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Environmental Assessment

Broadaxe



**St. Joe Ranger District
Idaho Panhandle National Forests**

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Broadaxe Environmental Assessment

USDA Forest Service
Idaho Panhandle National Forests
St. Joe Ranger District
Shoshone County, Idaho

The St. Joe Ranger District completed the Broadaxe Environmental Assessment (EA) and made it available for public review and comment on May 18, 2005. The Forest Service revised the EA to correct some mistakes, respond to comments, provide clarification, and present the material in a more traditional EA format.

The Broadaxe Project began as a small portion of the Quartz Gold Project proposed earlier by the St. Joe Ranger District. The interdisciplinary team completed an ecosystem analysis at the watershed scale (EAWS) for the Quartz Gold Analysis Area using the St. Joe Geographic Assessment (a landscape-level assessment of the St. Joe River Basin) and information specific to the Quartz Gold Area. An extensive roads analysis process (RAPS) examined the existing transportation system, identified management needs, and presented possible options for future projects. In a letter dated March 7, 2005 Chuck Mark, District Ranger of the St. Joe Ranger District, proposed moving forward with silvicultural treatments in the Broadaxe Drainage to salvage merchantable forest products in dead, dying, and high risk lodgepole pine stands. Relevant information generated during the Quartz Gold analysis process was used in the development and effects analysis of the proposed action for the Broadaxe proposal.

Many lodgepole pine trees in the Broadaxe Creek drainage on the St. Joe Ranger District have died because of mountain pine beetle. The Forest Service is proposing timber harvest on approximately 509 acres where the lodgepole pine trees are infested with mountain pine beetle in the Broadaxe Drainage. The project area is located approximately nine miles southwest of St. Regis, Montana and 23 miles east of Avery, Idaho in Sections 21, 22, 27, 28, 33, and 34; T 45 N, R 9 E; Boise Meridian (see Broadaxe EA Map). All lands in the project area are National Forest System lands.

The Forest Service prepared this EA in accordance with the National Environmental Policy Act (NEPA), the Idaho Panhandle National Forests (IPNF) Forest Plan and other relevant laws and regulations.

This project meets the objectives of the National Fire Plan by reducing hazardous fuels, and it falls under the counterpart regulations to the Endangered Species Act (ESA) that provide alternative procedures to comply with the federal agency consultation responsibilities described in Section 7 of the ESA regulations.

This EA discloses the foreseeable environmental effects of the Broadaxe proposal for determining whether or not to prepare an environmental impact statement. The documents cited in this EA can be obtained from the St. Joe Ranger District office in St. Maries, Idaho or from the Idaho Panhandle National Forests website (www.fs.fed.us/ipnf/eco/manage/nepa/index). This EA is not a decision document. The EA summarizes the environmental consequences of the alternatives. The deciding officer (IPNF, Forest Supervisor) will select an alternative based on information in this document; how well the preferred alternative meets the purpose and need of the project; public comments and issues; and how well the alternative complies with applicable state and federal laws, agency policy and Forest Plan direction.

NEED FOR THE PROPOSAL

The existing and desired conditions in the project area summarized below are followed by the specific needs for the project.

Existing Condition

Approximately two-thirds of the Broadaxe Drainage burned in 1889 and 1910 ([Fire and Fuels Report, page 3](#)). These large stand-replacing fires encouraged lodgepole pine over many acres ([Vegetation Report, pages 4-5](#)). These stands are 90+ years old now and have become susceptible to large-scale infestation

with mountain pine beetle ([Vegetation Report, pages 7 and 8](#)). This mountain pine beetle infestation is widespread across areas in western Montana and northern Idaho. Stands proposed for treatment in the Broadaxe Project are comprised of approximately 42-92 percent lodgepole pine. Approximately 49-93 percent of that lodgepole pine has already died (Table 1), and the remaining lodgepole pine trees are currently being attacked by mountain pine beetles or are at high risk of attack (five inches d.b.h. and bigger). Natural fuels loads currently average about 10 tons/acre, and they will increase as the dead lodgepole pine trees fall over ([Fire and Fuels Report, pages 4-5](#); [Vegetation Report, page 10](#)).

Desired Condition

The desired condition of the Broadaxe Project Area would include conditions that are not conducive for future mountain pine beetle epidemics. The forest cover would be fully stocked, diverse, vigorous stands of mixed species including western white pine and western larch. The area would have enough coarse woody debris to protect soils and provide wildlife habitat. Coarse woody debris accumulations would be at levels that would not contribute to widespread probability of high-severity fire effects from naturally-occurring fires.

Public Involvement

Public involvement began for this project when it began for the Quartz Gold Project in 2001. Public scoping for the Broadaxe proposal by itself began in September 2004 with a letter sent to the people on the Quartz Gold mailing list explaining the need to concentrate planning efforts in the Gold Creek drainage. On October 4, 2004 the St. Joe Ranger District led a field trip to look at conditions in Gold Creek. On March 7, 2005 District Ranger, Chuck Mark, sent a letter and the Broadaxe Scoping Notice to people on the original Quartz Gold mailing list. These were also posted on the IPNF's website. The Broadaxe Project was listed on the IPNF's April 2005 Quarterly Schedule of Proposed Actions. As a result of this initial scoping the St. Joe District received comments from 16 individuals and organizations. On April 21, 2005 the District Ranger sent a letter to the people on the original Quartz Gold mailing list notifying them that with the Broadaxe project he was considering a proposal that would result in openings greater than 40 acres. One individual and one organization commented on that letter. A legal notice was published on May 18, 2005 in the newspaper of record, *The Spokesman Review* informing the public that the Broadaxe EA was available for public review and comment. The EA was sent to people on the mailing list and was posted on the IPNF's website. Ten individuals or organizations responded with comments on the EA.

Purpose and Need for Action

The need for the proposed action in the Broadaxe Project Area is based on the Forest Plan for the Idaho Panhandle National Forests (IPNF) and the differences between the existing condition and the desired condition in the project area. The Forest Service is proposing this project in order to:

- Meet forest plan standards for forest protection related to insects and diseases in Management Areas 1 and 6 (IPNF Forest Plan III-4 and III-30, respectively) by restoring fully stocked, diverse, vigorous stands that include species less susceptible to mountain pine beetle (western white pine and western larch); so the lodgepole pine / mountain pine beetle process is not perpetuated within the treatment areas ([Vegetation Report, page 13, 15](#)).
- Reduce long-term hazardous fuel accumulations within treatment areas ([Fire and Fuels Report, page 6](#)).
- Contribute to the local employment, income, and lifestyles (IPNF Forest Plan II-11) while the dead, dying, and high-risk lodgepole pine still has some economic value ([Vegetation Report, page 2](#)).

Issue Resolution

The Forest Service found no significant issues or unresolved conflict concerning alternative uses of available resources. No additional issues were identified that would require another alternative to address them (project file, S-38).

Concern was expressed that additional alternatives were necessary to effectively consider the environmental effects of this project (Response to Comments, 4:1). Section 102 (2)(E) of the National Environmental Policy Act (NEPA) requires the Forest Service to study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. The Forest Service did this with the No-Action

Alternative and the Proposed Action Alternative. Design features were developed upfront to anticipate and reduce the effects from the proposed action on the environment and address and resolve the main issues (see below). The proposed action was designed to address issues with harvest unit location, riparian buffers, logging methods, silvicultural prescriptions, design features, and timber sale contract provisions for protection of resources. Council of Environmental Quality (CEQ) guidance recommends listing and only briefly describing the proposed action and any alternatives which meet the project purpose. There is discretion regarding the number of alternatives (CEQ, 12/2002). It is possible that an EA may include only the proposed action and a no action alternative. The number of alternatives is left to the discretion of the responsible official and should be based on agency experience with the environmental issues involved.

A commenter suggested that the project include watershed restoration activities. Watershed restoration activities would not meet the purpose and need for this project. During scoping for the Quartz Gold Project this need was identified, however, the proposed action was developed to address an immediate need to treat the mountain pine beetle infested lodgepole pine in Broadaxe Drainage. Other needs in the area will be addressed in the future under other project proposals (Response to Comments, page 6, Comment 4:1).

The following preliminary issues were identified during the analysis for the Quartz Gold Project that preceded the Broadaxe proposal. They were considered during development and analysis of the Broadaxe Project.

- Gold Creek is listed under 303(d) of the Clean Water Act for temperature, sediment, nutrients, and habitat alteration. Design Features 3.a., b., c.; and 13.c. were developed to address this issue.
- Activities associated with timber harvest could produce sediment and increase water yield that may induce detrimental channel change and could affect water quality and fisheries habitat. Design Features 3.a., b., c.; 8.d.; and 13.c were developed to address this issue.
- Soil productivity could be reduced by removal of organics and associated nutrients or by detrimental impacts such as compaction, displacement, puddling, or severe burning. Design Features 8.a., b., c., d., e., f., g. were developed to address this issue.
- Timber harvest may result in fragmentation of wildlife habitat that could affect wildlife travel corridors and habitat. Design Features 4.; 5.; 6.; 7.; 13.d., g., h. were developed to address this issue.
- Ground disturbing activities can lead to spread or introduction of noxious weeds. Noxious weeds displace native vegetation. Design Feature 11 was developed to address this issue.
- Use of the Stateline Road for timber harvest could negatively impact the primitive type of recreational experience people have when they use the road. Design Features 9.; 13.b., e. were developed to address this issue.
- Proposed timber harvest may not meet visual quality objectives. Design Feature 10 was developed to address this issue.

ALTERNATIVES

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

The scope of the mountain pine beetle outbreak is much larger than the area proposed for management. An alternative to treat more acres was eliminated from detailed analysis because it would not be economically viable. This alternative would have required new road construction and/or a helicopter logging system. The value of the dead and dying lodgepole pine would not justify the cost of new road construction or helicopter logging systems. Therefore, any stands that would require system road construction or a helicopter logging system were not considered for treatment.

NO ACTION

This alternative provides a baseline for comparison of environmental consequences of the proposed action to the existing condition and is a management option that could be selected by the Responsible Official. The results of taking no action would be the current condition as it changes over time due to natural forces.

This alternative continues standard protection and maintenance activities such as fire suppression, access management, and road maintenance. Ecosystem processes such as insects and diseases in trees, and vegetation succession with fire exclusion would continue their current trends. No commercial timber harvest or road construction would occur. Some incidental tree removal would occur through firewood cutting. This alternative proposes no actions that are contained in the proposed action.

PROPOSED ACTION

The Forest Service is proposing salvage harvest of live and dead lodgepole pine on approximately 509 acres affected by mountain pine beetles. See Table 1 on next page. Approximately 374 acres would be harvested using skyline logging systems, and approximately 135 acres would be harvested using ground-based systems. In the proposed harvest units merchantable live and dead lodgepole pine greater than or equal to five inches d.b.h. would be harvested except for trees marked to be left to provide coarse woody debris (see Design Features). Live and dead trees of other species would be left on site. In some units, harvest would be followed with broadcast burning, jackpot burning, or underburning. Planting western larch and rust-resistant western white pine on approximately 252 acres would be combined with natural regeneration to achieve desired stocking levels and species mix (see Table 1 and [Broadaxe EA Map](#)).

