

United States Department of Agriculture  
Forest Service



# Stimson Access Project

## Draft Environmental Impact Statement

Priest Lake Ranger District  
Idaho Panhandle National Forests

August, 2001

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**STIMSON ACCESS PROJECT**  
Draft Environmental Impact Statement

Priest Lake Ranger District, Idaho Panhandle National Forests  
Pend Oreille County, Washington

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**ABSTRACT**

**The Stimson Access Project is a request from a timber company to access their private property through National Forest System lands. The application for access was submitted pursuant to the Alaska National Interest Lands Conservation Act (ANILCA). The need for the proposal derives from the requirement in ANILCA that the Forest Service grant landowners access to their lands when those lands are located within the National Forest boundary, when no other reasonable access exists, and the uses of the land planned by the landowner are determined to constitute "reasonable use and enjoyment." The project area for this proposal is located on National Forest System lands in Sections 4 and 8 of T36N, R45E, Willamette Meridian in the State of Washington. The Stimson Lumber Company land to be accessed is located in Section 5.**

**Three alternative courses of action have been developed to achieve these objectives. Alternative A would take no action and deny access across National Forests lands at this time. Alternative B would grant Stimson Lumber Company an easement about 4,000 feet (0.75 mile) in length by 66 feet in width on National Forest in Section 8. Alternative C would grant Stimson Lumber Company an easement about 2,500 feet (0.47 mile) in length by 66 feet in width. This easement would consist of two segments on National Forests land, a short portion in Section 4 and a longer segment in Section 8.**

**Alternative C is the Forest Service preferred alternative.**

**REQUEST FOR COMMENTS**

**We are requesting comments on this proposal and alternatives. Comments must be received at our office listed above no later than 45 days following the Notice of Availability of this Draft Environmental Impact Statement (DEIS) in the Federal Register. We anticipate the Notice to be published no later than August 4, 2001. Therefore, our final date for accepting comments will be September 17, 2001.**

# Stimson Access Project Environmental Impact Statement

## Summary

### Introduction

The Stimson Access Project is a request from a timber company to access their private property through National Forest System lands. The application for access was submitted pursuant to the Alaska National Interest Lands Conservation Act (ANILCA). The Stimson Lumber Company land is currently surrounded by National Forest System lands and no other roaded access exists. The project area for this proposal is located on National Forest System lands in Sections 8 and 4 of T36N, R45E, Willamette Meridian in the State of Washington. The Stimson Lumber Company land to be accessed is located in Section 5 (see EIS Chapter I, Figure 1, pg I-2).

### Purpose and Need for Action

The purpose of the proposed action is to provide Stimson Lumber Company reasonable access to their land in Section 5. The need for the proposal derives from the requirement in ANILCA that the Forest Service grant landowners access to their lands when those lands are located within the National Forest boundary, when no other reasonable access exists, and the uses of the land planned by the landowner are determined to constitute "reasonable use and enjoyment."

### Issues

Issues are concerns raised about the effect of a proposed action on the forest resources or the human environment that depend on the ecosystem where the proposal is to occur. For this analysis the following issues generated by the public, agencies, organizations, and the Forest Service were determined to be of sufficient concern to drive the development of alternatives, or were considered important for their value in analyzing effects.

**Issue: Effects To Grizzly Bear, Lynx, And Their Habitat** - Grizzly bear and lynx are both designated as Threatened Species and there are concerns that the proposed activities could potentially affect these species and their habitat. The project area is located within the Kalispell-Granite Grizzly Bear Management Unit (BMU). The Kalispell-Granite BMU totals 85,640 acres and is one of nine designated grizzly bear management units in the Selkirk Recovery Area. Grizzly bear habitat security in this BMU is achieved through road restrictions on 27 road systems. Within this BMU, habitat effectiveness is currently maintained at 78.5 percent during the spring season (March 15 - June 30), at 72.4 percent during the summer season (July 1 - September 10), and at 78.5 percent during the fall season (September 11- November 15). The project area is located entirely within the Sema Lynx Analysis Unit (LAU). The Sema LAU is 25,149 acres in size and includes a mixture of foraging, denning, and currently unsuitable habitats. Open and total road densities within this LAU are relatively low and pose a low risk of mortality for lynx. The issue indicators measured for these issues include: 1) acres of core and security grizzly bear habitat affected and 2) acres of suitable lynx habitat affected.

**Issue: Effects To Aquatic Resources and Bull Trout** - The Bull Trout is currently listed as a threatened species. There are concerns that road construction could affect sediment delivery and/or channel characteristics, negatively impacting water quality and fish habitat. The proposed actions are located in the western-most headwaters of the Sema Creek drainage. The entire Sema watershed includes just over 7,000 acres. Sema Creek is a tributary to the South Fork of Granite Creek, which ultimately joins the mainstem of Granite Creek, one of the larger tributaries to Lower Priest Lake. Based on preliminary field reviews in 1997, Sema Creek meets water quality standards for the State of Washington. Bull trout are native to most of the streams in the watershed. Although bull trout were likely historically present in the cumulative effects area they have not been documented this high up in the Granite Creek drainages. Adult bull trout were last reported in Sema Meadows (South Fork of Granite) in 1993, which suggests some spawning may be taking place. The issue indicators measured for these issues include: 1) quantity of sediment delivered to stream; 2) changes to channel morphology; 3) amount of riparian vegetation removed; 4) risk of sediment delivery from roads at stream crossings; and 5) number of culverts in fish-bearing streams.

**Issue: Effects To The Roadless Resource** - The proposed activity would occur within a portion of the South Fork Mountain Inventoried Roadless Area (IRA). The proposed action could affect the roadless character of this area. The South Fork Mountain IRA is somewhat circular-shaped area and is largely mountainous timberland, with elevations ranging from 3,200 feet at Sema Meadows to 4,600 feet on the divide between the Pend Oreille drainage and the Priest River drainage. The inventoried acres are approximately 5,410 on National Forest System lands and 1,120 on private lands for a total of 6,530 acres. The issue indicators measured for this issue include: 1) changes to natural integrity, apparent naturalness, remoteness, solitude, and special features and 2) acreage with roadless character within the South Fork Mountain IRA and the entire Roadless Area Complex.

**Issue: Effects To Threatened, Endangered, and Sensitive (TES) and Rare Plants** – There are concerns that proposed road construction could affect population viability of TES plants. Much of the project area is characterized by dense second-growth mixed conifer forest, with scattered pockets of older fire-scarred trees. No potential habitat for the Threatened species water howellia or Ute ladies'-tresses or the proposed Threatened Spalding's catchfly occurs in the project area. Of sensitive species and Forest species of concern, no suitable habitat for aquatic, deciduous riparian, peatland, dry forest, subalpine or cold forest guild species is present in the project area. Both proposed easements cross two drainages with well-developed riparian zones, but no sensitive plants are in areas of potential impact. The issue indicators measured for these issues include: 1) presence of populations and 2) acres of suitable habitat affected.

**Issue: Effects To Noxious Weed Invasion and Spread** - There are concerns that proposed road construction and use could spread existing weed infestations and/or cause the introduction of new weed invaders. Noxious and undesirable weeds are currently infesting several sites adjacent to the project area. Spotted knapweed, meadow hawkweed, goatweed, Canada thistle and oxeye daisy occur along Forest Road 308 on National Forest and privately owned lands. Infestations on National Forest lands adjacent to the project area have been managed for the last three years, using an Integrated Pest Management approach that includes hand-pulling and chemical treatments. Continued monitoring and management of weeds are planned, based on district

priorities and availability of funding. The issue indicators measured for this issue include: 1) presence and extent of known weed infestations and 2) acres of habitat susceptible to weed invasion.

**Issue: Effects on Soil Productivity** – There are concerns that road construction would affect soil productivity. Soils in the proposed easements are currently in a natural state (i.e. they are undisturbed because no management activities have occurred there). In their natural state, some soils are more productive than others, due to parent material, topography, and soil texture. The issue indicator measured is the amount of soil on National Forest lands taken out of production.

**Issue: Effects on Recreation Opportunities** – There are concerns that construction of a new road, although closed to motorized use, could alter the recreational use patterns or experience in the project area. The area surrounding the project area receives a moderate amount of dispersed recreation activities, including huckleberry and mushroom picking, hunting, and scenic drives while Road 308 acts as the main route to destination areas such as Petit Lake and the trailhead to Kalispell Rock. The only trail maintained for recreation purposes near the area is the Kalispell Rock Trail 370. Snowmobiling also occurs to the south of the project area, along the 308 road, although the road is not part of the groomed trail system and snowmobilers are not encouraged to use this area as it is a moose wintering range. Most recreation occurs along the road corridors. The issue indicator measured for this issue includes: Change in Recreation Opportunity Spectrum classification.

### **Alternatives**

Three alternatives were developed in detail to address the key issues. These alternatives include Alternative A, the No Action Alternative; Alternative B, the proposed action, which is to grant the easement as requested; and Alternative C, an alternative route. Additional alternatives that were developed but not considered in detail included: 1) location of the proposed access route in other locations; 2) helicopter logging; 3) land exchange with Stimson; 4) purchase of Stimson land; and 5) condemnation of the Stimson land. These alternatives were dropped from detailed consideration for reasons stated in the EIS (Chapter II, Alternatives Considered but Eliminated).

**Alternative A - No Action:** This alternative would deny Stimson Lumber Company access across National Forest lands at this time. This alternative is required by The National Environmental Policy Act (NEPA) to be considered, and provides the basis for which to compare effects of action alternatives. It does not meet the access requirements of ANILCA for reasons described in Chapter I.

**Alternative B - Proposed Action:** This alternative would grant Stimson Lumber Company an easement about 4,000 feet (0.75 mile) in length by 66 feet in width on National Forest in Section 8. This access would allow Stimson to construct a road that would be an extension of an already existing road on Stimson property in Section 9. Timber harvested within the right-of-way would be appraised by the Forest Service, removed by Stimson for road construction and decked, then sold by the Forest Service. This alternative meets the purpose and need for access required by ANILCA and the IPNF Forest Plan by granting the access as requested by Stimson Lumber Company.

**Alternative C – Preferred Alternative:** This alternative would grant Stimson Lumber Company an easement about 2,500 feet (0.47 mile) in length by 66 feet in width. This easement would consist of two segments on National Forest, a short portion in Section 4 and a longer segment in Section 8. This access would allow Stimson Lumber Company to construct a road that would be an extension of an existing road on Stimson property in Section 9. This alternative would also require an additional 0.28 miles of road construction on Stimson property in Section 9. Timber harvested within the right-of-way would be appraised by the Forest Service, removed by Stimson for road construction and decked, then sold by the Forest Service. This alternative meets the purpose and need for access required by ANILCA and the IPNF Forest Plan by granting the access as requested by Stimson Lumber Company.

This alternative is preferred because of the following reasons:

- 1) The easement is a shorter length on National Forest System lands.
- 2) The effects to several of the resources is less, as indicated by the following examples:
  - Affected acres of Grizzly bear core and security habitat on National Forest System lands are less.
  - Affected acres of Lynx habitat are less.
  - Amount of sediment delivered to the streams is less.
  - Amount of acres susceptible to noxious weeds is less.

As per Federal Regulations 36 CFR 251.114 (a), “In issuing a special-use authorization for access to non-Federal lands, the authorized officer shall authorize only those access, facilities or modes of access that are needed for the reasonable use and enjoyment of the land that minimize the impacts on the Federal resources. “

### **Environment Effects**

A summary of the environmental effects for the alternatives considered in detail is presented in Chapter II of the EIS under the section Comparison of Alternatives.

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# **CHAPTER I - Purpose And Need**

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## **Introduction**

The Stimson Access Project is a request from a timber company to access their private property through National Forest System lands. As a result, the Idaho Panhandle National Forests proposes to provide access to 640 acres of land owned by Stimson Lumber Company. The Stimson Lumber Company land is currently surrounded by National Forest System lands and no other roaded access exists. Access would be provided by granting authority to Stimson Lumber Company to construct and use a low standard road across National Forest System lands. The project area for this proposal is located on National Forest System lands in Sections 8 and 4 of T36N, R45E, Willamette Meridian in the State of Washington. The Stimson Lumber Company land to be accessed is located in Section 5 (see Figure 1, pg I-2).

## **Purpose And Need**

Access to Section 5 was originally requested in 1992, when the land was owned by Plum Creek Timber Company. Stimson Lumber Company purchased the land in 1996 and continued pursuing access. The application was submitted pursuant to the Alaska National Interest Lands Conservation Act (ANILCA). This act directs the Forest Service to grant landowners access to their lands when those lands are located within the National Forest boundary, when no other reasonable access exists, and the uses of the land planned by the landowner are determined to constitute "reasonable use and enjoyment."

Federal regulations require the Forest Service to review the intended use of the lands to be accessed and determine if the proposed use constitutes "reasonable use and enjoyment." The Forest Service has completed this review and has made a determination that the proposed use is reasonable. The basis of this review is presented below.

Federal regulations also require additional determinations and requirements related to granting access to assure that the action minimizes adverse effects to public resources. These requirements serve to narrow the scope of the proposed action and, therefore, constitute a portion of the purpose and need. Required determinations related to the proposed action are described below.

In consideration of the statutory and regulatory requirements described above, the primary purpose of this proposal is to meet the Agency's responsibility to provide access to the non-Federal land, and to do so in a manner that minimizes adverse effects on public lands and resources.

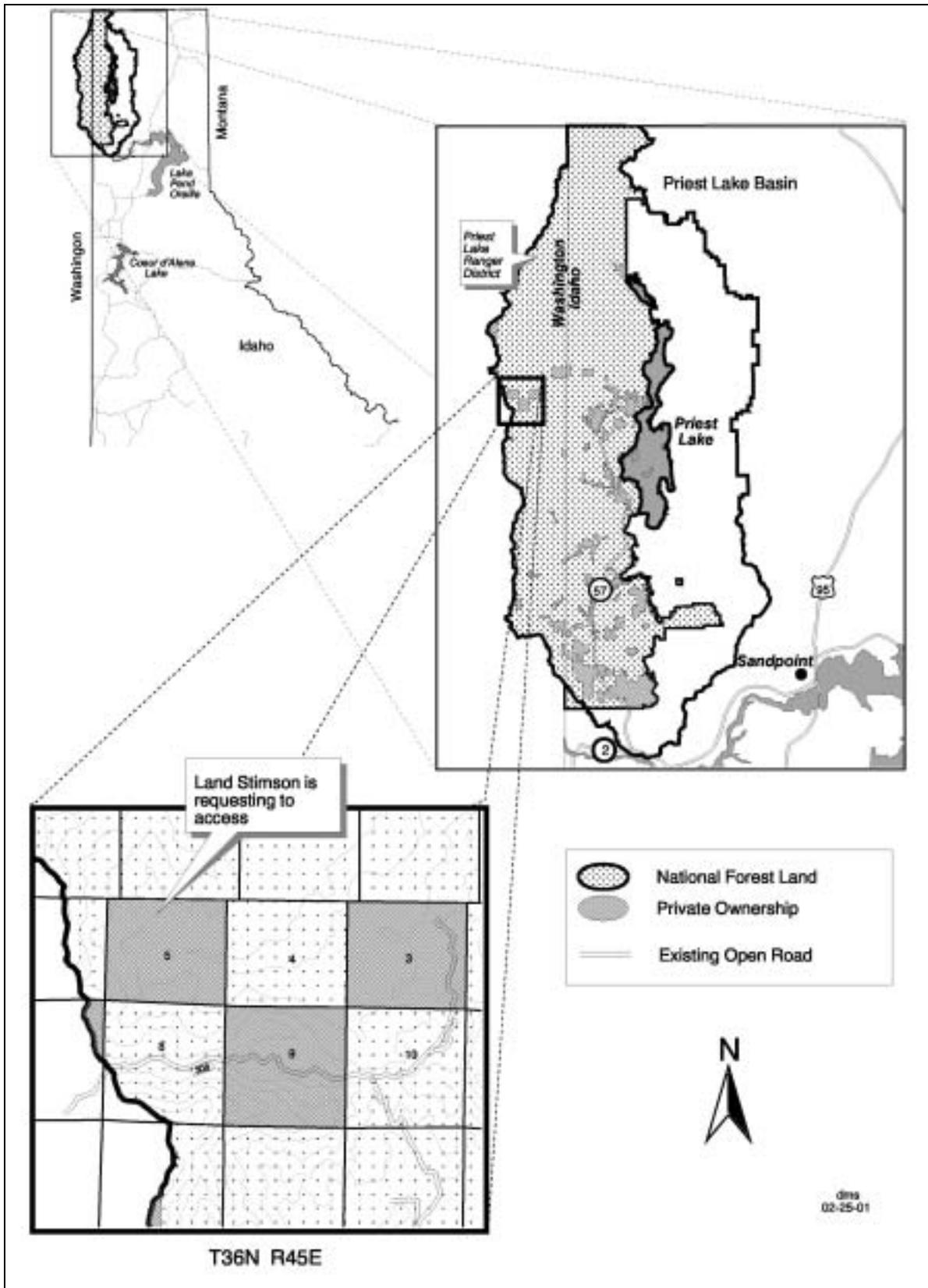


Figure 1. Vicinity Map of the Project Area

## Determination Of "Reasonable Use And Enjoyment"

Federal Regulations at 36 CFR 251.114(a) state:

"In issuing a special-use authorization for access to non-Federal lands, the authorized officer shall authorize only those access, facilities or modes of access that are needed for the reasonable use and enjoyment of the land and that minimize the impacts on the Federal resources. The authorizing officer shall determine what constitutes reasonable use and enjoyment of the lands based on contemporaneous uses made of similarly situated lands in the area and any other relevant criteria."

### **Contemporary Uses Made Of Similarly Situated Lands In The Area**

The majority of similarly situated forested lands in the area are currently managed for varying intensities of timber production. Major land owners in the area and management emphases associated with those ownerships are described below.

Stimson Lumber Company ownership in the Upper Granite Creek drainage consists of three sections or 1,920 acres of land in a checkerboard pattern with Idaho Panhandle National Forests lands (see Figure 1, pg I-2). Stimson Lumber Company is a private corporation. Management of its lands is focused on generating revenues from the resources located on them. Two of the Stimson Lumber Company sections of land are roaded and are managed for long-term timber production. In addition, there are numerous sections of Stimson Lumber Company lands in checkerboard pattern with Colville National Forest lands west of the Pend Oreille divide. These also are managed for long-term timber production.

To the northeast of the three Stimson Lumber Company sections in the Idaho Panhandle National Forests lies a section of land (Section 25) owned by Crown Pacific Lumber Company. This land has been and continues to be managed for long-term timber production.

Idaho Panhandle National Forests Lands surrounding the Stimson sections are managed for a variety of resources as described in land management allocations developed through the Forest planning process (USDA 1987 pp. III-2 to III-6 and pp. III-17 to III-22). While there are currently no plans for timber harvest, these lands are designated for timber production (MA-1), and for timber production within big game winter range (MA-4).

In reviewing the above conditions, it is the determination of the Forest that similarly situated lands in the Upper Granite Creek drainage are generally managed for long-term timber production utilizing conventional equipment requiring roads. Use of the lands to be accessed for these purposes is consistent with that of surrounding lands.

### **Other Relevant Criteria**

In determining whether the intended use of the Stimson Lumber Company lands constitutes "reasonable use and enjoyment", the Forest Service considered whether that use was likely to be consistent with laws and regulations applicable to those lands. Those laws include, but are not

limited to, the Washington Clean Air Act, the Washington Water Pollution Control Act, the Water Resources Act of 1971, and the Endangered Species Act. Stimson Lumber Company would be required to comply with all State and Federal laws and regulations applicable to private lands. Further information and rationale regarding these laws and regulations are documented in a letter from the deciding officer and located in the project file.

## **Other Determinations And Requirements**

### **Lack Of Other Reasonable Access**

Pursuant to Federal regulations at 36 CFR 251.114(f)(1), prior to issuing any access authorization, the authorizing officer must also insure that: *"the landowner has demonstrated a lack of any existing rights or routes of access available by deed or under State or common law."*

Section 5 is surrounded by National Forests System lands on all sides (see Figure 1, pg I-2). No existing road access is currently authorized by the Forest Service.

### **Minimizing Adverse Effects**

Pursuant to Federal Regulations at 36 CFR 251.114(f)(2), prior to issuing any access authorization, the authorizing officer must also ensure that: *"the route is so located and constructed as to minimize adverse impacts on soils, fish and wildlife, scenic, cultural, threatened and endangered species, and other values of the Federal land."*

The road locations described in the Proposed Action (Alternative B) and Alternative C were determined to be routes that minimize adverse effects to forest resources of concern. This determination was made after considering other possible routes and conducting preliminary analyses of effects associated with each potential road location. Refer to the section entitled Alternatives Considered But Eliminated in Chapter II for more information.

Section 7 of the Endangered Species Act (ESA) directs Federal agencies to ensure that actions funded or carried out by the agency are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modifications of their critical habitat. Under ANILCA, the Forest Service must authorize access that minimizes impacts on Federal resources while meeting all applicable laws and regulations of National Forest management, including the Endangered Species Act.

## **Compatibility With Land And Resource Management Plans**

Pursuant to Federal Regulations at 36 CFR 251.114(f)(3), prior to issuing any access authorization, the authorizing officer must also insure that: *"the location and method of access is as consistent as reasonable with the management of any congressionally designated area and is consistent with Forest Land and Resource Management Plans or the plans are amended to accommodate the access grant."*

Lands on which the route is proposed are allocated to management emphases that allow road construction and timber harvest. Therefore, location of the route as well as the method of access is compatible with the Idaho Panhandle National Forests Plan.

Additionally, Forest-wide Forest Plan direction includes the following: *“Private landowners will not be denied reasonable access to their property, if unavailable across private land, subject to compliance with applicable regulations and Forest Service policies.”* (USDA 1987, p. II-10).

The Idaho Panhandle National Forests Plan currently is being amended to incorporate the 1998 Interim Access Management Strategy for grizzly bears. The Idaho Panhandle and Kootenai National Forests were sued for adopting the direction of the 1998 Interim Access Management Strategy without amending their Forest Plans. The Forests settled the lawsuit and agreed to amend their respective Forest Plans to address grizzly bear access management. The schedule outlined by the settlement agreement requires completion of a Final Environmental Impact Statement (FEIS) for the Forest Plan amendment by February 2002. The amendment would incorporate the above direction as well as monitoring into each Forest Plan. This action is consistent with the methodology used in the Interim Access Management Strategy. If that strategy were modified, this action would be made consistent with those changes.

On January 12, 2001, the Roadless Area Conservation Rule was published in the Federal Register. This rule was to take effect March 13, 2001, and the implementation was later delayed until May 12, 2001. There were eight lawsuits filed against the Roadless Area Conservation Rule. On May 10, 2001, the Idaho District Court issued a preliminary injunction halting its implementation. Subsequent to that ruling, a “Notice of Appeal” was filed on the District Court’s issuance of the injunction. An anticipated decision on the appeal will occur in mid-July. This rule, if it would become effective, would supersede existing forest plan management direction. In either case, the proposed action would be consistent with the Roadless Area Conservation Rule. The rule allows for the continuation of activities associated with reserved or outstanding rights provided by statute or treaty as stated in the Forest Service Roadless Area Conservation FEIS Summary (USDA 2000, p. S-22):

*“These rights include, but are not limited to, rights of access provided in the [ANILCA] and highways rights-of-way granted over NFS lands under Revised Statute 2477. The most common type of access pursued in conjunction with these two prominent statutes is roaded access.”*

## **Proposed Action**

The Proposed Action considered in this analysis is designed to meet the purpose and need described previously in this chapter.

## **Granting Of Access**

The Forest Service proposes to grant Stimson Lumber Company long-term road access through a special use authorization. The type of authorization would be an easement. The easement would be authorized pursuant to the Forest Roads and Trails Act of October 13, 1964 (FRTA) or the Forest Land Policy and Management Act of 1976 (FLPMA). These acts authorize the Secretary of Agriculture to grant temporary or permanent easements for road rights-of-way over National

Forest System lands. Either easement could be used as the appropriate authorizing instrument when the applicant is a cooperator requesting permanent access outside a cost-share area for construction and use of a road that will not be part of the Forest Development System. The access route would be located as displayed on Figure 2, pg II 10. The easement width would be 66 feet and the estimated length is 4000 feet.

Once access is granted, Stimson Lumber Company would be responsible for the following:

- Removing all timber located within the clearing limits of the new road construction on National Forest lands. The timber would then be appraised and sold by the Forest Service.
- Constructing and maintaining a road to Forest Service specifications. Stimson Lumber Company would be required to construct the road in a manner that meets all federal requirements relating to public safety and protection of forest resources.
- Installing and maintaining all drainage structures on the road.
- Implementing and complying with all other design and mitigation measures specified in Chapter II for the selected alternative
- Keeping the road closed with a gate year-round to restrict motorized access.

## Implementation Date

Granting of the access would occur immediately following completion of the decision-making process. However the actual construction of the road would occur at a later time, once the Forest Service has approved the road construction plans.

## Terms And Conditions

Construction and use of the road on National Forest System lands would be subject to certain terms and conditions necessary to meet provisions of Federal Regulations, 36 CFR 251.56. These terms and conditions apply only to the road located on the easement and not to any roads or activities occurring on private land accessed by the easement.

The following terms and conditions will be applied to the construction and use of the road:

### **Purpose Of Use**

- Use of the road located on the easement will be limited to operational and administrative activities associated with long-term timber management on the private land. Use of roads for other purposes will neither be authorized nor denied within this decision.
- Activities related to long-term timber management occurring on the private lands are subject to all Federal, County, State and local laws and regulations under the jurisdiction of other agencies such as the Washington Department of Natural Resources, Washington Department of Ecology, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service and the Environmental Protection Agency. Use of roads located on the access route is authorized only for activities that comply with all laws and regulations applying to non-Federal lands, administered by these agencies.

## **Construction Standards**

- The road constructed on National Forest lands for this project would meet minimum Federal and State public safety standards and would protect federal resource values while supporting transportation of conventional timber harvest equipment and transportation of forest products from the site.
- The road would be constructed in accordance with plans, specifications, and written stipulations approved by a Forest Service engineer prior to the beginning of construction work. These design standards provide for the protection of soil and water as well as other resource concerns. The design criteria specified in Chapter II of this document also would be incorporated into the design and construction standards.

## **Scope Of The Proposed Action**

The scope of the Proposed Action is limited to authorizing the use of a long-term easement providing roaded access to Stimson Lumber Company land in Section 5, for uses related to long-term timber production. Use of roads located on the easement for purposes other than activities associated with long-term timber production are outside the scope of the Proposed Action and will neither be authorized nor denied through a decision related to this EIS. Application for additional use of roads located on the easement would require additional analysis and authorization consistent with ANILCA, NEPA, ESA and other appropriate laws and regulations.

The Forest Service has no authority to regulate or limit uses occurring on Stimson Lumber Company lands. The Forest Service may limit such use only to the extent of the terms and conditions placed on the use of the easement. Proposals to regulate activities occurring on non-federal lands are outside the scope of the Proposed Action.

This EIS describes actions on private lands that are "reasonably foreseeable" and are used to assess potential cumulative environmental effects (see "Reasonable Foreseeable Actions" below). Decisions related to these actions are outside the scope of the Proposed Action.

## **Scope Of The Environmental Analysis**

In accordance with the NEPA, it is the responsibility of the agency to assess the direct and indirect environmental effects resulting from an agency action as well as the cumulative effects of all connected, past, present and reasonably foreseeable actions. The following direct, connected and cumulative actions are considered in this EIS.

### **Road Construction On National Forest Land**

Direct and indirect effects of the federal action are limited to those resulting from the construction and use of a road in accordance with all provisions described in the Proposed Action.

## Timber Harvest And Road Construction On Non-Federal Land (Section 5)

Stimson Lumber Company proposes to use the road and long-term easement to conduct long-term timber management activities including timber harvest and using conventional yarding systems.

Following issuance of the easement, it is reasonably foreseeable that Stimson Lumber Company would construct roads within Section 5 and that timber would be harvested. Dependent on the issuance of the easement, the road construction and harvest activities probably would be initiated in 2001-2002. It is estimated that the logging would occur over a two or three-year period. The nature and timing of harvest activities and exact location and design of roads constructed on the non-Federal lands is outside the discretion of the Forest Service.

At this time, Stimson's proposal on their private property includes approximately 3.3 miles (15 acres) of new road construction. An estimated 27 stream crossings would occur. Site-specific road design features would be used including culvert sizing, armoring crossings, and relief culvert (Opp, personal communication, March 30, 1998; April 29, 1998; and June 1, 1998) to reduce the risk of sediment delivery. The roads would be closed to the general public, and open to only administrative motorized vehicle use for road maintenance, timber harvest, and associated projects such as noxious weed control, etc.

A majority of Section 5 would be harvested using a variety of silvicultural systems. An estimated 550 acres would be logged. A majority of these acres, 380 acres, would use partial or selective harvesting, which would remove 50-60 percent of the basal area of the stand. An overstory removal unit in which a majority of the larger overstory trees would be cut, would cover an estimated 30 acres; approximately 70 percent of the basal area would be removed in this treatment and would leave the smaller diameter trees. The remaining acres (an estimated 80 acres) would be an even-aged shelterwood or seedtree/clearcut silvicultural system in which seedtrees would be left to naturally regenerate the units. The harvest would remove an estimated 85 to 95 percent of the basal area in these units. Stimson plans to harvest all the acres using a ground-based tractor harvester. All harvesting, road construction, and other activities would be conducted in accordance with Washington Forest Practices (WAC 222) and other laws and regulations. No harvest activity would occur proposed on 59 acres in the southwest corner in the reasonably foreseeable future.

The effects analysis presented in this EIS is based on a reasonable scenario for these future activities and assumes that proposed harvest and road construction activities occurring on Stimson Lumber Company lands will comply with all State and Federal laws and regulations

Use of the projections of activities occurring on Stimson Lumber Company lands is for analysis purposes only. The Forest Service has no responsibility or authority to assure that activities occurring on non-Federal lands will occur as projected. Nor does the Forest Service have the responsibility or authority to assess or enforce compliance with laws outside its authority.

## Past Timber Harvest And Road Construction On National Forest Land

Timber harvest and road construction have occurred in the general area for decades. Existing roads and harvested areas affect resource conditions such as grizzly bear habitat and sediment

delivered to streams. The effects of these past activities have been considered in appropriate analyses.

## Present Timber Harvest And Road Construction On National Forest Land

No road construction or timber harvest activities are occurring on the federal lands where an easement could be granted. Within the broader cumulative effects analysis areas, particularly that used for grizzly bear habitat analysis, road construction and harvest activities are ongoing and specifically considered in that analysis. These include:

- *Dusty Peak Timber Sale.* This timber sale lies within the Kalispell-Granite Bear Management Unit (BMU) in T62N, R5W. B.M. The sale was sold in 1998, and will terminate in February 2003. The harvest activities were designed to occur largely in the winter, outside the time that bears would use the area. The road construction and a majority of the logging has been completed with four units remaining to be harvested. Post-sale activities including slash treatment, planting, road decommissioning, and noxious weed control will occur in 2001-2003. These post-sale activities would occur using administrative use guidelines established for the grizzly bear recovery area.
- *Art's Roadside Salvage.* This salvage sale lies in the general vicinity of the Dusty Peak timber sale adjacent to open system roads. No road construction was included as part of this salvage of dead and dying trees. The sale will be completed in 2001. Post-sale activities will include burning piles. The project has no effect on grizzly bear security or core habitat.
- *Bismark Timber Sale.* The Bismark Timber Sale lies in the extreme southern end of the Kalispell-Granite BMU. The sale was analyzed in the Douglas-fir Beetle Project FEIS (1999). The timber sale was sold in 2000, with harvest and post-sale activities scheduled for 2001-2003. Because of helicopter logging adjacent to the BMU, a habitat security deduction of 0.5 percent would occur during the spring, summer, and fall seasons during the period of helicopter operations. No road construction is included in this timber sale. Several of the units were logged in the fall of 2000. Currently, the timber sale is enjoined by the Ninth Circuit Court of Appeals and is being reviewed. Dependent on the ruling of the judge, the sale activities may resume in 2001.

## Other Present and Ongoing Activities On National Forest Land

Other activities that may be considered within cumulative effects analyses include ongoing recreation activities and maintenance activities on National Forest lands. These include:

- *Developed and important dispersed recreation sites.* These sites would include Petit Lake, Stagger Inn Campground and the Roosevelt Groove of Ancient Cedars, and Huff Lake Interpretive Center. These sites lie within the Kalispell-Granite BMU.
- *Indian Mountain Lookout.* This site is also located within the Kalispell-Granite BMU.
- *Snowmobile use and grooming.* Groomed snowmobile routes include Forest Roads 302 and 1362 within the Sema Lynx Analysis Unit (LAU). Other dispersed snowmobile use occurs within the LAU.
- *Recreation activities such as hiking, berry-picking, hunting, and firewood gathering.* These activities primarily occur on or adjacent to existing roads and trails. Firewood

gathering is restricted to existing open roads. Current recreation use is considered to be low.

- *Special use permit for outfitting and guiding services.* The Sema Creek drainage is included within an existing permit. The use level is seasonal and short-term, and primarily uses existing trails and roads.
- *Maintenance of open roads and high-use recreation trails.* These annual maintenance activities lie within corridors for which grizzly bear security and core habitat deductions already have been made. Road maintenance activities include brushing, grading, culvert maintenance, and drainage repair. Maintenance of trails would include brushing, sawing out downed trees, and minor repair of existing trail tread.
- *Maintenance of fire trails.* Periodic maintenance is done on existing fire trails within the Kalispell-Granite Bear Management Unit. These trails are unsigned, and receive low levels of use. Maintenance work includes brushing, sawing out downed trees, and minor tread repair.
- *Noxious weed treatments.* Noxious weed treatments will continue to occur on existing populations through the area. Populations are generally adjacent to open roads. All noxious weed treatments would be conducted according to guidelines in the Priest Lake Noxious Weed Control Project ROD and FEIS (1997).

## Reasonably Foreseeable Actions On National Forest Land

The following reasonably foreseeable actions on National Forest lands are considered within cumulative effects analyses in Chapter III commensurate with each resource analyzed and the cumulative effects area defined. There are no management activities planned on National Forest lands in the Sema Creek drainage except as discussed above. Two planned projects lie within the Kalispell-Granite Bear Management Unit. These include the following:

- *Granite-Reeder Fuels Reduction Project.* Portions of the Indian Creek and Reeder Creek drainages are included in the tentative project area boundary established for this project. This project was identified as a National Fire Plan project to reduce fuel accumulations adjacent to private lands and to reduce the risk of a wildfire affecting property and lives. No proposed action has been developed. The locations and types of treatment would be very speculative at this time as no analysis has occurred. No new system road construction is anticipated; any needed roads most likely would be temporary non-system. Preliminary work on an EIS is scheduled for the summer and fall of 2001. Implementation of project activities may commence in 2003.
- *Kalispell Timber Sale. Kalispell Creek Timber Sale.* This potential sale would be located in the Kalispell Creek portion of the BMU, and would focus on salvaging the dying trees and planting/rehabilitating the affected stands. There is high mortality in the white pine and ponderosa pine plantations that were established in the 1930s and 1940s. Though a proposed action was developed for this project in 1997, it would need to be substantially modified to incorporate updated resource information such as the Interim Access Management Strategy of the Interagency Grizzly Bear Committee and the Forest Plan amendment that would incorporate this strategy and other updated resource information. The existing proposed action is not consistent with that direction. A new proposed action would need to be developed prior to any further work on this project. If this project would continue, an EIS possibly would be prepared in 2002-2003 with

implementation potentially beginning in 2004. Any resultant action would be developed to be consistent with updated management guidelines for grizzly bears and other resources.

## Other Actions on Non-federal Lands (Cumulative Effects)

In addition to the proposed activities in Section 5 that would occur if an easement is granted, there are other past, present, and future actions on other non-federal lands within the cumulative effects areas for Threatened and Endangered Species which are included in the analysis of effects. These other non-federal lands include:

- *Section 7; T36N; R45E; W.M.* Section 7 lies to the immediate west of the project along the Priest-Pend Oreille Divide. A small portion of the section totaling 38 acres lies on the Priest side of the Divide. This parcel was included in the cumulative effects analysis for various resources. No activity is planned in the immediate future on this parcel.
- *Sections 3 and 9; T36N; R45E; W.M.* These two sections are owned by Stimson Lumber Company and lie immediately east of the proposed action. Portions of these sections were logged over the past five years and were included in the analysis of the existing environment for various resources including roadless and various wildlife species. Future harvest activity is planned in both sections in 2001-2003 with post-sale activities following the logging. No additional roads would be built.
- *Sections 1, 13, and 25; T37N; R44E W.M.* These Stimson sections are located on the Priest-Pend Oreille Divide northwest of the project area. Portions of the three sections lie on the Priest Lake side in the headwaters of the South Fork of Granite Creek. All three sections are located outside the Kalispell-Granite Bear Management Unit (BMU), and instead are situated in the LeClerc BMU. These three sections, however, lie within the Sema Lynx Analysis Unit (LAU). Past road building and harvesting has occurred in all three sections, which was included in the lynx analysis. The cumulative effects analysis also considered the additional harvest of approximately 180 acres in Section 1 between 2002 and 2006.
- *Section 25; T37N; R44E; W.M.* Section 25 is owned by Crown Pacific Timber Company. The section lies along the Idaho-Washington border. Logging and roading over the entire section occurred in the mid-1990s. A portion of this section possibly would be logged in the reasonably foreseeable future, and is included in the analysis of Kalispell-Granite BMU and Sema LAU.
- *Sections 31 and 33; T62N; R5W; B.M.* These partial sections are also owned by Stimson Lumber Company. Both sections were basically clearcut logged in the 1980s. Both sections lie within the Kalispell-Granite BMU and Sema LAU, and were considered in the cumulative effects analysis.

## Similar Actions

Similar actions are those which when viewed with other reasonably foreseeable or proposed actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography.

The Colville National Forest is currently evaluating a similar access request by Stimson Lumber Company across National Forest lands just west of the project area (Stimson ANILCA Access Easement FEIS, USDA 2000). This proposal lies within the LeClerc Bear Management Unit. This similar action has been considered where appropriate, in cumulative effects analyses and discussions within this EIS.

## Decision To Be Made

This analysis was conducted by an Interdisciplinary Team (IDT) of specialists representing various resources. A listing of the IDT is included in Chapter IV. As part of the analysis, the IDT considered public issues and concerns. This Environmental Impact Statement compiles and analyzes the resource information that the Deciding Officer, the Regional Forester of Region One, will use to make a decision on which alternative to implement.

After distribution of this DEIS for public review, the public will have 45 days to submit comments. Public comments will be reviewed and considered by the Deciding Officer prior to making a decision and issuing a Record of Decision. Responses to comments will be incorporated into the Final Environmental Impact Statement (FEIS).

As mentioned previously, the provision of ANILCA regarding access across National Forest lands to private lands narrowly limits the scope of the proposed action, as well as the range of reasonable alternatives. Consequently, it also narrows the scope of the decision for the Deciding Officer.

There are two elements of decision to be made. The first decision is essentially which access route, if any, to provide to Stimson Lumber Company. The decision must assure that “*the route is so located and constructed as to minimize adverse impacts on... [resource] values of the Federal land*” (36 CFR 251.114(f)(2)), and is consistent with all pertinent laws and regulations applicable to the management of National Forest lands. The other decision element to be made constitutes the reasonable terms and conditions that will apply to this access pursuant to 36 CFR 251.56.

## **CHAPTER II - Alternatives**

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### **Introduction**

Alternatives to the Proposed Action were created after soliciting and receiving public comments on the proposal. The interdisciplinary team evaluated the issues raised in public comments and then developed alternatives based on these issues, Forest Service issues and the Purpose and Need for the project. The next two sections describe the Public Involvement methods used and the issues that were raised. Details of the Proposed Action and the alternatives to it comprise the remainder of this chapter.

### **Scoping And Public Involvement**

Scoping is the process used by the Forest Service to identify the important issues associated with a proposed action. Scoping involves considerations by Forest Service resource specialists, consultation with County, State and other Federal agencies, Native American Tribes, and public input.

Public scoping for this project was initiated in October of 1997 with publication in the Idaho Panhandle National Forests Quarterly Schedule of Proposed Actions. In April of 1998, a letter announcing the initiation of an Environmental Assessment was mailed to 20 agencies, organizations and individuals interested in receiving project proposals. Two organizations submitted comments, and two more organizations and three individuals requested to continue receiving information. A consultation meeting with the Kalispel Tribe of Indians was held on July 22, 1998, and numerous phone and personal contacts have been made since then with the Tribe. The project has continued to be listed on the quarterly schedule since 1997 and was shown as “on hold” between January 2000 and January 2001 because of other District and Forest priorities such as the Douglas-fir Beetle outbreak.

In September 2000, a lawsuit was filed by Stimson Lumber Company because of the unreasonable delay in providing access to their land. Access to Section 5 was originally requested in 1992. A motion to stay proceedings was granted on January 18<sup>th</sup>; this stay directed the Forest Service to prepare an Environmental Assessment by February 28, 2001. On February 1, 2001, a new scoping notice was sent to 36 members of the public, tribes, agencies, organizations, and to those who commented or expressed interest previously. Because of the short timeframe allowed to complete the EA, a two-week comment period was established, ending on February 16<sup>th</sup>. A news release was sent to local newspapers and radio stations on February 6<sup>th</sup>. Articles appeared in the Spokesman-Review, Priest River Times, and the Bonner County Daily Bee that week. A total of 35 people contacted the Forest Service about the 2001 notice. Of these, 27 people, organizations and agencies submitted comments, and seven people, including four from news media, requested information.

On February 28, 2001, the Environmental Assessment for the Stimson Access Project was completed. On April 5, 2001, the 30-day review and comment period closed. We received 10 letters from individuals and organizations.

Based on recent Forest Service policy established in the Final Rule for the Forest Transportation System (36 CFR part 212), the decision was made to prepare an Environmental Impact Statement. According to the revised Forest Service Manual (FSM Chapter 7710) regarding Transportation Planning, an EIS will be prepared for all projects that propose road construction in inventoried roadless areas and the Regional Forester will be the Deciding Officer.

A Notice of Intent (NOI) to prepare an Environmental Impact Statement was published in the Federal Register April 30, 2001.

Concerns generated from the comments to the Environmental Assessment and following the issuance of the Notice of Intent are included in the issues described below. All comments received on the proposal to date were considered in the Environmental Assessment and are located in the project file.

## Issues

Issues are essentially concerns raised about the effect of a proposed action on the forest resources or the human environment that depend on the ecosystem where the proposal is to occur. For this analysis, the issues generated by the public, agencies, organizations, and the Forest Service are categorized into two types:

- **Significant issues** are those within the scope of the project and of sufficient concern to drive the development of alternatives, or are important for their value in analyzing effects. The issues are specific to this geographic area and proposal, and provide a good comparison between alternatives during analysis.

The IDT identified indicators for each issue to measure how the issue was affected by each alternative. Each issue may have more than one indicator, depending on its complexity. Issue indicators were selected for their ability to show the difference among alternatives.

- **Issues Not Addressed In Detail** are those that do not warrant further analysis because preliminary assessments showed that project activities or designs would have very limited or no effect on the resource of concern, or the issue was not relevant to the scope of the project.

Project activities are analyzed for their direct, indirect, and cumulative effects on the identified resources of concern. Direct and indirect effects focus on those effects to resources that could result from proposed activities. For this analysis, direct and indirect effects analyzed will focus only on those activities that occur on National Forest lands.

Cumulative effects consider the total effects of the proposal, along with past, present and reasonably foreseeable future actions on the resources. For this project, the Forest Service has limited the scope of analysis to proposed activities on Federal land and to those aspects of the reasonably foreseeable private actions that could have additive effects with the federal action. For those resources where direct and indirect effects are identified in analysis, cumulative effects will take into consideration the reasonably foreseeable activities proposed to occur on Stimson Lumber Company land as well as activities proposed on any other private or federal lands within each cumulative effects analysis area.

## Key Issues

**Issue: Effects To Grizzly Bear, Lynx, And Their Habitat** - Grizzly bear and lynx are both designated as Threatened Species. The proposed action falls within the Kalispell-Granite Grizzly Bear Management Unit (BMU). The granting of an easement would cause the direct loss of grizzly bear security and core habitat on National Forest lands. The proposed harvest and road construction on Stimson Lumber Company lands as well as other reasonably foreseeable actions on National Forest and private lands would result in a cumulative loss of security and core habitat. The Interim Access Management Strategy for grizzly bears also recommends that the open road density not exceed one mile per square mile over 33 percent and that the total density of two miles per square mile not exceed 26 percent of each BMU.

There are also concerns that the proposal could affect lynx denning habitat. The project area lies within the Sema Lynx Analysis Area (LAU). Suitable lynx habitat exists where the proposed easement would occur, and result in a direct or indirect loss of habitat. Cumulatively, the harvest actions on Stimson lands would reduce suitable lynx habitat. Other reasonably foreseeable actions within the LAU also would result in a cumulative loss of suitable habitat.

The other wildlife species issues that were not addressed in detail are discussed later in this chapter.

### *Issue Indicators Measured:*

- Acres of grizzly bear security habitat affected in BMU
- Acres of grizzly bear core habitat affected in BMU
- Percentage of open road and total road densities in the BMU
- Acres of suitable lynx habitat affected in LAU

**Issue: Effects To Aquatic Resources including Bull Trout and Westslope Cutthroat** - There are concerns that road construction on National Forest would directly or indirectly affect sediment delivery and/or stream channel characteristics, negatively impacting water quality and fish habitat. These impacts to aquatic resources may impact Bull Trout, currently listed as a threatened species, and westslope cutthroat, a sensitive species.

