and quality would decrease.	expected (See Soils section of the Revised EA). An analysis of potential impacts to bald eagle roosting habitat has been added to the Wildlife Section (Section 7.14). K) Herbicide use to prevent expansion of noxious weeds into the project area would be implemented under all of the alternatives. Herbicides would be used according to their label and the guidelines provided by the BLM Coeur d'Alene Field Office Integrated Weed and Vegetation Management program, and impacts to wildlife should be insignificant. Employing herbicides to prevent invasion or control currently occupied areas of noxious weeds will help maintain habitat that is more valuable to wildlife. An analysis of the use of herbicides was conducted and an Environmental Assessment (#ID-410-2008-EA-224) was produced (BLM 2008), that discloses impacts and limits pesticide application to the products and methods in the EA. Analysis indicate that herbicide application would not cause significant impacts to wildlife. The BLM is not aware of any ancient elk trails on the WFCA. However, elk currently use the site with regularity. Historically elk populations in north Idaho were much lower than they are today. According to the Idaho Fish and Game Elk Management Plan, the elk population in Unit 3 is stable and calf production has been good in this unit even in severe winters. Increased recreation will have a negative effect on elk using the site and will likely change their behavior and use when recreation levels are high. Please see Section 7.14 for further discussion on the expected impacts to elk for each proposed alternative. L) As discussed in the EA, increased human access to the project area will not benefit any wildlife species. An analysis of the impacts of each Alternative to northern goshawks can be found in Section 7.14. M) As discussed in the Effects Analysis (Section 7.14), there will be impacts on wildlife species that currently use the project area. Habitat suitability will improve for some species and decrease for others. Higher levels of human disturbance will alter the behavior of animals depending on their sensitivity and their level of exposure to disturbance. A detailed analysis of the impacts of increased recreation can be found in Section 7.14. Brush species would not be removed, except in the fuel break and prescribed burn area, so much of the brush cover would be retained. However brush would be impacted by logging equipment. It would take time (1-3 years) for brush impacted by logging activities to recover.

	Opening the canopy should stimulate growth in brush species and make them more vigorous. Effects to shrub habitat can be found in the Section 7.14. N) Most wildlife species respond negatively to increased human presence, though the degree of that response varies by species, individual, season, time of day and many other variables. Some species may be permanently displaced from the habitat they currently use. These individuals may stay within the project area, but more to a less disturbed location, others may leave the project area entirely. Impacts to wildlife from the proposed recreation developments and vegetation treatments are discussed in Section 7.14. O) All sources of recreation have impacts on wildlife and their habitats. Human intrusion into wildlife habitat does have negative impacts which are discussed in the analysis section (Section 7.14). The federal government purchased the WFCA with the Lands and Waters Conservation Fund. The Forrest Family was aware of the multiple use mandate under which the BLM functions when they made their decision to sell their property. However, there were no restrictions on the deed when the WFCA was purchased. As a multiple use agency, the BLM works to balance multiple use demands on public lands. The EA discloses the potential impacts to a variety of resources that would be affected by a proposed action. Please see the document for a detailed analysis of these impacts. The document discloses these impacts and helps the BLM determine which Alternative best achieves the purpose and need of the proposal and whether the adverse impacts are appropriately mitigated. P) The trail proposed in Alternatives A and B will include portions of the IBA count area. This is likely to have an impact on birds that currently nest near the trail. Please see Section 7.14 for more detailed information regarding the expected impacts from the various Alternatives. While some may think that cyclists are more likely to leave the trail, there is little to no evidence to support this. There is a large volume of research on the impacts of recreation on wildlife, plants, soils etc. and much of it is conflicting. However, a majority of the studies indicate that hiking has the highest level of disturbance on wildlife. A more detailed discussion of existing research and an analysis of effects can be found in Section 7.14. Leaving established trails is much more difficult for mountain bikers than for hikers or other users. Vegetation, downed logs, and other obstacles off trail make bicycle access more difficult, as opposed to hikers who can more easily navigate between vegetation and step over obstacles. Thus the BLM is not expecting the off-trail use would be higher for this user group than others that would use the trail system.

	The proposed trail in Alternatives A and B would travel through meadow and riparian habitat. The effects of the Alternatives on the habitat and wildlife in this area are discussed in the EA. The hydrology and topography of the meadow area were considered when this location was selected for the meadow trail. Impacts to water quality, soils, and consideration of user safety limit the location of a trail that could connect the east and west sides of the WFCA. However, the BLM recognizes the value of this riparian habitat and has amended Alternatives A, B, and C to include mitigation of the decreased value of the riparian habitat near the trail. Planting riparian shrubs and trees further down the creek (see Section 6.1.1) would help improve the suitability of existing habitat as well as increase the amount of habitat further downstream and away from the trail. Q) Impacts to wildlife that can reasonably be expected from the three alternatives are discussed in detail within Section 7.14. Any increase in human activities within wildlife habitat would have negative impacts on some animals. As discussed in Section 7.14, studies indicate that hikers disturb wildlife more than mountain bikes or equestrian users. R) The Environmental Assessment discusses a spectrum of wildlife responses that may occur depending on which Alternative would be implemented. It states that during implementation, it is likely that many animals will leave the area, but some may return. This is dependent on the tolerance to disturbance for each species and individual. Please refer to Section 7.14 for a detailed analysis of the potential impacts of the Alternatives, and Section 6.1.1 for design features intended to mitigate impacts to wildlife. S) The upper end of the meadow was chosen as a trail location because it is generally higher and drier, with substantially less wetland area than the downstream portion of the meadow. Disturbance to birds nesting in the riparian area and meadow along the trail is expected and discussed in detail in Section 7.14. Depending on the frequency of use, impacts may be severe or minimal. To address and compensate for this impact, a design measure has been added to include riparian shrub and woody vegetation plantings to mitigate for habitat disturbance associated with the trail crossing in the riparian area (See Section 6.1.1). T) All methods of recreation impact wildlife and their habitats. A detailed literature review and analysis of impacts from recreation on wildlife and habitat in Section 7.14. U) Section 7.14 discusses in detail what changes could be expected in behavior and occurrence of big game animals in the project area. Changes to the behavior and use of the

	project area by big game are expected and may impact hunting opportunity or success rates within the WFCA.