Approximately one mile of temporary road in Units 6 and 8 would be needed for product removal and would be completely recontoured after use. Timber would be hauled to Road 3719 then north to FH 50 (see Broadaxe EA Map). Harvest operations would take one to two logging seasons.

An opening of approximately 160 acres would be created because

- The ongoing mountain pine beetle epidemic has already resulted in large areas of dead and dying lodgepole pine.
- Proposed silvicultural prescriptions would remove dead and live lodgepole pine that are at risk of mountain pine beetle infestation or are already infested.
- Proposed harvest units would be located next to each other.

Activity fuels would be treated with one or a combination of the following methods:

- Jackpot burning: burn concentrations of slash without necessarily burning the entire harvested area.
- Broadcast burning: burn most of the slash in a unit where the slash is more evenly distributed across large areas.
- Underburning: burn most of the slash in a unit where it is desirable to maintain the remaining trees.
- Whole-tree yarding: remove tops during yarding operations, pile slash at landings, burn landings.

No firelines would be constructed for any of the proposed prescribed burns. Aspects and shaded boundaries would be used for firebreaks. It is possible that fire may creep out of some of the units, but such slop-overs would be controlled.

Table 1 – Proposed Action Unit Summary

Unit ID	MA	Harvest Acres	Percent of Lodgepole Basal Area (sq. ft./acre) Currently Dead	% of Total Basal Area (sq. ft./ acre) to be Harvested	Logging System	Fuel Treatment	Planting Acres
1	9	49	83	76	Skyline	Jackpot / Broadcast	0
2	9	40	70	89	Skyline	Jackpot / Broadcast	0
3	1	38	56	87	Skyline	Broadcast	38
4	9	19	49	42	Tractor	Whole-Tree Yard	0
5	9	24	53	35	Skyline	Whole-Tree Yard	0
5	9	13	53	35	Tractor	Whole-Tree Yard	0
6	1	41	68	96	Skyline	Broadcast	41
6	1	32	92	72-96	Tractor	Whole-Tree Yard	19
7	1	46	85	56	Tractor	Whole-Tree Yard	16
8	1	85	82	56-93	Skyline	Broadcast	68
8	1	25	86	67-93	Tractor	Broadcast	24
9	6	34	87	50	Skyline	Broadcast	24
10	1	36	93	51	Skyline	Broadcast	14
11	1	27	88	50	Skyline	Underburn	8
Total Acres		509					252

Design Features

1. Air Quality

- a. All prescribed burning activities would be designed and conducted following the Memorandum of Understanding established between the states of Idaho and Montana to comply with state and federal air quality standards.
- b. Burning would only occur when weather and air conditions are favorable for smoke dispersal. No burning would be initiated during times when air quality restrictions are in place.

2. Heritage Resources

If additional heritage sites are discovered, the sites would be inventoried and then protected if found to be of historic significance. The decision to avoid, protect or mitigate impacts to these sites would be in accordance with the National Historic Preservation Act. Timber sale contract provision, #C6.24 *Protection of Cultural Resources*, or its equivalent would be included in the timber sale contract to ensure protection of heritage sites located during project implementation.

3. Water and Fish – Aquatic Environment

- a. BMPs: The Forest Service Handbook 2509.22 (Soil and Water Conservation Handbook) outlines and details effectiveness of the BMPs that meet the intent of the water quality protection elements of the Idaho Forest Practices Act ([Watershed Report, Watershed Appendix](#)).
- b. All Inland Native Fish Strategy (INFS) standards and guidelines that apply to activities in the Broadaxe Project would be utilized ([Fisheries Report, Appendix A](#)). This project would utilize the standard widths described for the Riparian Habitat Conservation Areas (RHCAs) described in Table 2.

- c. Protection of Fish When Using Streams For Prescribed Burning Control: To avoid adverse effects to fish and redds while using natural water sources, water removal may not exceed 90 gallons per minute and pumping sites would be located away from spawning gravels. The intake hose would be screened to prevent accidental intake of small fish. An emergency spill clean up kit would be on site in the unlikely event of a fuel spill outside the containment system.

Table 2 - Standard Riparian Habitat Conservation Area (RHCA) Widths

INFS Category	Description	RHCA Width
1	Fish bearing streams	300' from either side of channel
2	Permanent, flowing, non-fish bearing stream	150' from either side of channel
4	Seasonally flowing or intermittent streams Wetlands <1 acres Landslide prone areas	100' (priority watersheds)

4. Threatened, Endangered, and Sensitive Wildlife Species Management

Management activities would be altered, if necessary, to protect Threatened, Endangered, and Sensitive (TES) species located during project implementation. Any TES species found during implementation would be reported to the Sale Administrator and the District Wildlife Biologist. Timber sale contract clauses C6.25#, Protection of Threatened, Endangered and Sensitive Species, and C6.316#, Limited Operating Period, would be used in timber sale contracts.

- a. Goshawk:
 - I. Nests: Nests found during project implementation would be protected with a 30-acre no-activity buffer.
 - II. Post Fledging Areas (PFA): Proposed project activities would be suspended in the PFA of active goshawk nests between March 15 and August 15. Restrictions may be removed if the nest is determined by the district biologist to be inactive or unsuccessful after June 30. Vegetation treatments in the PFA are designed to meet guidelines for PFA.
- b. Canada Lynx: All project activities would follow standards and guidelines established in the Canada Lynx Conservation Assessment and Strategy.

5. Wildlife Travel and Movement Corridors

Maintain connectivity and minimize fragmentation by maintaining an uncut 200-foot buffer in designated corridors. Designated corridors are the state line ridge and the ridge forming the northern boundary of the project area. This applies to proposed harvest Units 1-7 in designated travel corridors.

An exception to the no-cut ridgeline wildlife corridor may occur in Units 1 and 2 where it would be necessary to cut skyline corridors through the travel corridor buffer. This activity would not exceed guidelines for openings in travel corridors, i.e. limited to one side of the ridge top, less than 300' wide, less than 25% of the corridor (IDFG 1995). The travel corridor will be protected by:

- Keeping the number of skyline corridors to a minimum,
- Keeping the width of the corridors to a minimum (less than 20 feet and closer to 10 feet in most cases),
- Locating skyline corridors in areas that are more sparsely timbered than the surrounding ridgeline stand,
- Spacing skyline corridors far enough apart to provide a **buffer** of uncut timber between them.

6. Small Mammal Habitat

To supply potential fisher rest sites, provide cover for small animals (prey habitat) and serve as potential lynx den sites in harvest units where slash piles are created, leave one pile unburned per five acres. Piles left should be those closest to standing timber, such as the unit edge or a large cluster of leave trees. Slash piling is not proposed, but this is included in case some piles are created with activities.

7. Cavity Nesting Species

- a. Recommendations for snag numbers, size and species from the Northern Region Snag Management Protocol (January 2000) would be met where these or higher levels exist. The retention of snags and snag replacements would be applied at the stand scale. Sufficient numbers of replacement snags would be provided ([Wildlife Report, page 10](#)) due to the nature of the proposed prescriptions and the layout of the treatment units. Replacement snag needs would be met because:
 - 1. The prescription for species designation of lodgepole means all other live trees of other species would be retained.
 - 2. All live trees would be retained in stream buffers.
 - 3. All live trees would be retained in the wildlife travel corridor.
 - 4. All live trees would be retained in portions of the stands that are not included in the timber sale units as well as in unloggable areas within the timber sale units.
- b. Specific details on snag and leave tree selection from the Reserve Tree Guide (IPNF, 1995) and the Snag and Woody Debris Guidelines (IPNF Forest Plan, Appendix X) would be followed to reach objectives of the Northern Region Snag Management Protocol and worker safety.
- c. Silvicultural and prescribed burning prescriptions would be prepared with the goal of protecting all trees other than lodgepole pine and retaining recommended levels and distribution of coarse woody debris during site preparation and fuels treatment.

Table 3 - Snag Guidelines

FOREST TYPE	SNAGS/ACRE
Cool, wet, & dry spruce, grand fir, hemlock, & subalpine fir (Unit 11)	6-12 total, with 2>20" dbh
High elevation spruce/fir/Lodgepole pine (Units 1-10)	5-10, >10" dbh

8. Soil and Site Productivity

The following practices are designed to minimize the impacts of soil compaction, displacement, severe burning, and nutrient and organic matter depletion on long-term soil productivity. The use of these practices would ensure that the soil quality standards listed in the Forest Plan and Regional soil quality recommendations would be met.

- a. Tractor Yarding: The following tractor skid trail placement would be used:
 - I. Ground-based yarding would be limited to slopes less than 35%.
 - II. All skid trail locations would be approved.
 - III. Trails would be spaced at least 100 feet apart, except where converging at intersections.
 - IV. Skid trail spacing closer than that listed above may be planned when winter logging occurs on at least two feet of settled snow or frozen ground or where adequate slash matting exists.
 - V. No excavated skid trails would be constructed.
- b. Skyline Yarding:
 - I. The leading end of logs would be suspended during yarding.
 - II. Five acres in the lower end of Unit 9 would be logged with full suspension to protect soils in an area with moderate to high mass failure and sub-soil erosion hazards.

- c. Fuels Treatment/Site Preparation Activities: Prescribed burning would take place only when the upper one-inch of soil has moisture content $\geq 25\%$.
- d. Temporary Road:
 - I. Temporary road that would remain on the landscape more than one dry season would be waterbarred according to specific interval direction and at specific angles to promote acceptable results. It would then be mulched with a natural, weed-free material to prevent runoff and erosion during spring and/or winter runoff events.
 - II. Temporary road would be fully recontoured to the natural slope to meet or exceed the standards outlined in FSH 2509.22 Practice 15.25 after their use for the project (Watershed Report, Watershed Appendix) when yarding operations are complete.
- e. Nutrient Protection: The latest soil nutrient management recommendations from Intermountain Forest and Tree Nutrient Cooperative (IFTNC) and Rocky Mountain Research Station (RMRS) would be applied as appropriate to each salvage unit. Where dead trees are to be harvested some of the recommendations would not apply.
- f. Retention of Organic Matter: Management of coarse woody debris (CWD, >3-inch diameter) and organic matter would meet USFS Region 1 recommendations (FSM-2500-99-1). Through marking plan specifications and contract administration enough trees or downed material would be left to provide for recruitment of 10-12 tons per acre of coarse woody debris. Reserve trees fallen for safety reasons would be left on site. They would be left where they land unless they interfere with operations or management of the National Forest (e.g. they fall in a skid trail or across a road).
- g. Grapple Piling or Mechanical Harvest Activities: The harvester or grapple pile machine would operate on a slash mat.

9. Campsites

Dispersed camping spots would be protected and maintained along all open roads in the project area.