### *Issue Indicators Measured:*

- Quantity of sediment delivered to stream
- Changes to channel morphology
- Amount of riparian vegetation removed
- Risk of sediment delivery from roads at stream crossings
- Number of culverts in fish-bearing streams

**Issue: Effects To The Roadless Resource** - The proposed activities would occur within a portion of the South Fork Mountain Inventoried Roadless Area (IRA 1-124) as identified in the 1987 Forest Plan for the IPNF (Addendum to Appendices C, page C-22-31). The South Fork Mountain IRA is part of a larger Roadless Area Complex following the decommissioning of the Harvey-Granite Road in 1998. The proposed action would result in the direct loss of the roadless

character on National Forest lands. The proposed road construction and harvest activities on Stimson lands would cause additional cumulative loss of acres in the South Fork Mountain IRA.

*Issue Indicators Measured:*

- Changes in acreage with roadless character within the South Fork Mountain IRA and the Roadless Area Complex
- Changes to natural integrity, apparent naturalness, remoteness, solitude and special features of the South Fork Mountain IRA and the entire Roadless Area Complex

**Issue: Effects To Threatened, Endangered, and Sensitive (TES) and Rare Plants –**

Populations of TES plants and suitable habitat exist where the proposed easement would be granted. There are concerns that proposed road construction could directly or indirectly affect population viability of TES plants on National Forest lands.

*Issue Indicators Measured:*

- Direct or indirect effects to known populations of sensitive plants on National Forest lands
- Acres of suitable habitat affected on National Forest lands

**Issue: Effects To Noxious Weed Invasion and Spread -** There are concerns that the proposed easement for road construction and use could spread existing weed infestations and/or cause the introduction of new weed invaders on National Forest lands.

*Issue Indicators Measured:*

- Acres of habitat susceptible to weed invasion

**Issue: Effects on Soil Productivity –** The proposed easement and resultant road construction would cause the direct loss of soil productivity on National Forest lands.

*Issue Indicator Measured:*

- Acres of loss soil productivity on National Forest lands

**Issue: Effects on Recreation Opportunities –** There are concerns that construction of a new road, although closed to motorized use, would alter the recreational use patterns or experience on National Forest lands.

*Issue Indicator Measured:*

- Change in Recreation Opportunity Spectrum.

## Issues Not Addressed in Detail

These are resource concerns identified by respondents during scoping that are not relevant to the proposed action or have been satisfied in all action alternatives through project design and/or the use of management requirements or mitigation measures. There is no further discussion of these issues in this document. The following lists the issues and summarizes briefly why they are not addressed in detail. Further rationale and documentation are in the project file.

**Effects of Stimson Lumber Company’s activities on the forest resources within their private land boundary.** – This concern was expressed in responses to scoping. The Forest has no regulatory authority over actions on private lands, and there is no federal involvement in the private action (see Sylvester v. U.S. Army Corp of Engineers, 9<sup>th</sup> Circuit, 1989). In the case of access under ANILCA, the Forest Service’s discretion is limited to deciding the location and mode of access, but there is no discretion to decide whether access sufficient to secure the landowner the reasonable use and enjoyment of their land will be provided. Therefore, this issue is outside the scope of the Proposed Action.

**Applicability Of ANILCA To Lands Other Than In Alaska** – Some respondents to the scoping for this request have stated that the ANILCA is not applicable to lands in the lower 48 United States. Section 1323 (a) of the ANILCA specifically states:

*“Notwithstanding any other provision of law, and subject to such terms and conditions as the Secretary of Agriculture may prescribe, the Secretary shall provide such access to nonfederally owned land within the boundaries of the National Forest System as the Secretary deems adequate to secure to the owner the reasonable use and enjoyment thereof: Provided, That such owner comply with rules and regulations applicable to ingress and egress to or from the National Forest System.”*

This provision applies nationwide and the Forest Service has no discretion to deny access where the provisions of section 1323(a) of ANILCA are met (see Montana Wilderness Association v. U.S. Forest Service, 9<sup>th</sup> Circuit, 1981 and Adams v. United States, 9<sup>th</sup> Circuit, 1993).

Considering this provision of ANILCA, this issue has been eliminated from further analysis.

**Effects of New Road Construction on Heritage Resources** - Cultural resource surveys of the project area have been completed as directed by the Forest Plan (Appendix FF) and concurrence on the report’s determination has been obtained from the Washington Office of Archaeology and Historic Preservation. The concurrence letter is filed in the project file. One site was inventoried and deemed not eligible for the historic register. However, the site would be protected from project activities under both action alternatives through design features, and, therefore, would not be affected. Any cultural resource sites discovered during project activities would be inventoried and protected if found to be of cultural significance. Therefore, this issue has been eliminated from further analysis.

**Effects on Sensitive and Other Wildlife Species Habitat** – The following wildlife species are discussed in the Wildlife Affected Environment section of Chapter III but are not carried further into analysis due to minimal direct and indirect effects of the proposed action on National Forest lands: Northern gray wolf, woodland caribou, black-backed woodpecker, boreal toad, Northern

bog lemming, fisher, wolverine, moose, and forest land birds. Rationale stating why they are not analyzed further is stated in the Wildlife Affected Environment section and further documentation is located in the project file. Other wildlife species were not analyzed because there would be no measurable effect to their habitat. Rationale for eliminating these species from analysis also is located in the project file.

**Effects of New Road Construction on Rain-On-Snow Induced Peak Flows** – This concern was received during scoping. The access routes on National Forest land would not contribute to rain-on-snow induced peak flows because they are narrow linear features and do not create the expansive and unobstructed openings necessary to escalate peak flows. For these reasons, this issue has been eliminated from further analysis.

**Effects of Activities on Kalispell Creek** – This concern was expressed by a respondent to the scoping for this project. Proposed activities would not drain into Kalispell Creek; therefore, this issue was eliminated from further analysis. This issue is outside the scope of the analysis.

**Effects of New Road Construction on Scenic Qualities** – This comment was received during scoping. The effects of the proposed activities on scenic qualities on National Forest lands would be minimal and not visible from sensitive viewpoints. The area is designated as maximum modification in the Forest Plan, which means that the scenic integrity level refers to landscapes where the valued landscape character “appears highly altered.” For these reasons, this issue has been eliminated from further analysis.

**Effects of New Roadless Rule on Ability to Construct a Road in a Roadless Area** – Implementation of the Roadless Rule was enjoined by the court in May 2001 as discussed in Chapter I, and the decision was subsequently appealed. Whatever the outcome of the appeal, the Roadless Rule allowed for access requests to be honored under rights of access provided in the ANILCA, acknowledging that roaded access is the most common type of access (please refer to Chapter I – Compatibility with Land and Resource Management Plans). For this reason, this issue has been eliminated from further analysis.

**Effects of the Access Project on Increased Fire Risk** – Windrowing slash along the toe of the constructed road fill slope would not be expected to appreciably increase fire hazard on National Forest land. Activities on Stimson lands would comply with state and federal laws and regulations regarding disposal of logging slash and reduction of fire risk. For these reasons, this issue has been eliminated from further analysis.

**Proposed Easement Width Is Larger Than County Allowances** – County easement standards are not applicable to roads on National Forest lands. For this reason, this issue was eliminated from further analysis. This issue is outside the scope of the analysis.

**Effects of New Road Construction on Old-Growth** – Neither of the proposed access routes would pass through old-growth; therefore, this issue has been eliminated from further analysis.

**Effects of New Road Construction on Range** – There are no range allotments in or near the project area; therefore, this issue has been eliminated from further analysis.

**Effects of New Road Construction and Use on Air Quality** – Indirect effects of the proposal on air quality would be limited to minor amounts of dust production during use periods. Effects would be extremely local in nature and indistinguishable between alternatives; therefore, this issue has been eliminated from further analysis.

**Financial Costs of New Road Construction and Maintenance** – The only costs that would be incurred to the government due to the proposed action or alternative would be permit administration costs. Stimson Lumber Company would be responsible for financing the road construction and maintenance. Therefore, this issue has been eliminated from further analysis.

**Economic effects of road building on public land and the resulting damage to and loss of ecosystem values** – Under ANILCA, the Forest Service's discretion is limited to deciding the location and mode of access. There is no discretion to decide whether access sufficient to secure the landowner the reasonable use and enjoyment of their land will be provided. The potential loss of ecosystem values as a result of road construction on public land has been adequately addressed in the effects analysis of this document by assessing the effects of the proposed activities on wildlife species, plant species, water quality, recreation, and the roadless resource (please refer to Chapter III).

In addition, the Northern Region Forest Service publication Economic Analysis for Forest Plan Implementation (USDA 1989) provides guidance for determining the level of appropriate economic analysis for project-specific decisions. It states "[u]sually it is not appropriate to consider non-market effects in financial terms at the site-specific level. If the objective is to produce non-market outputs and market outputs are incidental, a cost effectiveness analysis determining least cost is usually sufficient".

**Economic Effects Of Not Allowing Access To Private Land For Timber Management** – The Forest Service is required by the ANILCA to provide access to non-federal land when no other reasonable access exists, and only has the discretion to consider the location and mode of access, subject to determining the reasonable use and enjoyment of the property (see Chapter I). Since the Forest Service does not have the discretion to prohibit access, this issue was eliminated from further analysis.

**Effects to Low Income or Minority Populations** – In 1994, President Clinton signed an executive order on Environmental Justice requiring federal agencies to consider the effects of conducting activities related to human health and the environment in a manner that does not discriminate or have an effect of discriminating against low income and minority populations. The executive order also specifically directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish and wildlife. During consultation with the Kalispel Tribe of Indians regarding this project, no direct or indirect effects to current subsistence practices on Federal lands were identified in either action alternative. However, the Tribe was concerned about the effects of timber harvest on botanical resources that occur in the Sema Meadows area on Stimson lands that would impact their ability to gather traditionally important plants within this area. These effects would occur on private lands outside the jurisdiction of the Forest Service. The action of the Forest Service to grant access is non-discretionary.

## Development Of Alternatives

Alternatives are generated to provide a reasonable range of actions that satisfy the Purpose and Need and to explore alternative courses of action to address identified issues. Due to the scope of this proposed action, the action alternatives are limited to considering only the least impactful alternate routes on National Forest lands that provide access to Stimson Lumber Company lands in Section 5. The connected action of timber harvest occurs on non-Federal lands, and therefore, silvicultural and scheduling options are outside the scope of the Forest Service proposed action.

Three alternatives were developed in detail to address the key issues. These alternatives include Alternative A, the "no action" alternative; Alternative B, the proposed action, which is to grant the easement as requested; and Alternative C, an alternative route. Additional alternatives that were developed but not considered in detail are discussed later in this section.

### Alternatives Considered In Detail

#### Alternative A - No Action

This alternative would deny Stimson Lumber Company access across National Forest lands at this time. This alternative is required by The National Environmental Policy Act (NEPA) to be considered, and provides the basis for which to compare effects of action alternatives. The No Action Alternative would not meet the access requirements of ANILCA because it would not provide access sufficient for the 'reasonable use and enjoyment' of the private lands.

#### Alternative B - Proposed Action

This alternative would grant Stimson Lumber Company an easement about 4,000 feet (0.75 mile) in length by 66 feet in width on National Forest in Section 8 (see Figure 2, pg II 10). This access would allow Stimson to construct a road that would be an extension of an already existing road on Stimson property in Section 9.

This alternative meets the purpose and need for access required by ANILCA and the IPNF Forest Plan by granting the access as requested by Stimson Lumber Company.

Once access is granted, Stimson Lumber Company would be responsible for the following:

- Removing all timber located within the clearing limits of the new road construction on National Forest lands. The timber would then be appraised and sold by the Forest Service.
- Constructing and maintaining a road to Forest Service specifications. Stimson Lumber Company would be required to construct the road in a manner that meets all federal requirements relating to public safety and protection of forest resources.
- Installing and maintaining all drainage structures on the road.
- Keeping the road closed with a gate year-round to restrict motorized access.
- Implementing and complying with all other design and mitigation measures specified in Chapter II for the selected alternative.

## **Designs and Mitigation Measures Specific to Alternative B**

### ***Features Designed to Protect TES and Rare Plants***

All currently documented sensitive plant occurrences would be buffered from any road construction or related activity. The easement as currently proposed under this alternative would be located at least 200 feet away from any sensitive plant populations.

*Estimated Effectiveness:* **high.** By locating the easement as proposed, protection of the documented occurrences of moonworts would preserve current habitat conditions and greatly reduce the possibility of incidental impacts to undetected individuals. Protection of the deerfern population would preserve current habitat conditions and eliminate the risk of impacts to the population.

### ***Features Designed to Protect Heritage Resources***

There is only one heritage site identified in the project area--the Sema Creek Trail #241. This site is not eligible to the National Register of Historic Places. However, the trail would be clearly marked where new road construction bisects it to aid in future identification of remaining trail sections.

*Estimated Effectiveness:* **high.** Trail markings such as blazes would ensure feasibility of locating the trail in the future.

## **Alternative C – Alternate Route**

This alternative would grant Stimson Lumber Company an easement about 2,500 feet (0.47 mile) in length by 66 feet in width. This easement would consist of two segments on National Forest, a short portion in Section 4 and a longer segment in Section 8 (see Figure 3, pg II-11). This access would allow Stimson Lumber Company to construct a road that would be an extension of an existing road on Stimson property in Section 9. This alternative would also require an additional 0.28 mile of road construction on Stimson property in Section 9.

This alternative meets the Purpose and Need for access required by ANILCA and the IPNF Forest Plan by granting the access as requested by Stimson Lumber Company.

Once access is granted, Stimson Lumber Company would be responsible for the following:

- Removing all timber located within the clearing limits of the new road construction on National Forest lands. The timber would then be appraised and sold by the Forest Service.
- Constructing and maintaining a road to Forest Service specifications. Stimson Lumber Company would be required to construct the road in a manner that meets all federal requirements relating to public safety and protection of forest resources.
- Installing and maintaining all drainage structures on the road.
- Keeping the road closed with a gate year-round to restrict motorized access.
- Implementing and complying with all other design and mitigation measures specified in Chapter II for the selected alternative.

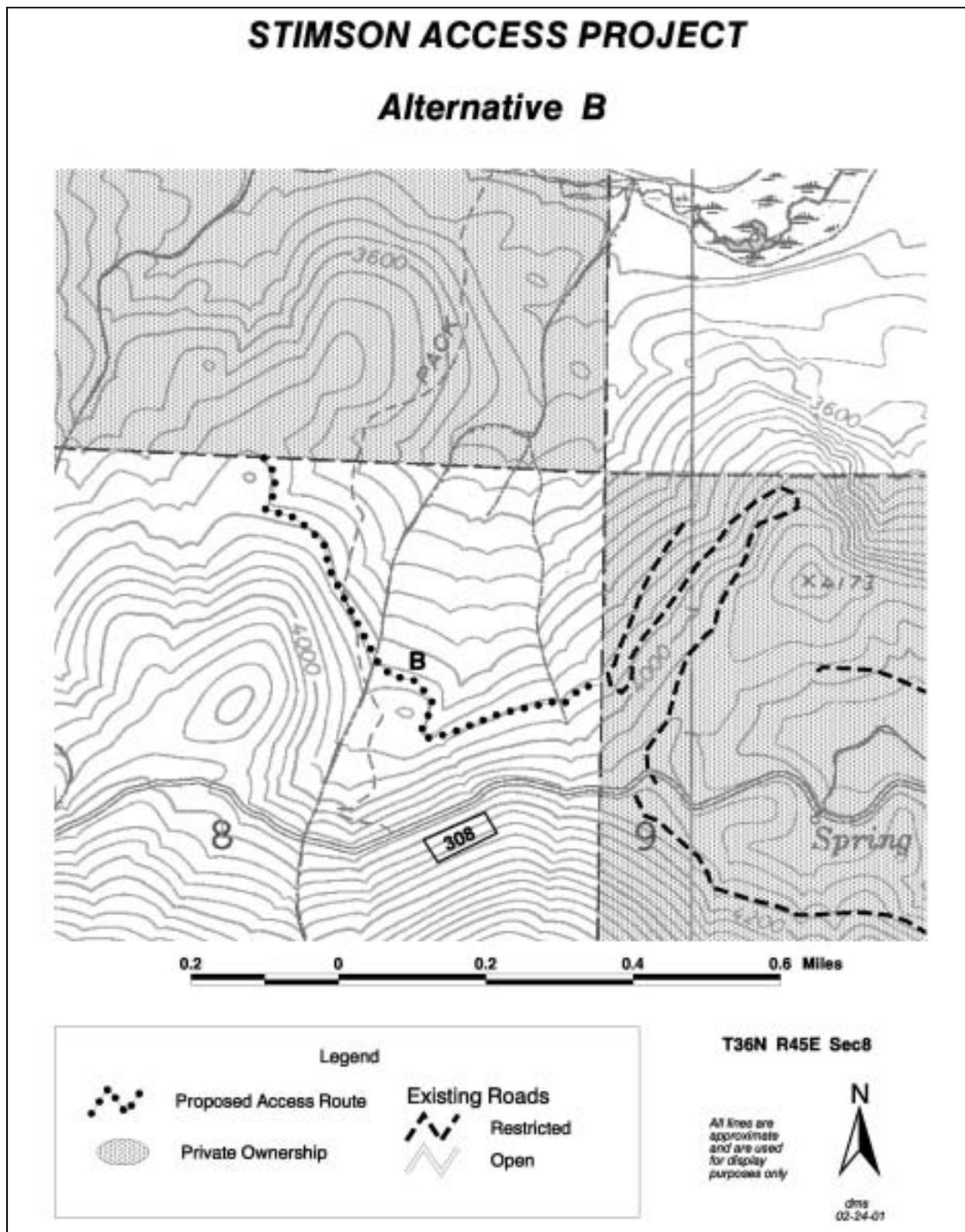


Figure 2. Map of Alternative B—the Proposed Action.

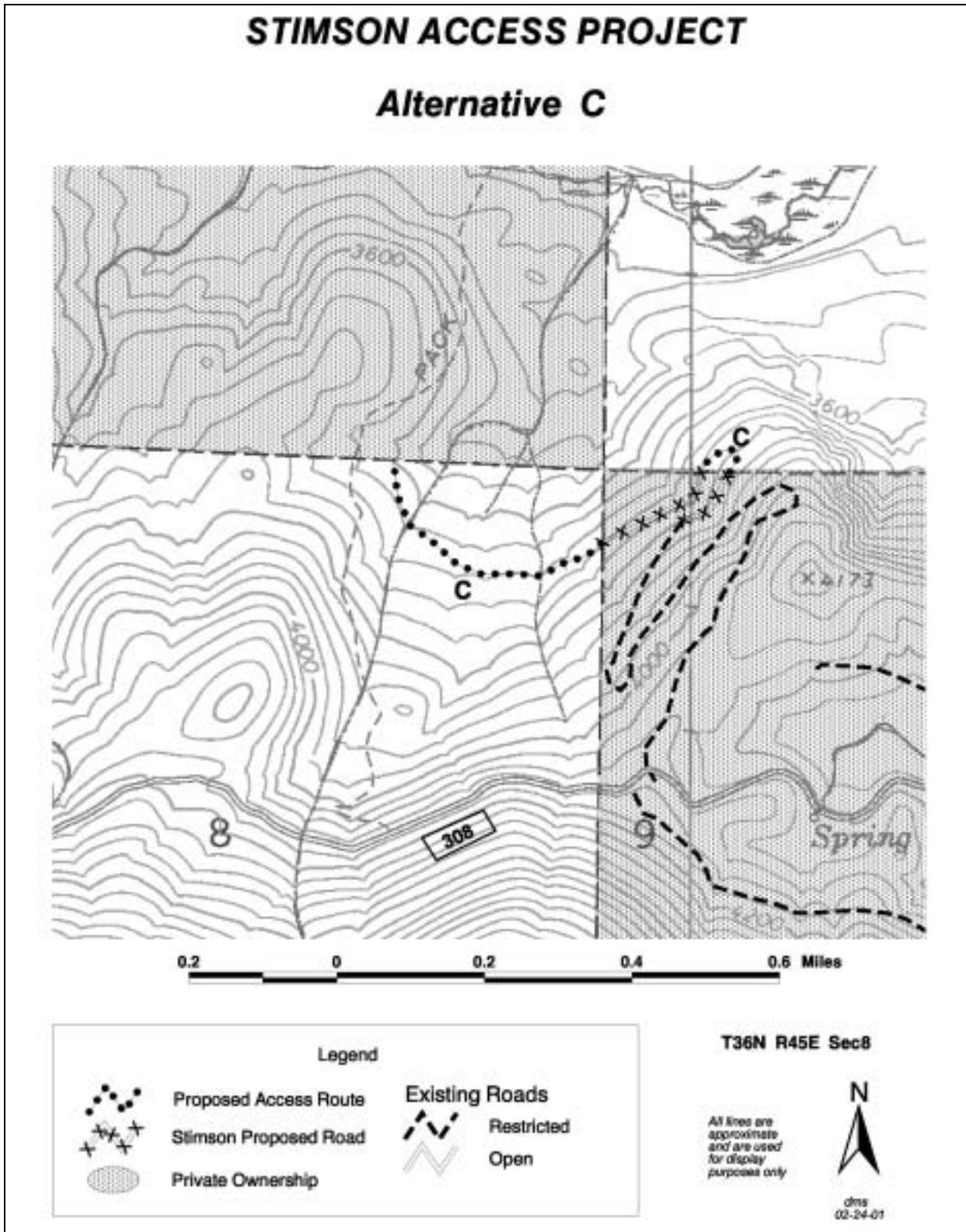


Figure 3. Map of Alternative C—the Alternate Route.

## Designs and Mitigation Measures Specific to Alternative C

### *Features Designed to Protect Wildlife*

**Lynx Denning Habitat** – Construction of the new road would not take place during the lynx denning period (April 1 through July 1).

Estimated Effectiveness: **high**. Avoiding activities during the critical denning period would reduce the likelihood that denning lynx would be displaced.

### *Features Designed to Protect TES Plants*

As much as is feasible, the easement would be relocated to provide an optimum 100 feet or more buffer of the known moonwort occurrence.

Estimated Effectiveness: **moderate to high**. The buffer would minimize, but not eliminate, the risk of indirect effects to the moonwort population and its habitat. While the occurrence would be protected from direct impacts, it is likely that individuals on the edge of the population would be impacted by increased light from canopy removal within the easement. A 100-foot buffer would provide adequate protection of the occurrence from “edge effect” by maintaining shading.

### *Features Common to Alternatives B and C*

The following designs and mitigation measures are to be implemented if Alternative B or C is selected.

### *Features Designed to Protect Threatened, Endangered and Sensitive (TES) Wildlife Species*

**Road Restrictions** – The newly constructed road across National Forest land would be closed to all non-authorized motorized vehicles, including those less than 40 inches in track width.

**TES Species Sightings** – any threatened, endangered, or sensitive species (including species proposed for threatened or endangered listing) discovered during use of the easement would be reported as soon as possible. For threatened, endangered or proposed species, a Forest Service biologist would implement immediate consultation, if necessary, with the U.S. Fish and Wildlife Service. For sensitive species, the Priest Lake District Ranger would be consulted. These consultations would determine if any site-specific measures would be needed to protect the species and/or its habitat.

### *Features Designed to Protect Soil, Water, and Fish Habitat*

**Inland Native Fish Strategy (INFS) Guidelines** - All INFS standards would be met (USDA 1995). Specific INFS measures applicable to this project include the following (INFS, RF-2, p. E-7 and RF-4, p. E-8):

- RF-2: For each existing or planned road, meet the Riparian Management Objectives and avoid adverse effects to inland native fish by:
  - Avoiding Sediment delivery to streams from the road surface (RF-2d):
    1. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe.
    2. Route road drainage away from potentially unstable stream channels, fills and hillslopes.
  - Avoid disruption of natural hydrologic flow paths (RF-2e).
  - Avoid sidecasting of soils or snow within RHCAs. (RF-2f).
  
- RF-4: All stream crossings would be designed and constructed to accommodate the equivalent of a 100-year streamflow event, including associated bedload and debris, where those improvement would pose a substantial risk to riparian conditions. Substantial risks include those that do not meet design and operation maintenance criteria, that have been shown to be less effective than designed for controlling erosion, that retard attainment of Riparian Management Objectives, or that do not protect priority watersheds from increased sedimentation. Construct and maintain crossings to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure. Crossings with a high risk of failure would be designed to pass flows without fill failure or significant erosion.

*Estimated Effectiveness:* **moderate**; in meeting these INFS standards the risk of delivery sediment to stream channels would be minimized (INFS 1995, Furniss 1991; Furniss, et al, 1998, pp. 1-13; Furniss, Love, and Flanagan, 1997, pp 1-11).

**Best Management Practices** - The use of Best Management Practices (BMPs), identified in the Memorandum of Understanding between the Forest Service and the State of Washington, ensures that non-point source pollution from Forest Service management activities meets state water quality standards established under Section 319 of the Clean Water Act. The objective of these measures is to minimize effects of management activities on soil and water resources. A list of the BMPs to be used for this project can be found in Appendix A. Several of these BMPs are referenced and supplemented by the additional design features discussed below.

*Estimated Effectiveness:* **moderate to high**; the BMPs would be incorporated into the road design for the proposed easement. A Forest Service engineer would monitor the road construction activities to ensure that the BMPs would be implemented. The effectiveness of each BMP is rated as discussed in Appendix A. Other publications (Seyedbagheri) also were used to estimate the effectiveness of the Best Management Practices.

*Additional Site Specific Protection Measures – In addition to BMPs and the INFS guidelines, the following design features and protection measures would be followed:*

**Ditchline, Cutbank and Fillslope Stabilization:** The following design criteria would reduce sediment delivery to streams:

- Ditchlines feeding into any stream cannot exceed 100-150 feet on either side of a channel or spring. All ditchlines within 150 feet on any live stream crossing would be lined with angular coarse rock greater than 3 inches to prevent ditchline erosion as per BMP 15.06-(c) and (d) on page A-11.
- Installation of additional relief culverts would reduce the amount of water and sediment carried by and eroded from ditchlines as per BMPs 15.02- (6) and 15.07-(a).
- All disturbed soils would be fertilized, seeded and mulched as soon as practical after initial soil exposure as per BMPs 15.06-(a) and (b) on page A-11. No fertilizer would be applied within 100 feet of any stream or spring. Exposed slopes within 150 feet of live stream crossings would be hydroseeded. For each acre of disturbed soils, the following would be applied:
  - 10 lbs. highlander slender wheatgrass
  - 10 lbs. Bromar Mt. Brome grass
  - 10 lbs. Sodar streambank wheatgrass
  - 5 lbs. Sandberg bluegrass
  - 60 lbs. of nitrogen
  - 60 lbs. of phosphorous
  - 40 lbs. of potassium
  - 20 lbs. of sulphur
  - 3 bales of certified weed free straw OR hydroseeding
- Exposed soils above culvert inlets would be stabilized using angular rock measuring no less than 10 inches diameter. This rock would be placed on the raw soils above the culvert inlets for as high as the soils are exposed and for at least the width of the contributing cutbank, OR on either side of the culvert for 5 times the width of the stream, whichever is wider.
- Slopes that are identified by a geotechnical engineer as being unstable would be stabilized using geogrid materials as per BMP on 15.06-(e) on page A-11.
- Road construction would not occur during wet periods when there is a high likelihood of erosion and sediment delivery as per BMPs 14.17-(8) and 15.19-(8) on page A-9 and 15.10(c) on page A-12.
- Clearing slash will be placed at the toe of the fill slope as a filter windrow as per BMPs 13.05 on page A-7; 15.02-(7) on page A-10; 15.10 and 15.18 on page A-12. Windrows slow the velocity of any surface runoff from the road, causing deposition of most sediments (Burroughs and King, p. 7). Windrows would not be built across stream courses and would have breaks every 100 feet to allow for wildlife movement. All windrows would be constructed to maximize the interception of sediment moving downslope.

*Estimated Effectiveness:* **high;** these measures would reduce sediment production and delivery by minimizing mass erosion and existing surface erosion near stream crossings. Coarse rock in the ditchline and culvert inlets would resist erosion (Elliot, et al., p. 9; Furniss, p. 10; Burroughs and King, pp. 13-15; Seyedbagheri, p. 43). Relief culverts are an effective way of reducing sediment into streamcourses (Seyedbagheri, p. 32-33, 43). Erosion control measures including fertilizing, seeding, and mulching would limit sediment generated from newly excavated sites (Burroughs and King, pp. 2-7; Seyedbagheri, pp. 46-47 and 50-52). Hydroseeding of cut and fill slopes can reduce sediment delivery up to 80% (Burroughs and King 1989). Restricting construction during wet periods would reduce sediment yields (Seyedbagheri, pp. 32 and 49). Slash filter windrows can reduce sediment delivery 75 to 85% (Cook and King 1983, p. 1; Burroughs and King, p. 7; Seyedbagheri, p. 36; pp. 59-60).

**Culvert Installation and Maintenance:** Specific design criteria to control sediment delivery during culvert installation and maintenance consist of the following:

- Standard erosion control measures during culvert installation such as temporarily diverting flow into a culvert, a plastic or rock-lined channel, pumping water below the site, or use of silt fences or hay bales would be used to minimize sediment transport downstream during culvert installation as per BMPs 14.17-(6) and (7); 15.19-(6) and (7), and 15.07(2) as discussed on pages A-8 and A-11.
- Ditch relief culverts would be installed at a skew of 3% perpendicular to the road grade and have a minimum of a 5% slope. This supercedes BMP 15.07-(2c) on page A-11. Placement of the culverts at a sloped angle would require less maintenance.
- Pipe locations would be marked with a flexible plastic marker to ease finding the pipes for future monitoring and maintenance.

*Estimated Effectiveness:* **high;** The prescribed BMPs in Appendix A which address standard erosion control measures during culvert installation would significantly reduce this risk of sediment delivery by controlling the water at the worksite and minimizing the contact of the water to the exposed soils (Seyedbagheri, p.33). Installing relief pipes at a skewed angle allows the pipe to be somewhat self-maintaining (Seyedbagheri, pp. 33 and 44). Clearly marking the location of the relief pipes and stream crossings would allow individuals assigned to regular maintenance to more easily locate pipes and track maintenance needs.

**Armoring Road Prism:** To minimize the amount of sediment that could be delivered from the road prism, aggregate surfacing would be placed at a depth of 6 inches over the more sensitive areas. These areas would be designated by a geotechnical engineer.

*Estimated Effectiveness:* **high;** high quality aggregate surfacing of native surface roads has been shown to decrease sediment production 70 to 84 percent (Elliot, et al. pp. 8-9; Swift 1984, Foltz and Truebe 1995, Burroughs and King, pp. 1-2;). Burroughs and King (p. 1) found that graveled surfaces produced an average of 79 percent less sediment than bare roads.

**Rolling the Road Grade:** Roll the road grade to disperse water from the road surface as often as possible as per BMP 1502.6-(5) and (6).

*Estimated Effectiveness:* **high;** graded rolling dips and drivable dips would reduce the amount of water that runs down the road surface (Seyedbagheri, p. 32; Furniss, Love, and Flanagan, pp. 8-11). This would reduce the loss of fine material from native and graveled surfaces. The potential for sediment production and delivery would be reduced because of the improved dispersion and re-infiltration of water.

### ***Features Designed to Protect Wildlife Habitat***

**Grizzly Bear Security** – Motorized vehicle access would be restricted on the proposed access roads when not being used by Stimson Lumber Company to manage their lands in Section 5. The existing SLC gate on their road in Section 9 serves this purpose. If the existing gate is opened for SLC management activities on their lands in Section 9, an additional gate or barrier would be required to effectively maintain this restriction on the proposed access route to Section 5.

*Estimated Effectiveness:* **moderate.** Monitoring has shown that gated road closures are effective in controlling most motorized access, but recognizes that limited breaching by off road vehicles still occurs within some areas (1999 IPNF Forest Plan Monitoring Report, pp. 20-21).

### ***Features Designed to Prevent Noxious Weed Invasion and Spread***

All equipment to be used for road construction would be washed before entering National Forest lands.

*Estimated Effectiveness:* **high.** Removal of soil potentially contaminated with noxious weed seed and of plant parts of noxious weeds would prevent the introduction of weeds via equipment into the area. This is a requirement as specified in the Integrated Weed Management approach as discussed in Forest Service Manual 2080, Region 1 Supplement No. 2000-2001-1.

Following road construction, the private landowner would be required to seed and fertilize cut and fill slopes with an approved, certified weed-free, native and desired non-native seed mix as described above. The private landowner would be required to monitor the road annually for noxious weeds (see Appendix B for the list of weeds) for three years following each period of use. Any noxious weeds found would be treated according to guidelines in the Priest Lake Noxious Weed Control Project Final EIS (USDA 1997). A monitoring and treatment report (and pesticide use report as applicable) would be prepared and submitted to the IPNF North Zone Weed Coordinator annually during each three-year period.

*Estimated Effectiveness:* **moderate to high.** The requirement to seed disturbed areas and monitor and treat weeds following periods of use has been found to minimize introduction and establishment of noxious weeds. The Priest Lake Ranger District currently treats Forest Roads 308 and 311 for weeds. Monitoring and treatment of the new road segment would complement efforts by the District to reduce weeds in the area. If Stimson does not treat weeds on the adjoining privately owned road segment in Section 9, effectiveness of the measures is estimated to be moderate. With monitoring and treatment by Stimson on the adjoining private road and on

the new road segment on National Forest lands, effectiveness of the measures is predicted to be high. The requirement to seed disturbed areas and to monitor populations also is specified in Forest Service Manual 2080, Region 1 Supplement No. 2000-2001-1.

### **Monitoring**

The Forest Plan documents a system to monitor and evaluate Forest activities. Monitoring is designed to gather the data necessary for project evaluation. During evaluation of project effectiveness, data gathered during monitoring are analyzed and interpreted. This process provides periodic data necessary to determine if implementation is within the bounds of the project design (Forest Plan, page IV-7).

The following monitoring items would be conducted if Alternative B or C were implemented:

**Grizzly Bear Security Monitoring**– Stimson Lumber Company would provide to the Forest Service at the end of each “bear year” (from March 15 to November 15) a listing of vehicle trips by date and activity type (i.e. survey, monitoring, maintenance, etc.). This monitoring would be used to validate the amount of grizzly bear security within the Kalispell-Granite Bear Management Unit, and would be report in the annual Forest Plan Monitoring Report.

**BMP Implementation and Effectiveness Monitoring** – The Forest Service would monitor the implementation of applicable BMPs (see Appendix A) and mitigation measures on National Forest lands. The monitoring would be documented in inspection reports that would be forwarded to the Washington Department of Ecology. BMP effectiveness would be monitored following at least one runoff season after BMP implementation. Monitoring activities would be conducted through the fifth year after project implementation, subject to availability of funding.

**Noxious Weed Monitoring** – Stimson Lumber Company would monitor their easement across the National Forest for noxious weeds for a term of three years following each period of use. A monitoring report would be submitted to the Priest Lake Ranger District annually during the three-year period. Should any noxious weed infestations be identified, those infestations would be treated according to guidelines in the Priest Lake Noxious Weed Control Project FEIS and ROD (USDA 1997). A weed treatment report, including a pesticide use report would be submitted to the Priest Lake District.

**Endangered Species Act Monitoring** - Per the January 19, 2001, Memorandum of Understanding between the Forest Service, Bureau of Land Management, National Marine Fisheries Service, and the Fish and Wildlife Service, the Forest Service would conduct monitoring needs on federal land that have been identified as necessary to determine the scope and scale of any effects that activities occurring on private land may have on federal land. Both parties (i.e. Forest Service and Stimson Lumber Company) would agree upon necessary monitoring activities during the consultation process with the U.S. Fish and Wildlife Service.

**Road Construction Monitoring** – During road construction activities on National Forest land, the Forest Service would monitor road construction activities as necessary. This implementation monitoring would ensure that project design and mitigation measures are implemented as planned.

## Alternatives Considered But Eliminated

During scoping, a number of action alternatives were generated by the Forest Service or suggested by commenters. The first four alternatives described below were developed by a Forest Service engineer and reviewed by the Interdisciplinary Team as feasible alternate routes to the proposed action; these routes would meet the Purpose and Need for Action as described in Chapter I. However, the impacts of these other alternative locations would cause more impacts to various resources as shown in the following discussion of these routes. Pursuant to ANILCA and federal regulations relating to access, it is the responsibility of the Forest Service to determine the location of access which minimizes adverse effects to resources. The remaining three alternatives were suggested by respondents in response to scoping. The reasons for dismissing these alternatives also are included for each proposed alternative.

Some alternatives were dismissed because they would result in greater adverse impacts to various resources than the proposed action (Alternative B) or Alternative C. Other alternatives were considered but were determined either to not meet the Purpose and Need for Action or were determined to be outside the discretion of the Forest Service to implement. A general description of each of these alternatives is provided, with an explanation of why they were not considered in detail. Further documentation is located in the project file.

**Section 3 Connection** – This alternative route would require an easement on National Forest lands to connect to Stimson Lumber Company's existing roads in T36N, R45E, Section 3. The easement would require 1.17 miles of road construction through the entire southern portion of National Forest lands in Section 4, and access in Section 5 in the southeast corner of the section.

This alternative would create a larger reduction in grizzly bear security and core habitat than Alternatives B and C since this proposed route is located further from currently open roads. Lynx denning habitat in Section 4 would be adversely impacted. This alternative would require crossing a tributary of Sema Creek at a wide floodplain, which would cause adverse impacts to the watershed and fisheries resource. The location of the crossing in the floodplain also has a high potential for sensitive plants. The South Fork Mountain Inventoried Roadless Area (IRA) would be reduced by several hundred acres of National Forest lands in this proposal. For these reasons, this alternative was dropped from further consideration.

**Section 9 Connection** –The Section 9 Connection Alternative would start on Stimson Lumber Company property in Section 9, would cross onto National Forest lands in Section 4, and basically follow the same route as the Section 3 Connection Alternative discussed above. An easement on National Forest lands would be required for construction of 0.93 miles of road. Stimson Lumber Company would need to build 0.14 miles of road on their property in this alternative.

The effects of this alternative would be nearly identical to the Section 3 Connection Alternative. This alternative would create a larger reduction in grizzly bear security and core habitat than Alternatives B and C since this proposed route is located further from currently open roads. Lynx denning habitat in Section 4 would be adversely impacted. This alternative would require crossing a tributary of Sema Creek at a wide floodplain, which would cause adverse impacts to the watershed and fisheries resource. The location of the crossing in the floodplain also has a

high potential for sensitive plants. The South Fork Mountain IRA would be reduced by several hundred acres of National Forest lands. For these reasons, this alternative was dropped from further consideration.

**North Access Section 31** - This alternative would allow Stimson reasonable access to manage their properties. This route would access Stimson lands in the northwest corner of Section 5 from an existing road on Stimson lands in Section 23. This route would require the longest easement with road construction of 1.86 miles on National Forest lands. The route would also be the most expensive to construct because of its length and would also increase the haul distance.

This alternative was dropped from further consideration because of a number of resource impacts. The most acres of the South Fork Mountain IRA would be affected. The alternative also would result in the greatest loss of acres of security and core grizzly bear habitat. Access through Section 31 would involve impacting the Selkirk Mountain Caribou Recovery Area by the construction of the road. Other wildlife species such as lynx and wolverine would have a higher potential of being affected because of the higher elevation of this route. The scenery resource also would be adversely affected because of the location of the road on the ridgeline.

**East Section 9 with Switchback** - This alternative route would connect to Stimson Lumber Company lands in the northeast corner of Section 9, cross National Forest lands into Section 4, and access the extreme southeast corner of Section 5. This route would require 0.78 miles of road construction on National Forest and 0.07 miles on Stimson Lumber Company property in Section 9. This alternative originally was developed by a Forest Service Engineer as a potential alternative to the proposed action. Because of its lower mileage, this route would be similar in cost to the proposed action and Alternative C.

This alternative was eliminated from detailed consideration because of adverse resource impacts. Similar to the proposed Section 3 and Section 9 Connection Alternatives discussed above, this alternative would require crossing a tributary of Sema Creek at a wide floodplain, which would cause adverse impacts to the watershed and fisheries resources and would have the potential of affecting sensitive plants and sensitive plant habitat. A larger loss of grizzly bear security and core habitat would occur in this alternative than the two action alternatives. Lynx denning habitat in Section 4 also would be adversely affected by the road location. Additionally, more acres of the South Fork Mountain IRA would be affected than would occur in either Alternative B or C. This loss would be slightly lower than the Section 3 and Section 9 Connection Alternatives discussed above.

**Helicopter Access** - This alternative would not require an easement across National Forest lands because no roads would be constructed. Therefore, no direct or indirect effects would occur, as no easement would be granted. Helicopter logging of Section 5 would be an alternative to using conventional harvest systems such as tractor and cable logging. The only access to the private property would be by helicopter. The reduction in the number of roads would reduce the effects to aquatic, soil, roadless, sensitive plants, and several wildlife species in the cumulative effects analysis area.

Although helicopter logging constitutes a technologically reasonable alternative, helicopter logging was not proposed by Stimson Lumber Company and the Forest Service has no authority to mandate such practices on non-federal ownerships. Besides being costly to Stimson Lumber Company, this alternative would not provide reasonable access to their private property for long-term management, which could include activities such as thinning, burning, planting, brush disposal, and additional timber harvest. Pursuant to ANILCA, the Forest Service must provide access to activities which constitute “reasonable use and enjoyment” of the lands by the landowner. The option of helicopter logging would continue to be available to Stimson Lumber Company if it is determined to be the most effective method of managing their land. For these reasons, this alternative was dropped from further consideration.

**Land Exchange** - In this alternative, Stimson Lumber Company would exchange their lands in Section 5, T36N, R45E for Forest Service lands in another location. The Forest Service pursued the possibility of a land exchange with Stimson following the initial request for access and in subsequent discussions. Documentation of the discussions regarding a land exchange is included in the project file. (Stimson letter 4/21/97; 5/9/97, 2/16/98. Clearwater Land Exchange 1/9/97)

One of the requirements necessary for the Forest Service to proceed with an exchange was for Stimson to acquire the subsurface rights to the land for which they were offering in trade. Stimson determined that they could not economically purchase these rights in the foreseeable future; therefore, they were not interested in pursuing an exchange (Stimson letter 2/19/99). In addition, with the onset of the Douglas-fir Bark Beetle outbreak and in later discussions Stimson was not willing to delay management activities on their land until such time as an exchange could be completed. Experiences with similar land exchanges currently proposed in Idaho show that exchanges can take years to complete and can be highly controversial. As stated in the lawsuit filed by Stimson Lumber Company against the Forest Service, the company wanted to gain immediate access to their lands under ANILCA. The Forest Service has no authority to force or require a land exchange with a private entity (36 CFR 251.110). Consequently, this alternative is beyond the scope of this EA. Moreover, this alternative would not meet the Purpose and Need as described in Chapter I.

The effects of this alternative would be identical to Alternative A, the No Action Alternative.

**Purchase of Stimson Land by Forest Service Through the Land and Water Conservation Fund** – This alternative was suggested as another way for the Forest Service to acquire the Stimson Lumber Company property. When discussing a land exchange with Stimson Lumber Company, they noted that they do not wish to decrease their land base. Company officials stated that purchase was not a viable option, and expressed their desire to maintain the company’s land and resource base (Stimson letter 4/21/97). Therefore, this alternative was eliminated from further consideration because it does not meet the Purpose and Need and is outside the discretion of the Forest Service to implement. The effects of this alternative would be identical to the No Action Alternative.

**Condemnation of Stimson Land for Eminent Domain** – Forest Service policy is to use condemnation procedures only when the land or interest in the land is essential for management or protection of National Forest resources and cannot be acquired by negotiation. Stimson

Lumber Company has said they are not interested in an exchange, sale, or conservation easement. (Stimson letter 4/21/97). To determine if the land is essential for management or protection of National Forest resources, the cumulative effects of project implementation were considered for the threatened species of grizzly bear, lynx and bull trout as well as for the roadless area resource. The determination of the effects analysis for grizzly bear, lynx, and bull trout was that planned activities on National Forest and private lands are “not likely to adversely affect” these species or their habitat (see project BA). For the roadless area resource the conclusion of the effects analysis was that as a result of management activities on National Forest and private land, the amount of roadless acreage within the roadless area complex would be reduced by less than 5% (see Chapter III). As a result of the effects analysis, the Forest Service has determined that acquisition of this land is not essential for management or protection of resources; therefore, this alternative was eliminated from further consideration.

The effects of this alternative eliminated from detailed study would be the same as for Alternative A, the No Action Alternative.