10. Visual and Scenic Quality

Pre-sale personnel would work closely with the District and Forest visual staff to determine that design features are adequate for each application. Forest Plan Visual Quality Objectives (VQO) would be met through implementation of the following:

- a. **Foreground Retention Units:**
 - I. Openings in these areas would repeat natural openings frequently found in the characteristic landscape so completely they would not be evident.
 - II. Would not have evident lineal clearings for log removal. This would be accomplished by keeping cable clearing widths to minimums of 10-12 feet, corridor location would be angled away from view.
 - III. In Units 1 & 2 stumps would be cut flush with the ground to meet VQO of retention. Hand ignition would be used for prescribed burning to protect residual trees.
 - IV. The top of Unit 3 would have a visual buffer next to FH 50. Hand ignition would be used at the top of the unit to burn out the area below the visual buffer and protect it during the rest of the prescribed burn.
 - V. Unit 4 skid trail approaches would be angled away from Gold Pass.
- b. **Middleground Partial Retention Units:**
 - I. In Units 5, 6, and 7 skidding corridors would be kept to widths of 10 to 12 feet.
 - II. In Units 5, 6, 7, and 9 skidding corridors would be angled up the drainage to help reduce visual impacts of skidding as seen from FH 50.
 - III. All unit boundaries would be feathered and irregular in shape.

11. Noxious Weeds

A number of preventative measures would be taken to reduce the risk of noxious weed introduction and spread in accordance with the St. Joe Weed Control EIS (ROD, 10/12/99). Measures include:

- a. All off-road logging and construction equipment would be cleaned prior to entering the project area to remove dirt, plant parts, and material that may carry weed seeds. A provision would be included in the sale contract.
- b. Mulching agents, such as hay or straw, would be certified weed free.
- c. Appropriate action would be taken if new populations of noxious weeds were discovered within the project area.

12. Rare Plants

- a. Additional plant surveys would be conducted as needed prior to weed treatments. Any changes that may occur during implementation of an action alternative would be reviewed and plant surveys conducted prior to project implementation. Newly documented occurrences would be evaluated, with specific protection measures implemented to protect population viability.
- b. In the event that any Threatened, Endangered and Sensitive plant populations are found prior to or during project implementation, the district botanist would implement mitigation measures to protect population viability.

13. Roads and Access Management

- a. Warning signs would be posted and flaggers or temporary closures of roads would be used to provide safety when road construction, logging activity, and prescribed burning activities occur adjacent to FH 50 and other open/ATV roads.
- b. Efforts would be made to maintain the primitive character of the Stateline Road 391.
- c. National Forest system roads would be left in a stable condition after their use for project implementation.
- d. Existing access would be maintained. There would be no changes to amount or type of access currently provided in the project area.
- e. Stateline Road 391 would be open to the public on weekends throughout sale activities. It would be open during the week from 5:00 p.m. to 5:00 a.m. daily. For weekend use it would remain open from 5:00 p.m. on Fridays until 5:00 a.m. on Mondays. At the end of harvest activity and at the end of use during any given year Road 391 would be open.
- f. Road 3719 would be kept reasonably free of equipment and products to allow public access.
- g. A temporary gate would be placed on Road 3694 as soon as it is brushed and bladed to avoid establishing public use. The gate would block all public motorized access. It would be replaced with a permanent restriction device at the end of sale activities.
- h. A temporary gate would be placed on Road 1405 as soon as it is brushed and bladed, and access for vehicles less than 50 inches would be provided. The gate would be replaced with a permanent restriction device with access provided for vehicles less than 50 inches (ATV access) at the end of sale activities.

14. Prescribed Burning

Prescribed burning would be conducted as established in Forest Service Manual 5142 – Prescribed Fire Management. A site-specific burn plan would be prepared for each area to be burned to meet specific objectives. Burning would only occur when weather, fuel conditions, and available resources are at levels specified in the prescribed burn plan. Landing slash would be burned in the late fall after significant rains and during cooler temperatures when the risk of escape into adjoining stands and damage to residual timber is lessened.

Mitigation

The Proposed Action includes design features to avoid the need for mitigation. No mitigation actions are required to implement the proposed action because analysis of effects did not indicate a need for any mitigation.

Monitoring

The following monitoring would be included as part of the proposed action:

- Monitor soil quality by visual or physical checks conducted by either District or Forest-level soil science specialists at key points during and after implementation.
- Representative monitoring of best management practices (BMPs) would be conducted by the sale administrator and reviewed by resource specialists ([Watershed Report](#), [Watershed Appendix](#)).
- Representative monitoring of noxious weeds by district personnel to help identify any areas needing treatment and follow-up treatments.

ENVIRONMENTAL EFFECTS

This section provides a summary of the environmental impacts of the alternatives considered in detail. It provides the necessary information to determine whether or not to prepare an environmental impact statement. The associated Broadaxe Finding of No Significant Impact (FONSI) discusses whether the proposed action has significant effects. Further analysis and conclusion about the potential effects are available in reports for each resource and other supporting documentation cited in those reports. As noted above, these documents are online at www.fs.fed.us/ipnf/eco/manage/nepa/index or in the project file located at the St. Maries office of the St. Joe Ranger District.

The proposed action was not designed to address fire occurrence across the landscape or the effects of fires outside the proposed treatment areas. The potential exists for wildfire somewhere in the landscape with the Proposed Action and with the No-Action Alternative. This analysis does not attempt to predict when or where a fire might occur or what type of fire that may be. In some cases resource specialists did consider what the effects of a fire would be if one were to occur, but the proposed action does not address fire occurrence or fire effects outside the proposed treatment areas.

The Council on Environmental Quality (CEQ), whose responsibility it is to coordinate federal environmental efforts and work closely with agencies and other White House offices in the development of environmental policies and initiatives, provided guidance to federal agencies on the consideration of past actions in cumulative effects analysis¹. CEQ stated that “NEPA is forward looking, in that it focuses on the potential impacts of the proposed action” and “generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historic details of individual past actions” (CEQ memo, page 2). Cumulative impact is defined in CEQ’s NEPA regulations as the “impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions...” (40 CFR 1508.7). CEQ has interpreted this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ memo, page 2).

Consistent with the CEQ guidance, the past, present, and reasonably foreseeable actions were considered for analysis of cumulative effects where appropriate for each resource (Resource Reports). Past actions considered in cumulative effects analysis include those that contributed to establishing the baseline conditions of the project area today (Management History Report). A comprehensive list of past and present activities is provided in the Management History Report. Table 4 provides a summary of activities that were considered in the cumulative effects analyses and include those that occurred in the past, are still occurring, may occur, or may continue for an undetermined amount of time into the future. More detail is found in the Management History Report.

¹ CEQ Memorandum to the Heads of Federal Agencies regarding Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, June 24, 2005.

Table 4 – Past, Present, and Reasonably Foreseeable Actions Summarized from Management History Report

Action	Past	Present	Reasonably Foreseeable
Timber Harvest	X	X	
Prescribed burning for site preparation and fuels treatment	X		
Tree Planting	X	X	
Public Activities: firewood cutting, driving roads, camping, snowmobiling, hunting, hiking, berry picking	X	X	X
Road Construction	X		
Road Decommissioning	X		
Road Maintenance	X	X	X
Road Waste Disposal: Two sites for FH 50 in the Gold Creek drainage	X	X	X
Wildfires	X		unknown
Fire Suppression	X	X	X
Trail Maintenance	X	X	X
Mining in Gold Creek prior to 1911	X		
Pre-commercial Timber Stand Improvement	X	X	
In-stream Fisheries Habitat Improvement Projects	X		
Spraying Herbicides to Control and Prevent Noxious Weeds Under the St. Joe Noxious Weed EIS	X	X	X
One Year-round Outfitting Permit: including big game hunting, trail and pack trips, and snowmobile tours on designated routes (FH 50 outside project area)	X	X	X
Clearing Brush and Trees to Maintain Helispots	X	X	X
Paving the Little Joe Road 282, Summer 2006			X
Quartz Wildlife Burn: Project planning is on hold; St. Joe River Face between Quartz Creek and Gold Creek			X
Whitetail Trail Construction and Reconstruction: Project planning is on hold			X

Past, present, and reasonably foreseeable actions were considered for each resource where they apply (resource reports; project file, AQ-1, FF-8, F-31, OG-16, P-10, SW-41, V-22, W-29).

Environmental effects are discussed below. They are presented in alphabetical order except for the discussion on fisheries. It is presented after the watershed discussion to provide the context for understanding the effects to fisheries.

AIR QUALITY (Project File Volume II, Section AQ)

No Action

Direct and Indirect Effects

This alternative would have no immediate adverse effect on air quality, except in the event of a wildfire. Current management activities in the project area contribute little additional pollutants to the local airsheds. The primary source of pollution would be from vehicular exhaust, occasional campfires, and dust from motor traffic in the area. Air quality would remain good until the occurrence of a major wildfire event near or downwind of the area, after which a return to pre-existing conditions could be expected within a matter of days ([Air Quality Report, page 3](#)).

A wildfire scenario would not be regulated and could result in significant particulate production per acre and more severe concentrations without fuel reduction through timber harvest and prescribed fire. Historically, this area was characterized by very large stand-replacing fires every 100-200 years on average ([Air Quality Report, page 3](#)).

Cumulative Effects

Smoke from wildfires from outside the project area may decrease air quality during summer fire seasons. Wildfire smoke has naturally been a part of the analysis area ecosystem, however, the amount of smoke generated from forest fires has decreased since the 1930s with the advent of effective fire suppression. Air quality would remain good until the occurrence of a major wildfire event near or down-wind of the area, after which a return to pre-existing conditions would be expected within a matter of days. Prescribed fire from outside the project area generates smoke during the spring and fall months. Agricultural burning restrictions on the Palouse in northern Idaho and eastern Washington have reduced levels of seasonal regional haze caused by grass field burning.

Noxious weed spraying would have a short-term localized affect in the area of spraying. The impact from spraying would be very minimal to the air quality in the project area. The smell of herbicides may also persist at a spray site for several days following spraying.

Proposed Action

Direct and Indirect Effects

This alternative would have limited immediate adverse effect on air quality, and these effects would be localized and last for a short duration. Proposed prescribed burning would be monitored and controlled by airshed regulations to avoid violation of air quality standards ([Air Quality Report, page 6](#)). The amount of smoke generated from prescribed fire would be reduced by burning slash when atmospheric conditions are favorable for dispersion as compared to burning during poor air quality and atmospheric conditions ([Air Quality Report, page 4](#)).

Cumulative Effects

Proposed prescribed burning would be monitored and controlled by airshed regulations to avoid individual or cumulative violations of air quality standards ([Air Quality Report, page 5](#)). Current management activities in the project area contribute little additional pollutants to the local airsheds. The primary source of pollution would be from vehicular exhaust, dust from motorized traffic and occasional campfires in the area. Prescribed fire from outside the analysis area generates smoke during the spring and fall months. Agricultural burning restrictions on the Palouse have reduced regional haze levels. Other prescribed burning on federal, state and private lands within the affected airshed that may occur at the same time are monitored cumulatively on a daily basis and contribute to the local Smoke Management Unit's decision to approve a prescribed burn request on a given day. Wildfires occurring outside or inside the analysis area would generate smoke during the summer months and may affect air quality during that time period. Wildfire smoke has naturally been a part of the analysis area ecosystem, however, the amount of smoke generated from forest fires has decreased since the 1930s with the advent of effective fire suppression. Air quality would remain good until the occurrence of a major wildfire event near or down-wind of the area, after which a return to pre-existing conditions could be expected within a matter of days.