## Comparison Of Alternatives

**Table A. Summary of Significant Issues by Alternative**

Issue and Indicator(s)	Alternative A (No-Action)	Alternative B	Alternative C
<p><b>Effects to Grizzly Bear, Lynx, and their habitat</b></p> <p>Issue Indicators:                      1) <i>Acres of core and security habitat for grizzly bear affected</i></p> <p>2) <i>Percentage of open road and total road densities in BMU</i></p> <p>3) <i>Acres of suitable lynx habitat affected</i></p>	<p>1) No adverse effects to the grizzly bear or its habitat are expected.</p> <p>2) No change in open road and total road densities in BMU</p> <p>3) No adverse effects to the lynx or its habitat are expected.</p>	<p>1) Forest Service and Total Acres  <i>a) Core habitat affected: 151 and 794 acres, respectively.</i>  <i>b) Security habitat affected: 139 and 720 acres, respectively.</i></p> <p>2) No change in the percentages of open road and total road density on National Forest land.</p> <p>3) Forest Service and Total Acres of suitable lynx habitat affected: 6 and 345 acres, respectively, of low quality habitat affected.</p> <p>Implementation of this alternative would not be likely to adversely affect either grizzly bear or lynx.</p>	<p>1) Forest Service and Total Acres  <i>a) Core habitat affected: 127 and 798 acres, respectively.</i>  <i>b) Security habitat affected: 122 and 722 acres, respectively.</i></p> <p>2) No change in the percentages of open road and total road density on National Forest land.</p> <p>3) On National Forest about 2 acres of low quality foraging habitat and 1.8 acres of denning habitat would be affected. On private land 345 acres of low quality foraging habitat would be affected.</p> <p>Implementation of this alternative would not be likely to adversely affect either grizzly bear or lynx.</p>

Issue and Indicator(s)	Alternative A (No-Action)	Alternative B	Alternative C
<p><b>Effects to Aquatic Resources and Bull Trout</b></p> <p>Issue Indicators:</p> <p>1) <i>Quantity of sediment delivered to stream</i></p> <p>2) <i>Changes to channel morphology</i></p> <p>3) <i>Amount of riparian vegetation removed</i></p> <p>4) <i>Risk of sediment delivery from roads at stream crossings</i></p> <p>5) <i>Number of culverts in fish-bearing streams</i></p>	<p>1) No sediment delivered to streams from road construction and/or timber harvest activities.</p> <p>2) No changes in channel morphology would occur.</p> <p>3) No riparian vegetation removed.</p> <p>4) No risk of sediment delivery on National Forest and private land from management activities associated with the proposed action.</p> <p>5) No culverts to be placed in fish-bearing streams.</p>	<p>1) 1,090 lbs. of sediment predicted to be produced from road construction on National Forest land.</p> <p>2) Some changes in channel morphology to a first order tributary stream located on National Forest land. No changes in channel morphology to Sema Creek.</p> <p>3) 375 and 4,500 feet of riparian vegetation removed on National Forest and private land, respectively.</p> <p>4) On National Forest 4,000 feet of road with 5 stream crossings. On private land 16,000 feet of road and 20 stream crossings.</p> <p>5) No culverts to be placed in fish-bearing streams on National Forest and 1 culvert on private land.</p> <p>No effect to bull trout expected from activities on National Forest land.</p>	<p>1) 380 lbs. of sediment predicted to be produced from road construction on National Forest land.</p> <p>2) No changes in channel morphology to tributary streams and Sema Creek.</p> <p>3) 300 and 4,500 feet of riparian vegetation removed on National Forest and private land, respectively.</p> <p>4) On National Forest 2,500 feet of road with 4 stream crossings. On private land 16,000 feet of road and 20 stream crossings.</p> <p>5) No culverts to be placed in fish-bearing streams on National Forest and 1 culvert on private land.</p> <p>No effect to bull trout expected from activities on National Forest land.</p>

Issue and Indicator(s)	Alternative A (No-Action)	Alternative B	Alternative C
<p><b>Effects to the Roadless Resource</b></p> <p><i>Issue Indicators:</i>                      1) <i>Changes to natural integrity, apparent naturalness, remoteness, solitude, and special features</i></p> <p>2) <i>Acreage with roadless character within the South Fork Mountain IRA and the entire Roadless Area Complex</i></p>	<p>There would be no change to the existing condition of the roadless resources.</p>	<p>1) Natural integrity, apparent naturalness, and remoteness would be reduced in the southern portion of the roadless area. There would be other areas and viewpoints, however, where naturalness can still be found. Solitude within the area would be maintained in the long-term. Within Sections 5 and 8 special features would be reduced due to management activities.</p> <p>2) Management activities in Sections 8 and 5 would result in the acres from both of these sections no longer meeting roadless characteristics. Remaining roadless area, including Section 4 and the inventoried acres of the South Fork Mountain IRA, along with the Grassy Top Roadless to the north, would continue to meet roadless area characteristics.</p> <p>Acres: 4,528 in the South Fork Mountain IRA and 20,579 acres in the roadless complex.</p>	<p>1) Natural integrity, apparent naturalness, and remoteness would be reduced along in the southern portion of the roadless area. There will be other areas and viewpoints, however, where naturalness can still be found. Solitude within the area would be maintained in the long-term. Special features would be reduced within Sections 8, 5 and the southwest corner of Section 4.</p> <p>2) Management activities in Sections 8 and 5 would result in the acres from both of these sections no longer meeting roadless characteristics. A small portion of Section 4 would be affected in the southwest corner, resulting in a small area that would no longer meet roadless character. The remaining roadless area in Section 4 and the inventoried acres of the South Fork Mountain IRA, along with the Grassy Top Roadless to the north, would continue to meet roadless area characteristics.</p> <p>Acres: 4,527 acres in South Fork Mountain IRA and 20,578 in the roadless complex.</p>

Issue and Indicator(s)	Alternative A (No-Action)	Alternative B	Alternative C
<p><b>Effects to Threatened, Endangered, and Sensitive and Rare Plants</b></p> <p>Issue Indicators:  <i>1) Presence of populations</i></p> <p><i>2) Acres of suitable habitat affected</i></p>	<p>1) No adverse effects to sensitive plants.</p> <p>2) No suitable habitat affected.</p>	<p>1) No direct or indirect effects to known populations of sensitive plants; undetected individuals may be impacted.</p> <p>2) Approximately 0.3 acre of moist forest habitat and 0.1 acre of wet forest habitat would be permanently lost.</p> <p>Moderate cumulative effects overall to sensitive plant species.</p>	<p>1) No direct effects to known populations of sensitive plants; indirect effects could occur to one population of moonworts if easement location cannot be moved. High likelihood that individuals will be impacted.</p> <p>2) Approximately 1.0 acre of moist forest habitat and 0.1 acre of wet forest habitat would be permanently lost.</p> <p>Moderate cumulative effects overall to sensitive plant species.</p>
<p><b>Effects to Noxious Weed Invasion and Spread</b></p> <p>Issue Indicators:  <i>1) Presence and extent of known weed infestations</i></p> <p><i>2) Acres of habitat susceptible to weed invasion</i></p>	<p>No effect on weed spread or introduction. Management activities associated with the proposed action would not be implemented.</p>	<p>1) A risk of spread of existing infestations during road construction and use. The risk would be mitigated by requirements to seed/fertilize cut and fill banks and to monitor and treat weeds (see Features Common to All Action Alternatives)</p> <p>2) Approximately 6 acres would be susceptible to new weed invaders</p>	<p>1) A risk of spread of existing infestations during road construction and use. The risk would be mitigated by requirements to seed/fertilize cut and fill banks and to monitor and treat weeds (see Features Common to All Action Alternatives)</p> <p>2) Approximately 3 acres would be susceptible to new weed invaders</p>

Issue and Indicator(s)	Alternative A (No-Action)	Alternative B	Alternative C
<p><b>Effects on Soil Productivity</b></p> <p>Issue Indicator:</p> <p><i>1) Acres of loss soil productivity on National Forest lands.</i></p>	<p>1) There would be no change in current soil productivity conditions, because management activities associated with the proposed action would not be implemented.</p>	<p>1) Approximately six acres of National Forest lands would be directly impacted by road construction.</p>	<p>1) Approximately three acres of National Forest lands would be directly impacted by road construction.</p>
<p><b>Effects on Recreation Opportunities</b></p> <p>Issue Indicator:</p> <p><i>1) Changes in Recreation Opportunity Spectrum classification</i></p>	<p>1) No changes in the Recreation Opportunity Spectrum.</p>	<p>1) No changes in the Recreation Opportunity Spectrum expected as a result of management activities.</p>	<p>1) No changes in the Recreation Opportunity Spectrum expected as a result of management activities.</p>

# **CHAPTER III - Affected Environment and Environmental Consequences**

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## **Introduction**

This chapter presents two levels of analysis for each resource issue described: the existing conditions within each resource's affected environment, and the potential effects of the alternatives on each resource. The Affected Environment section provides general information about the resource described and establishes a baseline against which effects of the alternatives may be compared. The Environmental Consequences section discloses the potential direct, indirect, and cumulative effects of the alternatives on each resource.

In this analysis, direct and indirect effects are described for those activities that are proposed to occur on National Forest lands. Cumulative effects consider the effects of past, present and reasonably foreseeable activities of both Federal and non-Federal, in addition to the direct and indirect effect of proposed project activities. Each resource analyzed has a defined cumulative effects analysis area, which may be different for each resource.

## **Wildlife**

### **Regulatory Framework**

The regulatory framework providing direction for the protection and management of wildlife habitat comes from the following principal sources:

- The Endangered Species Act of 1973, as amended
- The National Forest Management Act of 1976 (NFMA)
- The Idaho Panhandle National Forests (IPNF) Forest Plan (1987)

Section 7 of the ESA directs federal agencies to ensure that actions authorized, funded, or carried out by the agency 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 National Forest Management Act (NFMA) provides for balanced consideration of all resources. It requires the Forest Service to plan for diversity of plant and animal communities. The Act also directs the Forest to select Management Indicator Species (MIS) to help assess the impacts of land management decisions on the wildlife resource. The MIS concept assumes that by maintaining viable MIS populations, viable populations of existing and desired species will also be maintained for other wildlife species that have similar habitat requirements.

The Forest Plan, in compliance with NFMA, establishes forest-wide management direction, goals, objectives, standards, and guidelines for the management and protection of wildlife habitat

and species, including old-growth habitat, management indicator species, sensitive species, and threatened and endangered species.

Direction concerning implementation of the ESA and NFMA also can be found in Forest Service Manuals (FSM) and various letters of memoranda from the Washington Office, the Northern Region Office, and the Supervisor's Office.

## **Affected Environment**

### **Habitat Characterizations**

Wildlife populations are tied to a mosaic of vegetation patterns that continually shift in response to ecosystem processes and disturbance agents. Without disturbance, such as fire, vegetation follows a predictable sequence of change called succession. As vegetation moves through each sequence of change, wildlife species shift accordingly.

Each species possesses a certain successional strategy. Some species are adapted to early stages of forest succession, while others are more suited to late stages (mature and old-growth forests). Habitat changes result in population increases or decreases, depending on the species. Therefore, wildlife populations and habitats are constant over time.

Forest landscapes periodically experience large and small natural disturbances (e.g. fires) that interrupt this sequence of change and form a base from which habitat is fashioned. Large disturbances can cause dramatic shifts in populations in specific areas; however, populations are maintained throughout their range by these somewhat random disturbances, which keep some areas in each successional stage. (Oliver 1992).

Prior to European settlement, human impacts to wildlife habitat were minimal. Wildfires, Native American fires, and insect and disease outbreaks were the major processes affecting habitats in the assessment area. Low-intensity, frequent fires maintained open understories in ponderosa pine and drier Douglas-fir habitats. According to the North Zone Geographic Assessments (USDA draft in progress) western white pine, ponderosa pine and western larch forests were historically more abundant than today. They provided important habitat for cavity-nesting birds, bats, bears, and other wildlife that use large snags and downed logs. In contrast, medium to large and mature trees were less abundant historically. The number of acres of shrub, seed, sapling, and small pole stands were similar to current conditions.

### **Old and Mature Forests**

Many wildlife species occurring on the IPNF prefer or only occur in mature and old-growth forests. Mature and old forests are likelier than younger forests to provide habitat for species that prefer large trees, structural and biological diversity and closed canopies and/or depend on snags or downed logs for nesting, foraging or raising their young. Current structurally immature stands (i.e. young forests) could provide old-growth habitat over time if not disturbed or if managed to maintain large, old, diseased and dead structural components within levels needed to provide suitable habitat.

Old-growth and mature forest stands have been reduced in amount and patch size across the IPNF. The Columbia Basin Assessment lists species considered at risk associated with natural structural conditions of old and mature forests (e.g. such as open-grown ponderosa pine). Some of these include the flammulated owl, boreal owl, Vaux's swift and Lewis' woodpecker. Most Forest Service sensitive species are associated with late-successional habitats or with habitats and cover types in short supply, such as cottonwood communities.

### ***Dry Forest Habitats***

Dry forest habitats have evolved with frequent (every 20-35 years), low-intensity ground fires. To protect human developments and future timber resources, fires have been suppressed over the past century. This practice has allowed smaller shade-tolerant trees to become established under the canopy of the dry site species such as ponderosa pine. Thus, the structure of what was traditionally open-grown forest has become dense multi-canopied forest with more tree species diversity and greatly increased crown fire hazard.

Some wildlife species prefer open, dry forests with large trees. Examples include flammulated owls, pygmy nuthatches, white-headed woodpeckers, western bluebirds and Lewis' woodpeckers. Forests that have developed a dense understory of grand fir or other shade-tolerant conifers are no longer suitable for these birds. Some species, including northern goshawk and flammulated owls, prefer gentle slopes to steeper sites in these dry forest habitats.

### ***Snags and Dead, Downed Woody Habitat***

Over 40 wildlife species depend on snags (dead trees) for their forage or cover, or for a place to raise their young. Several sensitive species nest in snags, including boreal owl, flammulated owl and black-backed woodpecker. Black-backed woodpeckers also feed on insects in snags. Snags provide den sites for fishers and other mammals, and roosts for several species of bats and owls. Large diameter snags provide habitat for the greatest variety of cavity users and remain standing longer than smaller snags.

Not all species of snags are used by all snag-dependent wildlife species, and some tree species appear to be more important than others. Ponderosa pine, larch, and cedar are favored by snag-dependent species and tend to last longer than other species. In one study in northwestern Montana, cavity nesters clearly preferred western larch even though Douglas-fir was five times more abundant (McClelland et al. 1979, p. 480). Such species as grand fir, hemlock, and Douglas-fir decay more rapidly after they die and fall to the forest floor. Many birds that nest in snags promote forest health by controlling forest insect pests.

After snags fall and become logs on the forest floor, they are still important to many wildlife species. They serve as travel corridors and as cover for rodents and other mammals, reptiles and amphibians. Hollow logs are used as den sites by many species. Lynx, American marten, turkey, and snowshoe hare favor habitats that have abundant downed logs. Living trees with decay, hollow trees and mistletoe-broomed trees are also important to many wildlife species.

For snag-dependent species associated with old-growth, snags are less abundant than historically. Timber harvesting and firewood gathering are common activities in the forest. Timber harvesting typically removes the dying, diseased, and dead trees, so most stands have fewer snags and dying/diseased trees after a timber sale. Snags also are often felled during forest management activities because they may pose a safety threat to woods workers. Salvage logging after fires also has removed snags from the landscape.

Firewood gathering has also affected the number of dead trees. Snags and downed logs are preferred over live trees by many people who cut firewood, and corridors along open roads have few snags. Once large snags are removed, it may take a hundred years for a regenerated stand to grow new trees and produce snags large enough to meet the needs of most snag-dependent wildlife species.

### **Wildlife Security**

Before European settlement, Native Americans lived and traveled mainly in the major river bottomlands. Human developments and disturbance outside these bottomlands were minimal. Historically, most of the National Forest lands were considered safe sanctuaries or retreats for wildlife that moved freely across the landscape.

Recreation, mining, timber management and other human developments have led to an increase in the number of roads providing human access to previously secure habitats. As roads were built and areas were opened to motorized traffic and other disturbances, wildlife was displaced from otherwise suitable habitat, and mortality increased from hunting, trapping, and accidents with vehicles.

### **Wildlife Populations**

Species associated with mature and old forest structure or large snags, or species sensitive to human disturbance were likely more abundant historically across the IPNF. The gray wolf, woodland caribou, bald eagle, grizzly bear and Canada lynx, which occur on the Priest Lake Ranger District, are listed as threatened or endangered by the USFWS. The peregrine falcon was removed from the list of threatened and endangered species in July 1999; this species, however, is still considered important to public land management. All of these species have been restricted in population and distribution and occur in only portions of their former ranges.

Human developments, habitat loss and fragmentation, and disturbance have affected the abundance and distribution of wildlife species that are hunted and trapped, as well as wide-ranging species. The effect of increased human activity in previously secure habitats is discussed above. In addition, forest management has altered the distribution of forest structural stages, with a resulting change in the amount and distribution of suitable habitat. These factors have affected the population numbers and distribution of species that require or occur in these habitats.

Some populations are artificially controlled by humans. The Washington Department of Fish and Wildlife and Idaho Department of Fish and Game (IDFG) have transplanted elk, woodland caribou, turkeys, and mountain goats to augment low populations and increase distribution.

Unlike carnivores, big game species such as deer, elk and moose are more abundant now than historically due in large part to continued creation of early succession foraging habitats through timber harvests and IDFG population management strategies.

### **Species Relevancy Screen**

Threatened, Endangered and Sensitive (including proposed species) and other Management Indicator Species (MIS) that are known to occur on the Priest Lake Ranger District were screened for their relevancy to the project by reviewing sighting records, survey records, planning documents and other sources. Relevancy was determined if there is evidence of species or habitat present within the affected area, and whether any such species or habitat could potentially be affected by the proposed actions.

No further discussion and analysis is necessary for species or habitat determined not to be present within the affected area. The rationale for no further analysis for these species is provided in the project file.

Supporting rationale also is presented for those species that are determined present but not necessarily affected by the scope of proposed actions, or where the effects could be mitigated through design criteria. These species are discussed as part of the Affected Environment, but are not evaluated in an effects analysis.

Species considered present and potentially affected by the proposed actions are discussed in both the Affected Environment and Environmental Consequences sections. Table 1, pg. III-06, summarizes the analysis status of wildlife species occurring on Priest Lake Ranger District.

The species relevancy screen indicated that, of threatened and endangered (and proposed) species that may be found on the Priest Lake Ranger District, the grizzly bear, Canada lynx, gray wolf and woodland caribou might potentially be impacted by proposed activities. The only sensitive species considered relevant to the project are the black-backed woodpecker, fisher, wolverine, northern bog lemming, and boreal toad. Relevant other species include American marten, moose, and forestland and migratory birds.

Discussion of the relevant species' habitat preferences and requirements are based on scientific literature, site-specific information from District wildlife atlases and field surveys, and professional judgment. The environmental baseline and relevant habitat components that may or may not be affected by the alternatives are also discussed.

The difference between capable habitat and suitable habitat is an important concept in a discussion of existing conditions for wildlife. The following definitions distinguish between these two terms:

- **Capable habitat** refers to the inherent potential of a site to produce the essential habitat requirements of a species. Vegetation on the site may not be currently suitable for a given species because of variable stand attributes such as inappropriate seral stage, cover type or stand density.

**Table 1. Species occurring on the Priest Lake Ranger District and analysis status.**

<b>Status</b>	<b>Species</b>	<b>Species/Habitat Present</b>	<b>Species/Habitat Measurably Affected</b>	<b>Species Further Analyzed</b>
Endangered	<i>Northern Gray Wolf</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>Woodland Caribou</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
Threatened	<i>Grizzly Bear</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
	<i>Canada Lynx</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
	<i>Bald Eagle</i>	<i>No</i>	<i>No</i>	<i>No</i>
Sensitive				
<i>birds</i>	<i>Black-backed Woodpecker</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>White-headed Woodpecker</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Flammulated Owl</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Northern Goshawk</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Peregrine Falcon</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Harlequin Duck</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Common Loon</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>amphibians</i>	<i>Coeur d'Alene Salamander</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Boreal Toad</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>Northern Leopard Frog</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>mammals</i>	<i>Northern Bog Lemming</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>Fisher</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>Wolverine</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>Townsend's Big-eared Bat</i>	<i>No</i>	<i>No</i>	<i>No</i>
Other				
	<i>Pileated Woodpecker</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>American Marten</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>Moose</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
	<i>White-tailed Deer</i>	<i>No</i>	<i>No</i>	<i>No</i>
	<i>Forest Land Birds</i>	<i>Yes</i>	<i>No</i>	<i>No</i>

- **Suitable habitat** currently has both the fixed and variable stand attributes for a given species' habitat requirements. Variable attributes change over time and may include seral stage, cover type, stand density, tree size, stand age or stand condition.

## Endangered Species

### *Northern Gray Wolf (Canis lupus)*

The gray wolf was listed as endangered in the lower 48 states in 1978 (Hansen 1986, p.1). Currently, the gray wolf is listed federally as an endangered species north of Interstate 90 and as an experimental population south of Interstate 90. The first Northern Rocky Mountain Wolf Recovery Plan was developed by an interagency team in 1980. A revision of the recovery plan was approved in 1987, after extensive review and evaluation.

Wolves are large carnivores belonging to the dog family (Canidae). Wolves generally occur in low densities, are shy, and have large home ranges. Wolves in western North America rely heavily on ungulate species (big game) as a primary prey item, although other prey species such as hares or small animals may be utilized (Reel et al. 1989, p. 2). Wolves are commonly associated with areas where big game is abundant and often follow big game populations onto wintering areas. Wolves generally form packs consisting of several individuals. Dispersing wolves are sometimes found in outlying areas that are claimed as part of territories by existing packs.

Wolf mortality associated with human/wolf interactions is considered one of the primary limiting factors in the recovery of wolf populations (USDI 1987, p.9). The risk of mortality for wolves is strongly correlated with increasing levels of human access (Frederick 1991, p. 36).

Misidentifications of wolves by coyote hunters, deliberate killing and non-target mortality associated with coyote eradication efforts are known to affect wolf numbers and are associated with increased levels of human access into areas that wolves occupy.

Environmental Baseline: Reported sightings and evidence of gray wolves within the Priest River sub basin and surrounding areas are increasing. Direct observations and observation of wolf sign have occurred near the project area regularly since 1991. Four observations considered as possible were reported 9 miles southwest of the project area between October and November of 1996. A sighting considered as possible was reported in July of 1997, four miles northeast of the project area. In August of 1998, probable wolf sign (scat) was located one mile south of the project area. The evidence over the last five years indicates single animals or possibly groups of animals traveling together but does not yet imply pack establishment within the drainage.

Rationale for No Further Analysis: It is anticipated that the proposed activities have the potential to cause displacement and a slight increase in mortality risk if wolves are present. Although wolf use of the area is known, the use is of low density and infrequent nature. As stated in Features Common to All Action Alternatives, any TES species discovered during use of the easement would be reported as soon as possible, and immediate consultation with the U.S. Fish and Wildlife Service, if needed, would occur. The consultation would determine if any site-specific measures would be needed. Moreover, public access to the new road would be

restricted. The probability of a wolf/human encounter therefore would remain low. These factors would not be likely to adversely affect wolf populations or wolf habitat.

The proposed activity on National Forest land or private lands would have little impact on big game populations, and therefore the potential indirect effect to wolf would be minor.

### *Woodland Caribou (Rangifer tarandus caribou)*

In the lower 48 states, the woodland caribou was first emergency listed as an endangered species in 1983 under the Endangered Species Act. The initial recovery plan was completed in 1985 and revised in 1995. Federal and State agencies and the government of British Columbia have been working toward recovery of the caribou.

As part of the recovery plan, caribou have been augmented into the ecosystem from source populations in British Columbia since 1987. By 1990, the population had grown to 55-70 animals. The population remained somewhat stable through the early 1990s, but a decline in numbers occurred in 1996. The decline was considered the result of an increased rate of predation and other factors. Caribou numbers may vary annually, and they have been regularly monitored with annual census and tracking of radio-collared animals.

The population is generally found above 3000 feet in the Selkirk Mountains, within Engelmann spruce/subalpine fir and western red cedar/western hemlock forest types. They are highly adapted to boreal forests and do not make extensive use of drier low elevation habitats. Seasonal movements are complex in this population and ecotype and normally occur as altitudinal patterns and seasonal movement to traditional sites. The population is threatened by habitat fragmentation and loss and by excessive mortality from predation and illegal human take (USDI 1993).

Environmental Baseline: The project area is located approximately 1.5 miles south of the Selkirk Mountain Caribou Recovery Area. Caribou use of the area immediately surrounding the project area is considered as unexpected, although caribou have recently been documented utilizing habitats within and adjacent to the project area. Caribou use within and adjacent to the project area was documented in 1988, 1996 and 1997. Direct observations were made in 1988 and 1996, and physical evidence was used to determine caribou use in 1997. Caribou habitat in the project area is not considered high quality because of the overall low elevation and generally young forest age.

Rationale for No Further Analysis: The project area lies outside of the designated caribou recovery area and is not deemed critical to the species' recovery in the Selkirk Mountains. No habitat identified as necessary for their recovery would be impacted.

Caribou have a recent history of utilization of the area and may on rare occasions use the area in the future. Therefore, the proposed activities may displace caribou and cause a slight increase in the risk of mortality. As stated in Features Common to All Action Alternatives, any TES species discovered during use of the easement would be reported as soon as possible, and immediate consultation with the U.S. Fish and Wildlife Service, if needed, would occur. The consultation

would determine if any site-specific measures would be needed. Moreover, public access to the new road would be restricted. These factors would not be likely to adversely affect the caribou population or caribou habitat.

## Threatened Species

### *Grizzly Bear (Ursus arctos horribilis)*

The grizzly bear was listed as threatened in 1975. In 1982, the Selkirk Mountains were identified as a grizzly bear recovery area. The grizzly bear was originally distributed in various habitats throughout western North America. Today, it is confined to less than two percent of its original range, represented in four or five population centers south of Canada. These populations occur in what are identified as grizzly bear ecosystems. The Selkirk Mountains ecosystem of northeastern Washington, northern Idaho, and southeastern British Columbia is considered one of these grizzly bear ecosystems.

Grizzly bears are habitat generalists in that they may be found over a variety of habitats and habitat conditions. Certain types of habitats are utilized proportionally more than others, such as wet meadows in the spring, riparian areas year-round, and berry fields in the summer.

Grizzly bears are generally shy in nature and tend to avoid human contact with the exception of early spring. During this time, bears may sometimes compromise their shy nature or natural avoidance of humans because of the high nutritional demands that they experience following the winter denning period. This is especially true for females with cubs, which have a higher nutritional demand.

Controlling/directing motorized access has been one of the most important tools in managing for grizzly bear recovery. By managing motorized access, certain objectives can be achieved, including a reduction in human interactions, in potential grizzly bear mortality, in displacement from important habitats and in habituation to humans.

The existing direction for grizzly bear habitat management is based on a minimum of 70 square miles of security habitat or other established threshold within each grizzly bear management unit. The 70 square mile management standard used was developed from information outlined in the Cumulative Effects Analysis process by Christensen (1982). This process was adopted by the Idaho Panhandle National Forests during development of the Forest Plan (USDA 1987, Appendix U).

The process is based on data on the mean home range of 13 adult female grizzly bears greater than five years of age. The average home range was determined to be approximately 100 square miles in size. This Grizzly Bear Management Unit was thought to represent a viable home range that would spatially meet the needs of a resident female grizzly bear.

The identification of a suitable smaller area within the bear unit that would minimally meet the spatial and other needs of an adult female grizzly bear would define the lower limit of a viable home range. This lower limit was established at 70 square miles, based on the average home

range size for six adult females in the North Fork Flathead drainage in Montana and on professional judgment. The average home range for adult females in the Northern Continental Divide Ecosystem was 72 square miles. Minimum security habitat standards for the Kalispell-Granite Grizzly Bear Management Unit were established at 70 percent of the GBMU (USDA 1995). In 1998, the Selkirk/Cabinet-Yaak subcommittee, at the request of the Interagency Grizzly Bear Committee, developed an Interim Access Management Strategy to address impacts related to motorized access until Forest Plans are revised. This strategy includes achieving specified levels of security (habitat effectiveness) and core habitat, depending upon priorities of Bear Management Units (BMUs). The following management standards for grizzly bear were adopted:

- A minimum of 70 percent security habitat would be maintained within the Kalispell-Granite grizzly bear management unit (USDA, Kalispell-Granite Grizzly Bear Access Management Strategy Decision Notice, 1995; IGBC Interim Access Management Rule Set, 1998).
- Open road densities of 1 mi/mi<sup>2</sup> would not exceed more than 33 percent of the grizzly bear management unit. Roads considered as open roads are those without restrictions on motorized vehicle use. (IGBC Interim Access Management Rule Set, 1998; Holt, personal communication, 2001)
- Total road densities of 2 mi/mi<sup>2</sup> would not exceed more than 26 percent of the grizzly bear management unit. Total road densities include all open roads, restricted access roads, barriered roads and impassable roads. (IGBC Interim Access Management Rule Set, 1998; Holt, personal communication, 2001)
- There would be no net loss in core habitat for grizzly bears. Core habitat is defined as an area of high quality habitat that contains no motorized travel routes or high use trails (IGBC Interim Access Management Rule Set, 1998).

The Idaho Panhandle National and Kootenai National Forests were sued for adopting the direction of the 1998 Interim Access Management Strategy without amending their Forest Plans. The Forests settled the lawsuit and agreed to amend their respective Forest Plans to address grizzly bear management. The schedule outlined by the settlement agreement requires completion of a Final Environmental Impact Statement (FEIS) by February 2002. The amendment would incorporate the above direction as well as monitoring into each Forest Plan.

Environmental Baseline: The management of security habitat is perhaps one of the most important aspects of management for grizzly bears (Kasworm and Manley 1989). Security habitat allows sufficient space for grizzly bears to roam and allows for effective use of available habitat. By definition, security habitat is an area or space outside or beyond the influence of high levels of human activity. Open roads, timber harvest and high-use recreational features such as trails or camps are considered to cause displacement of bears and a reduction in the amount of available security habitat.

The project area is located within the Kalispell-Granite Grizzly Bear Management Unit (Figure 4, pg III-13). The Kalispell-Granite BMU totals 85,640 acres and is one of nine designated grizzly bear management units in the Selkirk Recovery Area (USFWS 1973). Grizzly bear habitat security in this BMU is achieved through road restrictions on 27 road systems. Four of the 27 road systems have restrictions that are implemented seasonally. Within this BMU, habitat effectiveness is currently maintained at 78.5 percent during the spring season (March 15 - June 30), at 72.4 percent during the summer season (July 1 - September 10), and at 78.5 percent during the fall season (September 11- November 15).

Numerous observations of grizzly bear and grizzly bear sign have been reported in the Kalispell-Granite Grizzly Bear Management Unit since the 1970s. Between 1985 and 1988, a radio-collared male grizzly bear had a home range that overlapped the project area. Sightings of grizzly bears have been routinely reported within the BMU, the most recent was an observation of a female and two cubs nine miles northeast of the proposed access in September 2000. Grizzly bear habitats in the project area consist of a mosaic of closed timber, wetland meadow complexes, open timber/shrubfields and rock/scree habitats. The majority of the project area is in a closed timbered condition from a fire that swept through the area in 1926. Wetland habitats dominated by *Sphagnum* species and *Carex* species occur in lowlands along Sema Creek and Tobasco Creek; these areas are considered high quality spring habitats for grizzly bears. Other high quality spring habitats occur in open timber and in riparian areas.

High quality summer habitats are found in lesser quantities than elsewhere in the Kalispell-Granite Grizzly Bear Management Unit and occur primarily where timber management activities have opened the overstory canopy and where the regeneration or the establishment of a shrub-dominated understory has occurred. Closed timber habitats preferred by grizzly bears in the fall are generally more abundant and evenly distributed in the project area and BMU.

Core area habitat has been identified as areas free of motorized access during the non-denning period. These areas are an important component for adult female grizzly bears that have successfully reared and weaned offspring (IGBC 1994). Research conducted on four female bears in the Selkirk ecosystem showed a selection for core over non-core habitat by three of the four bears and a significant selection for core habitat by two of the female bears (Wakkinen and Kasworm 1996). Grizzly bear core habitat was identified as areas greater than 0.31 mile (i.e. 500 meters) from any road or trail that received motorized use during the non-denning period. In addition, areas within 0.125 mile of trails that are considered as 'high use' are not considered as providing grizzly bear core habitat.

Within the Kalispell-Granite Grizzly Bear Management Unit, 44,480 acres (52.6 percent of the GBMU) have been identified and mapped as meeting the requirements of grizzly bear core habitat as currently defined. Core habitat occurs in approximately 20 locations in the bear management unit, with the majority in blocks greater than four square miles in size. Of this, 1,214 acres of core habitat were created between 1995 and 1998 when this GBMU was established. The 1995 closure of Forest roads 1122A, 1122B, 1122C, and 401C by ripping or earthen barriers contributed to the amount of available core habitat. In 1997, the obliteration of Forest Road 638C further increased the amount of available core habitat. In 1998, the obliteration of Forest roads 319 and 1104 increased core habitat by 2,023 acres.

Because of the potential for the proposed activities to negatively affect grizzly bear recovery in the Kalispell-Granite BMU, this species is further discussed in Environmental Consequences.

### *Canada Lynx (Lynx canadensis)*

On July 8, 1998, the U. S. Fish and Wildlife Service published a proposal to list the lynx under the Endangered Species Act. On March 21, 1999, the U. S. Fish and Wildlife made the decision to formally list the species. The formal listing as a threatened species was published in the Federal Register on March 24, 2000.

Lynx occupy regions in North America of arctic or boreal influence. They are found from western Alaska to the eastern edge of Newfoundland. The northern boundary of this range coincides with the northern extension of the boreal forests. The southern boundary of lynx range is along the high elevation or boreal forested areas of the Cascades and Rocky Mountains into Washington, Idaho, Montana, Wyoming, Colorado, and Utah. In the Northwest, they are restricted to forested habitats.

The lynx is one of three species of wild cats that occur in the temperate forests of North America. Lynx are relatively common throughout forested areas of Alaska and Canada, although intensive trapping in the past has eliminated or reduced populations in localized areas. The conservation of lynx populations is of greatest concern in the western mountains of the conterminous United States, at the southern periphery of the species' range.

Lynx generally occur in low densities. Their home range averages 24 square miles, depending on prey abundance. On the Priest Lake Ranger District, lynx occur primarily in moist, cold habitat types above 3,000 feet (Weaver personal communication 1998). Although lower elevation forests can be important in some instances, evidence suggests that lynx use them less because of competition with other predators and overheating in the summer.

Important factors that can affect lynx populations include high open road densities and alterations to foraging and denning habitat. According to the Canada Lynx Conservation Assessment and Strategy (pp. 2-13), roads are directly correlated with human access, and consequently with lynx vulnerability to trapping and shooting, especially during the winter season (USDA and USDI 2000).

Lynx habitat in the western mountains consists primarily of two structurally different forest types occurring at opposite ends of the stand age gradient (Koehler and Aubry 1994, p.86). Lynx require early-successional forests that contain high numbers of prey (especially snowshoe hare) for *foraging habitat* and late-successional forests that contain cover for kittens (especially deadfalls for *denning habitat*). Foraging habitat supports primary prey (snowshoe hare) and/or important alternate prey (especially red squirrels) that are available to lynx. Foraging habitat is generally associated with either early successional or mature and old growth forests that have a relatively open overstory. Denning habitat is used during the birth and rearing of young until they are mobile. Denning habitat conversely is associated with mature and old growth forests with a closed canopy. Mature and old-growth forests are important for lynx denning because of the inherently higher amount of coarse woody debris (i.e. downed logs or root wads) on the forest floor. Coarse woody debris provides escape and thermal cover for kittens.

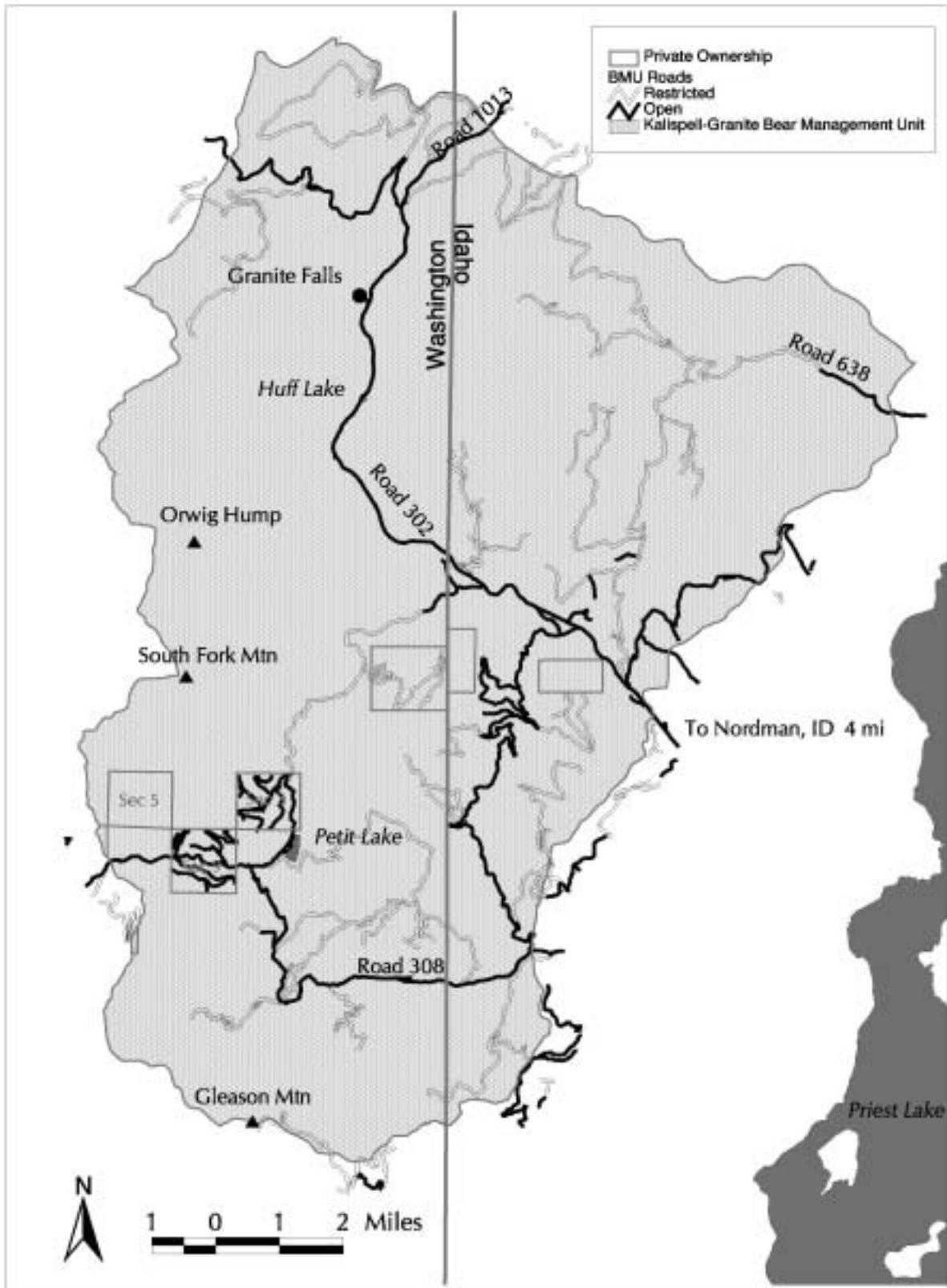


Figure 4. Kalispell-Granite Grizzly Bear Management Unit.

Mid-successional stages may serve as travel cover for lynx but function primarily to provide connectivity within a forest landscape. Like most wild cats, lynx require cover for security and stalking prey; they avoid large open areas. Although lynx may cross openings less than 100 meters in width, they do not hunt in these areas (ibid p. 88).

*Unsuitable habitat* for lynx can be either management-created or naturally occurring. Example includes recent wildfires or regeneration-type harvests that have removed overstory cover. Management-created unsuitable areas in identified/mapped lynx habitat are characterized by early successional vegetation stages resulting from recent fires or vegetation management. In these areas, vegetation has not developed sufficiently to support snowshoe hare populations during all seasons. These areas will not become suitable habitat until the sapling-sized trees reach approximately six feet above mid-winter snow depths. Management-created openings include clearcut and seed tree harvest units and might include shelterwood and commercially-thinned stands, depending on unit sizes and remaining stand composition and structure. Naturally- occurring unsuitable areas include lakes, low-elevation ponderosa pine forests and alpine tundra. These areas do not support snowshoe hare populations and, therefore, are not considered as capable of providing lynx habitat.

The Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) and Conservation Agreement #00-MU-11015600-013 (USDA and USDI 2000) outline the management guidelines and standards for identified lynx habitat. This conservation strategy was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands within the United States (Ruediger et al. 2000). The following management standards for lynx apply to the project area:

- Within lynx habitat, no more than 30 percent of that habitat can be in an unsuitable habitat condition at any time. Management activities must not change more than 15 percent of lynx habitat into an unsuitable condition within a 10-year period.
- Within lynx habitat, denning habitat must be maintained on at least 10 percent of the lynx analysis unit. Denning habitat should be well-distributed and in patches larger than 5 acres.
- Manage for no net increase in open road miles in lynx habitat on federal lands. Allow no net increase of regularly used or groomed over-the-snow routes and play areas on federal lands.
- Vegetation structure must be maintained to facilitate movement of lynx along important corridors (e.g. riparian areas, saddles, ridges).

Environmental Baseline: The project area is located entirely within the Sema Lynx Analysis Unit (LAU; Figure 5, III-16). District wildlife observation records indicate 11 lynx observations within or near the Sema LAU; five reports have been received in the last decade. Surveys to detect presence or absence of lynx were conducted across the Priest Lake District in 1998 and 1999 using the 'hair-snare method'. In 1999, a survey benchmark included a portion of the Sema Lynx Analysis Unit. DNA analysis of the survey information from this effort has not been

completed, although visual inspection of hair indicated that lynx presence was likely detected at some of the survey stations.

The LAU was delineated to approximate the average home range of a male lynx and is used to display cumulative impact to habitat conditions of proposed management actions on the species. The Sema LAU is 25,149 acres in size and includes a mixture of foraging, denning, and currently unsuitable habitats.

Open and total road densities within this LAU are relatively low and pose a low risk of mortality for lynx. There are 16.3 miles of open road in the LAU and an open road density of 0.4 mi/mi<sup>2</sup>. The total for all roads in the LAU, including open and restricted access roads, is 42.1 miles or 1.1 mi/mi<sup>2</sup>.

**Table 2. Composition of lynx habitat components in the Sema Lynx Analysis Unit (LAU).**

<b>Habitat Attribute</b>	<b>Acres in LAU</b>	<b>Percentage of LAU</b>
Low Quality Forage Habitat	13,925	56%
High Quality Early Successional Forage Habitats	1,672	6%
High Quality Late Successional Forage Habitats	521	2%
Denning Habitat	5,983	24%
Unsuitable Habitat	2,247	12%

Because of the potential for the proposed activities to negatively affect Canada lynx and lynx habitat conditions in the Sema LAU, this species is further discussed in Environmental Consequences.

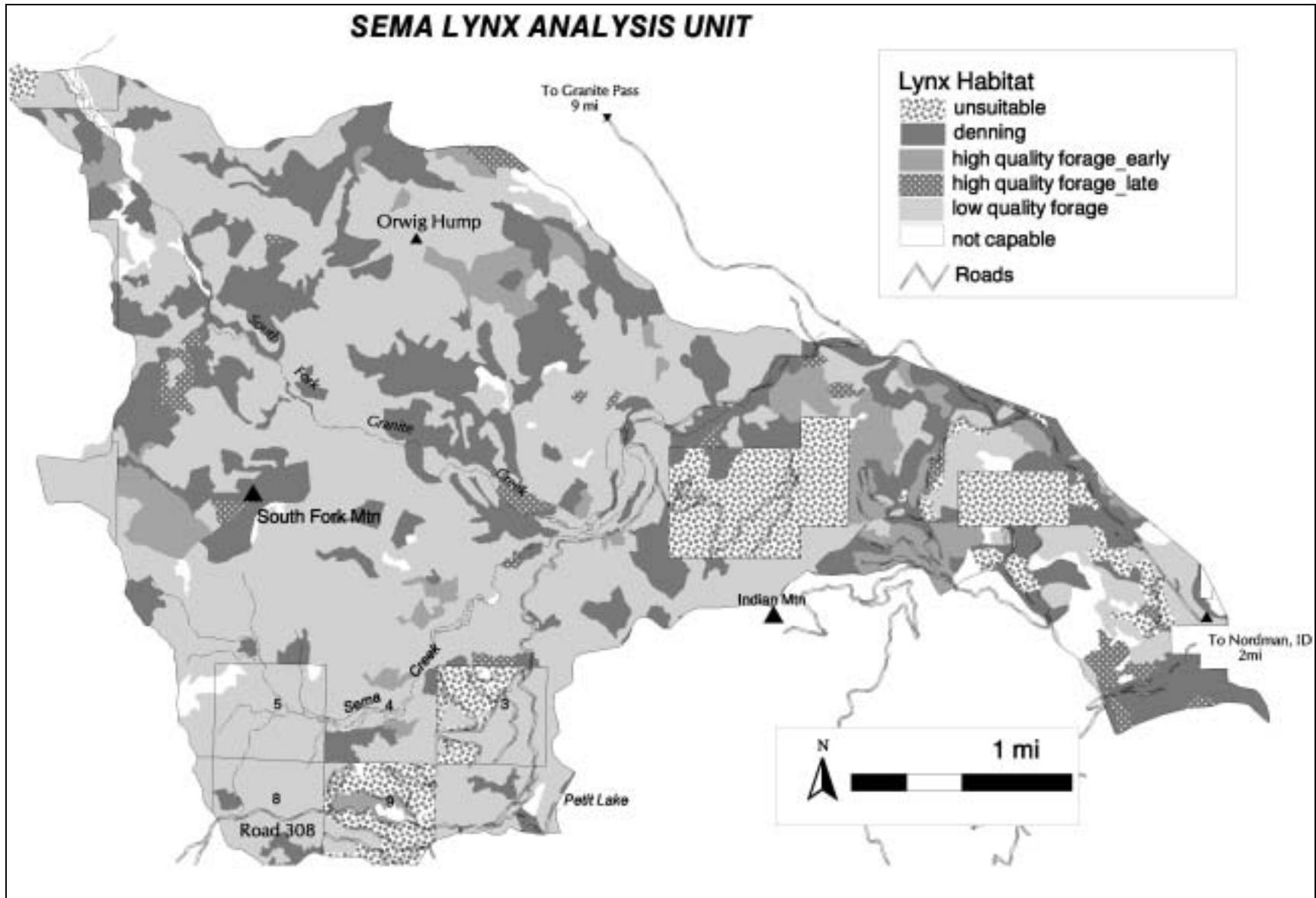


Figure 5. Sema Creek Lynx Analysis Unit.

## Sensitive Species

### *Black-Backed Woodpecker (Picoides arcticus)*

Black-backed woodpeckers are uncommon year-round residents of coniferous forests, where they naturally occur at low population levels. They experience local population increases and temporary range extensions resulting from fire and other events or activities that increase populations of wood-boring insects.