Noxious weed spraying would have a short-term localized effect in the immediate area of spraying. The impact from spraying would be very minimal to the air quality in the project area. The smell of herbicides may also persist at a spray site for several days following spraying. Other reasonably foreseeable future activities (Table 4) would have no effect on air quality.

FIRE AND FUELS (Project File Volume II, Section FF)

No Action

Direct and Indirect Effects

Potential for severe surface fire would rapidly increase within the next 20 years as dead lodgepole trees fall, and the potential for severe surface fire would persist for many decades. As mid and late seral tree species become more prevalent within the stands crown fire hazard would increase due to increasing ladder fuels and the existence of heavy surface fuel loading generated by the fallen lodgepole pine trees. Table 5 shows the estimated potential surface fuel loading in 20 years by unit presuming all lodgepole are dead and down in the project area (Fire and Fuels Report, page 5).

Table 5 - Estimated Fuels Loadings in 20 Years

Unit Number	1	2	3	4	5	6		7	8	9	10	11
						Above Stateline Road	Below Stateline Road					
Total estimated fuel loading from LPP	44	55	67	37	30	71	63	49	71	23	42	47

Assumes all lodgepole pine die and become down surface fuels. Fuel loadings are for lodgepole pine only and do not include existing surface fuel loads.

Cumulative Effects

Under the current IPNF Forest Plan fire suppression will continue, and as a result, will allow fuels in the project area to accumulate. The annual probability of human-caused ignitions within and around the Broadaxe Project Area would increase as the number of recreationists visiting the area increases after the Little Joe Road on the Montana side of Gold Pass is paved. Fuels within the analysis area will not be cumulatively affected by past, present, or future activities including the No-Action Alternative aside from the direct and indirect effects described above.

Proposed Action

Direct and Indirect Effects

The Proposed Action would address the purpose and need for this project by reducing long-term fuel accumulations within treatment units. It would directly result in the reduction of surface fuel loads by removing stems and portions of crowns of standing dead, dying, and at risk lodgepole pine trees ([Fire and Fuels, page 6](#)). Estimated fuel loadings after the proposed treatments are displayed in Table 6.

Table 6 - Estimated Fuel Loadings After Salvage and Prescribed Burning

Unit Number	1	2	3	4	5	6		7	8	9	10	11
						Above Stateline Road	Below Stateline Road					
Total estimated fuel loading from LPP	18	25	33	15	14	19	21	16	33	17	23	24

Fuel loadings are for lodgepole pine only and do not include existing surface fuel loads or fuel loads resulting from mortality of other tree species.

Cumulative Effects

The proposed action would result in an area of effectively low surface and crown fire hazard that may act as a barrier to fire spread for fires originating in or outside the treated areas ([Fire and Fuels Report, page 8](#)). Fuels would continue to accumulate outside the proposed treatment units. The annual probability of human-caused ignitions within and around the Broadaxe Project Area would increase as the number of recreationists visiting the area increases after the Little Joe Road on the Montana side of Gold Pass is paved. The proposed action would reduce the potential for an ignition to result in undesirable effects (i.e. high-intensity fire, damage to soils from high-intensity fires, continuation of lodgepole/mountain pine beetle process) within the treated units. Fuels within the analysis area will not be cumulatively affected by past, present, or future activities including the No-Action Alternative aside from the direct and indirect effects described above.

HERITAGE RESOURCES (Project File Volume II, Section H)

No Action

No direct, indirect or cumulative effects are expected with the No-Action Alternative.

Proposed Action

There would be no effect on cultural resources by implementation of the proposed action. No direct, indirect or cumulative effects are expected to the heritage resources with implementation of the action alternative. No potentially significant effects were identified. The proposed action complies with the National Historic

Preservation Act. A comprehensive evaluation of heritage resources was conducted for the entire project area. The project area has been systematically surveyed for heritage resources through several previously proposed projects. There are no known heritage sites that would be impacted ([Heritage Resources Report, page 1](#)). A timber sale contract provision for protection of heritage resources would be included in the timber sale contract to ensure protection of heritage sites should any be located during project implementation ([Heritage Resources Report, page 2](#)). Overall, the project area had a low level of historic activity. Future federal activities would be surveyed and would comply with the National Historic Preservation Act.

INVENTORIED ROADLESS AREAS (Project File Volume III, Section R)

No Action

There would be no effect to any inventoried roadless areas.

Proposed Action

The proposed activities would not occur in or adjacent to any inventoried roadless areas (project file R-1 and R-2).

NOXIOUS WEEDS (Project File Volume II, Section NW)

No Action

Direct and Indirect Effects

In the absence of disturbance under this alternative, weed populations are expected to remain fairly constant. Populations would continue to persist along roads where they could provide a seed bank that would provide a means for additional seed spread. The greatest threat from noxious weeds under this alternative is from the introduction of new and potential invader species because the area is a popular one for multiple types of recreation and attracts visitors from many places. However, the higher subalpine regions of the district seem to be somewhat resistant to weed invasion, likely due to the short growing season ([Noxious Weed Report, page 3](#)).

Cumulative Effects

The No-Action Alternative is expected to result in a static trend or in a slight increase in weed numbers within the area over time if control methods were not employed ([Noxious Weed Report, page 4](#)). The St. Joe Noxious Weed Control Project FEIS (USDA 1999, Appendix E, pg. E-3) identifies Gold Creek Road 388 (FH 50) for weed treatment. Weed control activities within this area will be scheduled as funding and other priorities allow. Weeds may also be treated in other areas by following the adaptive management strategy outlined in the St. Joe Noxious Weed Control Project FEIS.

Past activities such as timber harvest, road and trail construction, and recreational use likely resulted in the introduction of weeds into the area. Current and reasonably foreseeable activities within the project area include firewood collection, recreational use of roads and dispersed sites, road maintenance, and fire suppression. These types of activities could result in new disturbed sites available for colonization by weeds, and they do offer the possibility of introduction of new species of weeds to the watershed ([Noxious Weed Report, page 3](#)).

Proposed Action

Direct and Indirect Effects

This area seems to be somewhat resistant to weed invasion because of the short growing season. Design features can reduce the threat of weed expansion, however, even with associated weed control methods weed species may colonize disturbed areas. Monitoring of noxious weeds will help identify areas needing treatment and follow-up treatments (page 10). Appropriate action would be taken if new populations of noxious weeds were discovered within the project area (Design Feature 11. c.). The proposed action would meet the intent stated in the Forest Plan for moderate weed control through the implementation of design features ([Noxious Weed Report, page 5](#)).

Executive Order 13112 (February 1999) directs federal agencies to "...prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause...". The proposed action would meet the intent stated in Executive Order

#13112 for moderate control, through the implementation of design features. Weed populations in the project area are low in density and all weed treatments would be done in accordance with the St. Joe Ranger District Noxious Weed Project FEIS ([Noxious Weeds Report, page 5](#)).

Cumulative Effects

Current infestations of noxious weeds are a result of past (before weed control efforts were in place) and current activities in this area. In addition to the proposed activities, on-going and future activities such as firewood collection, recreation, road maintenance, and fire suppression would occur in the project area. Any ground disturbance associated with these activities may result in the creation of new habitat for noxious weeds. These activities could result in increases of disturbed sites available for colonization by weeds, and new species of weeds could be introduced to the watershed. Design features would limit the spread of weed seed and establishment of new populations but are not expected to halt such spread completely.

The St. Joe Noxious Weed Control Project EIS (USDA 1999) identifies Gold Creek Road 388 as a potential treatment area. Weed control activities within this area would be scheduled as funding and other priorities allow. Weeds may also be treated in other areas by following the adaptive management strategy outlined in St. Joe Noxious Weed Control Project FEIS.

Weed populations are expected to remain stable or increase slightly. Other federal activities also have built-in mitigation to control the spread of noxious weeds. The overall effects of activities may result in a gradual increase in weed numbers within the area over time if control methods are not employed. Such increases may not be discernable within the time frame of this project, and will vary depending upon the extent of disturbances. The proposed action would meet the intent stated in the Forest Plan for moderate weed control through the implementation of design features ([Noxious Weed Report, page 5](#)).

OLD GROWTH (Project File Volume II, Section OG)

No Action

There would be no direct, indirect or cumulative effects on old growth stands. Forest Plan standards for old growth retention would continue to be met. The current old growth allocation within the 15,224-acres Old Growth Management Unit (OGMU) 28 is 2,195 acres or 14.4 percent of OGMU 28 ([Old Growth Report, page 2](#)).

Proposed Action

Direct and Indirect Effects

There would be no effects from the proposed action on old growth ([Old Growth Report, pages 3-4](#)). No activities are proposed in allocated old growth or in other stands meeting old growth criteria. Forest Plan standards for old growth would be met ([Old Growth Report, page 3](#)). The current old growth allocation within the 15,224-acres Old Growth Management Unit (OGMU) 28 is 2,195 acres or 14.4 percent of OGMU 28 ([Old Growth Report, page 2](#)).

New field exams were done in the fall of 2004 where existing exam data was over 20 years old, where stands previously reviewed for old growth criteria had been redelineated, where there were obvious changes in stand conditions since the last exam, or where stands were at a high risk for insect or disease agents ([Old Growth Report, page 2](#)).

Cumulative Effects

There would be no effects from current and reasonably foreseeable activities including weed control, road and trail maintenance, and public recreation (i.e. berry picking, hiking, hunting, wood gathering and similar activities). No cumulative effects on old growth are expected as a result of these other activities ([Old Growth Report, page 3](#)).

RARE PLANTS (Project File Volume III, Section P)

No Action

Direct and Indirect Effects

There are no known direct effects from the No-Action Alternative. No habitat for Threatened and Endangered species and no rare plants were found during surveys, therefore, this alternative would have no effect on Threatened and Endangered species and no impact on sensitive plant species and guilds. The proposed action is consistent with the Endangered Species Act. Increasing fuel loads over time may indirectly increase risk to rare plants and habitat due to an increase in risk of wildfire ([Rare Plant Report, pages 5-6](#)).

Cumulative Effects

With no action, susceptibility of the landscape to high-intensity, stand-replacing wildfire may increase due to increased fuel loading. Such fires could have detrimental effects on rare species, however, the time scale of such events is unpredictable.

Past activities including fire, fire exclusion, road construction, timber harvest, introduction of invasive species, and recreational use may have affected habitat in the area, however, subalpine habitats have remained fairly intact across the St. Joe Ranger District and are expected to remain so ([Rare Plant Report, page 7](#)). All proposed and future ground-disturbing activities on National Forest System lands, except wildfire suppression, are evaluated through surveys and biological assessments/evaluations for their impact on Threatened, Endangered and Sensitive plant species ([Rare Plant Report, pages 5-6](#)) and are designed to protect species and their habitat.