The geographic range of the black-backed woodpecker extends south from Alaska to central California and Nevada and throughout most of the northern United States. Black-backed woodpeckers nest in snags or in live trees with heartrot that are at least 5 inches in diameter. Most nest trees are 10 inches in diameter or greater (Mariani et al. 1994, p.3). They often use clumps of snags for nesting, and are known to nest in spruce, lodgepole pine, aspen, ponderosa pine, Douglas-fir, and western larch (Thomas 1979, p.381; Harris 1982, pp. 52, 53, & 60). Black-backed woodpeckers feed primarily on wood-boring beetles and specialize on large areas of burned forests or recently killed, beetle-infested timber (Wright and Wales 1993, p.1). Local movements of black-backed woodpeckers occur resulting in small concentrations in response to local temporary abundance of food. Breeding densities of black-backed woodpeckers vary considerably in response to prey availability, increasing up to seven times the normal level during beetle epidemics (Jackman 1975, p.101).

Environmental Baseline: Black-backed woodpeckers are suspected to occur in the project area and are likely associated with endemic levels of tree boring insects and timber mortality. Snag habitat in the project area has been strongly influenced by vegetation succession and natural fire events. Following a natural fire event, snag habitat may initially be more abundant; through time, as snags decay and fall, snag numbers may decrease. The fires that occurred in 1926 had a strong influence on snag habitat both in overall abundance and in quality. Quality refers to the size, age and species of a snag. The influence of firewood cutting has had a minimal impact in overall snag densities and availability within the Sema Creek drainage because of the lack of roads.

Black-backed woodpeckers have frequently been located in the Kalispell Basin immediately south of the project area. This species is apparently drawn to insect infestations and associated timber mortality from the planting of poorly adapted tree species following wildfires in the 1930s and 1940s.

Rationale for No Further Analysis: The potential direct and indirect impacts of implementation of either action alternative on populations of black-backed woodpeckers are anticipated be minimal. Only a slight reduction in snag habitat would occur (six acres in Alternative B or 3.8 acres in Alternative C). The difference between the two alternatives is considered minor or undetectable. As the proposed road systems in either alternative would be restricted to access, no impacts from future firewood cutting would be expected.

Within the cumulative effects analysis area, there would be a reduction in snag habitat on Stimson lands in Section 5 resulting from the proposed harvesting. Wildlife tree retention guidelines directed by the Washington Forest Practices Act (2000 RCW 76.09, pp. 30-7 and 30-8) would be implemented during activities on Stimson Lumber Company lands and would mitigate losses in snag habitat on those lands. The Act would require that two wildlife reserve trees, 2 green recruitment trees, and two down logs shall be left for each acre harvested. Based on this information, it is concluded that project activities would have little impact on black-backed woodpeckers and would not result in reduced viability or the need for federal listing. This species will not be discussed in Environmental Consequences.

### *Boreal Toad (Bufo boreas)*

No historic information on amphibians is known for the area. However, this species and several other amphibians are widely reported to be declining worldwide. The decline may be due to several factors. Historically, wetlands were much more abundant. Mortality is certainly much higher than historically because of roads and other factors. Disease or some other widespread agent also is suspected in some declining populations. The boreal toad and the northern leopard frog were added to the Region One Sensitive Species list in March 1999.

Boreal toads require shallow water in ponds, lakes or slow-moving streams for breeding sites. They lay their eggs in the warmest water available, typically less than 20 inches deep (Corkran and Thomas 1996, p.86). Beaver ponds are often used for breeding. This species does not require much aquatic or emergent vegetation in its breeding habitat.

After the brief spring breeding season, adult toads leave aquatic habitats and travel to a variety of upland habitats. Radio telemetry research on boreal toads in southern Idaho found that toads could travel up to 2.5 kilometers (about 1 mile) from their natal ponds; it also showed that toads avoided crossing clearcut or other openings (Bartelt and Peterson 1994, p.2). Boreal toads in Colorado have been documented traveling up to 2.5 miles (Loeffler 1998, p.7).

Movement among seasonal habitats is believed to be important for toads. Tadpoles take at least two months to develop into juveniles and disperse from the breeding site into nearby upland habitats. Juveniles disperse from their natal ponds in late summer. The timing of dispersal depends on water temperature; in warmer water, tadpoles and juveniles mature faster. Roads are the biggest potential barriers to toad movements. Steep road cuts can hinder toad movements between seasonal habitats. Juvenile toads are vulnerable to mortality by motorized vehicles during dispersal from their natal ponds.

For much of the year, toads live away from ponds in terrestrial forest and non-forest habitats. According to Nussbaum et al. (1983, p. 128), optimal habitat probably has moderate to dense undergrowth in regions that are more humid. Toads hibernate in the winter in habitats that maintain a high humidity and above-freezing temperatures.

Environmental Baseline: Survey results and incidental observations indicate that this species is found throughout much of the Priest Lake Ranger District and is anticipated to occur within the project area. The mesic nature of much of the forests of the IPNF indicate that toads have many opportunities to find persistent small water sources for breeding, and could successfully disperse

through moist forests. Based on habitat needs as described in the literature, a very high percentage of the North Zone, including private land, is suitable habitat.

Rationale for No Further Analysis: The Inland Native Fish Strategy (INFS) guidelines concerning riparian habitat conservation areas (RHCA) for wetlands and riparian areas would limit sedimentation in toad breeding habitat. Design features of the action alternatives would protect most potential breeding habitat, although this species also breeds along roadside ditches that do not have any special protection. Some mortality may occur to adults and sub-adults, but effects to the population would not be significant because of the amount of breeding habitat available elsewhere in the drainage. Implementation of either action alternative would not result in reduced viability or the need for federal listing. Therefore, no further analysis of boreal toads is necessary.

On Stimson lands in Section 5, boreal toad breeding habitat is available in the Sema Creek Meadows and along the riparian area of Sema Creek and its tributaries. Boreal toads require shallow water in ponds, lakes or slow-moving streams for breeding sites. Wetland management zones (WMZs) protection guidelines directed by the Washington Forest Practices Act (2000 RCW 76.09, pp. 30-4 to 30-7) would be implemented on Stimson Lumber Company lands. These practices would avoid adverse impacts to boreal toad breeding habitat.

#### *Northern Bog Lemming (Synaptomes borealis)*

The northern bog lemming is closely related to voles and meadow mice. This species belongs to one of four genera of true lemmings. The geographic range of the northern bog lemming extends from southern Alaska throughout most of Canada and into northern Washington, Idaho and Montana.

Northern bog lemmings typically inhabit sphagnum peatlands but occasionally occur in mossy forests, wet subalpine meadows, and alpine tundra (Reichel and Beckstrom 1993, p. 1). On the Priest Lake Ranger District, habitat for the species also occurs in some moist cedar/hemlock forests. The species occurs in a restricted habitat that is very limited in the contiguous United States. While its habitat supports several other wildlife species, most sensitive or unique species associated with that habitat are plants. Because of its rarity and relatively small size, northern bog lemming habitat may be easily destroyed.

On the Priest Lake Ranger District, northern bog lemming populations have been documented in Bunchgrass Meadows, Sema Meadows, Gold Creek, and in moist forest near Distillery Bay. According to the most current research in Montana, sphagnum mats are the most likely sites in which to find new bog lemming populations (Reichel and Beckstrom 1993, p.17). Riparian/wetland Best Management Practices (BMPs) and INFS guidelines protect habitat for this species during road building, logging and grazing where it occurs near perennial streams. Interim management recommendations for Montana include avoiding habitat disturbing activity within 100 meters of sphagnum mats or associated streams and wetlands and minimizing domestic livestock grazing in drainages with sphagnum mats present (Reichel and Beckstrom 1993, pp 23-24).

Environmental Baseline: Sema Meadows supports documented populations of northern bog lemmings. It is assumed that the moist forest types surrounding Sema Meadows also provide some suitable habitat, based on findings in other areas of the Priest Lake Ranger District.

Rationale for No Further Analysis: Management recommendations for this species apply whether or not populations are present. Wetland protection measures, including project design features for fisheries, watershed and sensitive plant habitat would avoid direct and indirect impacts to lemmings. Implementation of either action alternative may affect this species but would not result in reduced viability or the need for federal listing. This species will not be discussed in Environmental Consequences.

On Stimson lands in Section 5, northern bog lemming populations and habitat exist in Sema Creek Meadows and along the riparian area of Sema Creek and its tributaries. Wetland management zones (WMZs) protection guidelines directed by the Washington Forest Practices Act (2000 RCW 76.09, pp. 30-4 to 30-7) would be implemented on Stimson Lumber Company lands. These practices would avoid adverse impacts to northern bog lemming breeding habitat.

#### *Fisher (Martes pennanti)*

Fishers are considered rare throughout most of Idaho. The fisher, a medium-sized carnivore, is an opportunistic predator, eating anything that it can catch. Major prey species include small to medium-sized mammals and birds and carrion. Fishers are found only in North America; they occur from southern Canada south into the northwestern states, California and the Great Lake States. Fishers occur most commonly in landscapes dominated by mature forest cover. In the Pacific states and the Rocky Mountains, they appear to prefer late-successional coniferous forests in the summer and mid- to late-successional forests in the winter.

Fishers prefer habitats with high canopy closure (>80%), and "avoid areas with low canopy closure (less than 50%)" (Powell 1982). They also have been known to use riparian areas disproportionately more than other habitats (Jones and Garton 1994, p. 386). In north central Idaho, grand fir and spruce forested riparian habitats were preferred by fishers in the summer (Jones 1991, p. 90), and elevations from approximately 3,000 to 5,000 feet were used. In Jones' study, fishers avoided more open stands (>40% crown cover), drier habitats, and stands dominated by smaller trees (ibid). In extreme northern Idaho, they are thought to predominantly inhabit mid-elevations (Johnson personal communication 1991).

Habitat requirements of fishers are thought to be associated with the physical structure of the forest and with associated prey. This structure includes the vertical and horizontal complexity created by a diversity of tree sizes and shapes, light gaps, dead and downed wood and the layers of overhead cover. Large-diameter spruce and grand fir snags and large downed material are used for denning and foraging. Fishers also need late-successional habitats "linked together by closed-canopy forest travel corridors" (Jones 1991, p. 112). Fishers tend to avoid non-forested areas (Powell and Zielinski 1994, p. 55).

Home ranges for fishers vary with prey densities. Studies indicate that the mean home range for adult males is 15 square miles, nearly three times the females' range of six square miles (ibid, p. 57). Results of one study indicated a home range of 31 square miles (82.6 square kilometers) for

males and 15.6 square miles (41 square kilometers) for females (Heinemeyer and Jones 1994, p. 13).

Fishers tend to avoid humans and generally are more common where human populations and disturbance are low (Powell and Zielinski 1994, p 63). Fisher populations can also be jeopardized by the trapping of coyote, fox, bobcat, and American marten (ibid). Habitat security in the form of low road density that reduces trapping lowers this risk.

Environmental Baseline: Most of the Sema Creek drainage is considered capable fisher habitat, based on the prevailing habitat types, topography, and elevation. Suitable denning habitat for fishers is lacking because of stand replacing fires that swept through the drainage in 1926. No evidence of fisher use in the Sema Creek drainage has been observed during snow tracking surveys.

Rationale for No Further Analysis: The direct and indirect effects on fisher by implementation of either alternative B or C would be similar. No suitable denning habitat for fisher would be impacted by proposed management activities because of the 1926 fire. The impact of the new road construction on National Forest lands would be insignificant. Current open road densities in the area are low; because the roads would be restricted to public motorized use, open road densities would not be increased. New road construction would not contribute measurably to the overall fragmentation of capable or suitable habitat. Implementation of either action alternative may impact this species but would not result in reduced viability or the need for federal listing. This species will not be discussed in Environmental Consequences.

Within the cumulative effects area, suitable fisher habitat is generally lacking. The proposed activities in Section 5 would reduce capable fisher habitat on Stimson lands. The roads within the section would be restricted to administrative use by Stimson officials and their contractors, and used for management activities. Because public use would not be allowed on Stimson roads, the risk of mortality would be reduced if fishers were in the area.

### *Wolverine (Gulo gulo)*

The wolverine ranges from Alaska throughout most of Canada and parts of the northwestern United States. The species inhabits high-elevation, mature coniferous forests with openings and prefers rocky places with scattered pockets of timber (Banci 1994, pp. 114-115). They avoid areas of dense, young timber and are rarely found in large open areas. They also require remote habitat with minimal human activity and appear to select unroaded areas (Lyon et al. 1978, p. 130; Groves 1987, p. 16). Wolverine feed on a variety of small mammals but also rely heavily on carrion.

Mortality associated with human/wolverine interactions is considered one of the primary limiting factors in wolverine populations. Improved access increases the potential for human/wolverine interactions, which can lead to loss by shooting or incidental take by trapping (wolverines are occasionally taken by trappers focusing on other furbearers such as lynx, bobcat and American marten). Other factors that may threaten local population viability include reductions of "wilderness refugia" (large areas of habitat with limited human access), natural reserves or food availability (Butts 1992, pp. 30-34).

Male wolverines tend to use lower elevations in the winter, whereas females tend to be found in higher elevation areas (Krebbs 1999). Both sexes tend to be found at higher elevations in summer, when these areas provide the greatest potential food supply (Hornocker and Hash 1981, p. 1291; Krebs 1999).

Environmental Baseline: The proposed project area's remote forested character provides high quality habitat for wolverines. Because of the low elevation, the project area does not contain suitable denning habitat, so the risk of disturbance during the sensitive denning period is not a factor for this species in this area. District species occurrence records indicate that wolverine have been documented in the surrounding landscape in the past (November 1980, July 1981, August 1981 and July 1991).

Rationale for No Further Analysis: Wolverine may be displaced during road construction and periods of road use. No suitable denning habitat for wolverine would be impacted by proposed management activities. New road construction on National Forest lands associated with either action alternative would have little impact on wolverine based on the overall low open road densities in the area and the small amount of road that would be constructed. New roads would be managed to restrict public access, so the risk of mortality would be negligible. The potential impacts to wolverine would be similar to impacts to grizzly bears (see Environmental Consequences discussion on effects to grizzly bear). Implementation of either action alternative may impact wolverine but would not result in reduced viability or the need for federal listing. No further discussion of this species will be included in Environmental Consequences.

Within the cumulative effects area on Stimson lands, suitable wolverine denning habitat is generally lacking because of the relatively low elevation of Section 5. The proposed activities in Section 5 would reduce capable and suitable wolverine habitat because of increased human activity during the time of timber harvest and related activities, and the reduction of timber canopy on the areas to be harvested. The roads within the section, however, would be restricted to administrative use by Stimson officials and their contractors, and used for management activities. Because public use would not be allowed on Stimson roads, the risk of mortality would be reduced if wolverine were in the area.

## **Other Management Indicator Species**

### *American Marten, (Martes Americana)*

The American marten was selected by the Idaho Panhandle National Forests (Idaho Panhandle Forest Plan, 1987) as an indicator species. It represents species that use mature and old-growth habitats, particularly the downed woody components. Marten are closely associated with mature to old-growth timber stands, preferring moist habitat types where small mammals are more abundant. American marten prefer stands with greater than 40 percent canopy closure, and tend to avoid those stands with less than 30 percent closure (Patton and Escano, p. 30). In addition to a closed canopy, marten require an abundance of large downed logs and snags (Buskirk and Ruggiero, p. 7). This provides secure resting locations, denning habitat and winter access to small mammals living beneath the snow (ibid).

American marten are easily trapped and are highly vulnerable to over-harvest in areas accessible by fur trappers. The effects of road density on marten have not yet been quantified, particularly when roads are located through marten travel corridors (ridges, saddles, and riparian zones) and foraging areas.

Environmental Baseline: habitat requirements for marten were considered to be similar to that of the fisher. Most of the Sema Creek drainage is considered capable marten habitat, based on the prevailing habitat types, topography, and elevation. Suitable habitat for fishers is lacking because of stand replacing fires that swept through the drainage in 1926.

Rationale for No Further Analysis:

The effects on marten by implementation of either Alternative B or C would be similar. Suitable habitat for marten is not readily available within the project area. The impact of the new road construction on National Forest lands would be insignificant. Current open road densities in the area are low; because the roads would be restricted to public motorized use, open road densities would not be increased. New road construction would not contribute measurably to the overall fragmentation of capable or suitable habitat. This species will not be discussed in Environmental Consequences.

Suitable fisher habitat is generally lacking within the cumulative effects area because of the lack of mature or old-growth stands of timber. The proposed activities in Section 5 would reduce capable fisher habitat on Stimson lands. The roads within the section would be restricted to administrative use by Stimson officials and their contractors, and used for management activities. Because public use would not be allowed on Stimson roads, the risk of mortality would be reduced.

*Moose (Alces alces)*

Moose are considered an important management species on the Priest Lake Ranger District. Moose are the largest member of the deer family in North America. Throughout much of the year, they are strongly associated with early succession habitats with abundant shrub species for forage. During the summer, when ambient temperatures are high, moose are often drawn to heavily timbered habitats to aid the maintenance of thermal regulation.

Environmental Baseline: The Kalispell Basin big game wintering area was identified in the IPNF Forest Plan as an important area for moose (USDA 1987). This area has been noted as important for maintaining moose populations in the state of Washington. Moose were first noted in Washington and in the Kalispell Basin wintering area in 1956. It appears that moose first were drawn to the area following wildfires after which shrub fields which dominated the area. This abundance of shrub fields apparently contributed to the success of the moose population within Washington and Kalispell Basin.

Rationale for No Further Analysis: The direct and indirect effects on moose by implementation of either alternative B or C would be minimal or undetectable on National Forest lands. Restricting access on the newly constructed road would minimize disturbance to moose. No high quality habitats such as shrubfields would be impacted. No further discussion of this species will be included in Environmental Consequences.

Within the cumulative effects area, habitat for moose would be maintained. In Section 5, the timber harvest would increase the amount of available forage habitat because of more open stand conditions. The restriction to public access to Section 5 would limit the amount of disturbance to moose except during those periods of project activities.

## **Other Species And Habitats**

### *Forest Land Birds*

Forest land birds include all the avian species sometimes collectively termed 'migratory or neotropical migrant birds' and 'resident songbirds'. In January 2001, President Clinton signed an executive order which outlines the responsibilities of federal agencies to protect migratory birds. This executive order mandated that environmental analyses of federal actions evaluate the effects of actions on migratory birds.

For this effects analysis, this group of birds, including both migratory and resident, is not treated separately by species because they are an extremely diverse group of species, with widely divergent habitat requirements. Surveys for forest land birds were conducted north of the project area in August 2000 and south of the project area in July 1996; results of the surveys are included in project file. Implementation of any alternative, including no action, would affect some species in this group at the expense of others. It would be impossible to treat all the individuals in this group separately. However, some species are represented by other habitat elements in previous discussions, including riparian species (boreal toad, lower seral stage species (lynx), wetland species (northern bog lemming), old-growth (fisher and American marten), and snag-dependent species (black-backed woodpeckers).

Rationale for No Further Analysis: The potential direct and indirect impacts of implementation of either action alternatives on populations of both migratory and resident species are anticipated to be minimal. Only a slight change in existing habitats would occur (six acres in Alternative B or 3.8 acres in Alternative C) by the loss of primarily snag habitat resulting from the road construction on Forest Service lands. The difference between the two alternatives is considered minor or undetectable. This species group will not be discussed in Environmental Consequences.

In terms of cumulative effects, the road building and harvest activities of Stimson in Section 5 would affect various bird species. The harvest activities would create more open stand conditions, and therefore, would favor those species whose habitat requirements are more open environments. Over the harvested area, there would be a loss of snag habitat. Wildlife tree retention guidelines directed by the Washington Forest Practices Act (2000 RCW 76.09, pp. 30-7 and 30-8) would reduce the effects to snag habitat on Stimson lands. Other Forest Practices Act

guidelines protecting wetlands and riparian areas would minimize or reduce the effects to bird species dependent on those habitats.

## Environmental Consequences

The following discussion analyzes the effects to various wildlife species discussed in Affected Environment. It was determined that the proposed actions could affect two listed Threatened and Endangered species, grizzly bear and lynx. Direct, indirect and cumulative effects are discussed for both of these species.

The USDA Forest Service policy (FSM 2670) requires a document review, or Biological Assessment, of Forest Service programs or activities in sufficient detail to determine how an action may affect Threatened, Endangered, Proposed or Sensitive species. Consultation with the U.S. Fish and Wildlife Service is mandatory if the biological assessment concludes that a proposed action may have an effect on federally listed species or habitat. The biological assessment for threatened, endangered, and proposed species is a “stand-alone” document.

The existing condition is a product of past activities and events, both human-caused and natural. Habitat conditions resulting from past and present actions and activities were included in the information databases. The following analysis addresses the effects those actions combined with the proposed Federal action. The effects of reasonably foreseeable actions on private lands are discussed in the cumulative effects section for each species.

## Threatened And Endangered Species

### *Grizzly Bear (Ursus arctos horribilis)*

#### *Analysis Process*

The analysis of effects to grizzly bears focuses on changes to security habitat, core habitat and road densities within the bear management unit as outlined in the Interim Access Management Strategy described in the Affected Environment section of this chapter. Security habitat is considered that which is outside the influence of open roads, high use recreational sites, and management activities such as timber sales. Roads that are managed for restricted access such as with gates or guardrail barriers are not considered to detract from grizzly bear security habitat.

The influence zone of open roads on surrounding habitat is considered to be 0.25 miles. Grizzly bear core habitat is outside of the influence of both open and restricted roads. The influence zone used to determine core habitat is 0.31 miles (500 meters) from roads.

The basis for the determination of cumulative effects on grizzly bear is the grizzly bear management unit. For the analyses of the effects of the Stimson Lumber Company access request, the cumulative effects area used for grizzly bear is the Kalispell-Granite Grizzly Bear Management Unit (BMU). The rationale for cumulative effects analysis for grizzly bears follows the guidance outlined in the IPNF Forest Plan, Appendix U (1987).

## Alternative A

**Direct and Indirect Effects** – No impacts to grizzly bear or habitat would be anticipated. Security or core habitat for grizzly bears would not be impacted. Neither open nor total road densities would change.

**Cumulative Effects** - The cumulative effects to security and core habitat for grizzly bears is based on effects of past, present and reasonably foreseeable activities that would impose impacts on security and core habitat.

As discussed in the affected environment for grizzly bears earlier in this chapter, the Kalispell-Granite Bear Management Unit (BMU) is 85,640 acres. Currently, security habitat of the BMU is at 78.5 percent during the spring season of March 15-June 30, 72.4 percent during the summer season (July 1 – September 10, and 78.5 percent during the fall (September 11 – November 15). The minimum security habitat standard for each BMU is 70 percent.

This existing condition for security habitat is the percentage of the BMU that presently lies outside areas of high human activity such as all open roads, timber harvest areas, and high-use recreational features. Both past and present activities affecting habitat security are included in this calculation. High use recreational areas include the dispersed recreational sites such as Petit Lake, Stagger Inn and the Roosevelt Grove of Ancient Cedars, and Huff Lake Interpretive site. Security and core habitat reductions also occur from the operation of the Indian Mountain Lookout. Several ongoing projects on National Forest lands that would not affect security or core habitat also were considered. These include the following:

- *Harvest and post-harvest activities associated with the Dusty Peak Timber Sale.* The harvest activities were designed to occur in the winter, outside the time when bears would use the area. Post-sale activities such as planting and prescribed burning would occur within established administrative use guidelines over the next 2-3 years, and therefore no additional loss of habitat security for these activities would occur. Currently, the area does not meet core habitat guidelines. Following the post-sale activities, core habitat would be established.
- *Art's Roadside Salvage.* This timber sale is adjacent to existing open roads.
- *Special use permit for outfitting and guide services.* This permit, which covers the entire BMU, includes short-term activities that do not affect grizzly bear security.
- *Maintenance of open roads and high-use recreational trails.* These annual maintenance activities lie within corridors for which security and core habitat deductions already have been included.
- *Maintenance of fire trails.* These maintenance activities would occur within established administrative use guidelines.
- *Noxious weed treatments.* These activities primarily would occur adjacent to open roads. Where treatments occur on restricted roads or other areas, administrative use guidelines would apply.

Included in the calculations for security and core habitat are ongoing activities on private lands within the BMU:

- *Stimson Lumber Company lands in Sections 3 and 9, T36N, R45E.* Activities associated with these private industrial lands currently result in a 1.26 percent reduction in security habitat in the Kalispell-Granite BMU. These sections do not meet core habitat requirements.

Current open road and total road densities consider all existing roads within the BMU. The existing condition for open road density is 30.5 percent. Total road density is 24.8 percent.

Reasonably foreseeable actions that would occur in the No Action Alternative would include the following:

- *Bismark Timber Sale.* This National Forest timber sale was included Record of Decision of the Douglas-fir Beetle Project FEIS (1999). The sale was sold in 2000, with harvest and post-sale activities scheduled for 2001-2003. No road construction would occur in this sale. When the timber sale is harvested over the next several months, a reduction of security habitat of 0.5 percent would occur during the spring, summer, and fall seasons because of helicopter logging. No core habitat reduction will occur from implementation of the Bismark Timber Sale
- *Granite-Reeder Fuels Reduction Project.* Portions of the Indian Creek and Reeder Creek drainages on the eastern edge of the BMU are included in the tentative project area boundary. This project was identified as a National Fire Plan fuel reduction project. No proposed action has been developed. The locations and types of treatment are very speculative at this time. No new system road construction is anticipated; any needed roads probably would be temporary non-system roads. Preliminary work on an EIS is scheduled for this summer. Planned implementation of the project would not occur until 2003. Any activities would comply with grizzly bear security and core guidelines.
- *Management activities on private industrial lands in the BMU.* Additional timber harvest would occur in Sections 3 and 9, T36N, R45E, W.M. Because there already is a deduction for these lands, no additional loss of security or core habitat would occur. In addition to the private lands discussed above, private industrial lands exist in Sections 31 and 33, T62N, R5W, B.M. and Section 25, T37N, R45E, W.M. Sections 31 and 33 and the majority of Section 25 were clearcut harvested in the past. A possibility of precommercial thinning and other management activities or timber harvest in Section 25 may occur on these lands in the future. Because each section is completely roaded, no additional new road construction would occur. There would be a reduction in habitat security if these activities would occur. If these activities would occur, activities on National Forest lands in the BMU would be adjusted to ensure that 70 percent habitat security be maintained during the period of operations.

## **Alternative B**

**Direct and Indirect Effects** - The proposed activities under this alternative may displace grizzly bears. If a bear is discovered during use of the easement, the sighting would be reported as soon as possible and immediate consultation with the U.S. Fish and Wildlife Service would occur. This consultation would determine if any site-specific measures would be needed to protect the animal.

Open road density would change slightly during periods of road construction and use, but would be mitigated by restricting access on the new road. Habitat loss of six acres from road construction and right-of-way clearance would reduce the amount of cover for bears. The reduction would be partially mitigated by revegetation along the roadsides and by the use restrictions that would be imposed after the road is constructed.

During construction and eventual use of the road on National Forest lands, security habitat for grizzly bears would be reduced by 139 acres as shown in Table 3, pg. III-29. This reduction in security habitat would be mitigated by restricting access on the new road system both during and after construction. As stated in Features Common to Alternatives B and C in Chapter II, the newly constructed road would be closed to all non-authorized motorized vehicles to provide for grizzly bear security. Core habitat for grizzly bear would also be reduced by 151 acres as a result of activities on National Forest lands.

Granting of the easement would result in the construction of 4000 feet (0.75 mile) of road on National Forest. This amount of road in itself would affect no change in the percentages of open road and total road density.

**Cumulative Effects** - The discussion of effects of past, present, and future actions on federal and private lands would follow the analysis of Alternative A.

The proposed access request on National Forest lands and associated activities on private lands in Section 5 of T36N R45E would result in an 0.8 percent, or 720 acres, reduction in security habitat within the Bear Management Unit as displayed in Table 3, pg. III-29. Security habitat would be maintained at 73.8 percent. Spring and fall security habitat would be maintained at 79.9 percent, and summer at 73.8 percent.

Management activities associated with Alternative B would reduce core habitat for grizzly bears by 0.9 percent or 794 acres of the BMU. Core habitat in the BMU would be reduced cumulatively from 52.6 percent to 51.7 percent. Obliteration of roads 319 and 1104 (the Harvey-Granite and Cache Creek road systems) in August 1998 increased core habitat by 2,043 acres, or 2.4 percent in the Kalispell-Granite GBMU. The road obliteration and core increase were intended to offset imminent core losses anticipated with the current access request. The obliteration increased core habitat within the BMU from 50.2 percent to the current 52.6 percent.

The proportion of the BMU with open road densities greater than 1 mi/mi<sup>2</sup> would increase from 30.5 percent to 31.4 percent in Alternative B. This would be below the established standard of 33 percent. The proportion with total road densities greater than 2 mi/mi<sup>2</sup> would also increase from 24.8 to 25.6 percent. The increase in both the open and total road densities would primarily result from planned road construction on Stimson Lumber Company lands in Section 5. Both open and total road density would remain within the established thresholds.

Because the proposed road construction on National Forest lands would reduce security and core habitat for grizzly bears, the activity may affect grizzly bears. The reductions in security and core are small or minimal, and the established thresholds and standards would be met.

Therefore, it was determined that implementation of this alternative would not be likely to adversely affect grizzly bears.

Reasonably foreseeable activities on private lands in Section 5 would also reduce the amount of available security habitat and core habitat for grizzly bears. The activity may affect grizzly bears; however, core habitat created through obliteration of the Harvey-Granite and Cache creek road systems 'offset' the anticipated core habitat reductions associated with Stimson's planned activities. The obliterations provided a net increase in core habitat so that the established standard of no net loss would be met. Additionally the open road density thresholds and total road density thresholds would not be exceeded. Therefore, planned activities on private lands in the BMU are not likely to adversely affect grizzly bear or grizzly bear habitat.

**Table 3. Impacts to grizzly bear habitat attributes resulting from the proposed access request within the Kalispell-Granite BMU.**

	Alternative A	Alternative B		Alternative C	
	Total	National Forest Lands Only	National Forest and Private Lands	National Forest Lands Only	National Forest and Private Lands
Habitat Security Reduction	N/A	139 ac.	720 ac.	122 ac.	722 ac.
Core Habitat Reduction	N/A	151 ac	794 ac.	127 ac.	798 ac.
Open Road Density (>1mi/mi <sup>2</sup> )	30.5 %	30.5 %	31.4 %	30.5 %	31.3 %
Total Road Density (>2mi/mi <sup>2</sup> )	24.8 %	24.8 %	25.6 %	24.8 %	25.6%

### Alternative C

**Direct and Indirect Effects** - Grizzly bears may be displaced with implementation of this Alternative C. If a bear is discovered during use of the easement, the sighting would be reported as soon as possible and immediate consultation with the U.S. Fish and Wildlife Service would occur. This consultation would determine if any site-specific measures would be needed to protect the animal.

Open road density would change slightly during periods of road construction and use, but would otherwise not change. Habitat loss of 3.6 acres due to road construction and right-of-way clearance would reduce the amount of cover for bears. This would be partially mitigated by revegetation along the roadsides and restriction on use of the new roads after the planned activities associated with the road system have been completed.

During construction and eventual use of the road on National Forest lands, security habitat for grizzly bears would be reduced by 122 acres as shown in Table 3, pg. III-29. To mitigate this loss, access on the new road system would be restricted both during and after construction. As stated in Features Common to Alternatives B and C in Chapter II, the newly constructed road would be closed to all non-authorized motorized vehicles to provide for grizzly bear security. Core habitat for grizzly bear would be reduced by 127 acres as a result of activities on National Forest lands.

Granting of the easement would result in the construction of 2500 feet (0.47 mile) of road on National Forest, which would be .28 mile less than Alternative B. This amount of road in itself would affect no change in the percentages of open road and total road density.

**Cumulative Effects** - The discussion of effects of past, present, and future actions on federal and private lands would follow the analysis of Alternative A.

The proposed access request on National Forest lands and associated activities on private lands in Section 5 of T36N R45E would result in an 0.8 percent, or 722 acres, reduction in security habitat within the Bear Management Unit as displayed in Table 3. Security habitat would be maintained at 73.8 percent. Spring and fall security habitat would be maintained at 79.9 percent, and summer at 73.8 percent. This reduction is nearly identical to the effects in Alternative B.

Management activities associated with Alternative C would reduce core habitat for grizzly bears by 0.9 percent or 798 acres of the BMU; this loss would be 4 acres larger than Alternative B. Core habitat in the BMU would be reduced cumulatively from 52.6 percent to 51.7 percent. Obliteration of roads 319 and 1104 (the Harvey-Granite and Cache Creek road systems) in August 1998 increased core habitat by 2,043 acres, or 2.4 percent in the Kalispell-Granite GBMU. The road obliteration and core increase were intended to offset imminent core losses anticipated with the current access request. The obliteration increased core habitat within the BMU from 50.2 percent to the current 52.6 percent.

The proportion of the BMU with open road densities greater than 1 mi/mi<sup>2</sup> would increase from 30.5 percent to 31.3 percent in Alternative C, which would be slightly lower than Alternative B. The established standard of 33 percent would be met. The proportion with total road densities greater than 2 mi/mi<sup>2</sup> would also increase from 24.8 to 25.6 percent in Alternative C. The increase in both the open and total road densities would primarily result from planned road construction on Stimson Lumber Company lands in Section. Both open and total road density would remain within the established thresholds.

Because the proposed road construction on National Forest lands would reduce security and core habitat for grizzly bears, the activity may affect grizzly bears. The reductions in security and core are small or minimal, and the established thresholds and standards would be met. Therefore, it was determined that implementation of this alternative would not be likely to adversely affect grizzly bears.

Reasonably foreseeable activities on private lands in Section 5 would also reduce the amount of available security habitat and core habitat for grizzly bears. The activity may affect grizzly

bears; however, core habitat created through obliteration of the Harvey-Granite and Cache creek road systems ‘offset’ the anticipated core habitat reductions associated with Stimson’s planned activities. The obliterations provided a net increase in core habitat so that the established standard of no net loss would be met. Additionally the open road density thresholds and total road density thresholds would not be exceeded. As with Alternative B, planned activities on private lands in the BMU also are not likely to adversely affect grizzly bear or grizzly bear habitat.

## Consistency With the Forest Plan and Other Regulatory Direction

All three alternatives would be consistent with the Forest Plan standard (II-11) for providing for recovery as outlined in species recovery plans or other management plans and guidelines for federally listed species such as the grizzly bear; and Forest Plan Standard (II-9) for maintaining viable populations of all species.

### *Lynx (Lynx Canadensis)*

#### ***Analysis Process***

Lynx Analysis Units (LAUs) were specified to encompass areas of suitable habitat and to emulate the known annual home range size for a female lynx. Habitat for lynx in the project area was identified through a combination of field review of the proposed project and through an evaluation of timber stand and habitat information. Specific stand information including habitat type, stand structure, forest cover type and overstory canopy closure were used in a computer model to measure effects.

Direct effects would include the loss of suitable habitat or direct mortality in the project area. Indirect effects would include changes in suitable habitat through time. The cumulative effects area for lynx would be the Sema Lynx Analysis Unit (LAU). The Sema LAU is 25,149 acres.

#### **Alternative A**

**Direct and Indirect Effects** - This alternative would have no direct effects on lynx or their habitat. The bulk of the project area would continue to provide suitable habitat components for lynx. The risk of mortality for lynx would remain at current levels throughout the project area.

Habitat succession would continue in the analysis area. Natural processes such as forest insects and disease in mature stands would in some cases increase habitat for denning, as trees die and fall to the forest floor and provide complex structure for lynx to rear kittens.

**Cumulative Effects** - Winter recreation such as snowmobiling is a popular activity within this LAU. Groomed snowmobile routes are maintained on Forest Roads 302 and 1362 in the eastern portion of the LAU. Other ungroomed roads including Roads 308 and 311 receive lower levels of dispersed snowmobiling use. One identified ‘snowmobile play area’ of approximately 900 acres is located in the western portion of the lynx analysis unit (IPNF Biological Assessment, 2000). In addition, open and semi-open areas adjacent to developed snowmobile trails often receive periodic dispersed snowmobile use.

It is thought that lynx may be displaced from areas where high levels of winter recreational use occur, and that these activities tend to reduce the availability of winter foraging habitat in some areas. Maintained trails for snowmobiling also provide easy access for winter trapping, which is a documented source of lynx mortality. There would be no net increase in groomed snowmobile routes or dispersed snowmobile use with implementation of any of the alternatives.

Past and present activities that would have an impact on lynx in the Sema Lynx Analysis Unit have been included in the determination of the total amount of habitat which is currently suitable either as foraging habitat, denning habitat, or as unsuitable for lynx. These include existing harvests on private industrial lands within the LAU. As shown in Table 4 pg. III-34, foraging habitat is 66 percent; denning habitat is 25 percent; and unsuitable habitat is 9 percent.

Reasonably foreseeable actions on National Forest lands in the LAU include:

- *Granite-Reeder Fuels Reduction Project.* A portion of the extreme eastern edge of the LAU is included within the tentative project area boundary. This project was identified as a National Fire Plan fuel reduction project. No proposed action has been developed. The locations and types of treatment are very speculative at this time. No new system road construction is anticipated; any needed roads probably would be temporary non-system roads. Preliminary work on an EIS is scheduled for this summer. Planned implementation of the project would not occur until 2003. Any activities would comply with lynx management guidelines. No other timber sale is planned in the LAU.
- *Special use permit for outfitting and guide services.* This permit, which covers the entire LAU, includes short-term activities that do not affect lynx habitat.
- *Maintenance of open roads and trails.* These annual maintenance activities on existing developments would not affect lynx habitat.
- *Noxious weed treatments.* These activities primarily would occur adjacent to open or restricted roads. No change in habitat conditions would occur.

Reasonably foreseeable actions on private land include:

- *Planned timber harvest on Stimson Lumber Company lands in Sections 3 and 9, T36N, R45E and Section 1, T37N, R45E, W.M.* As shown in Table 4, pg III\_34, there would be a 420-acre reduction in forage habitat, resulting in a loss of 2 percent of the acres of existing low quality forage. No harvest would occur in denning habitat
- *Management activities on other private industrial lands in the LAU.* In addition to the private lands discussed above, private industrial lands exist in Sections 31 and 33, T62N, R5W, B.M. and Section 25, T37N, R45E, W.M. Sections 31 and 33 and the majority of Section 25 were clearcut harvested in the past. A possibility of precommercial thinning and other management activities or timber harvest in Section 25 may occur on these lands in the future. Currently these acres are largely considered as unsuitable lynx habitat; precommercial thinning or other treatment of these acres would maintain those acres as unsuitable habitat.

## Alternative B

**Direct and Indirect Effects** - The construction of 4,000 feet of road on National Forest Lands would alter approximately six acres of lynx habitat. Habitat considered as low quality forage habitat for lynx would be converted to an unsuitable condition as a result of road construction and right-of-way clearing.

If a lynx were reported during any operations on National Forest lands, management activities would be delayed or altered as necessary, and protection measures would be implemented (see Chapter II, Features Common to All Action Alternatives). Those measures would effectively protect lynx and other TES species.

As described in Alternative A, natural stand successional processes would continue in the analysis area. Existing forage habitat for lynx would continue to mature; some areas would naturally increase and others would decrease in quality as lynx forage habitat. Insects and disease would, in some cases, increase habitat for denning as trees die and fall to the forest floor and provide structure for lynx to rear kittens.

**Cumulative Effects** - Planned activities in Section 5 (managed by the Stimson Lumber Company) would affect 345 acres of currently low quality forage habitat for lynx. As a result, these 345 acres of low quality forage would become unsuitable lynx habitat and would remain unsuitable for approximately 15 years or until vegetation regrowth has occurred. With the direct effect of loss of six acres on National Forest lands, the cumulative effect on lynx habitat therefore would total 351 acres in Alternative B. The federal and private activities, along with any other reasonably foreseeable actions, would cumulatively reduce low quality forage from 57 to 54 percent of the LAU (Table 4, pg. III-34). The proportion to denning habitat within the LAU would not change.

The proportion of unsuitable habitat in the LAU would be increased from six percent to nine percent. This would be well within the established guidelines both for total portion of the LAU in unsuitable habitat and for unsuitable habitat created within the last decade.

The unsuitable habitat would be forest openings created by timber harvest on Stimson lands. As newly created openings in the Sema LAU become reforested, they would eventually provide enough concealing cover for lynx to move through them. After approximately 15 years, trees growing in harvested areas may provide enough cover and browse to support populations of snowshoe hares, the primary prey for lynx. However, the suitability of this habitat could be short-lived if these areas are pre-commercially thinned. The Lynx Habitat Management Plan Biennial Report (Duke Engineering and Services 1998) predicts habitat values and changes in juxtapositions, seasonal forage and denning habitat from management activities. This model would be utilized in timber sale planning on Stimson Lumber Company lands (Duke Engineering and Services 1998). Connectivity would therefore be maintained on Stimson lands and across the landscape.

New road construction on National Forest and Stimson lands would be an extension of existing restricted roads. These new road segments would be closed to the public both during and after project activities. The open road density within the Sema Lynx Analysis Unit would not change.

Because the proposed road construction on National Forest lands would impact suitable habitat for lynx, the activity may affect lynx. However, the reduction in suitable habitat would be minimal, and the established thresholds and standards would be met. Therefore, it was determined that implementation of Alternative B would not be likely to adversely affect lynx.

Reasonably foreseeable activities on private lands would reduce the amount of available suitable habitat for lynx and thus may affect lynx. Because the established thresholds and standards for the management of lynx habitat would be met, it was determined that those activities would not be likely to adversely affect lynx or lynx habitat.

**Table 4. Summary of impacts to lynx habitat attributes in the Sema Lynx Analysis Unit (LAU).**

Habitat Attribute	Existing Condition		Alternative A		Alternative B		Alternative C	
	Acres	(%)	Acres	(%)	Acres	(%)	Acres	(%)
Denning Habitat	5,983	25	0	25	0-	25	-1.8	25
High Quality Forage Habitat	2,193	9	0	9	0	9	0	9
Low Quality Forage Habitat	13,925	57	-420	55	-771	54	-767	54
Unsuitable Habitat	2,247	9	+420	11	+771	12	+768.8	12
Unsuitable Habitat created in last Decade (Included in Unsuitable Habitat)	(1,385)	6	+420	8	+771	9	+768.8	9
<b>Total</b>	<b>24,348</b>							

**Note:** Values for Alternative A include reasonably foreseeable actions on private lands in the LAU, whereas values for Alternatives B and C include reasonably foreseeable actions in addition to impacts in Section 5.

### Alternative C

**Direct Effects** - The construction of 2,500 feet of road on National Forest lands would alter approximately 3.8 acres of lynx habitat. Approximately two acres considered as low quality forage habitat and 1.8 acres of lynx denning habitat would be converted to an unsuitable condition as a result of road construction and right-of-way clearing. Because design criteria establish that road construction activities would not occur during the lynx denning season, no displacement of females with kittens is anticipated to occur during this critical season.

If a lynx were reported during operations on National forest lands, management activities would be delayed or altered if necessary, and protection measures would be implemented (see Chapter II, Features Common to All Action Alternatives). Those measures would effectively protect lynx and other TES species on National Forest lands.

**Cumulative Effects** - Under Alternative C, the impact to low quality forage would be four acres less than under Alternative B, but impacts would occur to 1.8 acres of denning habitat. Overall cumulative effects associated with Alternative C would not differ significantly from Alternative B.

Because the proposed road construction on National Forest lands would impact suitable habitat for lynx, implementation of Alternative C may affect lynx. However, the reductions in suitable habitat would be minimal, and the established thresholds and standards would be met. Therefore, it was determined that the activity is not likely to adversely affect lynx.

Reasonably foreseeable activities on private lands would also reduce the amount of available suitable for lynx and thus may affect lynx. Because the established thresholds and standards for the management of lynx habitat would be met, it was determined that those activities would be not likely to adversely affect lynx or lynx habitat.

## Consistency With the Forest Plan and Other Regulatory Direction

All three alternatives would be consistent with the Forest Plan standard (II-11) for providing for recovery as outlined in species recovery plans or other management plans and guidelines for federally listed species such as the Canada lynx; and Forest Plan Standard (II-9) for maintaining viable populations of all species.

## Water Resources

### Regulatory Framework

The principal law governing pollution in the nation's streams, lakes, and estuaries is the Federal Water Pollution Control Act (P.L. 92-500, enacted in 1972), commonly known as the Clean Water Act (amended by P.L. 95-217 in 1977, P.L. 97-117 in 1981, and P.L. 100-4 in 1987). Congress enacted the Clean Water Act as the first comprehensive national clean water legislation in response to growing public concern for serious and widespread water pollution. The Clean Water Act is the primary federal law that protects the nation's waters, including lakes, rivers, aquifers and coastal areas. The Clean Water Act's primary objective is to restore and maintain the integrity of the nation's waters. This objective translates into two fundamental goals:

- Eliminate the discharge of pollutants into the nation's waters, and
- Achieve water quality levels that are fishable and swimmable.

Through the Clean Water Act, each state was required to provide guidance and direction to protect and restore water bodies. The State of Washington met this federal requirement through their state recognized Best Management Practices (BMPs). The Forest Service is required to meet and/or exceed State Best Management Practices to protect water quality (Forest Plan, p. II-33)

The Forest Plan provides direction regarding the management of land to enhance and protect aquatic resources. Specific goals and standards are presented for each resource. Specific references to aquatic resource goals are found on pages II-1 and II-2 of the Forest Plan. Goal #18 the Forest will "maintain high quality water to protect fisheries habitat, water-based recreation, public water supplies and be within state water quality standards." Specific standards for the water resources are found on page II-33 of the Forest Plan. The focus of these standards is to ensure that activities on National Forest lands do not impair water quality and will adhere to state water quality standards. There is no listing of specific numerical thresholds or standards for water quality given; instead, the Forest Plan relies on state standards. According to Appendix CC of the Forest Plan, the South Fork of Granite Creek is a "scheduled" drainage. A scheduled drainage means that, "...site specific data does not indicate a sediment/fish habitat quality problem exists." The drainage could be scheduled for timber harvesting. (Forest Plan, Appendix CC, p. CC-2).