Proposed Action

Direct and Indirect Effects

Plant surveys conducted within the stands in September 2004 revealed no listed species and little potential overall for the habitat to support rare species that occur on the St. Joe Ranger District. No habitat exists for either water howellia or Spalding's catchfly, therefore, there would be no effect to these species. Salvage harvest would impact about 300 acres of high potential rare plant habitat in the subalpine guild, so all areas scheduled for ground-disturbing activities that have a possibility for adverse effects within high potential habitat were surveyed. Surveys did not reveal good habitat for sensitive species or species of concern, and no populations were discovered, therefore, there will be no impact to species of the subalpine guild. Deciduous riparian, aquatic, wet forest, dry forest, moist forest, and peatland habitats do not occur within proposed activity areas, therefore, there would be no direct or indirect effects on these habitats and their associated rare species ([Rare Plant Report, page 6](#)). In the event that any Threatened, Endangered, or Sensitive plant populations are found prior to or during project implementation, the district botanist would implement mitigation measures to protect population viability (Design Features 4, 12).

Cumulative Effects

Past activities including fire, fire exclusion, road construction, timber harvest, introduction of invasive species, and recreational use may have affected habitat in the area, however, subalpine habitats have remained fairly intact across the St. Joe Ranger District and are expected to remain so ([Rare Plant Report, page 7](#)). Current and future activities such as road building, timber harvest, burning, and recreational use can result in habitat modification, however, population viability would be addressed through mitigation of activities that may impact rare plants (Design Features 4 and 12). All proposed and future ground-disturbing activities on National Forest System lands, except wildfire suppression, are evaluated through surveys and biological assessments/evaluations for their impact on Threatened, Endangered and Sensitive plant species ([Rare Plant Report, pages 5-6](#)) and are designed to protect species and their habitat.

RECREATION

No Action

There would be no changes in conditions for recreation in the project area.

Proposed Action

During project activities the Stateline Road may be blocked during week days, but it would be open to the public at night and on weekends throughout sale activities. At the end of harvest activity and at the end of

use during any given year Road 391 would return to a continuously open condition. Approximately 2.25 miles of the road would be temporarily converted from high-clearance vehicle access to passenger vehicle access. Road 391 has no special designation but is popular for people seeking a high-country, more primitive driving experience. Over time the road would revert to high-clearance access ([Recreation Report, page 2](#)).

SOIL PRODUCTIVITY (Project File Volume III, Section SW)

No-Action

Direct and Indirect Effects

No management-induced detrimental impact would occur in the Broadaxe area. Lodgepole pine stands currently at high risk for mortality would not be treated. This could increase the risk of residual stand loss due to wildfire which could cause severe burning, resulting in hydrophobic soils and loss of soil nutrients. In the absence of hot fires, nutrients would be retained on site.

Cumulative Effects

No cumulative effects are anticipated in the proposed salvage units because these stands have not previously been entered ([Soils Report, page 6](#)) and there are no reasonably foreseeable activities likely to result in substantial adverse effects on soil productivity in these units.

Proposed Action

Direct and Indirect Effects

The proposed action would meet Region 1 soil detrimental impacts recommendations and IPNF Forest Plan Standards ([Soils Report, page 8](#)). Potential detrimental disturbance, including temporary roads, may affect up to eight percent of the 509 acres proposed for harvest in the Broadaxe Project Area. Direct effects due to construction and recontouring a temporary road are predicted in proposed Units 6 and 8, however, the total disturbance would be less than or equal to 13 percent in each activity area ([Soils Report, page 6](#)). Detrimental disturbance would not exceed 15 percent in any proposed activity area. Monitoring of units in the Beetlemania Timber Sale which was a similar project in the Broadaxe Drainage showed generally less than ten percent detrimental soil disturbance (project file, S-9).

Coarse woody debris would be retained at recommended levels in all units ([Soils Report, page 8](#)). Retention of the majority of site nutrients is expected ([Soils Report, page 7](#)). Using Regional guidance for coarse woody debris retention would adhere to the Forest Plan Standard to maintain sufficient microorganism populations to maintain site productivity. Where whole-tree logging is proposed design features, including nutrient management recommendations, would ensure compliance with the Forest Plan Standard to maintain sufficient nutrient capital.

Cumulative Effects

No cumulative effects are anticipated in the proposed salvage units because these stands have not previously been entered ([Soils Report, page 6](#)). Combining the predicted detrimental impacts of proposed activities and the total area of existing system roads to be used for the project, cumulative soil impacts may affect up to 15 percent of the project activity area including project roads ([Soils report, page 7](#)). There are no reasonably foreseeable future activities that would affect soils in the proposed treatment units.

VEGETATION (Project File Volume IV, Section V)

No Action

Direct and Indirect Effects

Under the No-Action Alternative, stand composition is expected to change over time with a continued reduction in the existing component of intolerant early seral species and a continued increase in more shade-tolerant mid and late seral species. This alternative would result in decreased numbers of western white pine and western larch over time. Additionally, large areas dominated by lodgepole pine currently have substantial mortality, and would naturally regenerate back to lodgepole pine. This trend is expected to continue. As a result of this shift in species composition, the risk of losses to insect and disease would increase.

In areas not dominated by lodgepole, species composition would shift to more shade-tolerant species (predominately grand fir, subalpine fir, and mountain hemlock) which would also increase the risk and extent of loss from fire. These species are less adapted to surviving fire than are the more seral shade-intolerant species such as western larch, ponderosa pine and Douglas-fir. As these more fire-sensitive species increase as a percent of stand composition, the risk of losing entire stands increases if fire occurs.

The No-Action Alternative would result in no direct management-induced changes to forest structure. The loss of these existing stands, and their associated structure, will occur as the result of an on-going mountain pine beetle infestation of stands dominated by lodgepole pine ([Vegetation Report, page 10](#)).

Cumulative Effects

The current moderate to high mortality rates from mountain pine beetle attack in the existing lodgepole pine component would be expected to continue. Natural regeneration back to lodgepole pine would be expected and only incremental change in this forest cover type would be expected over time.

As a result of reduced disturbance patterns and continuing successional development of existing stands, this alternative would maintain the current species composition trend. The number and extent of western larch, western white pine and Douglas-fir would continue to decrease, being replaced by grand fir and subalpine fir. This same slow process of succession would gradually shift Douglas-fir and grand fir forest types towards mountain hemlock and subalpine fir types.

Changes in forest structure from losses in the mature/overmature size classes in the lodgepole pine forest type resulting from mountain pine beetle caused mortality would generally increase representation in the shrub/seed/sapling size classes, and reduce the representation in the mature/overmature size classes. The resultant cumulative effects would be a moderate increase in the shrub/seedling/ sapling size class associated with a similar moderate decrease in the mature/overmature size class. The cumulative effects on the pole/small/medium size classes would be only incremental ([Vegetation Report, page 12](#)).

Proposed Action

Direct and Indirect Effects

The Proposed Action would increase the contribution of western larch and western white pine dominated stands within this project as a result of planting these species during stand restoration activities. Reforestation of treatment areas would be a mix of seventy percent (70%) western larch and thirty percent (30%) rust-resistant western white pine. This would increase the representation of these long-lived seral species to approximately 252 acres, or 7.5% of the analysis area. Subsequently, the lodgepole pine component would be reduced 7.5% to approximately 1,067 acres or 31.8% of the analysis area. Representation of other species would be expected to remain approximately the same as the current condition ([Vegetation Report, page 13](#)).

The Proposed Action would result in no direct management induced changes to forest structure. Due to the extensive existing mortality in stands proposed for treatment, the structural change mature/overmature size class to shrub/seedling/sapling size class is the result of the current mountain pine beetle infestation. The proposed sanitation/salvage harvest treatments would remove dead, dying and high risk (mortality expected in two to ten years) lodgepole pine while these trees still retain some economic value. The loss of these existing stands, and their associated structure, is the result of an existing insect epidemic in stands dominated by lodgepole pine and will occur with or without the proposed sanitation/salvage treatments ([Vegetation Report, page 14](#)).

Cumulative Effects

The current policy to suppress all fires in this area would continue. As a result, the contribution of western larch in untreated areas would depend on the survival of existing trees. Due to the severe intolerance of western larch to shading it does not effectively compete once its position in the canopy is not dominant. In the absence of fire or other thinning agents (natural or human-caused) the more shade-tolerant species will continue to develop and compete with the western larch. Natural regeneration would continue to be the more shade-tolerant species. The impact of competition would continue, and over time a gradual replacement of western larch by more shade-tolerant species would be expected in untreated areas within this proposal ([Vegetation Report, page 13](#)).

Current conditions have resulted in much higher proportions of the more shade-tolerant species, especially the grand fir, subalpine fir and mountain hemlock forest types, than historically existed in the area. This

general trend is expected to continue with the proposed action; however, to a lesser degree than the No Action due to the reforestation activities discussed above ([Vegetation Report, page 13](#)). This shift in stand composition to more shade-tolerant species, predominantly grand fir, subalpine fir and mountain hemlock, would increase the effects and extent of loss from fire within the project area. These species are less adapted to surviving fire than are the more shade-intolerant species such as western larch and Douglas-fir. As these more fire-sensitive species increase as a percent of stand composition, the risk of losing entire stands increases if fire occurs ([Vegetation Report, page 14](#)).

Changes in forest structure from losses in the mature/overmature size classes in the lodgepole pine forest type resulting from mountain pine beetle caused mortality would generally increase representation in the shrub/seed/sapling size classes, and reduce the representation in the mature/overmature size classes. The resultant cumulative effects would be a moderate increase in the shrub/seedling/ sapling size class associated with a similar moderate decrease in the mature/overmature size class. The cumulative effects on the pole/small/medium size classes would be only incremental ([Vegetation Report, page 16](#)).

Reasonably foreseeable activities (Table 4) would not change stand structure or species composition.

VISUAL QUALITY (Project File Volume IV, Section VQ)

No Action

The upper Broadaxe drainage is progressing through a naturally-occurring mountain pine beetle infestation. Depending on how the pine beetle population progresses it could leave visitor expectations for scenery unmet. In stands that have a higher mixed-species component, the mountain pine beetle infestations will act as a thinning agent. The visual characteristics of the area would continually change as the natural vegetation proceeds through normal life cycles. Insect and disease damage would become more prominent as openings become larger. The likelihood of high-intensity wildfire would increase as fuel loads increase due to large quantities of dead and dying trees. Increased fuel loads would increase risk of high-intensity fire in the surrounding stands of lodgepole and other healthy species ([Visual Quality Report, page 4](#)). -

Proposed Action

The proposed action is consistent with management direction in the IPNF Forest Plan. Units 5, 6, 7, 8, 9 and 10 would meet visual quality objectives (VQOs) after proposed activities. Units 3 and 11 would likely meet the low end of retention because of the existing vegetative visual screen along FH 50. As regeneration becomes established, full Retention will likely be attained. Unit 4 would meet Retention after proposed activities because of its location along the ridge and its higher basal area composition of species other than lodgepole pine. It is unlikely Units 1 and 2 would meet the VQO of Retention within the next three to five years. However, as the existing residual trees grow and new regeneration becomes established, the low end of Retention would likely be attained, with full Retention possible within the decade. Forest-wide standards for visual quality (Forest Plan II-25) allow treatments that do not meet VQOs in large areas where the mortality rate for timber is very high ([Visual Quality Report, pages 6 and 7](#)).