The Forest Service is required by law to comply with state water quality standards developed under the Clean Water Act as stated above. The Environmental Protection Agency (EPA) and the State of Washington are responsible for enforcement of these standards. The State's water quality standards regulate non-point source pollution from timber management and road construction activities through application of Best Management Practices (BMPs). The BMPs were developed under authority of the Clean Water Act to ensure that Washington's waters do not contain pollutants in concentrations that adversely affect water quality or impair a designated use. The use of Best Management Practices (BMPs) is also required in the Memorandum of Understanding between the Forest Service and the State of Washington as part of our responsibility as the Designated Water Quality Management Agency on National Forest System lands. State-recognized BMPs that would be used during project design and implementation on National Forest lands are contained in Appendix A.

The Washington Forest Practices Rules, particularly WAC (Washington Administrative Code) 222-30, Timber Harvesting, and WAC 222-24, Road Construction and Maintenance, apply to this project. The State of Washington's Antidegradation Policy is found in Washington Administrative Code (WAC 173-201A-070). The Antidegradation policy of the State of Washington is generally guided by Chapters 90.48 and 90.54 of the RCW, Water Resources Act of 1971, and is designed to prevent degradation of water resources. A summary of the Washington Antidegradation Policy Act is located in the project file. Activities on private land also would comply with these regulations. The Washington Department of Natural Resources (DNR) is the agency responsible for enforcement of these regulations on private lands.

Implementation of the prescribed BMPs, design criteria, and feedback loop would prevent adverse impacts to beneficial uses. In summary, this activity will adhere to the Clean Water Act, Washington State Rules and Regulations, and will follow direction established by the Forest Plan.

### **Recognized Beneficial Uses**

Within the cumulative effects analysis area, beneficial uses include stream habitat for several species of native fish in the streams. These extensive riparian and other wetland habitats are used by fish, wildlife and sensitive plant species, and also serve to moderate flooding and ensure

quality water downstream. For the purposes of this assessment, beneficial uses that could be affected by the proposed action include coldwater biota and protection of fish habitat.

## Methodology

The data for this analysis includes field data, aerial photos from 1996, Geographic Information Systems (GIS) analysis, scientific literature, and effects modeling techniques. This information is available for review in the project file.

**Field Reviews:** As part of the analysis, two field reviews were conducted in October and November 1997. The first field review included a reconnaissance of both potential road locations and a stream survey of those tributaries that would be affected by the road location. The second field review documented the condition of the mainstem of Sema and the major tributaries that were crossed. Information from these surveys is located in the project file. Another field survey (2001) also reviewed Stimson lands and reviewed the effects of management activities on the aquatic resources in Section 9.

**Aerial Photos:** Aerial photos from 1996 and earlier were used to assess overall slope stability, document historical mass failures, and review past land management activities within the cumulative effects analysis area. A summary of the photo review is located in the project file.

**GIS Technology:** Geographical Information Systems were used to combine existing databases, proposed activities and data taken from aerial photos to create maps and summary tables of existing conditions. Landtype maps and descriptions were input into GIS layers to evaluate the existing condition and for the effects analysis. This analysis was used to describe the affected environment and for the effects analysis. This information is located in the project file.

**Scientific Literature:** The X-DRAIN model is a computer program based on the Water Erosion Prediction Project (WEPP) and was used to predict sediment delivery to the streams from each road crossing. References including Rosgen 1996; Ketcheson and Megahan 1996 and the X-DRAIN model (Elliot 1996) were used to predict the possible effects of the actions on the streams. These references provide the basis for determining how effective prescribed mitigation measures would be or how streams would react to disturbances. Additional references were used concerning the effectiveness of mitigation measures and to describe the historical condition, and are included in the project file.

As described in Chapter II of this document, the watershed portion of this assessment will focus on two issues that affect overall watershed condition: Sediment delivery to streams, and predicted changes to channel morphology.

**Sediment Delivery to Streams:** This issue was assessed using the data from field surveys, aerial photos, landtype maps and descriptions, the X-DRAIN model, scientific literature, and GIS technology.

The X-DRAIN model was run to estimate a relative comparison of sediment delivery between action alternatives. The X-DRAIN model is intended to predict sediment delivery values from existing roads, not from newly constructed roads. This model is unable to account for reductions

in sediment delivery attributed to the successful implementation of Best Management Practices. Therefore, in the following effects analysis, it is important to understand that the sediment delivery values derived from the X-DRAIN model would be for the worst-case scenario. By using prescribed BMPs, only a very small fraction of this material would be delivered to the stream.

Predicted sediment delivery rates for both alternatives would be reduced through design criteria as discussed in Chapter II, Features Common to Alternatives B and C. Examples of successful reductions of sediment delivery to streams have been substantiated by the following research: Graveling the road surface with a minimum thickness of six inches of quality aggregate can reduce surface erosion by 80 percent (Foltz and Truebe; 1995; pp. 49-57; Burroughs and King, 1989. pgs 1-2; Elliot, et al., pp. 8-9). The construction of slash filter windrows can reduce sediment delivery 75 to 85 percent (Cook and King, 1983, pp. 3-5; Burroughs and King, p.7; and Seyedbagheri, p. 36 and pp. 59-60). Immediate hydroseeding of cut and fill slopes can reduce sediment delivery up to 80 percent (Burroughs and King 1989). Based on the above scientific research, 80 percent of the estimated sediment predicted from the X-DRAIN model could be mitigated successfully with these proven best management practice. As an example, one ton (i.e. 2000 pounds) of sediment would be reduced 80 percent to 400 pounds, or about equal to five 5-gallon buckets of sand (it is assumed that a 5-gallon bucket full of sand would weigh about 75 pounds). Theoretically, these five 5-gallon buckets of sand would be delivered across the drainages over the length of the entire road.

The sediment delivery values predicted using the X-DRAIN model (adjusted for BMP effectiveness) are presented in the Environmental Consequences section. A comparison of the X-DRAIN values with and without BMP mitigation is located in the project file.

*Predicted Changes to Channel Morphology:* This issue was assessed using data from field surveys, aerial photos, GIS-derived data, and scientific literature. This issue comparison between the two action alternatives was an analysis and interpretation of the predicted sediment delivery and integration of other relevant factors such as road location, design criteria, stream characteristics, and geology.

## Affected Environment

### The Hydrologic Setting

The entire Sema watershed includes just over 7,000 acres. Sema Creek is a tributary to the South Fork of Granite Creek, which ultimately joins the mainstem of Granite Creek. Granite Creek is one of the larger tributaries to Lower Priest Lake. Based on field reviews in 1997, Sema Creek meets water quality standards for the State of Washington. The overall condition of Sema Creek was described in 1997 by surveyors as, “... *very stable and does not exhibit any evidence of erosion and active channel migration. The banks are heavily vegetated with grasses and ferns...and are very stable.*”

The cumulative effects analysis focuses on the 2,463-acre (3.8 miles) sub-drainage of Upper Sema Creek as depicted on Figure 6, pg. III-41. This sub-drainage is located in the western-most

headwaters of the Sema Creek drainage that includes the entire watershed upstream of the western most beaver dam complex in Upper Sema Creek. This portion of the watershed was selected for the cumulative effects analysis based on an assessment of the proposed actions and the landforms. The proposed activities on National Forest lands are located between 0.6 miles to one mile upstream from the mainstem of Sema Creek. The streams flowing across the proposed easement flow down relatively steep terrain for the first few hundred feet and then the channel gradients become markedly less steep for the last quarter mile prior to reaching Sema Creek. In this low gradient stream channel, the stream would drop most, if not its entire sediment load and therefore very little, if any, sediment would reach the mainstem of Sema Creek. However, for the purposes of defining the cumulative effects analysis area, this analysis took a very conservative approach and assumed the worst-case scenario – a failure at a stream crossing on one of the new road crossings. If this worst-case scenario were to occur, then some small amount of sediment could reach fish bearing portions of Sema Creek but would be captured behind one of the existing beaver dams. This defined cumulative effects analysis area is the furthest spatial extent effects would likely be measured as a result of the proposed Federal action.

**Reference Reaches:** The direct and indirect effects would be limited to the first and second order tributaries flowing from the north-facing slopes of Section 8. Section 8 is where the two access alternatives are proposed. Any sediment generated from a proposed crossing from the Alternative B route would need to be routed for almost a mile prior to reaching the mainstem of Sema Creek. Similarly, any sediment generated off of a proposed crossing from the Alternative C route would be routed for about 0.6 miles prior to reaching Sema Creek.

The tributaries flowing through the proposed areas of road construction are a mix of A and B channel types (Cobb, field notes, 1997; Rosgen, 1996, pp 5.2-5.7). The majority of the steeper first order tributaries are A4 and A5 whereas the proposed live channel crossings would occur on B5+ and A5 channel types. The B5 channel type is characterized by a series of rapids with irregularly spaced scour pools. The channel materials are composed of sand with a small amount of gravel. The B5 stream type is relatively stable where the riparian zone is unmanaged. The A5 stream type is steeper than the B5 channel type and is generally found on slopes in excess of 10 percent. The substrate of the A5 channel type is predominantly sandy materials with some gravel. In the A5 channel type, bedload transport rates are very high. The channel bed and banks are considered inherently unstable and very sensitive to changes in streamflow regime or sediment supply for this channel type (Rosgen, 1996, pp 5.2-5.7).

During a field review of October 1997, it was noted that the newly constructed road on Stimson property in Section 9, T36N, R45E, W.M. was eroding and that some of the sediment was reaching the B5 channel that would be affected by this proposed access. The stream was efficiently moving the sand through the system though some elevated levels of deposition were noted in the streams with the existing road crossing. Though there was elevated sediment in the affected channel, the stream geomorphology was unchanged and the sediment was transitory (see 1997 survey notes in the project file). The road crossing on private land did not have the more stringent design criteria that are incorporated into the road crossings proposed under this federal action. A subsequent field survey in June 2001 found that the road crossings were revegetated, and no erosion was occurring on this existing road.

The portion of Sema Creek in the cumulative effects analysis area lies upstream of a large beaver complex. The tributaries in the proposed project area ultimately flow into this E4 channel reach of Sema Creek (Rosgen, 1996, pp. 5.2-5.7). E4 channel types are hydraulically efficient channel forms, which maintain a high sediment transport capacity. Streambanks are composed of silt and are densely rooted with grass sod mats and other shrub species. The vegetation within the riparian zone makes this channel type very stable. E4 channel types are very stable unless the stream banks are disturbed, and significant changes in sediment supply and/or streamflow occur (ibid).

This E4 section of Sema Creek is a classic meadow stream characterized by a narrow width-to-depth ratio, stable channel slopes, and high entrenchment. The stream dissects three broad meadows at this lower end of the cumulative effects area. The overhanging channel banks are very well vegetated and stable. Generally, the channel width is less narrow at the top of the channel banks and wider at the base of the channel. Within this specific portion of Sema Creek, field surveyors found several older beaver dams. These beaver dams trap natural sediment moving through the system, moderate the streamflows, and provide physical structure to the creek. There were not enough beaver dams in the meadow to alter the Rosgen channel reach classification. The beaver dams have most likely slowed the water enough over the years to allow natural sediment to settle out. The low gradient of the meadow along with the existing dams add to the natural sinuosity of the E4 channel.

### **Influence of Geology and Soils on Hydrology**

The underlying geology of much of the Sema Creek drainage is granitics with an overburden of glacial till. The till contains a highly variable amount of hard, subangular to rounded gravel and cobble in a coarse loamy to sandy matrix (Map Unit 360, Kaniksu Forest Landtype Database 1992, p. 16). The till closest to the surface is commonly loose and permeable, whereas the deeper till can be dense and impermeable (ibid). The contact between the two tills is frequently where water is perched (ibid). Water moving down the slope tends to be relatively close to the surface. The tendency for water to be close to the surface is especially true near the scarps of ancient mass failures. Soils in this analysis area have a loamy and sandy texture.

These glacial till produced soils are inherently unstable for standard cut and fill road construction because of perched water tables. This perched water is “released” when roads are constructed which cut through the perched water tables. Once these water tables are disturbed, road cutbanks tend to be unstable because of the excess water that constantly seeps out of the banks, causing the cutbanks to slough off into ditchlines or culverts. The plugged ditches and culverts force the water out of the ditchlines, thus increasing the risk of road damage and increasing the risk of directly delivering sediment to the streams.

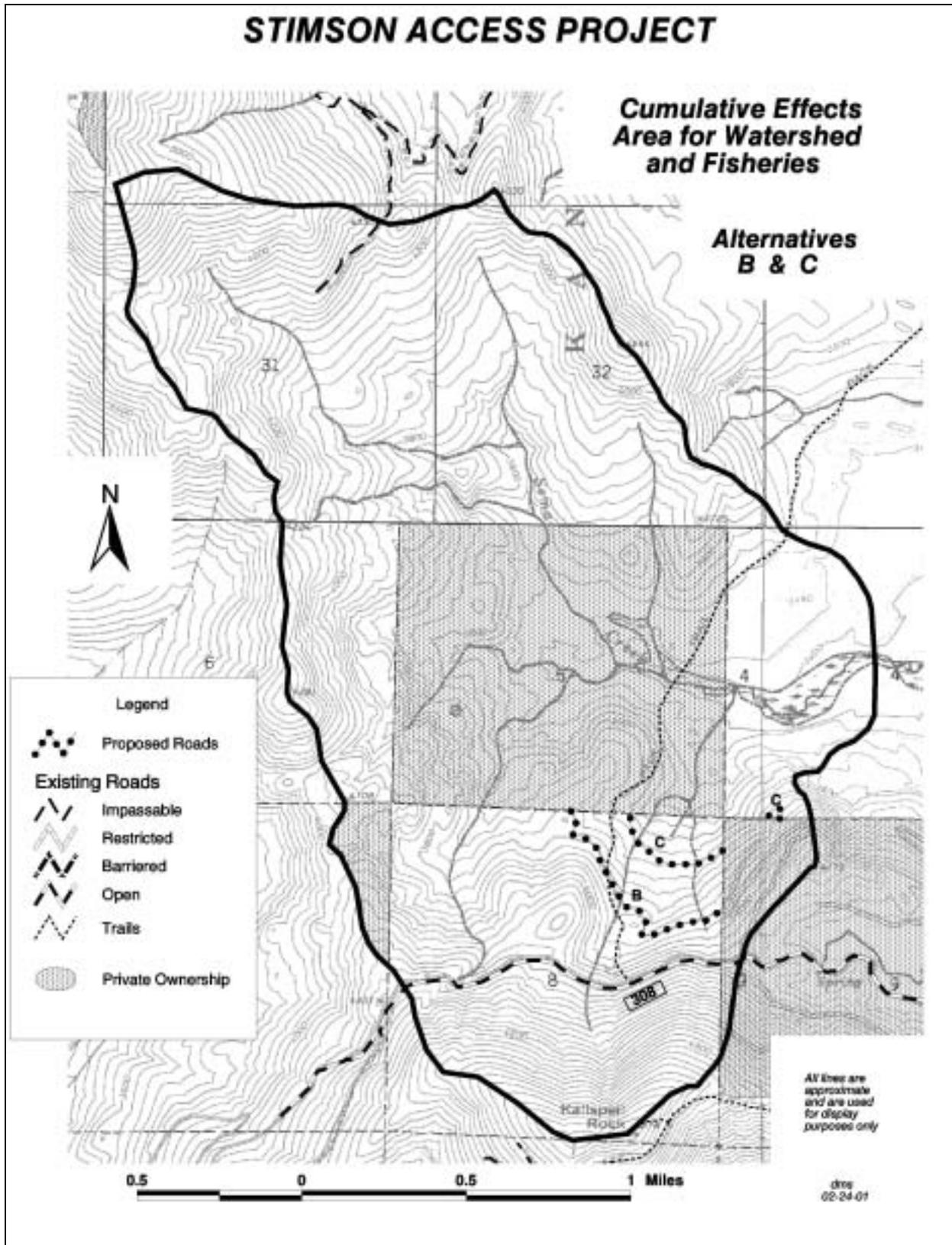


Figure 6. Cumulative effects analysis area for Water Resources and Fisheries.

Like the rest of the Sema Creek drainage, the Upper Sema subdrainage as defined for the cumulative effects analysis has evidence of ancient mass failures. In this particular area, the mass failures are old (over 5,000 years old) and most likely occurred when the last glaciers were retreating. As the glacier retreated, it dropped surface materials that created the glacial tills. The mass failures occurred after the glacier had retreated and while there was still considerable moisture. Within the drainage defined for the effects analysis, an aerial photo review determined that both action alternatives would cross one of these ancient mass failures (Jerry Niehoff, Soil Scientist, Report Memo, 2/13/2001).

When the mass failure nearest the proposed activities occurred, the perched glacial tills moved down the slope and piled up at the base of slope. Therefore, the perched water table is less deep at the top of the slope than it is at the base of the slope. Subsequently, the top portion of the slope would intercept more water than would a similar road cut at the base of the slope. Generally, the stream channels located higher on the slope therefore are more sensitive to water and sediment yield increases.

The terminus of the ancient mass failure is where the landform becomes relatively gentle. It is at this point on the slope, that the main unnamed tributary to Sema Creek, flowing from the northeast corner of Section 8, T45E, R36N, has a greatly reduced gradient and does an abrupt turn. Given the channel's reduced gradient and sharp turn, it is likely that most sediment generated from either action alternative would settle out in this unnamed drainage prior to reaching Sema Creek.

Because of the existing geology, the tributaries within the area are cutting through the old flows of the mass failures as well as the glacial deposits. The result is that these tributaries have a predominantly sandy substrate with a limited amount of larger materials. In cutting through these ancient deposits, these tributaries are cutting through the glacial till and intercepting much of the perched groundwater. The interception of the perched groundwater along with the predominantly sand component of the bed and banks of the streams is what would cause these streams to be inherently unstable.

## **Historic Land Use**

The Sema Creek drainage burned over in 1926 in a large wildfire that covered several thousand acres. The fire was a lethal stand-replacing fire in which most of the trees were killed; leaving isolated individual or scattered pockets of trees in more sheltered locations.

Timber harvesting and road construction has been limited in the Sema Creek drainage. Land use data compiled for the larger Sema Creek drainage from the hydrologic portion of the Idaho Panhandle National Forests North Zone Geographical Assessment (Draft) is presented in the project file. Roughly two percent of the drainage has been harvested and road density is about 1.2 miles/mile<sup>2</sup>. A majority of the harvesting has occurred only on private lands within the Sema Creek. This harvesting was completed using primarily conventional tractor logging methods and the residual stand of trees has canopy closures of less than 20 percent.

Within the cumulative effects area, 15 acres of National Forest lands in the upper reaches of the watershed were logged in Section 31, T37N, R45E, W.M. in 1969. This overstory removal

harvest was logged by a tractor system in a landtype of low sediment delivery potential. The area is fully stocked with trees, and there is minimal, if any, effects resulting from this past action. More recent logging has occurred in Section 9, T36N, R45N, W.M. on private lands.

### **Sediment Delivery**

Current sediment delivery to the tributaries of Sema Creek as well as the mainstem of Sema Creek is a function of natural erosion rates and any sediment attributable to past ground-disturbing activities. The natural rate of soil erosion in the Sema Creek basin is estimated at 15-tons/square mile (based on landtype value accumulation calculated using the WATSED model, Project File).

The recent activities and road construction on private land (Section 9, T37N, R45E, W.M.) suggest that sediment delivery to the tributaries of Sema Creek has increased from the road construction. It is estimated that the road density on private lands is 3.8 miles/mile<sup>2</sup>. Although road density alone does not characterize the likely condition of a watershed, it can serve as an indicator. Generally, higher road densities translate to higher probabilities of sediment delivery to the streams through road failures because of increased stream crossings, extended ditchlines, and associated road fills (Quigley and Arbelbide, 1997, pp. 1102-1104). During a 1997 field review, it appeared that the existing roads were delivering sediment to the channels. It is likely that some of this sediment has reached Sema Creek and was trapped behind the beaver dams. In a subsequent field review of these roads in 2001, no erosion or sediment delivery was evident largely because of vegetation of the road surface as well as the cut and fill slopes.

## **Environmental Consequences**

Direct effects are those that are immediately detected either in time or space as a result of the proposed easement on National Forest lands. Indirect effects are those that are detected either at a later time or place and occur separate from the activity. The direct and indirect effects analyses are combined in this document.

Cumulative effects are based on the reference condition, the direct and indirect effects of the proposed activities, past effects, and any reasonably foreseeable actions. The reference condition of the cumulative effects analysis is presented in the Hydrological Setting section of this document. The cumulative effects analysis area is the Upper Sema Creek drainage (Figure 6, pg. III-41). The terminus of the cumulative effects analysis area is the downstream end of the western most meadow. The project area streams would drain directly into the E4 portion of the Sema Creek drainage just upstream of a series of beaver dams. Unlike the streams that would be crossed by the road easement activities, the mainstem of Sema Creek has a much gentler gradient and is an inherently more stable system in terms of resiliency to increases in water and sediment yield (Rosgen, 1996, pp. 6.7-6.9).

Reasonably Foreseeable Activities that would occur on National Forest lands within the defined cumulative effects analysis area include:

- Ongoing road and trail maintenance
- Occasional recreation activities such as hiking, berry-picking, and hunting

- Ongoing noxious weed treatments
- Snowmobiling use
- Special Use permit for outfitting and guiding services

On private lands within the cumulative effects area, reasonably foreseeable actions include:

- Timber harvest in Section 9, T36N, R45E, W.M.
- Timber harvest and road construction in Section 5, T36N, R45E, W.M.

## **Alternative A**

**Direct and Indirect Effects:** Selection of the No Action Alternative would mean that neither road access alternative would be implemented. Conditions in Section 8, T36N, R45E would remain unchanged in terms of soil and water conditions.

*Sediment Delivery to Streams:* Under the No Action Alternative, there would still be some delivery of sediment to streams from the channel banks and instream erosion from natural processes. There would not be any detectable changes in the existing level of sediment delivery or movement in the streams.

*Predicted Changes to Channel Morphology:* There would be no change to channel morphology under the No Action Alternative.

## **Cumulative Effects**

No timber harvest or road construction has occurred on National Forest lands except as discussed above under historic land use. In 1969, approximately 15 acres were logged in the headwaters of Sema Creek in Section 31, T37N, R45E, W.M. The overstory trees were removed at that time, and the residual saplings and pole-sized trees have grown over the past 30 years. The road accessing this overstory unit has revegetated and is non-accessible to motorized vehicles because of the heavy brush. There are no effects to the aquatics resource occurring from this past action.

Other than the proposed road easement, there are no reasonably foreseeable activities planned to occur on National Forest lands that would cumulatively affect the aquatic resources. Road maintenance would continue to occur on Road 308 consisting of normal maintenance activities such as grading, brushing, culvert and drainage maintenance, and other associated work. Because these effects would occur on an existing system road, minimal, if any, effects would occur. The noxious weed control work would largely occur adjacent to Road 302, and would follow guidelines as established in the Priest Lake Noxious Weed Control Project FEIS (1997) to avoid any impact to aquatic resources. Recreation use through the area would continue to be low use and primarily associated near or adjacent to Road 308. The snowmobiling activity in the cumulative effects area largely occurs on Road 302. The activities associated with the outfitter and guide permit also would be limited, and would not include any ground-disturbing activities. Therefore, because there are no ground-disturbing activities associated with these reasonably foreseeable actions on National Forest lands, the cumulative effects of these future activities on the Upper Sema watershed would be minimal, if any.

In Alternative A, the proposed logging and road construction activities in Section 5, T36N, R45E, W.M. would not be expected to occur. Therefore, no cumulative effects would occur.

On private lands within the cumulative effects area, past timber harvest and road construction has occurred in Section 9, T36N, R45E, W.M. Approximately 59 acres of Section 9 are included within the cumulative effects area for watershed. In 1995-1996, Stimson Lumber Company built roads and logged approximately ten acres. An overstory removal cut was conducted on two acres in which a majority of the overstory trees were removed (70 percent), leaving a stand of largely sapling or pole-sized trees. The remaining eight acres were an even-aged regeneration harvest in which a majority (95 percent) of the trees were cut, and the area regenerated. As discussed previously, a field survey in 1997 found erosion occurring on the newly constructed roads with some sediment reaching the tributaries of upper Sema Creek. It is possible that some of the sediment reached Sema Creek, and was trapped behind the beaver dams. A subsequent field survey in 2001 found that no erosion was occurring from the roads largely because of revegetation of the cut and fill slopes of the road.

The remaining non-harvested acres in Section 9 would be logged in the future. No additional road construction would occur because the roads accessing this portion of the section were constructed in 1995-1996. Planned harvest includes 25 acres of shelterwood and 23 acres of seedtree/clearcut. A cable logging system would be used for the seedtree/clearcut units; tractor logging would occur on the shelterwood units. This harvest would probably occur in 2002-2003. These proposed activities would be expected to comply with the Washington Forest Practices Rules, particularly WAC (Washington Administrative Code) 222-30, Timber Harvesting, and WAC 222-24, Road Construction and Maintenance. Enforcement of these practices would be the responsibility of the Washington Department of Natural Resources (DNR) to ensure these practices were implemented to avoid adverse impacts to the watershed.

*Sediment Delivery to Streams:* If the No Action Alternative were chosen, then the sediment delivery from the smaller tributaries draining Section 8 of the project area would remain unchanged.

*Predicted Changes to Channel Morphology:* If the No Action Alternative were chosen, then the tributaries draining Section 8 of the project area would not change. The tributaries would continue to deliver sediment at natural rates to larger Sema Creek. There would be no changes to channel morphology.

#### **Effects Common to Alternatives B and C:**

**Direct and Indirect Effects:** Both alternatives would have direct and indirect effects to water resources.

*Sediment Delivery to Streams:* Under both action alternatives, there would be some delivery of sediment to the first and second order drainages crossed by either proposed road on National Forest lands.

The predicted sediment delivery values for each action alternative are located in Table 5, pg. III-46. With the application of design criteria described in Chapter II and based on the cited scientific literature, the estimated amount of sediment that could be delivered in any year would be reduced by at least 80 percent. Therefore, under Alternative B, the estimated amount of sediment delivery to the streams would be equal to approximately 1090 pounds of sediment or about 14.5 five gallon buckets of sediment. Similarly, in Alternative C, the implementation of the design criteria would yield about 380 pounds or about five 5-gallon buckets of sediment.

The sediment generated from either action alternative would not be delivered at one time and would be routed gradually down the stream. During high seasonal stream flows, the first and second order tributaries would effectively transport the sediment down the slope. Some of the material would be trapped behind the smaller natural obstructions in the channels, but most of the material would be delivered to the lower gradient reaches where the sediment would be deposited onto the floodplains. As the high seasonal streamflows ebbed, the material would be distributed behind rocks and woody debris and in eddies. The sediment generated from either road crossing would mostly be deposited in the low gradient reaches of the B channel prior to reaching the mainstem of Sema Creek. Within one or two years of the initial road construction (depending upon weather and stream runoff patterns), the material deposited in the lower B channel would gradually move down to the E4 channel in Sema Creek. At this point the sediment would be efficiently routed down the channel and deposited behind the existing beaver dams.

According to the Priest River Sub-basin Geographical Assessment (draft), the average natural rate of erosion within the Sema Creek drainage would be approximately 15 tons of sediment per square mile. While the amount of sediment predicted to be delivered under either action alternative would be higher than what is currently moving through the system, it would be within the range of natural variability. The large stand replacing fires of 1926 likely increased water and sediment delivery beyond those delivery rates predicted under either action alternative (Minshall and Brock, 1991, pp. 129-130; Minshall et al, 1989, pp 111-118; Anderson, 1976. pp. 249-258).

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**Table 5. Predicted sediment delivery values, adjusted for BMP effectiveness, for each Action Alternative.**

<b>Alternative</b>	<b>Modeled Sediment Delivery per year for the entire road easement, adjusted for BMP effectiveness</b>
Alternative B	1090 pounds
Alternative C	380 pounds

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*Predicted Changes to Channel Morphology:* The increases in sediment delivery to the first and second order streams would not cause long-term measurable changes to any of the channels affected by the proposed road construction under either action alternative. Sediment movement and deposition is a natural function of these streams. Over most of the proposed stream crossings, the amount of projected sediment would not cause long-term changes in channel morphology to any of the stream systems. There would be some limited pool filling immediately downstream of the new crossings for the first year or two after construction in either action alternative. After two or three years, this material would be transported down the channel and be deposited behind natural obstructions.

The sediment prediction model suggests that for most of the proposed crossings, the amount of sediment delivery to each stream would be small enough to be easily transported through the channel. However, the same predictions for sediment delivery are markedly higher for the first stream crossing (i.e. most easterly) proposed under Alternative B. At this particular crossing, it is predicted that with mitigations, approximately 850 pounds of sediment would be delivered annually to the stream. This value is over twice the value of any other proposed stream crossing. The amount of sediment that would be delivered to the first stream crossing under Alternative B would cause changes in channel morphology in the first few hundred feet of the affected stream channel. If the 850 pounds of sediment were delivered to this specific B5 channel type on an annual basis, then the channel would have some pool filling and sediment would be deposited on the floodplains during high flow events. Given the projected amount of sediment that could be delivered, the sediment at this particular crossing would take up to five years to move through the system or become stabilized. As discussed earlier, the first year after road construction has the greatest rate of sediment delivery. The amount of delivered sediment to the streams is expected to be markedly less after the first year to the point where only incidental sediment would be delivered after five years because of re-vegetation of the raw soils exposed by the road construction activities.

The rest of the streams that would be crossed by either action alternative would be only minimally affected by the annual increases in sediment. Predicted sediment delivery to these streams is much less than the sediment delivery previously noted for the crossing on Alternative B. The immediate impact to channel morphology would be very limited pool filling for the first several yards downstream. This material would not be enough to change channel morphology. These streams would continue to transport sediment normally and the amount of sediment moved through the systems would be within the natural range of variability.

**Cumulative Effects:** The cumulative effects for both Alternatives B and C follow the discussion for Alternative A. The past, ongoing, and reasonably foreseeable actions on National Forest lands as described in the cumulative effects discussion for Alternative A would have minimal cumulative effects on the watershed.

For either action alternative, the cumulative effects analysis assumes that road access would be provided across National Forest lands in Section 8, T36N, R45E, W.M., and that Stimson would harvest the timber on their land and construct the road system. The basis of this analysis includes two key documents: 1) a technical report entitled "Erosion and Sediment Control Analysis Sema Creek, Section 5 and 8, T 36N, R45E, W.M. by Western Watershed Analysts

(McGreer and Schult 1998), and 2) a letter authored by Stimson personnel on April 29, 1998 documenting their intentions for reducing sediment delivery to the streams. Both these documents are included in the project file. Provided the best management practices and design criteria identified in these two documents are implemented on private land, then the estimated amount of sediment delivery to the streams would be within the range of natural variability and the streams would be able to process the predicted increases in sediment.

*Sediment Delivery to Streams:* The proposed road construction on federal lands under either action alternative in combination with the reasonably foreseeable proposed harvest and road construction activities within Sections 5 would have little measurable effect on sediment delivery to the tributaries feeding into Sema Creek. Provided the sediment reduction techniques presented in the Western Watershed Analysts technical report (McGreer and Schult, 1998) and the April 1998 Stimson letter would be followed in addition to the Washington Forest Practices being implemented, then the proposed activities in Section 5 would not increase sediment delivery to the mainstem of Sema Creek in quantities enough to create adverse stream conditions. Any cumulative increase of sediment and water yield would be efficiently routed through the mainstem of Sema Creek. Excess sediment would be trapped behind the existing network of beaver dams in Sema meadows. During extreme high flow events, there is a chance that a limited amount of sediment would move through the first meadow complex and be deposited in the second meadow complex.

*Predicted Changes to Channel Morphology:* Over the course of several years (3 to 5 years) the sediment pulses generated from the Stimson inholdings would move gradually but efficiently through the stream system. Much of the sediment would be stored behind existing obstructions. As the obstructions fail, pulses of sediment would move through the system to be trapped in other downstream obstructions or along floodplains during high flow events.

The proposed actions on Federal land, along with the reasonably foreseeable proposed treatments on private ground and existing conditions within the Sema Creek watershed suggests that the resiliency and channel morphology of Sema Creek would be maintained.

## Consistency With the Forest Plan and Other Regulatory Direction

The Forest Service has agreements with the State of Washington to implement Best Management Practices (BMPs) or Soil and Water Conservation Practices for all management activities to meet the objectives of the Washington Forest Practices Rules.

The proposed access routes across National Forest lands would comply with the Clean Water Act and would not adversely affect beneficial uses (refer to the Federal Checklist in the project file).

# Fisheries

## Regulatory Framework

The National Forest Management Act (NFMA) (1976) requires that the Forest Service manage for a diversity of fish habitat to support viable fish populations (36 CFR 219.19). Regulations further state that this evaluation should be based on management indicator species (MIS) and the reason for the choice of MIS is documented (36 CFR 219.19(a)(1)). Proposed planning rules now suggest a more inclusive use of species than MIS to evaluate effects. These proposed planning regulations require the use of focal species that reflect different ecological components of the entire ecosystem. It also requires the use of threatened and endangered species as focal species. For this EIS, westslope cutthroat trout and bull trout have been selected as the appropriate MIS for fisheries.

Section 7 of the 1973 Endangered Species Act (ESA) includes direction that Federal agencies, in consultation with the United States Fish and Wildlife Service, will not authorize, fund, or conduct actions that are likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat. To meet this obligation, the Forest Service must initiate consultation with the Fish and Wildlife Service early in the process, and concurrence with our effects evaluation must be completed prior to signing any final decision.

The Forest Plan for the Idaho Panhandle National Forests (IPNF) provides management goals and objectives for the protection of the fisheries resources (p.1, items #8, 9, 11, 13, 18, 19). Among these goals are to “manage habitat to maintain populations of identified sensitive species of animals and plants” and to “manage fisheries habitat to provide a carrying capacity that will allow an increase in the Forest’s trout population.” The Inland Native Fish Strategy (INFS) amended the IPNF Forest Plan in August 1995 with additional standards and guidelines to protect the aquatic environment (USDA 1995). These standards provide for specific size buffers on streams, for minimizing the impacts of roads and road construction of stream systems, and for other actions that maintain or improve the current condition of Federal watersheds.

Appendix I of the Forest Plan Item G-1 requires that when cumulative effects analyses on stream sedimentation are projected to result in greater than a 20 percent reduction in fry emergence, a more detailed fishery/watershed analysis will be undertaken before an environmental analysis is approved. The 1989 Forest Plan Evaluation and Monitoring Report documents the change away from use of the fry emergence standard (USDA 1989, pages C-1 and C-2). The findings were that it was not a good monitoring tool to report stream health. G-1 was combined with an expanded G-3, which includes a more comprehensive array of fisheries and hydrology parameters.

Additional regulatory requirements related to fisheries resources (*e.g.* Clean Water Act and Idaho Water Quality Standards) are addressed in the Water Resources sections.

## Methodology

Documentation of the direct, indirect, and cumulative effects of this project will distinguish between private and Federal actions.

Existing conditions were established for primary habitat components believed to be influencing the production potential of the MIS fish within Upper Sema Creek. Changes to habitat resulting from the alternatives are addressed by measuring changes in habitat components. These components can be affected by land management activities (Hicks et al. 1991). Habitat components used in this analysis include stream temperature, habitat diversity, cover complexity, and channel stability. Protecting these stream habitat components ensures that the Riparian Management Objectives of the Idaho Forest Plan (1987), as amended by INFS (1995), are achieved.

The cumulative effects analysis area for this project is upper Sema Creek (Figure 5, pg III-16). This boundary is delineated for cumulative effects because it is likely the furthest spatial extent of measurable effects from activities on Federal lands (see Sediment Delivery Risk below). Although highly unlikely, a culvert failure on the Federal portion of the proposed road could result in an increase in sediment in Sema Creek. Because of the large number of beaver ponds in upper Sema Creek, this sediment would not be transported further downstream.

Private activities related to this access proposal include timber harvest and road building on private land. Although the Forest Service does not sponsor or regulate these actions, they play a role in the cumulative effects analysis for this project. It is assumed that all private actions will be conducted in compliance with Washington Departments Forest Practices Rules (WAC 222, the rules can be accessed at [www.wa.gov/dnr/htdocs/fp/fpb/222-30.html](http://www.wa.gov/dnr/htdocs/fp/fpb/222-30.html)). A FEIS was completed by the Washington Department of Natural Resources (DNR) in April 2001 to modify the Forest Practices Rules for aquatic and riparian resources. The proposed action would increase protection of aquatic and riparian resources by modifying Best Management Practices, increasing buffer strip requirements, and incorporating other rules (DNR; April, 2001).

### Habitat Components Important to MIS

*Stream temperature* is an indicator of aquatic habitat conditions in the cumulative effects area. The harvest of riparian vegetation has the potential to increase stream temperatures by reducing streamside shade (Hicks et al. 1991). The direct removal of riparian vegetation through road construction and timber harvest increases solar radiation. Neither of the MIS thrives in warm water conditions. Bull trout, in particular, prefers extremely cold (<10°C) water temperatures (Lee et al. 1997).

*Habitat diversity* (composition and quality) is assessed by the quantity and degree of development of various types of aquatic habitat (e.g. pools, riffles). Stream segments possessing numerous habitats with a wide variety of stream velocities, water depths, and physical habitat configurations are considered more diverse and have a greater potential for meeting the habitat requirements of naturally reproducing MIS populations. Removal of riparian vegetation can reduce instream wood, increase sediment, and change stream morphology. Both MIS prefer complex aquatic habitat.

*Cover complexity* as an indicator of habitat conditions is evaluated by the degree of habitat partitioning by various structural elements such as large woody debris (LWD), boulders, and undercut banks. This physical separation within habitat units can help maximize fish production by decreasing competition and aggression, reducing predation and increasing carrying capacity. Cover complexity also produces microhabitat conditions that minimize energy requirements and provide refuge for fish. The same indicators used to reflect changes in habitat diversity are used to display changes to cover complexity, particularly instream wood and channel morphology.

*Channel stability* influences the quality of pool habitat and helps to establish the trend for aquatic habitat conditions. The discussion of channel stability in Chapter III, Water Resources is incorporated into the assessment of fisheries resources. Changes to channel stability can result from changes in water yield, water timing, and bedload movement.

### **Management Activity Indicators**

It is difficult to directly measure stream habitat components, and there is often a delay between land management activities and altered stream conditions. Accordingly, this analysis will evaluate activities that have been shown to alter habitat components important to MIS. The relationship between the habitat component and the surrogate measurement of change is discussed below. Management activity indicators are discussed in detail in INFS (USDA 1995). The effects are divided between those that would occur from actions on National Forest lands and those likely to occur from actions on private land.

*Riparian Harvest:* For this Environmental Impact Statement, the amount of riparian harvest will be an indicator for changes in stream temperature, habitat diversity, cover complexity and channel stability. The direct effect of riparian harvest is the reduction of shade and the amount of large wood in streams. The indirect effects of reducing the amount of streamside vegetation include altering the timing and amount of sediment delivery, wood loading in stream, stream temperature, and the hydrologic regime (for review see Meehan 1991). Riparian harvest can reduce egg-to-fry survival by increasing fines in redds, or reduce survival by increasing temperatures outside of ranges tolerated by the MIS and/or by altering carrying capacity by reducing habitat diversity.

For consistency in this analysis, an average distance of 300 feet from fish-bearing streams is considered as riparian habitat. Although not all the vegetation within this 300-foot buffer is dependent on a high water table, it does provide conditions necessary to maintain these types of vegetation, shade streams, and limit sediment into streams (USDA 1995, FEMAT 1993). In addition, harvest within approximately 75 feet of intermittent streams will be considered riparian harvest. By maintaining riparian habitat, the Forest will trend toward meeting the large woody debris Riparian Management Objective in INFS (USDA 1995).

*Sediment Delivery Risk:* The greatest risk to sediment delivery occurs at stream crossings. Culvert failures can introduce large amounts of sediment into stream channels. Road ditches can also divert sediment into streams. If crossings fail, a direct effect of sediment delivery can be a reduced passage of fish. The most likely effects, however, are indirect and cumulative in nature. The indirect effects of these failures include increased fine sediment in redds, and channel

simplification due to debris torrents. The cumulative effects of additional sediment delivery can be reduced egg-to-fry survival (by increased fines in redds) and reduced adult survival (by altering carrying capacity by reducing highly utilized habitat such as pools) of MIS. Road failures can ultimately lead to a decline in fish numbers (Meehan 1991). Road building can also result in increased sediment delivery to stream channels, especially if road maintenance is lax (Furniss et al. 1991).

Sediment delivery was evaluated by counting the number of crossings and the amount of road built under each alternative. Although not all crossings have the same direct effect, the number of crossings can serve as a rough estimate of additional risk the alternatives pose to fish. The length of road to be constructed similarly serves as an estimate of risk.

*Fish Passage:* The placement of culverts at stream crossings can alter the ability of fish to access stream habitat above the culvert. The addition of culverts in streams can modify fish migration, even if the culvert does not directly block access to streams (Furniss et. al 1991). The indirect effect of new culverts can be to reduce spawning efforts above the culvert. In rare instances, culverts have been known to maintain genetically pure fish above barriers. However, this beneficial use of culvert placement is not part of the purpose and need of the proposed action.

Effects of the alternatives to fish passage were evaluated by the number of stream crossings within fish-bearing streams.

## Affected Environment

In addition to the direct, indirect, and cumulative effects analysis area, fisheries-related processes at the watershed scale are discussed. Many of the fish in the Priest Lake watershed migrate long distances, and hydrologic processes could affect fish populations within Upper Sema Creek.

## Fish Presence

The current condition of fisheries resources in the cumulative effects area was established by utilizing information gathered through stream inventories, field reviews, historical records, aerial photographs, analysis of watershed conditions, published scientific literature, and discussions with Fisheries Biologists from the Idaho Department of Fish and Game and the United States Fish and Wildlife Service (USFWS).

Due to the large number of fish species within the watershed area, analysis of direct, indirect and cumulative effects will focus on fish most likely to be affected by the project. Analysis will use the concept of management indicator species (MIS). According to the Idaho Panhandle National Forests Forest Plan, larger groups of organisms or communities can be adequately represented by a subset of the group (USDA 1987). The Forest Plan identifies cutthroat trout and bull trout as potential MIS for fisheries conditions. Because of the current status of these fishes, it is highly likely that both will be designated as focal species when current Forest Plans are revised under the proposed planning regulations. Their selection as focal species is due not only to their low numbers but also to their importance as indicators of cold water stream systems (Lee et al. 1997, Meehan 1991).

For this Environmental Impact Statement, westslope cutthroat trout and bull trout have been selected as appropriate MIS for fisheries. Westslope cutthroat trout and bull trout are native to most of the streams in the watershed (Bjornn 1957; additional data on file). Westslope cutthroat trout (*Oncorhynchus clarki lewisi*) are listed as sensitive by the USDA Forest Service Region 1 and as a species of special concern by the State of Idaho. This species is known to use streams in or near the cumulative effects area. Although these fish have not been detected in Upper Sema Creek, this is likely historic habitat for the species. Westslope cutthroat trout, however, are known to currently use streams just below the cumulative effects area for spawning, rearing, and over-wintering. Because sampling for fish presence is not perfect, for this project westslope cutthroat trout will be assumed to be present within the cumulative effects area. Bull trout (*Salvelinus confluentus*) are listed as threatened under the Endangered Species Act. Bull trout historically utilized the South Fork of Granite Creek and may have used Sema Creek. Although bull trout were likely historically present in the cumulative effects area, they have not been documented this high in the Granite Creek drainages. However, it is important that habitat is maintained for this species if they are ever reestablished.

Brook trout (*Salvelinus fontinalis*) are the only salmonid known to utilize Upper Sema Creek, and are the most prevalent salmonid species within the cumulative effects area. This species was introduced into the system. They thrive in modified habitat, compete with westslope cutthroat trout (Shepard et al. 1997), and can hybridize with bull trout (Lee et al. 1997). Brook trout were not chosen as an MIS species because they have a higher tolerance for habitat disturbance than do the two MIS (Shepard et al. 1997).

In addition to these better-known species, northern pike minnow (*Ptychocheilus oregonensis*), large-scale sucker (*Catostomus macrocheilus*), sculpin (*Cottus spp.*), longnose dace (*Rhinichthys cataractae*) and redband shiner (*Richardsonius balteatus*) likely inhabit Priest Lake or the Granite Creek watershed (Simpson and Wallace 1982; district files). Introduced fish species include populations of lake trout (*Salvelinus namaycush*), rainbow trout (*Oncorhynchus mykiss*), and warm water lake species.

One additional species listed on the Regional Foresters sensitive species list, torrent sculpin, could also serve as an MIS. Torrent sculpin, however, have not been documented within the Priest River Sub-basin. Two other sensitive species, burbot and interior redband trout, and one listed species, white sturgeon will not be addressed in the Environmental Impact Statement. These three species are not known to occur in the Priest River Sub-basin (Simpson and Wallace 1978).

### **Westslope Cutthroat Trout**

Irving (1985) found no westslope cutthroat in electrofishing surveys of Sema Creek in 1983 and low cutthroat densities (0.8 fish/100 meters) in 1984. Bio/West surveyors also noted no cutthroat trout in Sema Creek in 1992. If westslope cutthroat trout still occur in Sema Creek they are likely headwater populations in Tabasco or other small tributaries or fish moving into lower Sema from the South Fork Granite Creek.

Snorkel surveys conducted by the Kalispel Tribe in 1997 found westslope cutthroat trout to be the most dominant species in the South Fork of Granite Creek with low densities of brook trout lower in the drainage.

### **Bull Trout**

The precise historic distribution of bull trout in the larger watershed, Granite Creek, is unknown. Natural barriers such as waterfalls or debris jams do not inhibit bull trout from accessing the North or South Forks of Granite Creek, but barriers do occur in many tributaries. Differences in geologies influenced the quality of habitat in each tributary. For example, streams in South Fork of Granite Creek drain decomposed granites, where streams in the North Fork drain pre-Cambrian hard, metasedimentary Belt formations. These differences in geology influence the quality of spawning gravels. Spawning habitat in the South Fork of Granite Creek, therefore, naturally has higher amounts of sand and fine sediment than habitat in the North Fork. This may have influenced spawning success and recruitment in the South Fork. Regardless of the availability of spawning habitat condition, all accessible streams – including Sema Creek - would have likely provided important rearing habitat to juvenile bull trout.

The expansion of lake trout populations has severely depressed bull trout in Priest Lake and the streams that feed it (Fredericks et al., 1999; Bowles et al. 1991). The presence of lake trout, hybridization of bull trout with brook trout, and habitat changes from fire and/or management actions, bull trout populations in Priest Lake may now be functionally extinct.

Only small runs of adult bull trout move into Granite Creek and its tributaries. Mauser and Ellis (1985) installed a weir in lower Granite Creek in 1984. Tributary trapping and spawning surveys indicated that bull trout abundance was low in all streams. Only twenty-seven adults and one juvenile bull trout were caught in the weir trap (Mauser and Ellis 1985). Irving (1985) found low densities (0.1/100m<sup>2</sup>) of bull trout in the South Fork of Granite Creek from the Granite Creek confluence to above Sema Creek in 1982, 1983 and 1984. The low bull trout densities Irving found might indicate that, as of the early 1980s, the effects of introduced species and habitat degradation had already greatly reduced bull trout recruitment from tributaries and adults coming to spawn from the lake.

Adult bull trout were last reported in Sema Meadows (South Fork of Granite Creek) in 1993, which suggests that some spawning may be taking place. The Kalispel Tribe did not find bull trout during snorkel surveys in the South Fork above the Sema confluence in 1997. Annual redd counts have not been conducted in Granite Creek, so the location and numbers of spawning adults are not known.

Surveys for bull trout within Sema Creek have not identified any bull trout (Irving 1985).

### **Existing Habitat Condition**

Determination of current habitat conditions was based upon field reviews, habitat surveys and biological data (on file at District Offices).

Stream surveys classified the entire Sema Creek channel as a meandering, meadow stream. Aerial photos, however, show that Sema Creek is actually more complex than this classification suggests. The channel consists of three broad grassy meadows divided by short sections of confined channels. Each meadow has a meandering stream channel with sandy substrate. Beaver dams occur in each meadow, flooding the main and side channels. Many of the dams are old and are filling with sediment and breaching in places. Stream banks are composed of silt and are densely rooted with grass sod mats and shrub species. The vegetation makes this channel type very stable unless a major change in sediment and/or stream flow occurs.

Channels in the confined sections have grassy mats and/or trees down to the water's surface. Beaver dams are present but are not as numerous as in the meadow channels. Substrate consists mostly of sand, with pockets of gravels and larger substrate. Sand and gravel bars are present along the lateral channel edges.

Overall pool quality in Sema Creek is higher than in the South Fork of Granite Creek. Large beaver-formed pools with moderate amounts of cover provide excellent rearing habitat.

Pools, runs and glides form most habitat in Sema Creek. Cover in these habitat types is created by aquatic vegetation rooted on the stream bottom, by undercut banks, and by small woody debris. Stream surveys indicate that most pools have spots where branches, undercut banks and aquatic vegetation intertwine to form complex habitat. Larger fish likely control areas with complex cover because it provides them with cover as well as the slow velocities to rest and feed.

Sema Creek drains a geology of decomposed granitics and naturally has a lot of sand and small pockets of gravel substrate. The 1926 fire may have contributed to the large amounts of sand. As beavers occupied some of these burned areas, their dams would have stored much of this material moving downstream.

Substrate in both pools and riffle consists primarily of fine sediment and sand. This suggests few bull trout or westslope cutthroat trout spawning sites in Sema Creek.

Headwater streams in the area of the project are generally steep and confined until near their confluence with Sema Creek. As these tributaries near Sema Creek, they lose gradient and provide an opportunity to deposit sediment before entering the main stem.

### **Past Natural Disturbance and Land Management Activities**

Within the Priest Lake Sub-basin, many activities have compromised the viability of some coldwater biota – especially those chosen for MIS species in this analysis. In addition to past land management activities within Granite Creek, the biggest threat to the MIS species for this analysis area has been the introduction of non-native species such as lake trout (Fredericks et al., 1999) and brook trout (Lee et al., 1997). Diverse conditions of habitat components (stream temperatures, aquatic habitat diversity, cover complexity, and channel stability) that are primarily responsible for regulating populations of native salmonids in the Sub-basin have enabled the non-native populations to persist, albeit at suppressed levels. Analysis of existing conditions indicates that many streams in the Priest Lake watershed continue to recover from the

residual effects from historic pulse-type (fires, volcanoes) disturbances acting in isolation or in combination with effects from on-going press-type (timber harvest, road building) disturbances (for a review of these effects in general see Chamberlin et al., 1991).

In 1926 most of the Sema Creek watershed burned. The quality of fish habitat conditions in the project area is very near what would be expected under natural conditions following a large fire (for a description of general effects of fire on fish, see Gresswell 1999).

Very little active management has occurred on Federal lands within the Sema Creek watershed. Recently, Stimson Timber Company harvested portions of two sections in the watershed as discussed in Chapter I.

The lack of valley bottom roads or extensive road development within Sema Creek has generally preserved the landscape attributes one would expect in the absence of land management (see: Lee et al., 1997 or Dose and Roper, 1994 for a general description of the effects of roads and land management on stream habitat and fish populations).

## Environmental Consequences

### **Effects to Management Activity Indicator Habitat Components**

The effects of both Federal and private activities on the management indicator habitat components are tracked separately in each section below. A discussion of cumulative effects within each section will be limited to the spatial extent of the effects of Federal activities. Cumulative effects of the combined Federal and private actions on the MIS will then be discussed.

### **Direct, Indirect and Cumulative Effects at the Analysis Area Scale**

#### **Alternative A**

Under this alternative, there would be no direct, indirect or cumulative effects to any MIS habitat components, since management activities would not change from current levels.

As stated above, few management activities have occurred on National Forest lands within the cumulative effects analysis area that have had any adverse effects to the fisheries resources. No timber harvest has occurred within the Sema Creek drainage, and there are no plans for logging within the reasonably foreseeable future. The only road within the cumulative effects area on National Forest lands is Road 308, which originally was constructed in the 1930s; this road is located in the headwaters of the drainage. An existing trail transverses the area with a portion of this low-use trail on National Forest lands; this trail has had minimal effect to the aquatic resources because of its location and its level of use. None of the identified reasonably foreseeable actions identified in Chapter I would cause adverse effects to MIS habitat because they either lie outside the cumulative effects area or would cause minimal effects such as outfitting and guiding services or dispersed recreation activities.

Within the cumulative effects area, Section 5 and portions of Sections 7 and 9 are owned by Stimson Lumber Company. No past or existing logging or road construction has occurred either in Section 5 or the small portion of Section 7 located within the analyzed watershed. Under the No Action Alternative, no harvest or road construction would occur in Section 5. No management activities have been identified in Section 7 by Stimson Lumber Company in the reasonably foreseeable future as discussed in Chapter I. Additional harvest would occur in the northwest corner of Section 9 in 2001-2003. No additional road construction would occur. There are no fish-bearing streams located within Section 9. The harvest and associated activities would be anticipated to comply with guidelines of the Washington Forest Practices Act to protect the aquatic resources.

### Effects Common to Alternatives B and C

*Riparian Harvest:* Riparian harvest can increase stream temperatures by increasing solar radiation to the stream. Riparian harvest on Federal lands is minimal and only occurs associated with road construction across non-fish-bearing streams. The loss of riparian vegetation on Federal lands would result only from the timber harvest associated with road construction in Riparian Habitat Conservation Areas (USDA 1995). A comparison of the direct effect of riparian harvest on Federal lands reveals little difference between the action alternatives (Table 6, pg. III-57). Neither action alternative would pose a significant risk to the MIS. The indirect effect of riparian harvest would be limited to site-specific increases in water temperature no more than 150 feet downstream of where culverts would be installed.

On the private land in Section 5, loss of riparian habitat would not only result from road construction but also from the riparian buffers delineated in Washington Forest Practices which are narrower than those required by INFS. Because most of the riparian vegetation would remain on fish-bearing streams (as required by Washington Forest Practices), implementation of either action alternative would not have a measurable effect on fish at the boundaries of the cumulative effects area (Upper Sema Creek).

**Table 6. Approximate amount of riparian vegetation removed (within 30 feet of fish-bearing streams or within 75 feet of non-fish-bearing streams).**

Ownership	Approximate Amount of Riparian Vegetation Removed		
	Alternative A	Alternative B	Alternative C
Federal	0	375 feet	300 feet
Private	0	4,500 feet	4,500 feet
<b>Total</b>	<b>0</b>	<b>4,875 feet</b>	<b>4,800 feet</b>

*Sediment Delivery Risk:* The direct risk of sediment delivery is related to the length of new roads constructed and number of new stream crossings. Roads can divert flow (Jones and Grant 1996) and sediment (Furniss 1991) to stream channels. This sediment can then be carried into fish-bearing streams. Any value greater than zero indicates additional risk over the current condition.

A comparison of the direct effects of stream crossings and road construction from Federal actions shows little difference between the two action alternatives (Table 7, pg. II-58). Although the direct effects of Alternative B include more crossings (5) and more road construction (4000 feet) than Alternative C, the location of the proposed easement would be located farther from fish-bearing streams and, therefore, would have a lower probability of delivering sediment into these streams. As a result, it would be difficult to differentiate between these two alternatives with regard to their effect on MIS.

It is highly unlikely that sediment from the failure of stream crossings or roads on National Forest lands would reach the fish-bearing sections of Sema Creek. The reduced gradient of the tributary junction and distance of the proposed roads from a fish-bearing river segment suggests that sediment would settle out before reaching Sema Creek. The cumulative effects analysis, however, took the conservative approach and assumed the worst-case scenario - a massive failure at a stream crossing on National Forest lands. There is a low probability of this occurring, since culverts would be designed for a 100-year flow event as discussed in Chapter II. If such an event were to occur, some small amount sediment could reach fish-bearing portions of Sema Creek.

Given the worst-case scenario, the direct effects of either alternative on Federal lands could be a measurable amount of sediment entering near where the tributaries flowing from Federal lands join Sema Creek. Under this scenario, the sediment would settle out quickly in the myriad of beaver ponds in upper Sema Creek. If these minimal direct effects of the Federal action are combined with those on private land, the cumulative effects of this project could be to reduce habitat diversity and alter channel morphology in Sema Creek upstream of the beaver ponds.

Cumulative effects might include a delay in the reestablishment of healthy populations of MIS in upper Sema Creek but would not have an impact on those species' long-term persistence within the Priest Lake watershed.

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**Table 7. Approximate relative sediment delivery risk associated with road building and culvert placement in stream channels.**

Ownership	Length of road (ft.) / # of culverts installed		
	Alternative A	Alternative B	Alternative C
Federal	0/0	4,000/5	2,500/4
Private	0/0	16,000/20	16,000/20
Total	0/0	20,000/25	18,500/24

Higher values indicate higher risk and pose some minimal risk to possible historic MIS habitat.

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*Fish Passage:* It has been well documented that most culverts increase the difficulty of passage of fish through streams (Behlke 1991). Flow velocities within a culvert either make passage impossible or increase the energy expenditure over that which would be expended under natural conditions. As a result, the placement of any culvert within a fish-bearing stream has negative

consequences on fish species that migrate. Both MIS have been documented migrating long distances.

Because no culverts are planned for placement in fish-bearing streams on Federal lands, no direct, indirect, or cumulative effects to fish passage are expected from implementation of either action alternative (Table 7).

One private culvert is planned in a fish-bearing stream within the cumulative effects area. Although this culvert would be designed in accordance with Washington State law, it would likely have some indirect effect to fish passage. The most likely effects are a slight delay in migration timing or minimal increases in energy expenditure. If placed in accordance with law, this one pipe should have almost no effect on the MIS, since the culvert would be at the upper extent of the historic range of these fishes.

**Table 8. The number of culverts likely to be placed in fish-bearing streams.**

Ownership	Number of Culverts		
	Alternative A	Alternative B	Alternative C
Federal	0	0	0
Private	0	1	1
Total	0	1	1

## Effects on MIS (Westslope Cutthroat Trout and Bull Trout) Individuals and Populations

The impact to MIS species is described using the following definitions:

*No change in population conditions* means that there would likely be no net positive or negative effect to the population within the cumulative watershed effects areas (NEPA effect). No or minimal change in riparian or stream conditions would be necessary to re-establish populations at the watershed scale (NFMA effect).

*Likely to result in a long-term reduction in risk of past management actions to individuals* indicates that the action taken within the watershed is limited in nature but would result in net benefits to individuals when compared to the existing condition. Actions that result in the reduction of risk to individuals include isolated culvert upgrades and small-scale reduction of encroaching roads with little increased risk associated with road building or riparian harvest. This would result in a trend of stream and riparian conditions toward Riparian Management Objectives at the segment or reach scale.

*Likely to result in a long-term reduction in risk of past management actions to populations* indicates that the action is broad enough in scope to positively affect individuals throughout the

basin, thereby improving the condition of the population within the cumulative watershed effects area when compared to the existing condition. Actions that result in the reduction of risk to populations include widespread culvert upgrades, large-scale reduction of encroaching roads, and/or increased fish passage without increased risk associated with road building or riparian harvest. This would result in a significant trend of stream and riparian conditions toward Riparian Management Objectives at the subwatershed scale.

*Likely to result in a long-term risk to individuals* indicates that the action taken within the watershed is limited in nature but would result in a net harm to individuals when compared to the existing condition. Actions that result in the increased risk to individuals include road building or harvesting in riparian areas without a widespread effort to upgrade culverts and reduce encroaching roads. This would result in a trend of stream and riparian conditions away from Riparian Management Objectives at the segment or reach scale. Federal actions that result in a long-term risk to individuals may not meet Forest Plan Standards as amended by INFS (1995).

*Likely to result in a long-term decline in populations* indicates that the action taken within the watershed is widespread and would result in a net harm to populations when compared to the existing condition. Actions that result in the increased risk to populations include widespread road building without a widespread effort to upgrade culverts and reduce encroaching roads. This would result in a trend of stream and riparian conditions away from Riparian Management Objectives at the subwatershed scale. Such a determination would indicate that an alternative would not meet Forest Plan direction to maintain species viability.

## **Determination of Effects to Management Indicator Species**

The following tables summarize the direct and indirect effects of the proposed Federal action and reasonably foreseeable activities on private land. These determinations integrate the preceding evaluations. The determination is the composite rating of the cumulative effects of all actions in an alternative on the MIS species and summarized by the cumulative watershed effects areas. Evaluations were made independently for each ownership.

## **Comparison of Alternatives**

Comparison of alternatives is based on the relative effects to of the Federal action on the MIS. Alternative A would have no direct or indirect effect on the MIS because no action would be taken on National Forest lands.

Alternatives B and C would have a similar, minimal effect on the MIS. While both have limited direct and indirect effects to stream segments on National Forest lands, none of these effects are likely to affect fish. In addition, both action alternatives would result in nearly identical management activities on private lands. The cumulative effects of activities on private land would likely make it more difficult for either bull trout or westslope cutthroat to become re-established within Sema Creek.

**Table 9. Effects to Management Indicator Species, Alternative A.**

Ownership	Likely to result in long term decline in populations	Likely to result in long term risk to individuals	No change in conditions	Likely to reduce long term risk to individuals	Likely to result in long term rise in populations	Direct and Indirect Effects
Federal			X			None – this is the No Action Alternative
Private			X			Without access it is unlikely they would be able to manage their land.

**Table 10. Effects to Management Indicator Species, Alternative B.**

Ownership	Likely to result in long term decline in populations	Likely to result in long term risk to individuals	No change in conditions	Likely to reduce long term risk to individuals	Likely to result in long term rise in populations	Direct and Indirect Effects
Federal			X			The minimal direct and indirect effects of building 5 road crossings across non-fish-bearing streams would not lead to changed conditions within fish-bearing streams.
Private		X				Road crossings and riparian harvest could result in small increases in water temperature. New culverts could make passage more difficult. Because few cutthroat are in the basin and bull trout have not been found, these changes would likely reduce the ability of these species to become re-established in Sema Creek.

**Table 11. Effects to Management Indicator Species, Alternative C.**

Ownership	Likely to result in long term decline in populations	Likely to result in long term risk to individuals	No change in conditions	Likely to reduce long term risk to individuals	Likely to result in long term rise in populations	Direct and Indirect Effects
Federal			X			The minimal direct and indirect effects of building 4 road crossings across non-fish bearing streams would not lead to changed conditions within fish bearing streams
Private		X				Road crossings and riparian harvest could result in small increases in water temperature. New culverts could make passage more difficult. Because few cutthroat are in the basin and bull trout have not been

						found, these changes would likely reduce the ability of these species to become re-established in Sema Creek.
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**Effects and Basis for Forest Plan Consistency at the Watershed Scale**

Historically, the South Fork of Granite Creek and likely Sema Creek had abundant populations of cutthroat trout and bull trout. Currently, neither of these basins has strong populations of cutthroat trout, and only the mainstem of Granite Creek has a known population of bull trout. Although some of the decline is related to land management activities, much of the decline is the result of the introduction of lake trout and brook trout. Currently the Idaho Department of Fish and Game is attempting to change regulations to increase the harvest of lake trout and brook trout so that the survival of bull trout and westslope cutthroat is enhanced. Increasing the harvest of lake trout and brook trout may benefit bull trout and westslope cutthroat trout (Fredericks et al. 1999; Buktenica 1997) in the Priest Lake watershed. Without a reduction in exotic species, it may be difficult for MIS to persist regardless of land management activities.

Development has occurred and will likely continue to occur on private lands near the bottom of Granite Creek. Although timber harvest, road building, home building and other activities will occur on these lands, effects to populations at the watershed scale will likely be minimal because of increased state regulation of these activities and because this section only serves as a corridor for fish migrating between Priest Lake and Sema Creek.

The limited activities on National Forest lands as proposed by the action alternatives would have negligible effects, at both the cumulative effects and watershed scales, on the long-term survival of the MIS. The rationale for this determination is that the direct and indirect effects of either action alternative would likely not reach fish-bearing portions of the stream; even if they do, they would be unlikely to change habitat conditions.

The actions taken on private land associated with the proposed easements could have a minor negative effect on individual fish. Direct and indirect effects such as small reach-specific increases in water temperature, increases in sediment, and culverts in fish bearing streams could reduce the survival rates of the MIS if they were ever to become re-established in Sema Creek. The activities proposed on private land would greatly increase the road density on private lands in Sema Creek. High road densities have been found to be inversely correlated with bull trout densities (Lee et al., 1997). Managed watersheds also tend to have higher densities of brook trout. Because this watershed has experienced little management activity, most of its physical processes are still functioning as they did historically. The cumulative effect of either action alternative would be that bull trout and westslope cutthroat trout might have more difficulty in becoming reestablished within Upper Sema Creek. Overall, however, neither action alternative would have a measurable effect on the persistence of the MIS within the Priest Lake watershed.

**Consistency With the Forest Plan and Other Regulatory Direction**

Based on the information presented in this document, all three alternatives would meet the Forest Plan Fisheries Standards (1987) as amended by the Inland Native Fish Strategy (1995). Before implementing this decision, consultation will be carried out with the U.S. Fish and Wildlife Service. Implementation of any alternative would not result in a loss of viability for any fish species within the Forest Planning area.

## **Roadless Areas**

### **Regulatory Framework**

In 1972 the Forest Service began identifying roadless areas for wilderness consideration through the Roadless Area Review and Evaluation (RARE I). In 1979, the agency completed RARE II, a more extensive national inventory of roadless areas. Most National Forests and Grasslands employed RARE II data to develop inventories of roadless areas, and to incorporate roadless areas into their Forest Plans. Subsequent Forest Plan revisions, and some regional assessments have further evaluated inventoried roadless areas.

In 1984 the Washington Wilderness Act (P.L. 98-339) became law. The purpose of the Act was to: 1) designate certain National Forest System lands in the State of Washington as components of the National Wilderness Preservation System and 2) insure that certain other National Forest System lands in the State of Washington be available for non-wilderness multiple uses. The law provided that areas in the State of Washington reviewed under RARE II and not designated as wilderness upon enactment of the Act or identified for special management by the Act were to be managed for multiple use in accordance with land management plans provided that such areas did not need to be managed for the purpose of protecting their suitability for wilderness classification prior to or during revision of the initial land management plans. The Idaho Panhandle National Forests Forest Plan states, "Roadless areas will be managed based on the direction and goals established for the respective management area within which they are located." (Page II-4)

The Roadless Area Conservation Final Environmental Impact Statement (FEIS) utilized the most recent inventory available for each national forest and grassland. These inventoried roadless areas are identified in a set of inventoried roadless area maps, contained in the Forest Service Roadless Area Conservation Final Environmental Impact Statement, Volume 2, dated November 2000. On January 12, 2001, the Roadless Area Conservation Rule was published in the Federal Register. As stated in Chapter I, the Roadless Rule was scheduled to be implemented on March 13, 2001, and later delayed until May 12, 2001. The rule specifically allowed for the continuation of activities associated with reserved or outstanding rights provided by statute such as ANILCA. The Rule presently is the subject of eight lawsuits involving seven states, in six federal districts, and four federal circuits. The District Court of Idaho recently has enjoined implementation of the Rule, and that decision is now before the Ninth Circuit Court of Appeals.

### **Affected Environment**

A roadless area is defined as 5000 acres or greater in size or any acreage if contiguous to existing wilderness.

## **South Fork Mountain Inventoried Roadless Area**

The project area occurs within the South Fork Mountain Inventoried Roadless Area (IRA). Although the project area only encompasses a small portion of the roadless area, for discussion purposes, the entire South Fork Mountain Inventoried Roadless Area is described.

The South Fork Mountain IRA lies entirely in the State of Washington in Pend Oreille County. It is somewhat circular-shaped area and is largely mountainous timberland, with elevations ranging from 3,200 feet at Sema Meadows to 4,600 feet on the divide between the Pend Oreille drainage and the Priest River drainage. South Fork Mountain Peak lies in the northern part of the IRA (Figure 7, pg III-67). The Addendum To Appendix C of the Forest Plan contains detailed information on the South Fork Mountain Roadless Area on pages C-22 through C-31. The inventoried acres included approximately 5,400 on National Forest System lands and 1,130 on private lands (all of Section 5, and portions of Sections 3, 7, and 9) for a total of 6,530 acres. While private lands are included in the inventoried acreage for the roadless area, the Forest Service has no management authority over these lands.

Since the adoption of the Forest Plan in 1987, several hundred acres of the South Fork Mountain IRA no longer meet roadless characteristics. The acreages include Sections 3, 9, and 10; T36N; R45E, W.M. as displayed in Table 12, pg III-65. Sections 3 and 9 belong to Stimson Lumber Company. Stimson has constructed roads and actively managed both parcels for timber management purposes in the recent past. Because of these activities, neither of these sections meets the roadless area characteristics.

Additionally, the north half of National Forest Section 10, T36N, R45E, which is included in the South Fork Mountain IRA, was affected by the management activities of Stimson Lumber Company in Sections 3 and 9. Because of Stimson's activities in Sections 3 and 9, Section 10 was isolated from the remainder of the roadless area and no longer meets the roadless character definition. This northern portion of Section 10 is 267 acres.

## **Unroaded Area Adjacent To The South Fork Mountain Inventoried Roadless Area Meeting Roadless Character**

Adjacent to the South Fork Mountain IRA are portions of three contiguous sections of land that form an unroaded area of 1,241 acres. These are lands that were not inventoried as roadless, but contribute to the existing roadless character. These three contiguous pieces lie on the Sullivan Lake Ranger District of the Colville National Forest. They consist of Section 36, T37N, R44E; a portion of Section 31, T37N, R45E; and Section 6, T36N, R45E, W.M.

## **Grassy Top Inventoried Roadless Area (IRA):**

To the north of the South Fork Mountain Roadless Area lies the Grassy Top IRA. It lies entirely in the State of Washington in Pend Oreille County. It is a mixed conifer forest type, which originated as a result of a large fire in the 1920s. The inventoried gross acres include 13,781 acres on the Idaho Panhandle National Forests and 2,000 acres on the Colville National Forest for a total of 15,781 (Figure 7, pg. III-67). The Grassy Top Roadless Area is described on pages C-178 through C-187 of Appendix C of the Idaho Panhandle National Forests, Forest Plan.

Sections 1 and 13, T38N, R44E, Willamette Meridian are in private ownership and account for 837 acres within the Grassy Top Inventoried Roadless Area. Both sections also are owned by Stimson Lumber Company, and have been roaded and managed for timber production. Additional logging will occur in both sections as discussed in Reasonably Foreseeable Actions in Chapter I. Because of the roaded nature of both sections, they no longer possess roadless character.

The Forest Service lands in the Grassytop IRA meet roadless character guidelines.

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**Table 12. Acres No Longer Having Roadless Characteristics by IRA (acres)**

<b>Location (Ownership)</b>	<b>South Fork IRA</b>	<b>Grassy Top IRA</b>
Section 3 (Stimson)	490	
Section 9 (Stimson)	327	
Section 10 (National Forest)	267	
Section 1 (Stimson)		577
Section 13 (Stimson)		305
<b>Total Acres</b>	<b>1,084</b>	<b>882</b>

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### **Roadless Area Complex:**

The Harvey-Granite Road, which serves as the inventoried northern boundary of the South Fork Mountain IRA, was decommissioned (partially obliterated) in 1998. At that time, the culverts were removed and the road surface scarified and re-vegetated. Decommissioning this road essentially removed the boundary that separated the South Fork Mountain IRA from the adjacent Grassy Top IRA to the north.

For discussions in the analysis, the Roadless Area Complex (RAC) will be used as the cumulative effects analysis area. The Roadless Area Complex is defined as follows: The South Fork Mountain IRA, the Grassy Top IRA, along with the existing unroaded areas that are not inventoried as roadless, but meet roadless character definitions.

Combined, the two IRAs--South Fork Mountain and Grassy Top--along with the unroaded adjacent lands meeting roadless character (Sections 6, 31 and 36) total 23,552 acres as shown in the following table. However, subtracting those acres no longer meeting roadless characteristics would reduce the acreage to 21,586 acres of contiguous land meeting roadless characteristics.

Following is the gross acreage breakdown for the RAC (refer to Figure 7, pg III-67 and Table 12, pg. III-65):

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South Fork Mountain IRA	6,530 acres
Grassy Top IRA	15,781 acres
Unroaded areas that meet roadless characteristics	1,241 acres
<b>Total area in the RAC</b>	<b>23,552 acres*</b>

\*This includes the areas that no longer meet roadless characteristic.

## Existing Roadless Characteristics Descriptions

Roadless Areas are commonly described by six characteristics: Natural integrity, apparent naturalness, remoteness, solitude, special features, and manageability. The following existing characteristics describe the South Fork Mountain Inventoried Roadless Area.

**Natural Integrity:** The area is predominantly a coniferous forest with a north aspect. Fires in the 1920s and 1930s altered the landscape. Dense immature timber exists with patches of immature timber and underbrush.

The impact from human activity has been related primarily to foot trails. Two trails, 241 and 262, provided access through the area in the past. The trails are still evident in places, but are no longer maintained as recreation trails. Trail 241 passes through a portion of the project area where the road associated with Alternative B would be constructed. This trail has not been maintained since 1992. The trail tread is in good condition in most places.

**Apparent Naturalness:** A visitor to the area would feel that he or she is in a natural area away from ordinary human activities and development. Signs of human activities are visible as background only from higher elevations in the area. Currently, forest roads and timber harvest areas are the primary activities visible outside the area.

**Remoteness:** The area exhibits a feeling of seclusion and inaccessibility due to the dense trees and lack of human-made structures. Road 308 forms the south boundary of the area, but because of low amounts of traffic, the sound of vehicles cannot be heard very often.

**Solitude:** The area is approximately 3 to 4 miles wide and 4 long miles from north to south. It offers opportunities for solitude because of the differences in topography (3,500 to 4,200 feet in elevation) and vegetation. The higher elevations offer a view of the Pend Oreille and Priest River drainages. South Fork Mountain Peak is the main topographic feature and is accessible by an unmaintained trail.

A high degree of solitude may be found in the project area in its current condition, as there are no areas of concentrated use. One would not expect to find others using the area, so a feeling of isolation could be achieved. The area lies equidistant between two major State highways (Idaho State Highway 57 and Washington State Highway 22). Forest Road 308 provides access to the southern boundary of the area.

**Special Features:** Several unique plant species (refer to plants section) may be found within the project area. Trail 241 may have been used as a historic pack trail. South Fork Mountain Peak offers viewpoints within and outside of the area.

**Manageability/Boundaries Element:** The project area lies within an inventoried roadless area that is over 5,000 acres in size and thus capable for roadless management. This conclusion is based on an analysis of both manageability and possession of roadless characteristics

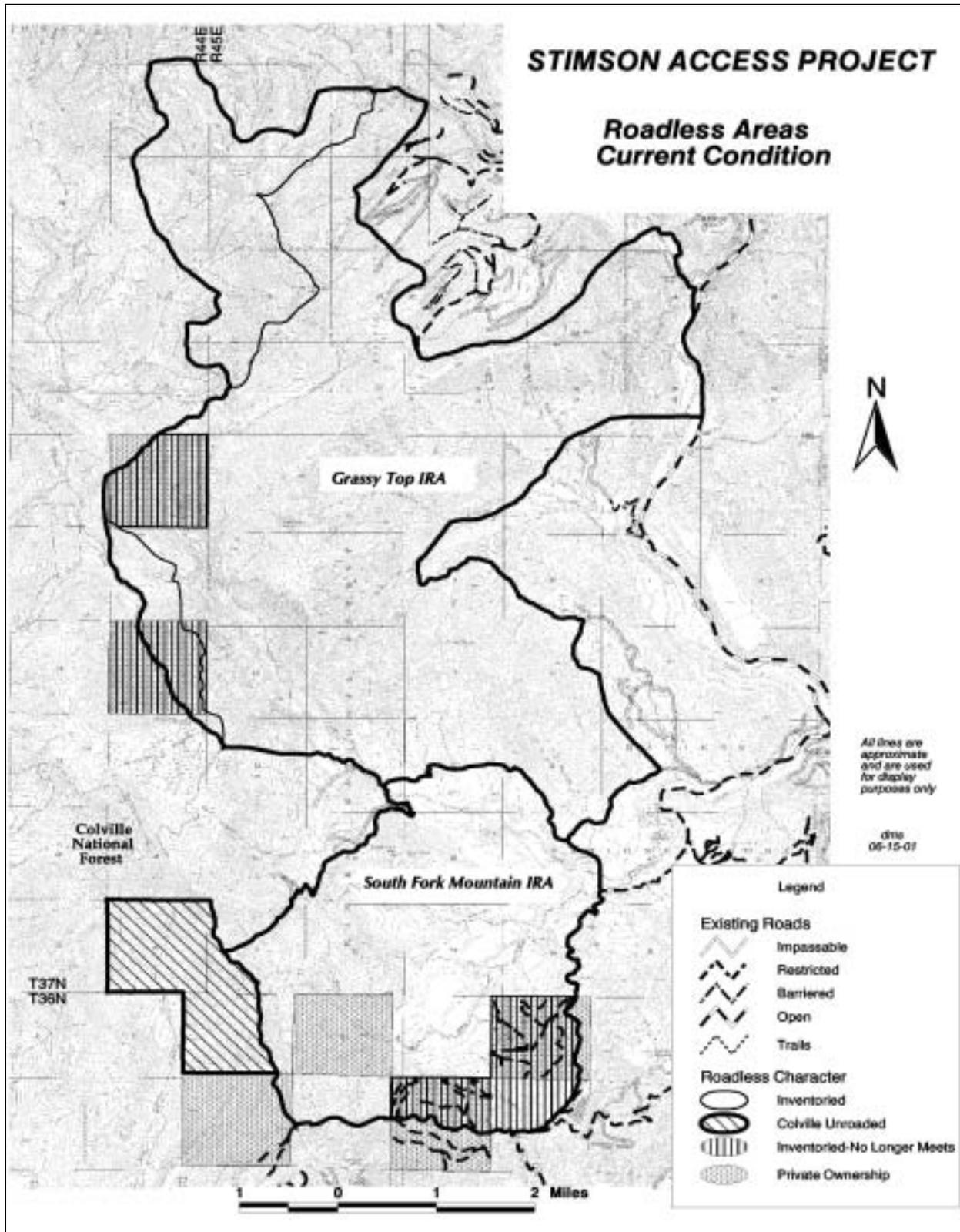


Figure 7. Map showing current condition of the Roadless Areas.

## Environmental Consequences

### *Analysis Process*

For analysis purposes, the roadless resources were considered in several different ways. For the analysis of direct and indirect effects, only roadless characteristics on National Forest System land within the South Fork Mountain IRA were considered.

The cumulative effects analysis was separated into two parts: for five of the roadless characteristics, those being natural integrity, apparent naturalness, remoteness, solitude and special features, only the South Fork Mountain Roadless IRA was considered.

For discussion of the cumulative effects to the manageability/boundaries characteristic, two levels were discussed:

- The South Fork Mountain IRA only.
- The Roadless Area Complex (RAC) as a whole.

### **Alternative A:**

**Direct and Indirect Effects:** With the No Action Alternative, there would be no change to the existing condition of the roadless resources into the foreseeable future. With implementation of this alternative, the acres in Section 8 would remain roadless. The acres remaining in roadless character in the South Fork Mountain IRA would remain 5,446 acres as shown in Table 12, pg III-65.

Trail 241 would continue to receive some low level of use.

**Cumulative Effects:** Reasonably Foreseeable Actions were discussed in Chapter I. The majority of the Reasonably Foreseeable Actions on National Forest lands would have no effect on the roadless character. Such activities as maintenance of Road 308, noxious weed treatments, trail maintenance, and recreational activities would use or be done on existing features and would result in no change to the existing roadless character.

On private lands, the continuing timber harvest and management activities in Sections 3 and 9, T36N, R45E and Sections 1 and 13, T37N, R44E would not result in a change in acres of the South Fork Mountain IRA or the Roadless Area Complex. These acres currently do not meet roadless character because of past activities.

No management activities or roading would occur in Stimson Lumber Company's Section 5, T36N, R45E under the No Action Alternative, and therefore no resultant reduction in existing acres of the South Fork Mountain or Roadless Area Complex would occur. The existing roadless elements (i.e. natural integrity, apparent naturalness, remoteness, solitude, special features, and manageability/boundaries) would remain as discussed above in Existing Roadless Characteristics Descriptions. Natural changes would be expected to occur through time resulting from such natural disturbances factors as wind, wildfire, insects, and diseases.

**Table 13. Effects of each alternative on the amount of Roadless acres.**

<b>Alternative A</b>	South Fork Mtn. Inventoried Roadless Area	Roadless Area Complex
Gross Area:	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	(1,084)	(1,966)
Direct and Indirect loss of roadless characteristics:	0	0
Future (reasonably foreseeable) loss of roadless characteristics:	0	(89)
Cumulative Net Area Remaining in Roadless Character:	5,446	21,497

<b>Alternative B</b>	South Fork Mtn. Inventoried Roadless Area	Roadless Area Complex
Gross Area:	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	(1,084)	(1,966)
Direct and Indirect loss of roadless characteristics:	(155)	(155)
Future (reasonably foreseeable) loss of roadless characteristics:	(763)	(852)
Cumulative Net Area Remaining in Roadless Character:	4,528	20,579

<b>Alternative C</b>	South Fork Mtn. Inventoried Roadless Area	Roadless Area Complex
Gross Area:	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	(1,084)	(1,966)
Direct and Indirect loss of roadless characteristics:	(136)	(136)
Future (reasonably foreseeable) loss of roadless characteristics:	(783)	(872)
Cumulative Net Area Remaining in Roadless Character:	4,527	20,578

The removal of the Harvey-Granite Road, which originally separated the South Fork Mountain IRA and the Grassy Top IRA as discussed above under the Affected Environment section, resulted in these two Roadless Areas essentially combining to form a continuous area that meets

the roadless character definition (i.e. Roadless Area Complex). The Roadless Area Complex (RAC) would not change as a result of the implementation of Alternative A. One reasonably foreseeable action would occur that would change the acreage of the RAC.

There are some reasonably foreseeable actions that may occur adjacent to or within the South Fork Mountain IRA in the future that could potentially change the existing roadless character. The reasonably foreseeable action is:

- Implementation of the Stimson ANILCA Access Easement Final Environmental Impact Statement, Sullivan Lake Ranger District, Colville National Forest, Pend Oreille County, Washington, September, 2000. If this project is implemented, approximately 89 acres on the eastern side of Section 6, T36N, R45E, W.M. would be removed from roadless character due to road construction on National Forest lands. This reduction would leave a total of 21,497 acres in the cumulative effects area (RAC) in roadless character after this action.

## **Alternative B**

**Direct and Indirect Effects:** With implementation of this alternative, approximately 155 acres of roadless character would be lost in northeast quarter of Section 8, T36N, R45E because of the easement and resultant road construction. This direct effect would result in a 2.8 percent reduction in the amount of roadless acres on National Forest land in the South Fork Mountain IRA, and would leave 5,291 inventoried acres within this roadless area.

**Cumulative Effects:** The majority of the Reasonably Foreseeable Actions on National Forest lands would have no effect on the roadless character. Such activities as maintenance of Road 308, noxious weed treatments, trail maintenance, and recreational activities would use or be done on existing features and would result in no change to the existing roadless character. However, in comparison to Alternative A, there would be the direct loss of 155 acres in the north half of Section 8 resulting from the implementation of the easement and resultant road construction as discussed above.

As in Alternative A, the continuing timber harvest and management activities on private lands in Sections 3 and 9, T36N, R45E and Sections 1 and 13, T37N, R44E also would not result in a change in acres of the South Fork Mountain IRA or the Roadless Area Complex. These acres currently do not meet roadless character because of past activities.

With the implementation of Alternative B, however, the road construction and timber management activities would occur on Stimson Lumber Company lands in Section 5, T36N, R45E. The proposed activities on Stimson lands would result in the direct loss of roadless character of 558 acres in the South Fork Mountain IRA. The management activities of Stimson lands in Section 5 also would result in the additional indirect effect of isolating the remaining 169 acres of National Forest lands in Section 8, T36N, R45E lying north of Road 308.

These acres in Section 8 would no longer possess roadless area characteristics because they would be essentially surrounded by management activities. Similarly, the 36 acres in adjacent

Section 7 would no longer have roadless characteristics because of the narrowness of this parcel between the activities in Section 5 and the past harvest on Stimson lands over the remainder of Section 7, lying west of the Priest-Pend Oreille Divide. Therefore, Alternative B would result in the cumulative loss of 763 acres within the South Fork Mountain Roadless Area. As a result, the loss of 763 acres would leave approximately 4528 acres within the South Fork Mountain IRA.

The six roadless characteristics in the South Fork Mountain IRA would be affected as follows, including the assumption that Stimson's lands would be managed for long-term timber production:

**Natural Integrity:** The majority of the South Fork Mountain IRA would remain as a predominately coniferous forest with dense immature timber and underbrush. The areas that previously possessed roadless character as viewed from Road 308 and other viewpoints would have a managed condition with evidence of human activities in the sections discussed above. A majority of the South Fork Mountain IRA still would maintain its natural integrity outside of those areas directly or indirectly impacted by implementation of Alternative B.

**Apparent Naturalness:** The area would appear in a managed condition as viewed from the Road 308 and other viewpoints within the South Fork Mountain IRA. Human modification would be apparent in Section 5 where management activities occur. There would still be other areas and viewpoints, however, where naturalness can still be found.

**Remoteness:** The area would exhibit less of a feeling of seclusion and inaccessibility due to human disturbances, such as the road through Section 8 and management activities in Section 5. Vehicular traffic sounds would be heard during road construction on Section 8 and when management activities are occurring in Section 5. This would be expected to be continuous during initial construction, and then taper off once the road construction is complete and initial harvest activities have occurred in Section 5. These sounds would not be apparent throughout the entire roadless area and places with a remote feel could still be found.

**Solitude:** A high degree of solitude would still be found within the South Fork Mountain IRA, except if one were in Sections 8 or 5 during times of road construction or management activities when people and equipment would be present. Because the road would be closed to motorized vehicles, a feeling of isolation could still be found in Sections 8 and 5. In other parts of the roadless area, solitude would be found even during times of construction and management activities.

**Special Features:** Where the road crosses Trail 241 in Section 8, the trail location would be marked on either side of the road. This marking would allow this feature to be located in the future. Any special features in Section 5, including Trail 3412, may or may not be preserved depending on Stimson's management activity. The Forest Service has no easement for this fire trail on Stimson land in Section 5. Unique plant species would still be found in the roadless area where they exist, including Sections 8 and 4 as discussed in the TES Plants section later in this chapter. Other special features, such as South Fork Mountain, would be physically unaffected by management activities

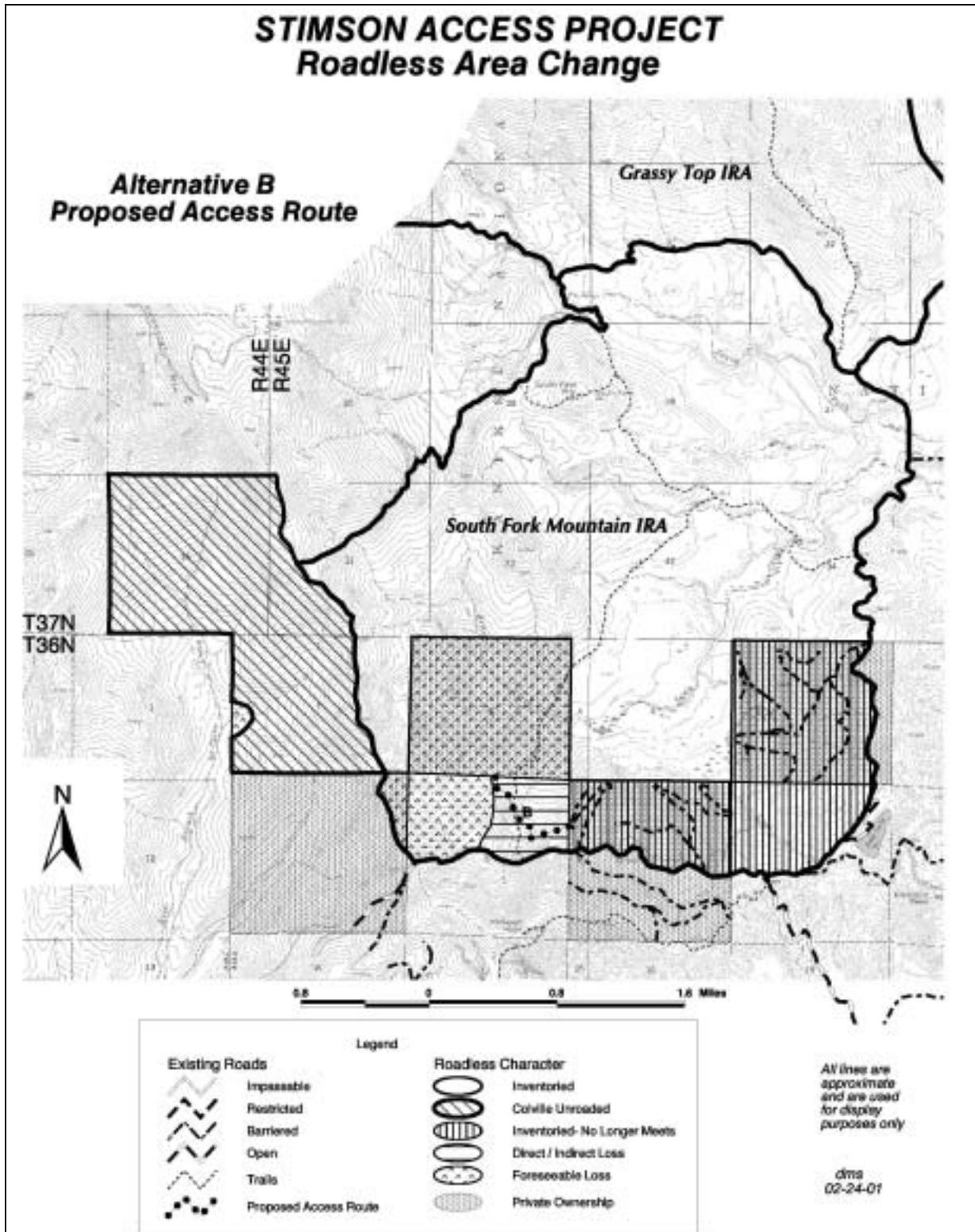


Figure 8. Roadless Area change with Alternative B.

**Manageability/Boundaries Element:** With the cumulative impacts from activities occurring in Section 8 and Section 5, the acres from both of these sections would no longer meet roadless characteristics as well as a small portion of Section 7 as described above. The remaining 4528 acres of South Fork Mountain IRA, along with the Grassy Top IRA to the north, would continue to meet roadless area characteristics. Although the acreage for the South Fork Mountain IRA would drop below 5,000 acres, this is due to the activities on private land. The remainder of the roadless characteristics would remain intact.

Within the Roadless Area Complex (RAC), one reasonably foreseeable action would occur. As discussed in Alternative A, approximately 89 acres on the eastern side of Section 6, T36N, R45E, W.M. would be removed from roadless character due to road construction on National Forest lands. This reduction would leave a total of 20,579 acres in the cumulative effects area (RAC) in roadless character following implementation of Alternative B.

### Alternative C

**Direct and Indirect Effects:** With implementation of this alternative, approximately 135 acres of roadless character would be lost in the northeast quarter of Section 8 and one acre of roadless character would be lost in Section 4, T36N, R45E for a direct total loss of 136 acres as a result of granting the easement. This would result in a 2.5 percent reduction in the amount of roadless acres on National Forest land in the South Fork Mountain IRA, leaving 5,310 inventoried acres within this roadless area.

**Cumulative Effects:** The cumulative effects of reasonably foreseeable actions on National Forest and private lands follow the discussion of cumulative effects For Alternative B. The majority of the Reasonably Foreseeable Actions on National Forest lands would have no effect on the roadless character. Such activities as maintenance of Road 308, noxious weed treatments, trail maintenance, and recreational activities would use or be done on existing features and would result in no change to the existing roadless character. However, in comparison to Alternative B, there would be the direct loss of 136 acres in the northeast corner of Section 8 resulting from the implementation of the easement and resultant road construction as discussed above.