WATERSHED RESOURCES (Project File Volume III, Section SW)

In 1998 Gold Creek was listed under the 303(d) portion of the Clean Water Act for temperature, sediment, nutrients, and habitat alteration. A final determination of the status of Gold Creek was made by the State and approved by EPA in August 2003. Gold Creek was found to be non-supportive of beneficial uses and a temperature TMDL was developed and approved by EPA. Although, the assessment indicated that cold-water aquatic life and use are supported, temperature was found to exceed the current standards in Gold Creek. A target canopy cover was established for this stream and its tributaries to help achieve a thermal load reduction. IDEQ recommended delisting Gold Creek for sediment and nutrients; therefore, there are no sediment or nutrient load reduction requirements for Gold Creek ([Watershed Report, page 6](#)). There are no other total maximum daily loads (TMDLs) developed for other streams within the project area ([Watershed Report, page 7](#)). Sediment has been determined not to be a pollutant in Gold Creek or its tributaries ([Watershed Report, page 7](#)).

Existing peak flows were modeled to be 6% above unmanaged conditions in Gold Creek and 4% above unmanaged conditions in Broadaxe Creek. Peak flow increases of less than 20% are not expected to cause significant effects. Total canopy openings in Broadaxe Creek and Gold Creek are relatively low; therefore, existing rain-on-snow effects would tend to be minimal.

Most of the channel of Broadaxe Creek is currently unaffected by roads and logging, however, the lowermost reach has a lack of overstory as a result of the riparian harvests in the 1960s and 1970s. Channel substrate is slightly more mobile in this lowermost reach than is expected for this channel type. In Gold Creek the channel geometry was modified by the encroachment of FH50 which caused increased sediment loading, bank destabilization, and aggradation on lower sections. Timber management-related water yield increases may have induced some degradation in harvested tributaries where channels are confined. Extensive gravel and cobble deposits along the channel of Gold Creek near the mouth of the East Fork Gold Creek may be due in part to turn-of-the-century mining. The trend is static as the channel continues to adjust to modifications ([Watershed Report, page 9](#)).

No-Action

Direct and Indirect Effects

The channels of Gold Creek and Broadaxe Creek and its tributaries would likely remain in essentially the same conditions as they are currently. Water quality would be maintained in the project area. Water yield and peak flows could recover to more natural levels as stands that have been harvested in the past continue to grow and increase canopy. However, significant loss of crown closure in untreated stands due to the pine beetle infestation could contribute to increased water yield and peak flows. Tree mortality would increase fuel loading and heighten the risk of severe fires, should a fire start occur. A large, severe fire would further increase water yields with recovery back to existing conditions likely within 20 years. The streams in the Gold Creek drainage evolved within a disturbance regime of periodic wildfires and, therefore, would adjust over the long term to a potential severe fire event as they have in the past ([Watershed Report, page 12](#)).

Cumulative Effects

Because the currently trend is static, with no action, watershed conditions would remain impaired due to past, current, and reasonably foreseeable activities in the project area.

Proposed Action

Direct and Indirect Effects

The proposed action would maintain the chemical, physical, and biological integrity of the streams in the project area, in adherence with 33 U.S.C. §1251 (Clean Water Act). The proposed action would not impact the 1998 303(d) listing of Gold Creek for sediment, temperature, nutrients or habitat alteration ([Watershed Report, page 19](#)). Project activities would not adversely affect floodplains or wetlands ([Watershed Report, page 20](#)). Broadaxe Creek and Gold Creek would be allowed to move toward their target canopy covers and support of beneficial uses ([Watershed Report, page 15](#)) because no project activities would occur in riparian areas. Riparian Habitat Conservation Area buffers on project activities would ensure that riparian areas and stream channels are not subjected to any direct effects from harvest or fuels treatment activities ([Watershed Report, page 18](#)).

No measurable effects on water quality and beneficial uses from project activities are anticipated ([Watershed Report, page 14](#)). No detectable additional contribution of sediment to streams due to harvest-related ground disturbance is anticipated ([Watershed Report, page 16](#)). Stream channels in the analysis area are primarily transport-type and are therefore unlikely to be adversely affected by the minor, short-term predicted water yield increases. Appropriate buffers and best management practices (BMPs) would be implemented to prevent sediment generation or movement from proposed activities into streams. The overall effectiveness for all BMPs is expected to be high ([Watershed Report, page 14](#)).

No measurable change is expected in the channel of Broadaxe Creek from the proposed action. The predicted changes in water and sediment yield could alter flow regimes in Broadaxe Creek, however, these changes are unlikely to significantly impact existing stream channel conditions in the project area. It is unlikely that short-term peak flow increases from harvest would be sufficient to increase in-channel erosion or decrease existing pool volumes because sediment supply would not likely exceed transport capacity. Spring and mid-winter floods due to climate fluctuations (temperature and precipitation) are more likely to cause channel changes than management effects. The proposed action would directly affect the vegetative condition of the area in the relative short term by removing lodgepole pines trees and by converting high-risk stands to younger, more vigorous stands. Temporary road construction would also decrease canopy cover, in addition to altering hillslope morphology and hydrologic functioning over the short term. Indirect effects of these canopy reductions could be elevated water yields over the short term with recovery to existing

condition within 20 years. The proposed level of vegetative change and resulting water yield would be well within the historic range of variation ([Watershed Report, page 13,](#)).

No direct or indirect effects from rain-on-snow events are anticipated due to project activities ([Watershed Report, page 18](#)). The proposed salvage units and temporary road are all well above the sensitive snow zone, therefore flood levels should not be measurably affected by implementation ([Watershed Report, page 18](#)). Openings would not be significantly different than openings anticipated due to beetle kill with no action.

Cumulative Effects

Water temperature in the St. Joe River downstream of the project area would not be affected by project activities ([Watershed Report, page 15](#)). In compliance with TMDL requirements (IDEQ, 2003, p. 94-96), thermal modifications in the Upper St. Joe River sub-basin would not be exacerbated. RHCA buffers on salvage units would allow riparian corridor canopies to recover to levels established for Gold Creek and its tributaries ([Watershed Report, page 20](#)).

No detectable water yield increases due to project activities are anticipated ([Watershed Report, page 17](#)). With implementation of the proposed action, peak flow increases over the short term could be five percent higher than the existing condition in Broadaxe Creek. However, natural climate variations can result in flows up to 50 percent greater than the cumulative increases predicted for this project, so the five percent increase would not be detectable in the stream.

No significant increase in water yield or peak flows is predicted for Gold Creek, and no negative effects due to extended peak flows are expected. No water yield effects are expected in the St. Joe River downstream of the project area ([Watershed Report, page 17](#)).

No impacts to Gold Creek or the St. Joe River due to proposed activities are anticipated because cumulative in-stream effects would be negligible ([Watershed Report, page 19](#)). At the cumulative effects scale, a short-term, one percent increase in total sediment and a delay in water yield recovery in Gold Creek are highly unlikely to affect the stream channel ([Watershed Report, page 18](#)).

The Beetlemania project activities had no effect on Broadaxe Creek or headwater tributaries ([Watershed Report, pages 9 and 16](#)). Reasonably foreseeable future activities (Table 4) would not affect watershed conditions in Broadaxe Creek or Gold Creek.

FISHERIES (Project File Volume II, Section F)

On June 2, 2005, the Forest Supervisor for the Idaho Panhandle National Forests signed a decision notice and finding of no significant impact that amended the Forest Plan to modify or remove objectives, standards, and monitoring requirements pertaining to fry emergence success (IPNF, 2005).

In Broadaxe Creek the limiting factors for fisheries are high road densities, high stream temperature, and reduced woody debris in Reach 1 ([Fisheries Report, page 12](#)). In Gold Creek, which is the cumulative effects area, the limiting factors for fisheries are riparian roads, low habitat diversity, high stream temperatures, culvert migration barriers, reduced pool quality, reduced quantities of large woody debris, and extremely high road densities.

No-Action

Direct and Indirect Effects

There would be a slow improvement over time in conditions for fish. Road densities would not change. Stream temperatures in Broadaxe Creek and Gold Creek would improve slowly over time as conifers within the riparian zone grow and provide shading to the stream. In Gold Creek, however, temperatures are unlikely to return to the pre-management levels due to the continued presence of Forest Highway 50 (FH 50). Habitat complexity would also improve slowly over time in Broadaxe Creek and in Gold Creek as conifers within the riparian zone grow and fall into the stream creating new pool habitat and greater complexity, but in Gold Creek habitat complexity is unlikely to return to pre-management levels because of the presence of FH 50 ([Fisheries Report, page 22](#)).

Cumulative Effects

There would be no change from current conditions to Gold Creek which is the cumulative effects area ([Fisheries Report, page 22](#)).

Proposed Action

Direct and Indirect Effects

The proposed action would not jeopardize the continued existence of bull trout or westslope cutthroat trout and is consistent with the Endangered Species Act ([Fisheries Report, page 27](#)). The proposed action would maintain habitat for bull trout (IPNF management indicator species, listed as a Threatened species under the Endangered Species Act) and westslope cutthroat trout (IPNF management indicator species, listed as a Sensitive species on the Region 1 Sensitive Species List), and viability would be maintained ([Fisheries Report, page 27](#)).

Although the proposed action would not degrade Broadaxe Creek or Gold Creek, it would not improve conditions in the creeks ([Fisheries Report, page 24](#)). There would be a temporary slight increase in road densities due to the construction of approximately one mile of temporary road. Following timber yarding activities the temporary road would be decommissioned which would return the road density to the existing level. The retention of riparian vegetation would allow for the slow recovery of the riparian zone which would eventually provide shading to the stream. This shading would reduce stream temperatures. Habitat complexity would improve slowly over time as the conifers within the riparian zone grow and fall into the stream thus creating new pool habitat and greater complexity.

The proposed action would maintain habitat and thus would not affect the fishery potential, which in turn would not reduce the potential for recreational fishing opportunities as required by Executive Order 12962 signed June 7, 1995 ([Fisheries Report, page 27](#)).

Cumulative Effects

The proposed action would not jeopardize the continued existence of bull trout or westslope cutthroat trout ([Fisheries Report, page 27](#)). The lack of negative impacts from activity within the Broadaxe Creek drainage would prevent decline of the cumulative conditions within Gold Creek. The current impaired condition of Gold Creek would remain, however, in the long term there would be some improvement as riparian zone conditions improve. Over the long term the following factors would show improvement as riparian conditions improve: riparian harvest, temperature, and habitat complexity ([Fisheries Report, page 24](#)). Habitat and viability for bull trout (IPNF management indicator species, listed as a Threatened species under the Endangered Species Act) and westslope cutthroat trout (IPNF management indicator species, listed as a Sensitive species on the Region 1 Sensitive Species List) would be maintained ([Fisheries Report, page 27](#)). Current and reasonably foreseeable activities were considered for the cumulative effects analysis ([Fisheries Report, pages 20-21](#)).