As in Alternatives A and B, the continuing timber harvest and management activities on private lands in Sections 3 and 9, T36N, R45E and Sections 1 and 13, T37N, R44E also would not result in a change in acres of the South Fork Mountain IRA or the Roadless Area Complex. These acres currently do not meet roadless character because of past activities.

With the implementation of Alternative C, the road construction and timber management activities would occur on Stimson Lumber Company lands in Section 5, T36N, R45E. The proposed activities on Stimson lands would result in the direct loss of roadless character of 558 acres in the South Fork Mountain IRA. The management activities of Stimson lands in Section 5 would result in the additional indirect effect of isolating the remaining acres in Section 8. These 189 acres in Section 8 would no longer possess roadless area characteristics because they would be essentially surrounded by management activities. Similarly, the 36 acres in adjacent Section 7 would no longer have roadless characteristics because of the narrowness of this parcel between

the activities in Section 5 and the past harvest on Stimson lands over the remainder of Section 7, lying west of the Priest-Pend Oreille Divide. Therefore, Alternative C would result in the cumulative loss of 783 acres within the South Fork Mountain Roadless Area. As a result, the loss of 783 acres would leave approximately 4527 acres within the South Fork Mountain IRA as displayed in Table 13, pg. III-69 and illustrated in Figure 9, pg III-76.

For Alternative C, the six roadless characteristics would be described as follows:

**Natural Integrity:** The majority of the South Fork Mountain IRA would remain as a predominately coniferous forest with dense immature timber and underbrush. The areas that previously possessed roadless character as viewed from Road 308 and other viewpoints would have a managed condition with evidence of human activities in the sections discussed above. A majority of the South Fork Mountain IRA still would maintain its natural integrity outside of those areas directly or indirectly impacted by implementation of Alternative C.

**Apparent Naturalness:** The area would appear in a managed condition as viewed from the Road 308 and other viewpoints within the South Fork Mountain IRA. Human modification would be apparent in Section 5, Section 8, and the southwest corner of Section 4 where the easement would occur. There would be other areas and viewpoints, however where naturalness can still be found. This naturalness would occur within the remainder of the South Fork Mountain IRA.

**Remoteness:** Certain areas would exhibit less of a feeling of seclusion and inaccessibility due to human disturbances, such as the road through Section 8, Section 4, and activities on Stimson Lumber Company in Section 5. Vehicular traffic sounds would be heard during road construction on Sections 8 and 4, and when management activities are occurring on Section 5. This would be expected to be continuous during initial construction, and then taper off once the road construction is complete and initial harvest activities have occurred in Section 5. These sounds would not be apparent throughout the entire roadless area and places with a remote feel could still be found.

**Solitude:** A high degree of solitude would still be found within the South Fork Mountain IRA, except if one were in Sections 8, 4, or 5 during times of road construction or management activities when people and equipment would be present. Because the road would be closed to motorized vehicles once construction and management activities are complete, a feeling of isolation could still be found in Sections 8, 4 and 5. In other parts of the roadless area, solitude could be found even during times of construction and management activities.

**Special Features:** Any special features in Section 5, including Trail 241 may or may not be preserved depending on Stimson's management activities. Unique plant species would still be found in the roadless area where they exist, including Sections 8 and 4 as discussed in the TES Plants section later in this chapter. Other special features, such as South Fork Mountain, would be physically unaffected by management activities.

**Manageability/Boundaries Element:** With the cumulative impacts from activities occurring in Sections 4, 5, and 8, the acres from both of these sections would no longer meet roadless

characteristics as well as a small portion of Section 7 as described above. The remaining 4527 acres of South Fork Mountain IRA, along with the Grassy Top IRA to the north, would continue to meet roadless area characteristics. Although the acreage for the South Fork Mountain IRA would drop below 5,000 acres, this is due to the activities on private land. The remainder of the roadless characteristics would remain intact.

As with Alternatives A and B, one reasonably foreseeable action would occur within the Roadless Area Complex (RAC). Approximately 89 acres on the eastern side of Section 6, T36N, R45E, W.M. would be removed from roadless character due to road construction on National Forest lands. This reduction would leave a total of 20,578 acres in the cumulative effects area (RAC) in roadless character following implementation of Alternative C; this total would be one acre less than Alternative B as shown on Table 13, pg III-69.

### Consistency With the Forest Plan and Other Regulatory Direction

With implementation of either Alternative B or C, Forest Plan consistency would be met. This conclusion is based on the fact that even though the total acres in the South Fork Mountain IRA would drop below 5,000, the action is consistent with the direction in the IPNF Forest Plan, which is to manage roadless areas according to the management area direction allocated within each individual roadless area. Implementation would also be consistent with the Washington Wilderness Act and ANILCA.

## Threatened, Endangered, Sensitive, and Rare Plants

### Regulatory Framework

There are no federally listed Endangered plant species suspected to occur in the Idaho Panhandle National Forests (IPNF) or in the project area.

A Threatened species, as determined by the U. S. Fish and Wildlife Service, is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Currently, two threatened species are suspected to occur in the IPNF, water howellia (*Howellia aquatilis*) and Ute ladies'-tresses (*Spiranthes diluvialis*). One species proposed for listing as threatened, Spalding's catchfly (*Silene spaldingii*) also is suspected to occur on the Forest.

Sensitive species are determined by the Regional Forester as those species for which population viability is a concern, as indicated by a current or predicted downward trend in population numbers or habitat capability which would reduce the species' existing distribution (FSM 2670.5). Several Forest species of concern are also considered. While these species are generally not at risk on a range-wide, region-wide or state level, they may be imperiled at the Forest level. Forest species of concern are addressed in effects analysis to provide for maintenance of populations as directed by NFMA. Seventy-six sensitive plant species and Forest species of concern are known or suspected to occur in the Kaniksu portion of the IPNF, which encompasses the Stimson Access project area.

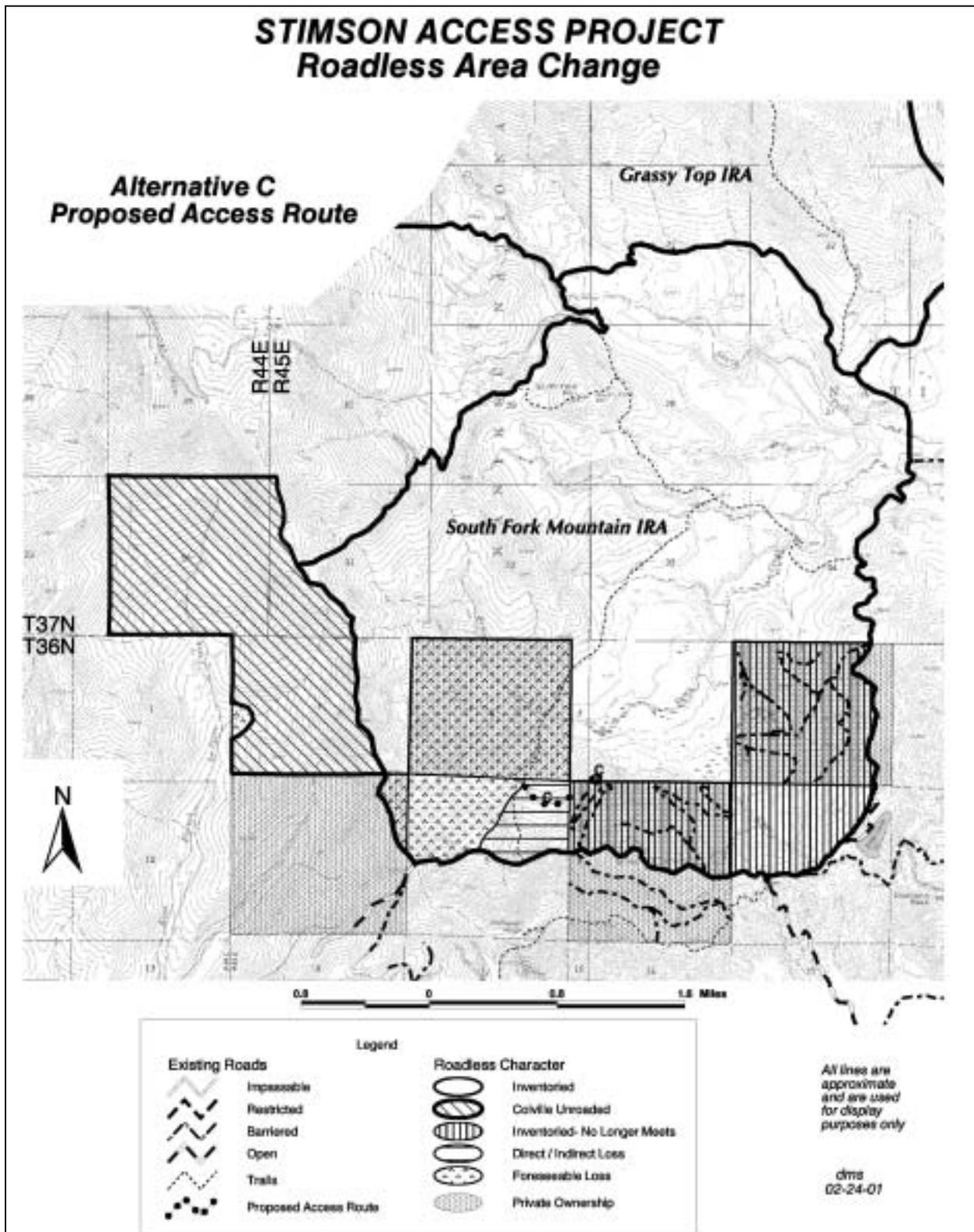


Figure 9. Change in Roadless Area with Alternative C.

Sensitive species and Forest species of concern may be assigned to one or more habitat guilds. These guilds are artificial assemblages based on similar habitat requirements and are used for analysis. A list of TES plant species by habitat guild and guild descriptions are included in the Project File.

## Affected Environment

### Methodology and Prefield Review

Assessment of sensitive species, Forest species of concern and suitable habitat occurrence was accomplished through review of Priest Lake Ranger District Sensitive Plant Atlas (USDA 2000), Washington Natural Heritage Program Element Occurrence Records, National Wetlands Inventory maps, queries of the timber stand data base (TSMRS), aerial photographs and topographical maps, previous sensitive plant surveys, personal knowledge and professional judgment of the North Zone Botanist.

### Field Survey Results and Post-Survey Review

Field surveys of the proposed easement under Alternative B were conducted in August of 1995. Surveys of the easement proposed under Alternative C were accomplished in 1997. One occurrence of **deerfern** (*Blechnum spicant*) and one occurrence of **western goblin** (*Botrychium montanum*) were discovered in the 1995 survey. Based on the results of that field survey, the proposed easement under Alternative B was relocated away from the sensitive plant populations. Two occurrences of **western goblin** and **Mingan moonwort** (*B. minganense*) were identified during the 1997 survey.

Much of the project area is characterized by dense second-growth mixed conifer forest dating from the 1926 fire, with scattered pockets of older fire-scarred trees. Small benches and swales and riparian zones harbor moist or wet forest plant habitats; the sensitive plant occurrences were found in these microsites. Both proposed easements cross two drainages with well-developed riparian zones, but no sensitive plants were found at those locations. All highly suitable habitat was thoroughly surveyed.

Field survey results and habitat assessment TSMRS queries were reviewed after the listing as Threatened of Ute ladies'-tresses (December 1998), the revision of the Regional Forester's Sensitive Plants list (March 10, 1999) and the proposal to list Spalding's catchfly (December 1999). It was determined that no further field surveys were necessary.

Complete results of field surveys are included in the Project File.

### Species Screen

The Council on Environmental Quality (40 CFR 1502.2) directs that impacts be discussed in proportion to their significance. Generally, the following guidelines are used for determining the appropriate level of analysis:

No detailed analysis is necessary for species or habitat presumed not to be present within the affected area. No potential habitat for the Threatened species water howellia or Ute ladies'-tresses or the proposed Threatened Spalding's catchfly occurs in the project area. Of sensitive species and Forest species of concern, no suitable habitat for aquatic, deciduous riparian, peatland, dry forest, subalpine or cold forest guild species is present in the project area. These habitat guilds will not be discussed further. Supporting rationale for these determinations is included in the project file

Species or habitat considered present and potentially affected by the proposed actions are carried forward into a detailed discussion and analysis in the Environmental Consequences Section. Suitable habitat for deerfern, sensitive moonworts and other moist forest and wet forest guild sensitive species and Forest species of concern has been documented in the project area, and have the potential to be impacted by project activities. These species and habitats will be analyzed in detail.

#### ***Moonworts*** (*Botrychium species*)

Moonworts are seedless vascular plants that reproduce from spores and underground rhizomes. Mingan moonwort (*B. minganense*) and western goblin (*B. montanum*), both of which were identified in the project area, often occur with other rare moonworts, usually in wet or moist forest habitat and/or near streams and in soils with well-developed soil mycorrhizae<sup>1</sup>. Mingan moonwort may also occur with other rare moonworts in or adjacent to wet meadows, open disturbed areas, old roads and roadside ditches.

One historical occurrence of the Forest species of concern, slender moonwort (*Botrychium lineare*), is documented on the IPNF approximately twelve miles northeast of the project area but has not been seen since 1925. No new occurrences of slender moonwort have been identified during numerous surveys in which other rare moonworts were documented. Highly suitable habitat for this species occurs in the project area near stream crossings and in microsites of wet forest habitat.

#### ***Deerfern*** (*Blechnum spicant*)

In eastern Washington and northern Idaho, deerfern is disjunct, or separated, from the main range of the species. It is common in coastal forests west of the Cascade Mountains but rare throughout the Inland Northwest. Plants typically grow in shady, moist mature forests, but appear to tolerate limited soil disturbance and canopy removal (Blake and Ebrahimi, 1992). There are no current threats to the deerfern plants in the project area. Potential threats are similar to those described for moonworts, except that deerfern appears more tolerant of canopy removal, and appears to establish in disturbed mineral soils (Hammet 1997; Penny 1995; Blake and Ebrahimi 1992).

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<sup>1</sup> Mycorrhizae are symbiotic relationships between fungi and the roots of certain plant species. Although their ecology is poorly understood (Lellinger 1985; Vanderhorst 1997), it is apparent that mycorrhizal relationships enhance uptake of nutrients by the host plant (Allen 1991).

## Environmental Consequences

### Analysis Process

Analysis was conducted using results of TES plant surveys, current population distribution of TES species and Forest species of concern in the analysis area and professional judgment. The botanist used scientific literature and past monitoring as a basis for the effects analysis.

The cumulative effects analysis area includes the Sema and Tobasco Creek watersheds. Past management activities on private and Federal lands in the watersheds were considered in the analysis of cumulative effects. The following reasonably foreseeable activities were also considered:

- **Timber harvest and road construction** on Stimson lands in the parcel to which access is requested
- **Ongoing road maintenance** on Stimson and Federal lands in the watersheds
- **Noxious weed treatment** on Stimson and Federal lands in the watersheds

The majority of National Forest lands in the Sema and Tobasco Creek watersheds have had no management activities. No past or planned timber sale has occurred on National Forest lands in either drainage. The only scheduled Forest Service management activities in the drainages are road maintenance of Road 308 and noxious weed treatment as noted above. Noxious weed treatments and monitoring would occur on known populations adjacent to Road 308 and other populations if they are located within the cumulative effects area.

Cumulative effects analysis on private lands was based on aerial photograph and topographical map interpretation and on the assumption that highly suitable habitat for sensitive plants occur on private lands in similar proportion to that on Federal lands. It was further assumed that at least some suitable habitat is or was occupied by sensitive plant species. Because these lands are private lands, no field surveys were conducted on Stimson lands.

Cumulative effects to sensitive plant species or suitable habitat are generally described as follows:

- **very low** - no measurable effect on individuals, populations or habitat
- **low** - individuals and/or habitat not likely affected
- **moderate** - individuals and/or habitat may be affected, but populations would not be affected, and habitat capability would not over the long term be reduced below a level that could support sensitive plant species
- **high** - populations would likely be affected and/or habitat capability may over the long term be reduced below a level that could support sensitive plant species

## Direct and Indirect Effects

### Alternative A

Management activities on National Forest lands would not change from current levels. Under the No Action Alternative, therefore, there would be no direct, indirect or cumulative impacts to any threatened, endangered or sensitive plant species or Forest species of concern or suitable habitat.

### Alternative B

**Direct and Indirect Effects** - The easement proposed under this alternative would not directly or indirectly impact any documented sensitive plant species. The original easement location was revised in 1995 to avoid the moonwort and deerfern plants found that year. The revised location is between 200 and 250 feet upslope from the plants, and separated by a topographic break (Layser 1997). As a result, the proposed easement location would avoid the highly suitable moist forest and wet forest habitat in benches and swales found on the lower slopes.

### Alternative C

**Direct and Indirect Effects** - Under this alternative, one documented occurrence of sensitive moonworts (*Botrychium minganense* and *B. montanum*) would fall within the 66-foot easement on National Forest lands. The moonwort occurrence is localized within a moist forest microsite under a relic cedar overstory. An attempt would be made to relocate the proposed easement to provide a minimum 100-foot buffer from any road construction activity. If the easement location cannot be moved, the plants would be buffered from any soil disturbance or canopy removal, but this buffer would be less than 100 feet. Therefore, no direct effects to the sensitive moonworts would occur.

However, it is likely that the buffer would not be sufficient to preclude the indirect effect of an alteration of environmental conditions (shade, moisture and/or temperature) from "edge effect". Moonworts appear to tolerate a range of environmental conditions (Vanderhorst 1997), and populations of some sensitive moonworts are known along roadsides and other highly disturbed habitats (ICDC 2000).

Areas of highly suitable **moist forest** habitat would be directly impacted under this alternative. The risk that undetected moonworts would be impacted, and that available habitat for documented occurrences would be reduced, is higher than under Alternative B. Although implementation of Alternative C would likely impact individual sensitive moonworts and their habitat, the impact would not cause a loss of population or species viability or a trend to Federal listing. The direct loss of highly suitable habitat under this alternative is not significant given the amount of such habitat in the analysis area.

## Effects Common to Alternatives B and C

### *Sensitive moonworts (Botrychium species)*

**Direct and Indirect Effects** - Undetected individuals of Mingan moonwort and western goblin in marginal to moderately suitable habitat could be impacted under either action alternative.

**Cumulative Effects** - Because of the likelihood of impacts to individuals, implementation of either action alternative would contribute moderate cumulative impacts to sensitive moonworts. However, because of the scope of the proposed actions and with measures designed to protect documented sensitive moonwort occurrences, impacts from either action alternative by itself would not be significant when considered at the watershed scale.

Past logging and road construction activities on private lands in the analysis area have likely impacted individuals, and have certainly impacted suitable habitat for these species. Planned timber harvest activities on private lands are expected to continue to impact some suitable habitat, with the possibility that some moonwort occurrences may be lost. Ongoing road maintenance and noxious weed treatments on National Forest lands are not expected to contribute to cumulative impacts. Although occurrences may be lost, overall population viability and habitat capability in the analysis area would not be reduced below a level that could support sensitive moonworts.

### *Deerfern (Blechnum spicant)*

**Direct and Indirect Effects** - After sensitive plant field surveys were conducted in 1995, the proposed road location under Alternative B was changed to avoid the deerfern and its habitat by at least 200 feet. This species was not found during surveys of the easement proposed under Alternative C. There would be no direct or indirect impacts to this species from implementation of either action alternative.

**Cumulative Effects** - Because of the scope of the proposed federal action, and with proposed road locations designed to avoid the documented deerfern occurrence and most highly suitable habitat for this species, implementation of either action alternative would not, by itself, contribute cumulative impacts to deerfern.

Past logging and road construction activities on private lands in the analysis area have impacted suitable habitat for this species, and some individuals may have been impacted. Planned timber harvest activities on private lands are expected to continue to impact some suitable habitat, with the possibility that some deerfern occurrences may be lost. Because deerfern has been found to colonize disturbed mineral soils (see Affected Environment), populations may persist and even expand in some previously harvested areas. Overall cumulative effects to the species and its habitat in the analysis area would be expected to be moderate.

### *Moist Forest Habitat*

**Direct and Indirect Effects** - Areas of marginally suitable **moist forest** habitat (characterized by immature mixed-conifer forest) would be directly impacted under either action alternative.

The loss of suitable habitat would be limited (0.3 acre under Alternative B and 1.0 acre under Alternative C). With implementation of features designed to minimize weed introduction and spread (see Chapter II, Features Common to Alternatives B and C), habitat degradation from noxious weeds is not expected to occur.

**Cumulative Effects** - Because of the small amount of moist forest habitat that would be affected, implementation of either action alternative would not, by itself, contribute cumulative impacts to most sensitive species of this guild.

Past logging and road construction activities on private lands in the analysis area have impacted suitable moist forest habitat, and likely some sensitive species of this guild. Planned timber harvest activities on private lands are expected to continue to impact species and suitable habitat. Overall cumulative impacts to moist forest guild habitat and species in the analysis area would be expected to be moderate.

### ***Wet Forest Habitat***

**Direct and Indirect Effects** - A small amount of **wet forest** habitat at the two perennial stream crossings and at several intermittent stream crossings would be directly impacted. The loss of suitable habitat would be limited (0.1 acre under either action alternative). With implementation of features designed to minimize weed introduction and spread (see Chapter II, Features Common to Alternatives B and C), habitat degradation from noxious weeds is not expected to occur.

**Cumulative Effects** - Because of the small amount of wet forest habitat that would be affected, implementation of either action alternative would not, by itself, contribute a major cumulative impacts to most sensitive species of this guild.

Past logging and road construction activities on private lands in the analysis area have impacted suitable wet forest habitat, and likely some sensitive species of this guild. Planned timber harvest activities on private lands are expected to continue to impact species and suitable habitat. Stream buffers on private lands are probably adequate to protect most occurrences of sensitive plants from direct impacts. However, those buffers may not be sufficient to prevent impacts to individuals or indirect effects to their habitat. Overall cumulative impacts to wet forest guild species and habitat in the analysis area would be expected to be moderate.

### ***Forest Species of Concern***

#### ***Slender moonwort*** (*Botrychium lineare*)

**Direct and Indirect Effects** - Based on current knowledge of the species' distribution, impacts to this Forest species of concern would not be expected to occur from implementation of either action alternative. Although many occurrences of other sensitive moonworts have been identified in numerous surveys since 1989, slender moonwort has not been documented since 1925. No direct or indirect impacts to slender moonwort would be expected to occur.

**Cumulative effects** to habitat for slender moonwort would be predicted to be the same as for moist and wet forest habitat.

## Consistency With the Forest Plan and Other Regulatory Direction

A Forest Plan management goal is to “manage habitat to maintain populations of identified sensitive species of animals and plants” (Forest Plan, II-1). A Forest Plan standard for sensitive species is to “manage the habitat of species listed in the Regional Sensitive Species List to prevent further declines in populations which could lead to Federal listing under the Endangered Species Act” (Forest Plan, II-28). The Forest Plan also identifies the need to “determine the status and distribution of Threatened, Endangered and Rare (sensitive) plants on the IPNF” (Forest Plan, II-18). All alternatives would meet Forest Plan direction.

## Noxious Weeds

### Introduction

The impacts of noxious weed invasions on forest resources and the effectiveness and impacts of different weed treatment methods are discussed in the Priest Lake Noxious Weed Control Project Final Environmental Impact Statement (FEIS) (USDA 1997), hereby incorporated by reference. Information on current weed infestations and results of weed management in and adjacent to the project area are derived from monitoring and treatment reports provided by the district weed coordinator (Layser 2001).

### Affected Environment

Noxious and undesirable weeds are currently infesting several sites adjacent to the project area. Spotted knapweed, meadow hawkweed, goatweed, Canada thistle and oxeye daisy occur along Forest Road 308 on National Forest and privately owned lands. Infestations on National Forest lands adjacent to the project area have been managed for the last three years, using an Integrated Pest Management approach that includes hand-pulling and chemical treatments. Continued monitoring and management of weeds are planned, based on district priorities and availability of funding. Copies of recent monitoring and treatment reports are located in the Project File.

The easements proposed under both alternatives would be spurs off of roads owned and maintained by Stimson. Those roads are currently managed for noxious weeds using mechanical, chemical, and cultural control methods (Opp, 2001).

### Environmental Consequences

### Methodology

The analysis of effects with regard to weed infestations was conducted using guidelines in the Priest Lake Noxious Weed Control Project Record of Decision (ROD) and FEIS (USDA 1997), results of past monitoring and treatment of weeds in and near the project area and professional judgment. The cumulative effects area for noxious weeds includes Sema and Tobasco Creek watersheds.

## Effects Common to Both Action Alternatives

**Direct and Indirect Effects** - There is a risk of weed introduction and spread with road construction. Preventive seeding of native and desired non-native species on all areas disturbed during road construction would reduce, but not eliminate, the risk of spread.

The proposed alternative routes across National Forest lands would be extensions of an existing road on Stimson lands. This existing road is gated. As stated in Features Common to Alternatives B and C in Chapter II, the road would be closed to all non-authorized motorized vehicles. Because motorized vehicles are one of the primary carriers of noxious weeds as discussed in the Priest Lake Noxious Weed Control Project Final Environmental Impact Statement (FEIS), the yearlong restrictions on motorized use of the road would greatly reduce the risk of noxious weed introduction.

The private landowner would be required to monitor and treat weeds along the newly constructed road segment for a three-year period following use of the road (see Chapter II, Features Common to Alternatives B and C). Monitoring and treatment would greatly reduce the risk of establishment of noxious weeds along the road, either from new introductions or from spread of current infestations.

Implementation of these mitigation measures would reduce the incidence of weed introduction and spread along either proposed easement, and would minimize the direct or indirect effects to the incidence of noxious weed infestation in the Sema or Tobasco Creek watersheds.

**Cumulative Effects** - With the proposed design criteria and mitigation measures, both Alternatives B and C would minimize the cumulative effects to weed infestations. In addition to the action alternatives, the following reasonably foreseeable actions were considered in the cumulative effects analysis for noxious weeds:

**Timber harvest and road construction activities on private lands:** With the implementation of either action alternative, the private landowner would conduct road construction and timber harvest activities in Section 5, the parcel to which access is being requested. Road construction and timber harvest on private lands within the analysis area would be expected to increase susceptibility to invasion of weed species on private lands. Noxious weeds could be introduced on logging equipment and vehicles. It is assumed that most noxious weed species that occur on Federal lands in the analysis area also occur on private lands.

While the existing incidence of weed infestation in the watersheds is low overall, infestations could spread to newly disturbed areas (such as skid trails and skyline corridors) on private lands. State of Washington laws and county ordinances require that all landowners are responsible for the control of noxious weeds on their lands. Control measures on Stimson lands include hand-pulling of small infestations and herbicide application with registered chemicals done by licensed applicators for larger areas (Opp, 2001). Cumulative effects to noxious weed infestations, therefore, would be expected to be low to moderate, depending on the landowner's diligence in preventing weed spread in harvested areas and the enforcement of State and county ordinances.

**Road maintenance:** Ongoing road maintenance of private and Forest roads would create soil disturbance that is conducive to weed spread. Monitoring and treatment of infestations as

proposed on both National Forest (Priest Lake Noxious Weed Control Project Record of Decision (ROD) and FEIS, 1997) and private (Opp, 2001) lands would reduce the risk of weed spread and establishment of new weed invaders along the roads. Cumulative effects to weed spread from this activity would be low.

**Noxious weeds control on private and National Forest lands:** Current noxious weed control practices on private and Federal lands are expected to continue (see Chapter III, Priest Lake Noxious Weed Control Project FEIS, 1997). The goals of the Priest Lake Noxious Weed Control Project are outlined on page 1-2 of the FEIS (1997). Weed monitoring and control efforts are expected to continue to reduce the incidence of infestations.

### **Alternative A**

Under the No Action Alternative, there would be no change in the risk or rate of weed spread, since management practices would not change from current conditions. Treatment of existing noxious weed populations would continue to occur as specified in the Priest Lake Noxious Weed Control Project Record of Decision, 1997).

### **Alternative B**

Because this proposed easement is longer than that under Alternative C, the amount of disturbance, and, therefore, the amount of habitat susceptible to weed invasion, would be greater than under Alternative C. Alternative B would result in approximately 6 acres of disturbed soils that would result in potential infestation of noxious weeds. This difference would be expected to be reduced by design criteria and mitigation measures as proposed in Chapter II, Features Common to Alternatives B and C.

### **Alternative C**

Because this proposed easement is shorter than that under Alternative B, the amount of disturbance (3 acres), and, therefore, the amount of habitat susceptible to weed invasion, would be less than under Alternative B. This difference would be reduced by design criteria and mitigation measures as proposed in Chapter II, Features Common to Alternatives B and C.

## **Consistency With the Forest Plan and Other Regulatory Direction**

According to current Forest Plan direction, infestations of many noxious weed species, including knapweed, goatweed and common tansy, are so widespread that eradication would require major programs that are not possible within expected budget levels (Forest Plan p. II-7). The No Action Alternative meets Forest Plan direction by not creating disturbance conducive to new noxious weed invasions or spread of existing weed populations. Both action alternatives provide control actions, as required by the Forest Plan, to prevent new weed species from becoming established, through project design, and through monitoring and treatment as specified in Features Common to Alternatives B and C.

## Soils

### Methodology

Soil productivity is the output of a specified plant or group of plants under a defined set of management practices, or total plant mass produced annually per unit area. Soil productivity is influenced by such factors as parent material, topography and soil texture.

The discussion of soils and soil productivity is restricted to a simple comparison of the amount of National Forest lands that would be removed from productivity from the action alternatives and the reduction in current soil productivity on federal and private lands from reasonably foreseeable actions. The effects of sediment delivery and mass failure resulting from road construction on different soil types are fully discussed in Chapter III, Hydrology.

Effects to soil productivity from the action alternatives were measured by the acres affected by proposed road construction under each alternative. Past activities, as well as future road construction and timber harvest by Stimson were considered in the analysis of cumulative effects. There are no reasonably foreseeable actions on National Forest lands in the cumulative effects analysis area that would affect soil productivity. The cumulative effects area includes all of the Sema Creek drainage to its confluence with the South Fork of Granite Creek. The Sema Creek drainage represents the expected limits of effects to soil productivity from the action alternatives and reasonably foreseeable actions.

### Affected Environment

Soils in the proposed easements are currently in a natural state (i.e. they are undisturbed because no management activities have occurred there). In their natural state, some soils are more productive than others, based on environmental factors parent material, topography and soil texture as described above.

## Environmental Consequences

### Alternative A

Implementation of the No Action Alternative would mean that neither road access alternative would be implemented. There would be no change in current soil productivity conditions since management activities would not change. No direct, indirect or cumulative effects would occur.

### Alternative B

**Direct and Indirect Effects** - Under this alternative, approximately 4,000 feet of road would be constructed. The road prism and areas of cut and fill would result in the irretrievable loss of soil productivity on approximately six acres of National Forest lands.

## Alternative C

**Direct and Indirect Effects** - Under this alternative, approximately 2,500 feet of road would be constructed. The road prism and areas of cut and fill would result in a loss of soil productivity. Approximately 3 acres of National Forest lands would be directly impacted.

### Effects Common to Alternatives B and C

**Cumulative Effects** - The road construction proposed in either alternative would be an irretrievable commitment of soil productivity potential within the road corridor (i.e. lands from the top of cut slope to the toe of the road fill will be taken out of production).

Because of the scope of the action alternatives, implementation of either alternative by itself would not contribute significant cumulative effects to soil productivity. Past activities on National Forest lands in the cumulative effects analysis area have been minimal. Effects to soil productivity have occurred almost entirely on private lands. Further timber harvest and road construction on Stimson-owned property in upper Sema Creek would be expected to reduce soil productivity on those lands. However, no further impacts to soil productivity on National Forest lands would be expected to occur.

## Consistency With the Forest Plan and Other Regulatory Direction

According to the Forest Plan, management activities on National Forest lands will not significantly impair the long-term productivity of the soil (Forest Plan, p. II-8). A Forest Plan standard is to maintain at least 80 percent of the activity area in a condition of acceptable productivity potential for trees and other managed vegetation (Forest Plan, p. II-32). That standard was revised to 85 percent in 1999 (R1 Supplement to FSM 2500-99-1). Both action alternatives would follow Forest Plan standards. The revision also stated that, while permanent roads do affect soil-hydrologic function, their evaluation is more appropriate in a watershed analysis context than from a soil productivity standpoint.

All alternatives therefore, would meet Forest Plan standards and guidelines, as revised, for soil productivity on National Forest lands.

## Recreation

### Regulatory Framework

When the Forest Plan was developed in 1987, the Recreation Opportunity Spectrum (ROS) was used to define the types of outdoor recreation opportunities the public might desire. It also identifies that portion of the spectrum a given National Forest might be able to provide. The ROS is used for planning and managing the recreation resource and recognizes recreation activity, setting, and experience opportunities. The project area was classified as Roaded Natural and Semi-Primitive Motorized.

## Affected Environment

The Sema Creek drainage is considered as the cumulative effects analysis area with Forest Road 308 defining the southern boundary of the analysis area. For discussion purposes, several destination areas that are outside the boundary of the project area also are included in the analysis.

The area including and surrounding the project area receives a moderate amount of dispersed recreation use, including huckleberry and mushroom picking, hunting, and scenic drives. Most recreation use occurs along the road corridors. Forest Road 308 serves as the main route through the area and to destinations such as Petit Lake and the trailhead to Kalispell Rock. Road 308 is the only open road within or near the analysis area. The other roads are gated and restricted from motorized use. Some ATV and motorcycle use occurs on Road 308 along with traditional vehicles.

The only trail maintained for recreation purposes near the area is the Kalispell Rock Trail 370. Trail 370 to Kalispell Rock is open to non-motorized use and has been closed with a guardrail barrier. The trailhead is on the south side of Road 308 and lies approximately one mile from the project area in Section 8. There is a gate on Stimson Lumber Company's property on Road 308 in Section 9 that also accesses the trail. This gate is maintained as a year-round closure.

One outfitter is permitted in this area for providing guided elk, deer, bear, and cougar hunting trips. The use of the area is typically day-use on existing roads and trails. The use level by the outfitter in the project area is low.

Snowmobiling also occurs along Road 308 along the southern boundary of the project area. However, the road is not part of the groomed trail system and snowmobilers are not encouraged to use this area because of moose winter range.

## Change in ROS Classification

When the Forest Plan was written in 1987, the Sema Creek Trail 241 was classified and maintained as a motorized recreation trail. The trail connected to Trail 262, the South Fork Mountain Trail. Trail 262 was classified as a fire access trail with a low level of maintenance and was open to motorized use.

In 1995, with the implementation of the Kalispell-Granite Grizzly Bear Access Management project, a project designed to protect grizzly bear habitat, Trail 241 was removed from the maintained public trail system and was converted to a fire access trail with a low level of maintenance (Kalispell-Granite Access Management Environmental Assessment and Decision Notice). Trail 241 crosses Stimson property in Section 5. The Forest Service has never obtained an easement for the trail across Stimson lands. Trail 262 remained a fire access trail. Both trails are designated for non-motorized use. The trail signs were removed and both trails were not listed on the District Travel Plan Map or any trail guides. The trails continue to receive a low level of maintenance, basically the amount necessary for fire-fighting access purposes.

With the status of Trail 241 and Trail 262 changing from motorized to non-motorized use through the Kalispell-Granite Grizzly Bear Access Management project, the ROS classification for the area changed from Semi-Primitive Motorized to the existing condition of Semi-Primitive Non-Motorized. (Refer to maps in the project file)

## Primitive Recreation Opportunities within the South Fork Mountain Roadless Area

The roadless area offers primitive opportunities for hiking, backpacking, hunting big and small game, and viewing scenery. Most activities consist of day use because of the size of the area and camping can occur on dispersed sites along forest roads adjacent to the area. The current recreation use is low.

## Environmental Consequences

The following will disclose the direct, indirect and cumulative effects of each of the alternatives. The direct and indirect effects will be discussed first, then cumulative effects will be discussed in a separate section.

### Alternative A

**Direct Effects and Indirect Effects:** With the implementation of this alternative, no direct effects to the existing recreation resources would occur. Dispersed recreation use would be expected to remain at close to existing levels for the foreseeable future. The ATV and motorcycle use that occurs on Road 308, the use by the outfitter, and snowmobiling on Road 308 would be expected to stay at the same level.

A very low level of use would occur on Trail 241 by people who know the trail exists. Over time, less use would be expected to occur on Trail 241 as it becomes more brushed in and the trailhead becomes less obvious.

### Alternative B

**Direct Effects and Indirect Effects:** A slight increase in dispersed use may occur if people use the proposed road system for huckleberry picking and other uses. In order to access this road, the public would have to access Stimson's property in Section 9 and travel along an existing gated road. The road would be closed to non-authorized motorized access as stated in Chapter II.

Use of Trail 241 would not be expected to increase even though this route would cross the trail.

The ATV and motorcycle use that occurs on Road 308, use by the outfitter, and snowmobiling that occurs south of the project area along Road 308 would be expected to stay at the same level.

### Alternative C

**Direct Effects and Indirect Effects:** As in Alternative B, a slight increase in dispersed use may occur along the proposed road. In order to access this road, the public would have to access

Stimson's property in Section 9 and travel along an existing gated road. The road would be closed to non-authorized motorized access as stated in Chapter II. Trail 241 would not be crossed with this alternative.

The ATV and motorcycle use that occurs on Road 308, use by the outfitter, and snowmobiling on Road 308 would be expected to stay at the existing level.

### **Cumulative Effects:**

**Alternative A:** With the implementation of Alternative A, recreation use would be expected to remain close to existing levels.

**Alternatives B and C:** With the implementation of either Alternative B or C, a slight increase in use may occur over time as people discover the non-motorized road system. The road system could be used as an access point for people to access the South Fork Roadless Area.

For both action alternatives, Trail 241 would not be maintained or protected after implementation of management activities in Stimson's Section 5. The Forest Service has no trail easement in this section. Through time, the trail would become increasingly difficult to locate as the trail tread becomes less noticeable. Use on this trail would be expected to decrease from the existing low level of use.

The ATV and motorcycle use that occurs on Road 308 would be expected to stay at the same level. A small amount of illegal ATV use may occur on the road in Sections 8 and 9, if people find ways to breach the road closure. However, the Priest Lake Ranger District routinely monitors the effectiveness of road closures to identify needed structure repairs or modifications (see Kalispell-Granite Grizzly Bear Access Management DN, USDA 1995). Therefore, any unauthorized use is expected to be minimal.

The use of the area by the outfitter, and the snowmobiling that occurs south of the project area along the 308 Road would both be expected to stay at existing levels.

### **Consistency With the Forest Plan and Other Regulatory Direction**

With implementation of any alternative, the project and surrounding area would maintain its existing ROS; therefore, consistency with the Forest Plan standards would be met. A spectrum of dispersed and developed recreation opportunities would continue to be provided (Forest Plan II-25). Trails would be managed in accordance with management area requirements (ibid).

## **Conclusions**

### **Adverse Effects Which Cannot Be Avoided**

Implementation of either of the action alternatives would inevitably result in some adverse environmental effects on National Forest lands. The severity of the effects would be minimized

by adhering to all of the Standards and Guidelines of the Forest Plan, Best Management Practices, and the Features Common to All Action Alternatives which are described in Chapter II. However, some impacts as discussed below cannot be avoided.

## **Air Quality**

Any prescribed burning of piles associated with the road construction would cause a temporary deterioration in air quality in the immediate vicinity of the pile burning. The effect would be short-term, lasting one or two days.

Use of the road during periods of timber harvest or other activities on Stimson lands would produce dust. Effects would be limited to minor amounts of dust production during dry weather conditions and would be restricted to the immediate vicinity.

## **Noxious Weeds**

Any activity has a risk of introducing and spreading weeds. Vehicle use and travel associated with timber harvesting, road construction and other actions will increase the risk of spread. Mitigation measures such as washing vehicles, vegetating disturbed sites resulting from road construction, and yearlong closure of roads to motorized vehicles would reduce, but not eliminate, the risk of weed spread due to proposed activities on National Forest lands. These measures are included in Chapter II of this EIS. Noxious weed prevention and control on private lands are covered by state and county laws and regulations.

## **Recreation**

The project area is classified as a Semi-Primitive Non-Motorized ROS (Recreation Opportunity Spectrum) class. There would be no change in the types of activities in any alternative. The low level of dispersed recreation activities will be expected to continue at existing levels.

## **Soil Productivity**

Road construction would result in compaction and displacement of the soil in the road surface and cut and fill slopes. There would be an irretrievable loss of soil productivity on these affected acres.

## **Watershed**

Road construction has the potential to create sediment that would reach some stream systems, but Best Management Practices and use of buffers around streams would reduce the effects to a minimal level.

## **Wildlife**

Removal of trees would reduce the amount of trees and snags or habitat available to some

wildlife species along the road corridor, especially primary cavity excavators. However, the levels of snag and green replacement trees outside the road corridor left would mitigate this adverse effect. Some wildlife species would be displaced or disturbed during periods of human activity in the action alternatives. Restricting access on the newly constructed roads would minimize the disturbance.

## **Short-term Uses and Long-term Productivity**

Short-term uses are generally those that determine the present quality of life for the public. Current activities must not significantly impair the long-term productivity. Long-term productivity of the land refers to the capability of the land to provide resources such as forage, timber and high quality water.

### **Air Quality**

Under the action alternatives, the Forest Service would voluntarily cease burning activities to avoid violations of State standards. Burning of fuels under prescription would occur primarily in early spring or late fall when demand for airspace has been historically low. Activities such as agricultural field burning, other forest residue burning on private lands, residential wood stove use, motor vehicle exhaust, and dust input from the Palouse and Columbia basin are competing uses of the monitored airspace.

### **Fuels**

There would be a short-term increase in fuel loading during the construction of the access road in either action alternative because of removal of trees on the road right-of-way and the resultant slash. An increased short-term fire hazard and risk of ignition from ground activities from the machinery used in the road construction may result until the fuels are treated. Windrowing the slash along the toe of the constructed road fill slope would not be expected to increase fire hazard on National Forest lands.

### **Soil Productivity**

The road construction would have long-term effects on soil productivity because of compaction, displacement, and the removal of organic materials and biomass. These effects would be restricted to the immediate location of the road easement.

### **Watershed**

To a degree, project activities associated with the action alternatives will have a short-term effect on water quality. The extent and duration of the impact depends on the amount and type of activity and the mitigation measures applied to reduce the impact.

## Wildlife

The disturbance to wildlife and loss of security would be minor and short-term due to roads being opened to implement the project that are currently closed. These roads will be restricted to administrative use only.

## Irreversible and Irretrievable Effects

Irreversible effects describe the loss of future options, these apply primarily to effects of using non-renewable resources such as minerals or cultural resources, or to those factors such as soil productivity that are renewable only over long periods of time. Irretrievable effects apply to loss of production, harvest or use of natural resources. The production lost is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume production (from FSH 1909.15-92-1, Definitions section 05).

### Soil Productivity

Road building is an irretrievable commitment since roaded templates can only be restored to a non-roaded condition after a long period of time or after ripping and revegetating.

### Vegetation

The road construction would result in an irretrievable loss of vegetation within the road easement. This effect would remain until the road surface was ripped, and revegetated.

### Wildlife

The loss or modification of habitat for certain wildlife species is an irretrievable commitment of resources. As vegetation recovers, this habitat will recover, but the timeframe for this to occur may be as long as several decades.

## Other Required Disclosures

### Effects to Consumers, Minority Groups, Women, Civil Rights, and Environmental Justice

There would be minimal impacts to consumers. The amounts of wood fiber put on the market would not increase mill production, because the timber offered for sale would be replacing sales that would have otherwise been offered for sale during the lifetime of this project.

Minority groups would not be affected by any action alternative and no groups would be disproportionately impacted (Environmental Justice). There would be no effects to women or civil rights. All contracts offered by the Forest Service contain Equal Employment Opportunity requirements.

## Effects to Prime Farm Land, Rangeland, and Forest Land

None of the activities proposed would adversely impact prime farmland or rangeland. National Forest System lands are not considered prime forestland.

## Effects to floodplains and wetlands

The Inland Native Fish Strategy (INFS) standards and guidelines implemented with this project would protect floodplains and wetlands.

## American Indian Religious Freedom Act

No effects are anticipated to the American Indian Religious Freedom Act. No impacts on American Indian social, economic or subsistence rights are anticipated.

## Energy Requirements

There are no unusual energy requirements for implementing any of the action alternatives. In terms of petroleum products, the energy required to implement either action alternative is insignificant when viewed in light of production costs and the effects on the national and worldwide petroleum reserves.

## Incomplete or Unavailable Information

Specific knowledge of population biology and autecology of some plant species is lacking. Refer to discussion in Threatened, Endangered and Sensitive Plant sections of Chapter III.

# CHAPTER IV

## List of Preparers/Literature Cited/Mailing List

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### Introduction

This chapter lists the preparers of the document, literature cited, the agencies, organizations, and individuals that have been sent a copy of the Draft Environmental Impact Statement.

### List of Preparers

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#### Stimson Access Project Interdisciplinary Team

Name	Title	Area of Expertise	Qualifications	Office
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Gary Weber	Assistant Fuel Management Officer	Preliminary fire/fuels analysis	Priest Lake Ranger District

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## Mailing List

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The following agencies, organizations, businesses and individuals were sent a copy of the Draft Environmental Impact Statement.