WILDLIFE (Project File Volume IV, Section W)

The No-Action Alternative and the Proposed Action are consistent with applicable goals, direction, standards, and guidelines from the Forest Plan for the management of wildlife habitat and species populations. Both alternatives, to varying degrees comply with other direction and recommendations regarding management of the various components of wildlife habitat. Both alternatives comply with applicable conservation strategies for wildlife species. Both the No-Action and Proposed Action Alternatives are consistent with the Endangered Species Act (ESA), the National Forest Management Act (NFMA) and other laws providing direction and requirements for the management of wildlife species and habitat. There would be no effects on the woodland caribou, bald eagle, grizzly bear, black swift, Coeur d'Alene salamander, common loon, harlequin duck, northern bog lemming, fringed myotis, peregrine falcon, Townsend's big-eared bat, pygmy nuthatch, northern goshawk, flammulated owl, and moose.

Some elements of wildlife habitat require a detailed analysis and discussion to determine potential effects. Other elements do not necessarily require detailed analysis because they may not be affected; may be affected at a level that does not influence use, occurrence, or the decision to be made; or can be adequately addressed through design of the project. Wildlife species were reviewed for their relevancy to the proposed action and the wildlife analysis areas ([Wildlife Report, page 4-5](#)). Some species were not analyzed further, and the rationale for this is given in the Wildlife Report ([page 5](#)).

THREATENED AND ENDANGERED SPECIES

Section 7 of the Endangered Species Act (ESA) directs federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or

endangered species or result in the destruction or adverse modification of their critical habitat. The proposed action is consistent with the Endangered Species Act ([Wildlife Report](#)).

Canada Lynx

No Action

Direct and Indirect Effects

The No-Action Alternative would not change the existing conditions in the lynx analysis unit (LAU), and the lynx analysis unit would continue to meet recommended Lynx Conservation Assessment and Strategy (LCAS) habitat levels ([Wildlife Report, page 19](#)). Foraging and denning habitat are well distributed and intermingled throughout the LAU.

Cumulative Effects

The LAU would continue to meet the recommendations of the LCAS. Overall, the net effect would be a small increase in foraging habitat over the next 10 to 30 years. There would be little change over time to the rest of the lynx habitat in the project area. There are no present or reasonably foreseeable federal actions that would measurably affect lynx habitat in the project area ([Wildlife Report, page 19](#)).

Proposed Action

Direct and Indirect Effects

The proposed action is consistent with the Lynx Conservation Assessment and Strategy (LCAS). No lynx denning habitat would be affected by the proposed action. The arrangement and distribution of potential denning and foraging habitat would remain good across the project area. Following completion of all activities unsuitable habitat would be increased by 1.5% to 12.5%, remaining well below the 30% upper limit set as an LCAS standard. The changes in lynx habitat are not expected to adversely affect the ability of the project area to support lynx. Open road densities would not be changed from existing levels in the Lynx Analysis Unit (LAU). There would be no change to the designated snowmobile trail system. There would be no change in the amount of secure habitat in the lynx analysis area ([Wildlife Report, page 20](#)).

Cumulative Effects

The proposed action may affect but is not likely to adversely affect Canada lynx ([Wildlife Report, page 20](#)). The Gold Creek LAU was used for cumulative effects analysis, and it would continue to meet the standards of the Lynx Conservation Assessment and Strategy (Ruediger, et al., 2000). The maintenance of the existing open road density and amount of secure habitat in the LAU would not change conditions for lynx in the project area. The maintenance of canopy cover in travel corridor stands would continue to allow movement throughout the project area. Based on the implementation of travel cover guidelines, as well as existing and foreseeable conditions, the area would still maintain corridors suitable for wildlife movement ([Wildlife Report, page 15](#)). No change in the amount of snowmobile use would occur as a result of project implementation, and there would be no change to the designated snowmobile route in the project area. Other reasonably foreseeable activities (Table 4) would have no effect on lynx or their habitat in the Gold Creek LAU.

Gray Wolf

No Action

Direct, Indirect and Cumulative Effects

This alternative would not change open road and trail densities, percent of secure habitat, or elk habitat potentials; so it would have no effect on the gray wolf. Existing habitat conditions do not preclude the presence of wolves in the drainage, however; current open road/trail densities and limited secure habitat decrease the likelihood of wolves using the area in more than a transitory manner, and there are no known wolf dens or rendezvous sites in the analysis area ([Wildlife Report, pages 21-22](#)).

Proposed Action

Direct, Indirect and Cumulative Effects

The proposed activities are unlikely to affect wolves due to the wide-ranging nature of wolves and their relative lack of preference for special habitat ([Wildlife Report, page 22](#)). The proposed action would improve conditions for wolves and wolf prey by a slight degree because foraging habitat for ungulates would be

improved slightly ([Wildlife Report, page 22](#)). There would be no impact on any known wolf den or rendezvous site, no adverse impact on any linkage or connections between habitats, no consequential increase in the likelihood of human-wolf conflicts, and no adverse change to the prey base. There are no known dens or rendezvous sites in the project area, and the likelihood of direct effects is very low due to the low occurrence level of wolves.

The proposed action would not likely jeopardize the continued existence of the species or result in the destruction or adverse modification of proposed critical habitat because the prey base would be maintained (as shown by no decline in elk habitat potential), design features would avoid adverse direct and cumulative impacts (maintaining corridors and linkages, avoiding known den and rendezvous sites), and there would be no consequential change in the likelihood of human-wolf interactions. Although there is evidence of occasional use of the area by wolves, there has not been the consistent, repeated amount of use that would indicate pack activity.

SENSITIVE SPECIES

Fisher and Marten

No Action

Direct, Indirect and Cumulative Effects

The analysis area currently provides high quality fisher/marten habitat, and there would be no change in habitat conditions for fisher and marten. The amount of suitable habitat and the ability of the area to support fisher and marten would remain unchanged, therefore, this alternative would have no impact on fisher and marten ([Wildlife Report, pages 26-27](#)).

Proposed Action

Direct, Indirect and Cumulative Effects

The proposed action may impact individuals or habitat, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species ([Wildlife Report, page 27](#)). The proposed action meets the management guidelines described in *Fisher Biology and Management in the Western United States* (Heinemeyer and Jones, 1994), would not affect any suitable habitat for fisher and marten, and would not affect mature forest habitat. The most important factors for fisher and marten are the quality, amount and distribution of late successional forest habitat ([Wildlife Report, page 25](#)), and the proposed action does not change any of those factors. No cumulative effects on old growth (late successional forest habitat) are expected (see Old Growth section above) as a result of reasonably foreseeable activities (Table 4). The amount of young forest in the area would be reduced; but the proposed action would remain within the guidelines for "High Quality" habitat ([Wildlife Report, pages 25 and 27](#)), and young forest habitat is not as important for fisher and marten.

Wolverine

No Action

Direct, Indirect and Cumulative Effects

The No-Action Alternative would not change open road or trail density, percent of secure habitat, denning habitat, or elk habitat potential; so it would have no impact on wolverines. The territory size requirements, low elk habitat potential which could affect the prey base, lack of secure habitat, and the amount of existing access preclude the likelihood of other than incidental occurrence of wolverines within the analysis area ([Wildlife Report, page 28](#)).

Proposed Action

Direct and Indirect Effects

Because there is a lack of habitat within the project area, there would be no disturbance of potential natal denning habitat ([Wildlife Report, page 29](#)). Conditions for wolverines are unlikely to be affected by the relatively short-term disturbance during the duration of the timber sale ([Wildlife Report, page 29](#)). Foraging habitat for ungulates would be slightly improved as a result of the prescribed burning for fuel treatment ([Wildlife Report, page 29](#)).

Cumulative Effects

The proposed action may impact individuals or habitat, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species ([Wildlife Report, page 29](#)). The proposed activities are unlikely to affect wolverines due to the wide-ranging nature of wolverines and their relative lack of preference for special habitat. The proposed action would not cause any adverse cumulative effects because the prey base would be maintained, design features would avoid adverse impacts by maintaining corridors and linkages, foraging habitat would be slightly improved, and disturbance near natal den sites would be avoided. There would be no cumulative effects from reasonably foreseeable future activities (Table 4).

Northern Goshawk

No Action

Direct and Indirect Effects

This alternative would have no effects on the limited amount of capable nesting habitat, and there would be no change to foraging habitat conditions ([Wildlife Report, page 30](#)). There is no suitable habitat available within the analysis area. Although there is plenty of mature and old growth forest present, the steep slopes in the area and the amount of spruce-fir habitat limit the occurrence of capable habitat.

Cumulative Effects

There would be no impact on goshawk because this alternative would not change any of the important habitat conditions for goshawk. The ability of the cumulative effects area to support goshawk would remain very low because it is not a suitable home range ([Wildlife Report, page 30](#)).

Proposed Action

Direct and Indirect Effects

Steep slopes and the high amount of spruce-fir habitat in the area limit the occurrence of capable habitat for northern goshawk. The proposed action would not affect capable nesting habitat, and there is no suitable nesting habitat present in the project area. Through the salvage harvest some potential foraging habitat would be changed from open timbered immature sawtimber habitat to less valuable shrub/seedling openings. Given that the analysis area has a very low probability of supporting goshawks, this small change to the less important component of foraging habitat is inconsequential ([Wildlife Report, page 31](#)).

Cumulative Effects

The implementation of the proposed action would have no impact on goshawk ([Wildlife Report, page 31](#)). The extremely limited amount of capable nesting habitat and total lack of suitable nesting habitat present in the cumulative effects analysis area reduces the potential for adverse impacts on goshawk. A minimal decrease in lower quality foraging habitat in an area where goshawk are unlikely to be able to successfully nest means the proposed action would have little effect on goshawk. The ability of the area to support a pair of goshawks would remain very low (because of steep slopes and habitat types), and the proposed action would not change that. Past, present and reasonably foreseeable activities (Table 4) would have no cumulative effects because the area has a very low probability of supporting goshawks.

Black-backed Woodpecker

No Action

Direct and Indirect Effects

There would be little change from existing conditions. Capable and suitable habitat would continue to be available within the Broadaxe Project Area. The high levels of mature and old trees, coupled with the amounts of tree mortality from insect and disease indicate a trend of increasing habitat quality for black-backed woodpeckers. Succession would continue on mature timber stands improving their suitability as black-backed woodpecker habitat. Tree mortality through insect and disease agents is expected to persist at or above endemic levels, providing a continuing supply of feeding and nesting habitat ([Wildlife Report, page 32](#)).

Cumulative Effects

The No-Action Alternative would not reduce any suitable habitat; however, it would not create any potential habitat through burning. It would, therefore, have no impact on black-backed woodpeckers. Since the trend for continuing tree mortality through insect and disease agents is expected to persist, the amount and quality of suitable habitat would continue to increase and the project area's ability to support black-backed woodpeckers would improve over time ([Wildlife Report, page 32](#)).

Proposed Action

Direct, Indirect and Cumulative Effects

The proposed action may impact individuals or habitat, but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species ([Wildlife Report, page 32](#)). The proposed salvage units would make the treated stands lower quality habitat ([Wildlife Report, page 32](#)), however, the potential impacts on snags and down wood would be alleviated by the following factors. Areas outside of proposed treatment units would continue to provide snags and leave trees at existing levels in the short term, and the number of snags and down woody material in these areas would increase as stands succeed. Areas would be reserved from treatment within Inland Native Fish Strategy buffers. Snags would also persist in unloggable areas of the treated stands, i.e. terrain breaks or out of reach spots. The uncut ridgeline buffer would also maintain snags within the project area. The retention of some snags to provide coarse woody debris recruitment in the logging units would also contribute to the overall snag density in the analysis area. Green tree retention needs would be met as only lodgepole pine will be salvaged, leaving all other tree species on site ([Wildlife Report, page 10](#)). The broadcast burning proposed for slash treatment would have a likelihood of improving habitat for black-backed woodpeckers by providing fire-killed trees.