### Federal Agencies

US Army Corps of Engineers  
 US Environmental Protection Agency  
     Washington, DC  
 USDA Forest Service  
     Ecosystem Management Coordinator  
     Washington D.C.  
     Office of the General Council  
     Campbell, Alan  
     Missoula, MT  
     Supervisor's Office  
     Ford, Gary  
     Johnson, Steve  
     Coeur d'Alene, ID  
     Colville National Forest  
     Smith, Connie  
     Baxter, Diane  
 USDA Office Of Civil Rights  
     Policy & Planning Division,  
     Washington, DC  
 USDA, National Agricultural Library  
     Beltsville, MD  
 USDI Fish And Wildlife Service  
     Spokane, WA  
 USDI Office Of Environmental Affairs  
     Washington, DC,

### Tribes

Coeur d'Alene Tribe,  
     Plummer, ID  
 Kalispel Tribal Office  
     Usk, WA  
 Kalispel Tribe of Indians  
     Usk, WA

Kootenai Tribe of Idaho  
     Bonners Ferry, ID

### State Agencies

#### Idaho

Idaho Dept of Environmental Quality  
     Boise, ID  
     Coeur d' Alene, ID  
 Idaho Department of Fish And Game,  
     Coeur d' Alene, ID  
 State Historic Preservation Office,  
     Boise, ID  
 Idaho Parks and Recreation,  
     Boise, ID

#### Washington

Washington State Dept of Fish and Wildlife  
     Spokane, WA

#### Cities

Priest River Chamber of Commerce

#### Counties

Bonner County Commissioners  
     Sandpoint, ID  
 Panhandle Health District  
     Sandpoint, ID

### Businesses and Organizations

Alliance For The Wild Rockies  
 American Wildlands  
 Bonner County Daily Bee  
 Conservation Biology Center  
 Forest Conservation Council  
 Ecology Center

Friends of the King's Pond  
Idaho Sporting Congress  
Kettle Range Conservation Group  
Kootenai Environmental Alliance  
KPND Radio  
Lands Council  
Newport Miner  
Selkirk Conservation Alliance  
Selkirk-Priest Basin Association  
Spokesman-Review  
Stimson Lumber Co.  
Upper Columbia River Group Sierra Club  
Victory Family Heritage Partnership

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McDonald, Ron and Shirley  
Nelson, David  
Phelps, Randy  
Preso, Tim  
Rhoads, Norm  
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Rosenberg, Barry  
Sedler, Liz  
Shields, Jr. Royal  
Soumas, Rob  
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# Appendix A – Best Management Practices

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## Introduction

The Clean Water Act, as amended, (33 U.S.C. 1323) directs the Forest Service to meet state, interstate and local substantive as well as procedural requirements respecting control and abatement of pollution in the same manner, and to the same extent as any nongovernment entity.

The Forest Service has the statutory authority to regulate, permit and enforce land-use activities on the National Forest System lands that affect water quality.

As the designated management agency, the Forest Service is responsible for implementing nonpoint source pollution control and the Washington State Water Quality Standards on National Forest System lands. The Forest Service's water quality policy is intended to:

- 1) *promote the improvement, protection, restoration and maintenance of water quality to support beneficial uses on all national forest service waters;*
- 2) *promote and apply approved Best Management Practices (BMPs) to all management activities as the method for control of non-point source pollution;*
- 3) *comply with established state or national water quality goals; and*
- 4) *design monitoring programs for specific activities and practices that may affect or have the potential to affect instream beneficial uses on National Forest System lands.*

The Forest Service also coordinates all water quality programs, on National Forest System lands within its jurisdiction, with the local, state and federal agencies, affected public lands users, adjoining land owners, and other affected interests.

The Environmental Protection Agency and the State of Washington are responsible for enforcement of these standards. The Forest Plan for the Idaho Panhandle National Forests states that the Forest will "maintain high quality water to protect fisheries habitat, water based recreation, public water supplies and be within state water quality standards" (Forest Plan, Chapter II, p. 27). The use of BMPs is also required in the Memorandum of Understanding between the Forest Service and the State of Washington as part of our responsibility as the Designated Water Quality Management Agency on National Forest System lands. The State's water quality standards regulate nonpoint source pollution from timber management and road construction activities through application of Best Management Practices (BMPs). The BMPs were developed under authority of the Clean Water Act to ensure that Washington's waters do not contain pollutants in concentrations that adversely affect water quality or impair a designated use. State-recognized BMPs that would be used during project design and implementation are contained in these documents:

- a. *Rules and Regulations Pertaining to the Washington Forest Practices as adopted by the State of Washington.*

Many of the rules and regulations for stream channel alterations are contained, in slightly different forms, in a Memorandum of Understandings (MOU) between the Forest Service and the State Washington. This MOU is incorporated into the Forest Manual and R-1 Supplement 31 and it contains provisions which are not currently state-recognized BMPs.

Please refer to Chapter II of this Environmental Analysis for site-specific and project-specific BMPs and Soil and Water Conservation Practices ("Water Quality Best Management Practices").

The practices described herein are tiered to the practices in FSH 2509.22. They were developed as part of the NEPA process, with interdisciplinary involvement, and meet state and Forest water quality objectives. The purpose of this appendix is to establish the connection between the Soil and Water Conservation Practice (SWCP) employed by the Forest Service and BMPs identified in the Washington Forest Practices Rules and Regulations (Title 222 WAC), and to identify how the Soil and Water Conservation Practice Standard Specifications for the Construction of Roads and

the Timber Sale Contract provisions meet or exceed the rules and regulations pertaining to the Washington Forest Practices Act RCW 76.09.

The objective of this appendix is to provide conservation practices for use on National Forest Lands to minimize the effects of management activities on soil and water resources. The conservation practices were compiled from Forest Service manuals, handbooks, contract and permit provisions, to directly or indirectly improve water quality, reduce losses in soil productivity and erosion, and abate or mitigate management effects, while meeting other resource goals and objectives. They are of three basic forms: administrative, preventive, and corrective. These practices are neither detailed prescriptions nor solutions for specific problems. They are purposely broad. These practices are action-initiating process mechanisms which call for the development of requirements and considerations to be addressed prior to and during the formulation of alternatives for land management actions. They serve as checkpoints that are considered in formulating a plan, a program, and/or a project.

Although some environmental impacts may be characteristic of a management activity, the actual effects on soil and water resources would vary considerably. The extent of these management effects on soil and water resources is a function of:

1. *The physical, meteorological and hydrologic environment where the activity takes place (topography, physiography, precipitation, channel density, geology, soil type, vegetative cover, etc.).*
2. *The type of activity imposed on a given environment (recreation, mineral exploration, timber management, etc.) and its extent and magnitude.*
3. *The method of application and the duration of the activity (grazing system used, types of silvicultural practice used, constant vs. seasonal use, recurrent application or one time application, etc.).*
4. *The season of the year that the activity occurs or is applied.*

These factors vary within the National Forests in the Northern Region and from site to site. It follows then that the extent and kind of impacts are variable, as are the abatement and mitigation measures. No solution prescription, method, or technique is best for all circumstances. Thus the management practices presented in the following include such phrases as "according to the design", "as prescribed," "suitable for," "within acceptable limits," and similar qualifiers. The actual prescriptions, specifications, and designs are the result of evaluation and development by professional personnel through interdisciplinary involvement in the NEPA process. This results in specific conservation practices that are tailored to meet site-specific resource requirements and needs.

## Implementation of Best Management Practices

In cooperation with the State of Washington, the Forest Service's primary strategy for the control of nonpoint sources is based on the implementation of BMPs determined necessary for the protection of the identified beneficial uses. The Forest Service Nonpoint Source Management System consists of:

1. *BMP selection and design based on site-specific conditions; technical, economic and institutional feasibility; and the designated beneficial uses of the streams.*
2. *BMP Application*
3. *BMP monitoring to ensure that they are being implemented and are effective in protecting designated beneficial uses.*
4. *Evaluation of BMP monitoring results.*
5. *Feeding back the results into current/future activities and BMP design.*

The District Ranger is responsible for insuring that this BMP feedback loop is implemented on all projects. The Practices described herein are tiered to the practices in R1/R4 FSH 2509.22. They were developed as part of the NEPA process, with interdisciplinary involvement, and meet State and Forest water quality objectives. The purpose of this appendix document is to: 1) establish the connection between the SWCP employed by the Forest Service and BMPs identified in Washington Forest Practices Act (WAC 22-30) and 2) identify how the SWCP, Standard

Specifications for the Construction of Roads, and the Timber Sale Contract provisions meet or exceed the rules and regulations pertaining to the Washington Forest Practices Act (WAC 222-30 and WAC 222-24).

**Format of the Best Management Practices**

Each Soil and Water Conservation Practice is described as follows:

**Title:** Includes the sequential number and a brief title.

**Objective:** Describes the objective(s) and the desired results for protecting water quality.

**Effectiveness:** Provides a qualitative assessment of expected effectiveness that the implemented BMP would have on preventing or reducing impacts on water quality. The effectiveness rating is based on: 1) literature and research (must be applicable to area 2) administrative studies (local or within similar ecosystem); and 3) professional experience (judgment of an expert by education and/or experience). The expected effectiveness is rated either High, Moderate or Low.

**High:** Practice is highly effective (>90%) and one or more of the following types of documentation are available:

- a) Literature/Research - must be applicable to area
- b) Administrative studies - local or within similar ecosystem
- c) Experience - judgment of an expert by education and/or experience.
- d) Fact - obvious by reasoned (logical response).

**Moderate:** Documentation shows that the practice is effective less than 90% of the time, but at least 75% of the time.

Or

Logic indicates that this practice is highly effective, but there is little or no documentation to back it up.  
Or

Implementation and effectiveness of this practice will be monitored and the practice will be modified if necessary to achieve the objective of the BMP.

**Low:** Effectiveness unknown or unverified, and there is little to no documentation

Or

Applied logic is uncertain in this case, or the practice is estimated to be less than 75% effective.  
Or

This practice is speculative and needs both effectiveness and validation monitoring.

The effectiveness estimates given here are general, given the range of conditions throughout the Forest. More specific estimates are made at the project level when the BMPs are actually prescribed.

**Compliance:** Provides a qualitative assessment of how the implementation of the specific measures would meet the Forest Practice Act Roles and Regulations pertaining to water quality.

**Implementation:** This section identifies: (1) the site-specific water quality protection measures to be implemented and (2) how the practices are expected to be applied and incorporated into the Timber Sale Contract.

## Items Common to All Soil and Water Conservation Practices

**Responsibility For Implementation:** The District Ranger (through the Presale Forester) is responsible for insuring the factors identified in the following SWCP's are incorporated into: Timber Sale Contracts through the inclusion of proper B and/or C provisions; or Public Works Contracts through the inclusion of specific contract clauses.

The Contracting Officer, through his/her official representative (Sale Administrator and/or Engineering Representatives for timber sale contracts; and Contracting Officers Representative for public works contracts) is responsible for insuring that the road construction and timber sale provisions are properly administered on the ground.

**Monitoring:** Implementation and effectiveness of water quality mitigation measures are also monitored annually. This includes routine monitoring by timber sale administrators, road construction inspectors, and resource specialists which is documented in diaries and project files. Basically, water quality monitoring is a review of BMP implementation and a visual evaluation BMP effectiveness. Any necessary corrective action is taken immediately. Such action may include modification of the BMP, modification of the project, termination of the project, or modification of the state water quality standards.

### Abbreviations

TSC = Timber Sale Contract  
TSA = Timber Sale Administrator  
PWC = Public Works Contract  
SCA = Stream Channel Alteration Act  
BMP = Best Management Practices  
SPS = Special Project Specifications  
CFR = Code of Federal Regulations

SAM = Sale Area Map  
COR = Contracting Officer Representative  
EPA = Environmental Protection Agency  
SWCP= Soil and Water Conservation Practices  
SMZ = Streamside Management Zone

There is a glossary of terms related to best management practices at the end of this appendix.

# Key Soil And Water Conservation Practices

## Class \* Soil and Water Conservation Practice (FSH 2509.22)

### 11 WATERSHED MANAGEMENT

- W 11.07 Oil and Hazardous Substance Spill Contingency Planning
- W 11.09 Management by Closure to Use
- W 11.11 Petroleum Storage & Delivery Facilities & Management

### 13 VEGETATION MANIPULATION

- G 13.03 Tractor Operation Excluded from Wetlands, Bogs, and Wet Meadows
- E 13.04 Revegetation of Surface Disturbed Areas
- E 13.05 Soil Protection During and After Slash Windrowing
- E 13.06 Soil Moisture Limitations for Tractor Operation

### 14 TIMBER

- E 14.14 Revegetation of Areas Disturbed by Harvest Activities
- S 14.17 Streamcourse Protection (Implementation and Enforcement)
- E 14.18 Erosion Control Structure Maintenance

### 15 ROADS AND TRAILS

- A 15.02 General Guidelines for Road Location/Design
- E 15.03 Road and Trail Erosion Control Plan
- E 15.04 Timing of Construction Activities
- E 15.05 Slope Stabilization and Prevention of Mass Failures
- E 15.06 Mitigation of Surface Erosion and Stabilization of Slopes
- E 15.07 Control of Permanent Road Drainage
- E 15.08 Pioneer Road Construction
- E 15.09 Timely Erosion Control Measures on Incomplete Road and Stream-Crossing Projects
- E 15.10 Control of Road Construction Excavation & Sidecast Material
- S 15.11 Servicing and Refueling of Equipment
- S 15.12 Control of Construction In Riparian Areas
- S 15.13 Controlling In-Channel Excavation
- S 15.14 Diversion of Flows Around construction Sites
- S 15.15 Stream Crossings on Temporary Roads
- S 15.16 Bridge & Culvert Installation (Disposition of Surplus Material and Protection of Fisheries)
- E 15.17 Regulation of Borrow Pits, Gravel Sources, and Quarries
- E 15.18 Disposal of Right-of-Way and Roadside Debris
- S 15.19 Streambank Protection
- E 15.21 Maintenance of Roads
- E 15.22 Road Surface Treatment to Prevent Loss of Materials
- E 15.23 Traffic Control During Wet Periods
- G 15.24 Snow Removal Controls

#### \* CLASSES OF SWCP (BMP)

- A = Administrative
- E = Erosion Reduction
- G = Ground Disturbance Reduction
- S = Stream Channel Protection/Stream Sediment Reduction
- W = Water Quality Protection

## Best Management Practices

**PRACTICE 11.07** - Oil and Hazardous Substance Contingency Planning

**PRACTICE 11.11** - Petroleum Storage and Delivery Facilities and Management

**PRACTICE 15.11** - Servicing and Refueling of Equipment

**OBJECTIVE:** To prevent contamination of waters from accidental spills of fuels, lubricants, bitumens, raw sewage, wastewater and other harmful materials by prior planning and development of Spill Prevention Control and Countermeasure Plans (SPCC).

**EFFECTIVENESS:** Although SPCC Plans cannot eliminate the risk of materials being spilled and escaping into waters, they can, if followed, be effective at reducing adverse effects to tolerable levels. Depending on the location and quantity of a spill, a properly implemented Plan can provide for up to 100 percent containment of a spill.

**COMPLIANCE:** Meets Forest Practices Act Rules

**IMPLEMENTATION:** The timber sale contract holds the Purchaser responsible for taking appropriate preventative measures to insure that any spill of oil or oil products does not enter any stream or other waters of the United States. If the total oil or oil products storage exceeds 1,320 gallons, or if any single container exceeds the capacity of 660 gallon, the Purchaser would prepare a Spill Prevention Control and Countermeasure Plan. The plan shall meet EPA requirements including certification by a registered professional engineer. If necessary, specific requirements for transporting oil to be used in conjunction with the contract would be specified in the contract.

The Forest Service would designate the location, size and allowable uses of service and refueling areas. The criteria below would be followed at a minimum:

- 1. Petroleum product storage containers with capacities of more than 200 gallons, stationary or mobile, would be located no closer than 100 feet from stream, water course, or area of open water. Dikes, berms, or embankments would be constructed to contain the volume of petroleum products stored within the tanks. Diked areas would be sufficiently impervious and of adequate capacity to contain spilled petroleum products.*
- 2. Transferring petroleum products: During fueling operations or petroleum product transfer to other containers, there shall be a person attending such operations at all times.*
- 3. Equipment used for transportation or storage of petroleum products shall be maintained in a leakproof condition. If the Forest Service Representative determines there is evidence of petroleum product leakage or spillage, he/she shall have the authority to suspend the further use of such equipment until the deficiency has been corrected.*

In the event any leakage or spillage enters any stream, water course or area of open water, the operator would immediately notify the Forest Service who would be required to follow the actions to be taken in case of hazardous spill, as outlined in the Forest Hazardous Substance Spill Contingency Plan.

**PRACTICE 11:09** - Management by Closure to Use

**PRACTICE 15:23** - Traffic Control During Wet Periods

**OBJECTIVE:** To reduce the potential for road surface disturbance during wet weather and to reduce sedimentation probability by excluding activities that could result in damage to facilities or degradation of soil and water resources.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act Rules

**IMPLEMENTATION:** Closures (seasonal, temporary, or permanent) are made when the responsible line officer determines that a particular resource or facility needs protection from use. Specific guidelines for closure of roads during the period of the contract and at the end of the Purchaser's operations would be spelled out in this EIS and the timber sale contract.

Roads that must be used during wet periods should have a stable surface and sufficient drainage to allow such use with a minimum of resource impact. Rocking, paving and armoring are measures that may be necessary to protect

the road surface and reduce erosion potential. Roads not constructed for all weather use should be closed during the wet season. Where winter field operations are planned, roads may need to be upgraded and maintenance intensified to handle the traffic without creating excessive erosion and damage to the road surface.

***PRACTICE 13.04 - Revegetation of Surface Disturbed Areas***

***PRACTICE 14.14 - Revegetation of Areas Disturbed by Harvest Activities***

**OBJECTIVE:** To protect soil productivity and water quality by minimizing soil erosion.

**EFFECTIVENESS:** Revegetation can be moderately effective at reducing surface erosion after one growing season, following disturbance, and highly effective in later years. Effectiveness has been shown to vary from 10 percent on 3/4:1 slopes to 36 percent on 1:1 slopes to 97 percent on 1:1 slopes in later years (King, John G. and E. Burroughs. Reduction of Soil Erosion on Forest Roads. Intermountain Research Station General Technical Report, 1988).

**COMPLIANCE:** Meets Forest Practices Act rules.

**IMPLEMENTATION:** As determined necessary, temporary roads, landings skid trails, and anywhere else soil has been severely disturbed by Purchaser's harvesting or road construction operations would be seeded within one year after harvesting is completed. Seed mixes (consisting of native species) and fertilizer specifications would be incorporated into timber sale contract provisions. The timber sale contract would also include specifications for scarification/ripping of compacted landing and closed roads where this is deemed necessary by the interdisciplinary team.

***PRACTICE 13.05 - Soil Protection During and Following Slash Windrowing***

**OBJECTIVE:** To prevent removal or severe disruption of the productive surface soil and minimize losses from erosion.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act rules.

**IMPLEMENTATION:** Windrowing or piling of slash with tractor or grapple piling machine is a common method of fire hazard abatement and site preparation. Potential for damage to soils and water are high. On slopes, windrows should be contoured as much as possible to act as a filter barrier which catches sediment and detains water runoff. Such piling would only be conducted on slopes greater than 50 percent upon the recommendation of a soils scientist or hydrologist. Care must be taken to minimize disturbance to the surface soil layer during these operations. Equipment would be prohibited from operating within 50 feet of streamcourses except at designated crossing areas. Areas where such slash disposal operations are acceptable would be identified in the environmental assessment and in the timber sale contract, where site-specific specifications would be included.

***Practice 13.06 - Soil Moisture Limitations for Tractor Operation***

**OBJECTIVE:** To minimize soil compaction, puddling, rutting, and gullyng with resultant sediment production and loss of soil productivity by ensuring that activities are done when ground conditions are such that erosion and sedimentation can be controlled.

**EFFECTIVENESS:** Responsible implementation and enforcement are required for high effectiveness.

**COMPLIANCE:** No Related Forest Practices Act rules.

**IMPLEMENTATION:** Tractor operations would be limited to periods when the soil moisture content is 18 percent or less, the ground is frozen, or there is at least 18 inches of snow depth. Tractor operations would only be allowed outside of these specifications through the use of designated skid trails. These requirements would be incorporated into provision of the timber sale contract.

**PRACTICE 15.04 - Timing of Construction Activities**

**OBJECTIVE:** To minimize soil erosion, sedimentation and loss in soil productivity by insuring that the Purchaser conducts his operations, including erosion control work, road maintenance, etc., in a timely manner, within the time period specified in the timber sale contract.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act Rules

**IMPLEMENTATION:** Limited operating periods are identified and recommended during the environmental analysis by the Interdisciplinary Team. Contract language specifies contract termination date and operating periods within that contract. Purchaser's plans must show intent to operate within these time frames prior to approval to commence work. Extensions of time (except for contract term adjustments) and waiver of specified operating periods should be granted only after interdisciplinary team review.

**PRACTICE 14.17 - Stream Channel Protection (Implementation and Enforcement)****PRACTICE 15.19 - Streambank Protection**

**OBJECTIVES:** To protect stream beds and streamside vegetation, during and after forest practice operations and road construction, by (1) maintained unobstructed passage of stormflows; (2) reducing sediment and other pollutants from entering streams; and (3) restoring the natural course of any stream, as soon as practical, if the stream is diverted as a result of timber management activities.

**EFFECTIVENESS:** High

**COMPLIANCE:** Meets Forest Practices Act rules

**IMPLEMENTATION:** Protecting stream channels during timber harvesting is accomplished by contract clause incorporated into the sale contracts. This is normally accomplished by designating particular streams as protected streamcourses and limiting or restoring timber management operations in streamside zones. There is substantial overlap between timber sale provisions to protect stream channels, and regulations that govern road construction and other practices.

The intent of the regulations and clauses is to protect the integrity of stream channels and minimize adverse impacts to the channel and downstream resources and beneficial uses. The following items are a minimum that would be incorporated into the timber sale contract specifically to govern channel protection in the project area.

1. Purchaser shall repair all damage to a streamcourse if the Purchaser is negligent in their operations, including damage to banks and channel, to an acceptable condition as specified by the Forest Service.
2. All project debris shall be removed from streamcourse, in an agreed manner that would cause the least disturbance. Specifically:

*Whenever possible trees shall be felled, bucked, and limbed in such a manner that the tree or any part thereof would fall away from any streams. Within 24 hours, slash and other debris that enters streams as a result of harvesting or road construction operations shall be removed. If the slash would be beneficial (i.e. provide sediment filtering) then the Sale Administrator may allow the Purchaser to leave the slash in place below culverts.*

3. Location and method of stream crossing would be designed and agreed to prior to construction.
4. Wheeled or track laying equipment shall not be permitted to operate within 50 feet slope distance of the streams except at approved crossings.
5. On perennial streams, dewatering with filter fabric and/or diversion shall be considered prior to excavation for culvert placement.
6. Filter cloth, erosion control blankets, plastic, straw bales, and rip- rap would be used as appropriate to keep live water from contacting new fill during culvert installations.
7. When dewatering of a stream crossing is required, a non-erodible conduit, flex pipe or geotextile fabric would be used on all crossings. Silt fences shall be constructed below the stream crossing(s) prior to any streambank disturbance.

8. The construction activities in or adjacent to the stream may be limited to specific times to protect beneficial water uses.
9. Logs would be end-lined out of streamside and Riparian Areas. Equipment is permitted to enter streamside areas only at locations and times agreed by the Forest Service.
10. Material from temporary road and skid trail stream crossings would be removed and streambanks restored to an acceptable condition.
11. When cable yarding across or inside the riparian areas is necessary logs should be fully suspended across a stream and immediately above streambanks. Yarding shall be done in such a manner as to minimize streambank channel disturbance.
12. Construction equipment may cross, operate in or operate near streamcourses only where so agreed to and designated by the Forest Service prior to construction. Crossing of perennial stream channels would be done in compliance with the specifications included in the contract.
13. On perennial streams, stream channel alteration specifications would include the following:
  - a. *Ford the stream only at one location.*
  - b. *Any cofferdams or temporary crossings should be designed to handle high streamflows.*
  - c. *Protect streambank vegetation as much as possible.*
  - d. *All fill materials shall be placed and compacted in horizontal lifts.*
  - e. *If rip rap is used, it shall extend at least one foot above anticipated high water mark, and meet minimum size criteria.*
  - f. *Rip rap shall extend far enough upstream and downstream to reach stable areas.*
14. If the channel is damaged during construction, it would be restored as nearly as possible to its original configuration without causing additional damage to the channel.
15. Construction methods shall provide for eliminating or minimizing discharges of turbidity, sediment, organic matter or toxic materials. A settling basin may be required for this purpose.

#### ***PRACTICE 14.18 - Erosion Control Structure Maintenance***

**OBJECTIVE:** To ensure that construction erosion control structures are stabilized and working effectively.

**EFFECTIVENESS:** High

**IMPLEMENTATION:** The timber sale contract requires that during the period of the contract, the Purchaser shall provide maintenance of soil erosion control structures constructed by the Purchaser until they become stabilized, but not for more than one year after their construction. After 1 year, any erosion control work needed is accomplished through the Forest Service funding.

The timber sale contract also requires the Purchaser to maintain the erosion control structures concurrently with his operations under the sale, and in any case, not later than 15 days after completion of skidding each unit or subdivision.

#### ***PRACTICE 15.02 - General Guidelines for the Location and Design of Roads and Trails***

**OBJECTIVE:** To locate and design roads and trails with minimal soil and water resource impact while considering all design criteria.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Exceeds Forest Practices Act rules

**IMPLEMENTATION:** As the timber sale contract is assembled, road location and design criteria are assembled from several volumes of standards, and optional specifications and guidelines. Specific roads and road segments often have specifications that are unique to the road or road segment. The following listed items, however, are general road location and design guidelines for minimizing impacts on water quality.

1. Fit the road to the topography - Use natural benches, follow contours, avoid long, steep road grades. Balance cut/fill where possible to avoid waste areas.
2. Locate on stable topography. Whenever possible, avoid slumps and slide prone areas and steep side hills.
3. Locate roads a safe distance away from streams and other water bodies, and provide an adequate buffer zone to trap sediment before it enters into any water body.
4. Minimize the number of stream crossings and choose stable sites. Structures would be designed (sized) for long-term stability, generally for the Q50+ (or greater) and then bumped up to the next culvert size and would provide for fish passage, if present. Use the IPNF Hydraulic analysis developed by Bob Embry to determine the Q50.
5. Locate and design roads to drain naturally by appropriate use of outsloping and insloping with cross drainage and grade changes, where possible. Cross drains would be installed to 1) carry interpreted flow across constructed areas; 2) to relieve the length undrained ditch; and 3) to reduce disruption of normal drainage patterns. Road and trail drainage should be channeled to effective buffer areas, either natural or man-made, to maximize sediment deposition prior to entry into live water.
6. Ditchlines and road grades would be designed to minimize unfiltered flow into streams. A rolling dip, relief culvert or similar structure would be installed as close as practical to crossings to minimize direct sediment and/or water input directly into streams. The drainage would be routed through the SMZ, buffer strips, or other sediment settling structures where possible.
7. At a minimum, windrows would be installed 100 feet on both sides of live stream crossings and where installation would minimize sediment delivery to nearby streams or channels. Windrows would also be installed where fill slope erosion is possible, or where road derived erosion may be delivered; (i.e. outflow area of culverts or rolling dips, etc.).
8. Design to the standard necessary to accomplish anticipated use and equipment needs safely, while providing for long-term protection of the soils and water.
9. Seeding and fertilization of erodible surfaces exposed during construction would be accomplished. Next season seeding would be done where original treatment is not fully successful.
10. Road construction occurring outside the normal operating season would have additional restrictions on the amount of pioneered road and additional erosion control measures.

#### ***PRACTICE 15.03 - Road and Trail Erosion Control Plan***

**OBJECTIVE:** To prevent, limit, and mitigate erosion, sedimentation, and resulting water quality degradation through timely implementation of erosion control practice.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** No related Forest Practices Act rule

**IMPLEMENTATION:** Prior to the start of construction, the Purchaser shall submit a schedule for proposed erosion control work as required in the Standard Specifications. The schedule shall include all erosion control items identified in the specifications. Erosion control work to be done by the Purchaser would be defined in Standard Specification 204 and/or in the Drawings. The schedule shall consider erosion control necessary for all phases of the project. The Purchaser's construction schedule and plan of operation would be reviewed in conjunction with the erosion control plan by the Timber Sale Administrator, District Watershed Specialist, and Engineering to insure their compatibility before any schedules area approved. The Engineer would certify that the Purchaser's Erosion Control Plan meets the specifications.

#### ***PRACTICE 15.06 - Mitigation of Surface Erosion and Stabilization of the Slopes***

**OBJECTIVE:** To minimize soil erosion from road cutslopes, fillslopes and travelway

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act Rule

**IMPLEMENTATION:** Areas requiring mitigation of surface erosion may occur anytime during the life of the timber sale contract. When these are found, the following provisions would be implemented.

- a. All disturbed areas associated with road construction and reconstruction would be seeded. The first seeding would be applied as soon as practical after cuts and fills are brought to grade within seeding seasons as established in the timber sale contract. A second seeding in the fall or spring season following road construction would be required where original seeding did not adequately revegetate exposed soil areas.
- b. Where surface erosion is occurring because of inadequate vegetative cover, additional seeding and re-fertilization would occur using recommended seed and fertilizer mixes. If the Purchaser has done his required seeding, or bare spots are not caused by the Purchaser, seeding would be done by the Forest Service.
- c. Where ditches are carrying erosion products into stream channels, erosion cloth ditch blocks would be installed to "short-circuit" the delivery. Seeding of the eroding surfaces and seeding of the stored sediment in the ditch would also be accomplished.
- d. Where either straw bale/erosion cloth structures are not felt to be effective, underdrains or other measures would be installed to drain the ditches onto suitable ground, or at least reduce erosion impacts to the stream.
- e. Slumping of cutslopes would require a combination of both mechanical and vegetative controls. If/when this problem is found, a solution would be determined in consultation with Engineers, geotechnical and resource specialists and appropriate actions taken to remedy the situation or minimize adverse impacts.
- f. Additional underdrains (i.e. French drains) would be constructed where intercepted moisture is encountered on incised stream approaches. Erosion control blankets and straw bales would be used to dissipate ditch scour and stabilize fill slopes.
- g. At ditch relief culvert locations, or at culvert locations in dry or intermittent wet draws, the piles shall not be broken but shall be placed a minimum of 20 feet below the culvert outlet. At culvert locations in live streams, piles shall not be broken but shall be continued at the toe of the embankment over the top of the culvert. No slash shall be allowed to restrict the flow of water from the culvert.

Unless caused by the Purchaser during his maintenance operations, or known before sale award and included in timber sale contract, these items (a-g) would be beyond the scope of Purchaser responsibility. Repair and/or improvement would be then handled by contract modification or by the Forest Service.

#### ***PRACTICE 15.07 - Control of Permanent Road Drainage***

**OBJECTIVE:** To minimize the erosive effects of concentrated water and the degradation of water quality by proper design and construction of road drainage systems and drainage control structures.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act rules

**IMPLEMENTATION:** The following items would be included in the identified road contract specifications or drawings.

1. *For New Construction and Reconstruction* - During and following operations on outsloped roads, retain out slope drainage and remove berms on the outside except those intentionally constructed for protection of road grade fills.
2. *For New Construction* - The following criteria would be incorporated into new road design:
  - a. Construct cross drains and relief culverts to minimize erosion of embankments. Minimize the time between construction and installation of erosion control devices. Use riprap, vegetative matter, downspouts and similar devices to minimize erosion of the fill.
  - b. Prior to fall or spring runoff, install drainage structures or cross-drain uncompleted roads which are subject to erosion.
  - c. Install relief culverts at a minimum grade of 1 percent greater than road gradient.
3. *For Existing Roads* - At a minimum, the following items would be added to or improved in the existing road system that would be used for proposed timber haul:
  - a. Energy dissipaters or downspouts would be placed below problem culvert outlets (Reconstruction item).

- b. In all areas where ditch erosion is significant at this time, relief culverts that drain onto suitable areas would be installed (Reconstruction item).
- c. Roads restricted after use would also have erosion control measures in place prior to final pull-out.
- d. For all native surface roads to be restricted after use, the travelway would be seeded and fertilized; and would have the surface roughened to accept seed germination and vegetative establishment where necessary and beneficial.

***PRACTICE 15.08 - Pioneer Road Construction***

**OBJECTIVE:** To minimize sediment production and mass wasting associated with pioneer road construction.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** No directly related Forest Practices Act rule.

**IMPLEMENTATION:** The following contract specifications would be required:

- a. Construction of pioneer roads shall be confined to the roadway limits unless otherwise approved by the Contracting Officer.
- b. Pioneering shall be conducted so as to prevent undercutting of the designated final cut slope, and to prevent avoidable deposition of materials outside the designated roadway limits.
- c. Erosion control work would be completed concurrent with construction activity or prior to the wet season. During the wet and winter season, no more than 1,000 feet of road can be in the pioneer state without the required erosion control work completed.
- d. Permanent culverts would be installed during the pioneer phase unless positive control of sediment can be accomplished during installation, use, and removal of the temporary structure.

***PRACTICE 15.09 - Timely Erosion Control Measures on Incomplete Road and Stream-Crossing Projects:***

**OBJECTIVE:** To minimize erosion of and sedimentation from disturbed ground on incomplete projects.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act rules

**IMPLEMENTATION:** The following measures would be implemented during projects:

1. Temporary culverts, side drains, flumes, cross drains, diversion ditches, energy dissipaters, dips, sediment basins, berms, debris racks, or other facilities needed to control erosion would be installed as necessary. The removal of temporary culverts, culvert plugs, diversion dams, or elevated stream-crossing causeways would be completed as soon as practical.
2. The removal of debris, obstruction, and spoil material from channels and floodplains.
3. Seeding with native species to minimize erosion.
4. Installation of drainage structures or cross draining uncompleted roads which are subject to erosion prior to fall or spring runoff.

Erosion control measures must be kept current with ground disturbance, to the extent that the affects area can be rapidly "closed" if weather conditions deteriorate. Areas must not be abandoned for the winter with remedial measures incomplete.

***PRACTICE 15.10 - Control of Road Construction Excavation and Sidecast Material***

***PRACTICE 15.18 - Disposal of Right-of-Way and Roadside Debris***

**Objective:** To measure that unconsolidated excavated and sidecast material, construction slash, and roadside debris generated during road construction is kept out of streams, and to prevent slash and debris from subsequently obstructing channels.

**Effectiveness:** High

**Compliance:** Meets Forest Practices Act rules

**Implementation:** In the construction of road fills near streams, compact the material to reduce the entry of water, and minimize the amount of snow, ice, or frozen soil buried in the embankment. No significant amount of woody material shall be incorporated into fills. Slash and debris may be windrowed along the toe of the fill, but in such a manner as to avoid entry into a stream and culvert blockage.

Where slash windrows are not desirable or practical, other methods of erosion control such as erosion mats, mulch, and straw bale or fabric sediment fences would be used. Where exposed material (excavation, embankment, borrow pits, waste piles, etc.) is potentially erodible, and where sediments would enter streams, the material would be stabilized prior to fall or spring runoff by seeding, compacting, rip-rapping, benching, mulching or other suitable means.

#### ***PRACTICE 15.13 - Controlling In Channel Excavation***

**OBJECTIVE:** To minimize downstream sedimentation by insuring that all in-channel excavations are carefully planned.

**EFFECTIVENESS:** High

**COMPLIANCE:** Meets SCA rules

**IMPLEMENTATION:** Location and method of stream crossings would be designed and agreed to prior to construction. The following items highlight some of the principal provisions which can be incorporated into the timber sale contract that would govern channel protection:

1. Construction equipment may cross, operate in, or operate near streamcourses only where so agreed to and designed by the Forest Service prior to construction.
2. No construction equipment shall be operated below the existing water surface except that fording the stream at one location only would be permitted, and work below the water level that is necessary for culvert bedding or footing installations would be permitted to the extent that it does not create unnecessary turbidity to stream channel disturbance.
3. Wheeled or track laying equipment shall not be permitted to operate within 25 feet slope distance of the apparent high water mark of Type 5 streams 75 feet of Type 4 streams, except at approved crossings.
4. Construction of any hydraulic structures in stream channels would be in compliance with timber sale contract specifications.

#### ***PRACTICE 15.14 - Diversion of Flows Around Construction Sites***

**OBJECTIVE:** To minimize downstream sedimentation by insuring that all stream diversions are carefully planned.

**EFFECTIVENESS:** High

**COMPLIANCE:** Meets SCA Rules

**IMPLEMENTATION:** Flow in streamcourses may only be diverted if the Forest Service deems it necessary for the contractor to meet contractual specifications. Such a diverted flow shall be restored to the natural streamcourse as soon as practicable. Stream channels impacted by construction activity would be restored to their natural grade, condition, and alignment.

#### ***PRACTICE 15.17 - Regulation of Borrow pits, Gravel Sources and Quarries***

**OBJECTIVE:** To minimize sediment production from borrow pits, gravel sources, and quarries, and limit channel disturbances in those gravel sources suitable for development in floodplains.

**EFFECTIVENESS:** High

**COMPLIANCE:** No Related Forest Practices Act RULE

**IMPLEMENTATION:** Minimize opportunities for erosion from borrow pits and gravel sources from entering streams.

1. Complete any crushing and/or screening of excavating bedload away from any active stream channels and minimize future opportunities for waste materials to enter area streams, even under flood conditions.
2. Identify and implement opportunities to minimize erosion from existing borrow pits within the drainage.
3. If development of new rock sources are needed within the watershed, complete a pit development plan or rock source development plan which outlines all mitigation measures needed to control future erosion of the rock source.

***PRACTICE 15.18 - Disposal of Right-of-Way and Roadside Debris***

**OBJECTIVE:** To insure that debris generated during road construction is kept out of streams and to prevent slash and debris from subsequently obstructing channels. Also see Practice 15.10

**EFFECTIVENESS:** High

**COMPLIANCE:** Meets Forest Practices Act Rules

**IMPLEMENTATION:** Disposal of Right-of-Way and roadside slash be accomplished with one or more of the following practices.

1. Windrowing
2. Scattering
3. Chipping
4. Piling and Burning
5. Removal to previously agreed to locations.

Solid cull logs may be bucked into manageable lengths and piled alongside the road for fuelwood. No wood may obstruct flow in ditchlines or culverts.

***PRACTICE 15.19 Streambank Protection***

**OBJECTIVE:** To minimize sediment production from streambanks and structural abutments in natural waterways.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act Rules

**IMPLEMENTATION:** To reduce sediment and channel bank degradation at sites disturbed by construction of stream crossing or roadway fill, it may be necessary to incorporate "armoring" in the design of a structure to allow the water course to stabilize after construction. Riprap, gabion structures, and other measures are commonly used to armor stream banks and drainage ways from the erosive forces of the flowing water. These measures must be sized and installed in such a way that they effectively resist erosive water velocities. Stone used for riprap should be free from weakly structured rock, soil, organic material and materials of insufficient size, all of which are not resistant to stream flow and would only serve as sediment sources. Outlets for drainage facilities in erodible soils commonly require rip-rapping for energy dissipation. See conservation practice 14.17 for additional measures.

***PRACTICE 15.21 - Maintenance of Roads***

**OBJECTIVE:** To conduct regular preventive maintenance operations to avoid deterioration of the roadway surface and minimize disturbance and damage to water quality, and fish habitat.

**EFFECTIVENESS:** Moderate

**COMPLIANCE:** Meets Forest Practices Act Rules

**IMPLEMENTATION:** For roads in active timber sale areas standard timber sale contract provisions require the Purchaser to perform or pay for road maintenance work commensurate with the Purchaser's use. Purchaser's maintenance responsibility shall cover the before, during and after operations period during any year when operations and road use are performed under the terms of the Timber Sale Contract. All maintenance work shall be done concurrently, as necessary, at least to the following minimum standards:

1. Culverts and ditches shall be kept functional.

2. During and upon completion of seasonal operations, the road surface shall be crowned, out-sloped, in-sloped or waterbarred, and berms removed from the outside edge except those intentionally constructed for protection of fills.
3. The road surface shall be maintained as necessary to minimize erosion of the subgrade and to provide proper drainage.
4. If road oil or other surface stabilizing materials are used, apply them in such a manner as to prevent their entry into streams.
5. Sidecast of all material associated with road maintenance would be done in a manner to prevent its entry into streams.
6. Slumps, slides and other erosion features causing stream sedimentation would be kept repaired and stabilized.

***PRACTICE 15.22 - Road Surface Treatment to Prevent Loss of Materials***

**OBJECTIVE:** To minimize the erosion of road surface materials and consequently reduce the likelihood of sediment production.

**EFFECTIVENESS: High**

**COMPLIANCE:** No directly related Forest Practices Act Rule

**IMPLEMENTATION:** On timber sale roads, the Purchaser shall undertake measures to prevent excessive loss of road material if the need for such action has been identified by the interdisciplinary team. Road surface treatments may include: watering, applying magnesium chloride, sealing, aggregate surfacing, chip-sealing, or paving.

***PRACTICE 15.24 - Snow Removal Controls***

**OBJECTIVE:** To minimize the impact of snow melt on road surfaces and embankments and to reduce the probability of sediment production resulting from snow removal operations.

**EFFECTIVENESS: Moderate**

**COMPLIANCE:** No directly related Forest Practices Act Rule

**IMPLEMENTATION:**

1. The Purchaser is responsible for snow removal in a manner which would protect roads and adjacent resources.
2. Rocking or other special surfacing and/or drainage measures may be necessary, before the operator is allowed to use the roads.
3. During snow removal operations, banks shall not be undercut nor shall gravel or other selected surfacing material be bladed off the roadway surface. Ditches and culverts shall be kept functional during and following roadway use. If the road surface is damaged, the Purchaser shall replace lost surface material with similar quality material and repair structures damaged in blading operations.
4. Snow berms shall not be left on the road surface or shall be placed to avoid channelization or concentration of melt water on the road or erosive slopes. Berms left on the shoulder of the road shall be removed and/or drainage holes opened at the end of winter operations and before spring breakup. Drainage holes shall be spaced as required to obtain satisfactory surface drainage without discharge on erodible fills. On in sloped roads, drainage holes shall also be provided on the ditch side, but care taken to insure that culvert inlets are not damaged.

## Appendix B – Noxious Weeds

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Several noxious and undesirable weed species occur or may occur in the project area, including weeds designated by the State of Washington as noxious and those considered for control by the Priest Lake Ranger District. Some weed species are not known in or near the project area but are potential new invaders. The list of noxious weeds includes the following:

<b>Common name</b>	<b>Scientific name</b>
Tansy ragwort	<i>Senecio jacobaea</i>
Scotch broom	<i>Cytisus scoparius</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Leafy spurge	<i>Euphorbia esula</i>
Musk thistle	<i>Carduus nutans</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Spotted knapweed	<i>Centaurea biebersteinii</i>
Rush skeletonweed	<i>Chondrilla juncea</i>
Meadow hawkweed	<i>Hieraceum caespitosum</i>
Orange hawkweed	<i>Hieraceum aurantiacum</i>
Dalmatian toadflax	<i>Linaria genistifolia</i> ssp. <i>dalmatica</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Goatweed	<i>Hypericum perforatum</i>
Canada thistle	<i>Cirsium arvense</i>
Bull thistle	<i>Cirsium vulgare</i>
Houndstongue	<i>Cynoglossum officinale</i>
Common tansy	<i>Tanacetum vulgare</i>
Dyer's woad	<i>Isatis tinctoria</i>
Mouseear hawkweed	<i>Hieracem pilosella</i>
Common crupina	<i>Crupina vulgare</i>
Scotch thistle	<i>Onopordum acanthium</i>
Perennial pepperweed	<i>Lepidium latifolium</i>
Russian knapweed	<i>Acroptilon repens</i>
Brown knapweed	<i>Centaurea jacea</i>
Black knapweed	<i>Centaurea nigra</i>
Gorse	<i>Ulex europaeus</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Bighead knapweed	<i>Centaurea macrocephala</i>
Vochin knapweed	<i>Centaurea nigrescens</i>
Buffalobur	<i>Solanum rostratum</i>
Meadow knapweed	<i>Centaurea jacea x nigra</i>
Babysbreath	<i>Gypsophila paniculata</i>
Common bugloss	<i>Anchusa officianalis</i>
Viper's bugloss	<i>Echium vulgare</i>

As specified in Features Common to All Action Alternatives, the private landowner would be required to monitor for and treat the above species on newly constructed Forest road for three years following each period of use. Treatment must be conducted according to the Integrated Pest Management Strategy outlined in the Priest Lake Noxious Weed Control Project Record of Decision and Final EIS (USDA 1997).

Treatment methods may include cultural, mechanical, biological and chemical. Any chemical control would be conducted in accordance with label guidelines and would be performed or directly supervised by a licensed pesticide applicator.

The private landowner would be required to submit a monitoring report to the District Weed Coordinator annually during the above mentioned three-year period. A weed treatment report, and pesticide use report if necessary, would also be submitted. A sample report format follows.

The list of Noxious Weeds of Pend Oreille County from the Washington State Noxious Weed Control Board is included in the project file. A copy of the Priest Lake Noxious Weed Control Project Final EIS is available at the Priest Lake Ranger District.

**NOXIOUS WEED MONITORING AND TREATMENT REPORT**

Sale / Area: \_\_\_\_\_ Date: \_\_\_\_\_ Observers: \_\_\_\_\_

Survey Method: **Vehicle** **Foot** **Bike** **ATV**

Page \_\_\_\_\_ of \_\_\_\_\_

Weed Species											Treated?	Need Spray?	Remarks (Herbicide Use, etc.)	
Road Segment	SK	MH	OH	DT	SJ	TH	CT	HT	OD	??				

5 = EXTREME  
 4 = VERY HIGH  
 3 = HIGH  
 2 = MODERATE  
 1 = LOW  
 0 = NONE

SK = Spotted Knapweed  
 MH = Meadow Hawkweed  
 OH = Orange Hawkweed  
 DT = Dalmatian Toadflax  
 SJ = St. John's Wort

TH = Thistle  
 CT = Common Tansy  
 HT = Hound's Tongue  
 OD = Oxeye Daisy  
 ?? = \*

\*New Invaders: Leafy Spurge, Diffuse Knapweed, Russian Knapweed, Purple Loosestrife, Scotch Broom, Yellow Starthistle, or other