Black-backed woodpeckers are specialists in exploiting areas that were recently burned and rapidly utilize newly burned areas for feeding. Historically, mixed severity and stand-replacing fires produced new habitat annually in greater amounts than is presently produced under a fire suppression strategy. Mortality of some trees retained after harvest would offset the removal of suitable habitat trees to some degree ([Wildlife Report, page 33](#)). Sufficient habitat for black-backed woodpeckers would persist in the project area. Retention of snags at the proposed levels would maintain habitat value for black-backed woodpeckers (although at a lower level than existing) within treated stands. The high levels of mature and old trees, coupled with the amounts of insect and disease related mortality, indicate a trend of increasing habitat quality for black-backed woodpeckers. The amount and quality of suitable habitat should continue to increase. Old growth would be maintained at existing levels, and untreated stands would continue to age. The proposed action would not change access (Design Feature 13. d, page 9), therefore; the incidental removal of snags for firewood (Table 4) would not be significantly affected, and black-backed habitat would be maintained ([Wildlife Report, page 10](#)).

Flammulated Owl

No Action

Direct, Indirect and Cumulative Effects

The No-Action Alternative would have no impact on flammulated owls. There is no suitable habitat in the analysis area, and the potential of the analysis area to provide flammulated owl habitat would be unchanged with this alternative. There would be no management-created changes to habitat conditions for flammulated owls, and the increase or decrease in canopy cover resulting from normal growth and mortality would not make a measurable difference over the next 10 to 20 years ([Wildlife Report, page 34](#)).

Proposed Action

Direct and Indirect Effects

There is no suitable habitat in the analysis area, and the proposed action would not affect any capable flammulated owl habitat ([Wildlife Report, page 34](#)).

Cumulative Effects

According to the IPNF preliminary risk assessment the proposed action would have no impact on flammulated owls and have no risk to populations because the proposed action would not treat any capable or suitable habitat ([Wildlife Report, page 34](#)). Post-activity habitat conditions for flammulated owls would be essentially unchanged from the existing condition because no capable or suitable habitat would be treated.

The proposed action would not change access (Design Feature 13. d, page 9), therefore; the incidental removal of snags for firewood (Table 4) would not be significantly affected, and flammulated owl habitat would be maintained ([Wildlife Report, page 10](#)).

Western Toad

No Action

Direct, Indirect and Cumulative Effects

This alternative would have no impact on western toads because there would be no change to their habitat conditions ([Wildlife Report, page 35](#)). It is important for toads to be able to move among their seasonal habitats. The biggest potential barrier to their movement is roads. Steep road cuts can be a barrier to toads moving between seasonal habitats, and juvenile toads are vulnerable to being killed by motorized vehicles when they are dispersing from their natal ponds. The mesic nature of much of the forests of the IPNF indicate that toads have opportunities to find persistent small water sources for breeding and could successfully disperse.

Proposed Action

Direct, Indirect and Cumulative Effects

The proposed action may impact individuals or habitat but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species. The proposed action would result in only minor changes in timbered habitat, and habitat alteration from timber harvest have not been shown as causative agents for population declines. Habitat alterations from timber harvest have not been shown as causative agents for population declines. Given the minor amount of mesic timbered stands present and the lack of any ponds or wetlands, it is likely that breeding habitat is limiting for western toads in the project area. Riparian buffer zones would protect potential breeding habitat and timbered stands near water most likely used by toads. The nature of the proposed timber harvest units, mainly high elevation drier habitat types, makes it unlikely these stands would be important habitat for western toads. Some mortality could occur to adults and metamorphs along roadside ditches, but it is unlikely to be significant to the population as a whole because of the low traffic levels on forest roads and the high number of other opportunities for breeding habitat throughout the forests on the IPNF. The highest potential for mortality would occur on existing open roads adjacent to potential breeding habitat. Direct mortality from the proposed action is unlikely, and potential adverse effects would not significantly exceed existing levels of risks to the species ([Wildlife Report, page 35](#)).

The impacts from proposed federal actions under this alternative combined with current and future activities (Table 4) would not contribute appreciably to existing impacts and would not affect population viability ([Wildlife Report, page 36](#)).

MANAGEMENT INDICATOR SPECIES

Pileated Woodpecker

No Action

Direct, Indirect and Cumulative Effects

The No-Action Alternative would have no effect on pileated woodpeckers. Approximately 51% of the project area provides suitable habitat, and neither feeding nor nesting habitat is thought to be limiting. It would not reduce any suitable habitat, and the amount of higher quality habitat provided by old growth stands would persist in the area. Pileated woodpeckers are strongly tied to the availability of large snags for nesting and feeding. Large trees, canopy cover and the number and size of feeding sites are all important features of quality pileated habitat. Succession would continue on mature stands and improve their suitability for pileated habitat as tree size increases and snags continue to be produced ([Wildlife Report, page 38](#)).

Proposed Action

Direct, Indirect and Cumulative Effects

No treatment of any mature timber stands that constitute suitable pileated woodpecker habitat is proposed. Given the amount of insect activity in the area, the proposed action is not expected to have a major impact on feeding habitat. The project area would retain snags at levels that have been shown to maintain viable populations of cavity-dependent species ([Wildlife Report, page 38](#)).

Old growth would be maintained at existing levels, and untreated stands would continue to age and increase tree size. No cumulative effects on old growth are expected (see Old Growth section above) as a result of reasonably foreseeable activities. The trend for continuing tree mortality through insect and disease agents is expected to persist (Vegetation Report). The amount and quality of suitable habitat would continue to increase. The project area's ability to support pileated woodpeckers would improve over time. Based on the level of suitable habitat maintained (approximately 51% of the project area), it is not likely that this alternative would adversely impact pileated woodpecker populations. The amount of mature nesting and feeding habitat remaining, the design features (i.e. snag retention levels [Wildlife Report, page 10]), and prescriptions (i.e. lodgepole species designation) would maintain the suitability of the analysis area for pileated woodpeckers (Wildlife Report, page 39). Current and reasonably foreseeable activities (Table 4) would not affect pileated habitat. The proposed action would not change access (Design Feature 13. d, page 9), therefore; the incidental removal of snags for firewood (Table 4) would not be significantly affected, and pileated woodpecker habitat would be maintained (Wildlife Report, page 10).

Elk

No Action

Direct and Indirect Effects

The No-Action alternative would not change the existing conditions in the Broadaxe elk analysis unit which is a part of the larger elk habitat unit (EHU). The elk habitat potential (EHP) and amount of secure habitat would remain low, and the open road density would remain high (Wildlife Report, page 41).

Cumulative Effects

There are no reasonably foreseeable actions that would measurably affect elk habitat in the project area, and there would be no change in cumulative effects on elk with no action. The EHP for the Quartz Gold cumulative effects area would not be changed from the current level of .42 which is below the target level. The high open road densities and resultant low amount of secure habitat would continue unchanged under this alternative (Wildlife Report, page 41).

Proposed Action

Direct and Indirect Effects

In the Broadaxe Project Area the open-road density and the elk habitat potential would not change from existing conditions. Temporary gates would be used during activities to avoid establishing public use of system roads (Design Feature 13. g. and h.), and temporary roads would be completely recontoured when yarding operations are complete (Design Feature 8. d. II.). There would be a temporary increase in open road density during timber harvest activity. This would be a small increase in the area where the effects of disturbance from logging activity would be occurring. Post-harvest conditions for wildlife related to access (fragmentation, security, and vulnerability) would not be changed from the existing condition (Wildlife Report, page 14). In this elk analysis area there would still be essentially no secure habitat. The proposed prescribed burning would slightly improve forage conditions in the area (Wildlife Report, page 41).

Cumulative Effects

There are no present or reasonably foreseeable federal actions that would measurably affect elk habitat in the project area. The EHP for the Quartz Gold area would not be changed from the current below-target condition of .42. The high open road densities (2.8 miles/square mile) and resultant low amount of secure habitat (1,580 acres, 3.6%) would continue unchanged under this alternative. The proposed action would maintain existing conditions for elk in the project area (Wildlife Report, page 41).

CONNECTIVITY FOR WILDLIFE

No Action

Direct, Indirect and Cumulative Effects

The No-Action Alternative would not have any adverse effects on connectivity. Existing travel cover would be maintained, and conditions for wildlife movement and travel in the project area and larger cumulative effects analysis area would not be changed from the existing situation (Wildlife Report, page 14).

Proposed Action

Direct and Indirect Effects

Seven proposed units would be partially within identified travel ways. All existing canopy cover within the designated travel corridor would be retained except where skyline yarding corridors through the buffer in Units 1 and 2 would be needed. This activity will not exceed guidelines for openings in travel corridors, i.e. limited to one side of the ridgetop, less than 300 feet wide, less than 25 percent of the corridor (IDFG 1995). Temporary roads and roads temporarily opened for the timber sale are not in potential travel corridors. Opportunities for wildlife movement and travel would be maintained ([Wildlife Report, pages 14 and 15](#)).

Cumulative Effects

There would not be any further appreciable changes to existing permanent impediments to movement. The effects of past, present, and reasonably foreseeable actions would continue to affect and alter wildlife movement in and through the analysis area, but the area would still maintain corridors suitable for wildlife movement. Given the relatively limited amount of salvage harvest and road building proposed with this project, the design features, and the conscious efforts to minimize impacts through alternative design the proposed action would not have unacceptable, irreversible and irrevocable adverse impacts on connectivity ([Wildlife Report, page 15](#)).

UNIQUE CHARACTERISTICS OF THE GEOGRAPHIC AREA

No Action

There would be no changes to unique characteristics of the geographic area.

Proposed Action

The proposed action would not impact any known cultural sites ([Heritage Resources Report](#)). The project area does not contain any parklands, prime farmlands, wild and scenic rivers, or ecologically critical areas. There are no mapped wetlands in the project area, and unmapped smaller wetlands would have 100-foot buffers delineated during unit layout ([Watershed Report, page 20](#)).

FEDERAL, STATE, AND LOCAL AGENCIES CONTACTED:

- Benewah County (Idaho) Commissioners
- Shoshone County (Idaho) Commissioners
- Mineral County (Montana) Commissioners
- Idaho Department of Lands
- Idaho Department of Environmental Quality Surface Water Section
- Idaho Dept of Parks & Recreation
- Idaho Department of Fish and Game
- Idaho State Historic Preservation Office
- USDI Fish & Wildlife Service
- USDA Forest Service, Washington Office, Recreation Heritage & Wilderness
- USDA Forest Service, Superior Ranger District

TRIBES CONTACTED:

- Coeur d' Alene Tribe of Idaho
 - Nez Perce Tribe of Idaho
-