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Forest Service

Northern Region

March 2004

Priest Lake Ranger District

Stimson Access Project

Environmental Impact Statement

Record of Decision

RECORD OF DECISION
for the
STIMSON ACCESS PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

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

March 2004

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I. Introduction

The Regional Forester of Region 1 was identified previously in the Notice of Intent (FR, Vol. 66, No. 83, p. 21308) and the draft Environmental Impact Statement as the Deciding Officer for this decision. Interim Forest Service Manual Direction at 1925.04b, delegated to the Regional Forester the responsibility to serve as the Deciding Officer on road construction projects located in Inventoried Roadless Areas. This interim directive on delegation of authority expired on July 14, 2003 and has not yet been reissued; therefore, as Forest Supervisor for the Idaho Panhandle National Forests (IPNF) I am now the appropriate Deciding Officer (Project Record, NEPA, Volume).

This Record of Decision documents my decision to authorize access across the Priest Lake Ranger District of the Idaho Panhandle National Forests for the Stimson Access Project. I want to thank the individuals, organizations and agencies that provided constructive, site-specific comments for this project. This input was very valuable to me in making my decision.

Stimson Lumber Company (SLC) has requested access across National Forest System (NFS) lands to their lands in Section 5 of T. 36 N., R. 45 E., Willamette Meridian. The Stimson Access Project is located in the upper reaches of the Sema Creek drainage, a major tributary of Granite Creek. The area is situated totally within Pend Oreille County, Washington, approximately 30 air miles north of the community of Newport, Washington. Figure I is a vicinity map of the project area. Proposed activities on NFS lands will occur in Sections 8, T. 36 N., R. 45 E., Willamette Meridian in the State of Washington.

Access to Section 5 was originally requested in 1992, when Plum Creek Timber Company owned the parcel. SLC acquired Section 5 in 1996 and continued pursuing access to this section. The application for access was submitted pursuant to the access provisions of the Alaska National Interest Lands Conservation Act (ANILCA). This act requires the Forest Service to grant landowners access to their lands located within the National Forest boundary, sufficient for the reasonable use and enjoyment of their lands. Federal regulations require the Forest Service to review the intended uses of the lands to be accessed and determine if the proposed use constitutes "reasonable use and enjoyment." That review was completed and made a determination that the proposed use is reasonable. The basis of this review is presented on pages I-3 and I-4 of the Stimson Access Project Final Environmental Impact Statement (FEIS).

Federal regulations 36 CFR § 251.114 f(2) require that access will be subject to location and construction provisions that minimize adverse impacts on soils, fish, scenic, cultural, endangered species and other values of federal land.

The scope of my decision is limited to deciding whether or not to authorize the use of a long-term road authorization providing access to SLC's lands in Section 5, for uses related to long-term forest management. I want to be clear that the Forest Service has no authority to regulate or limit uses occurring on SLC's lands. Proposals to regulate activities occurring on non-federal lands are not within my authority.

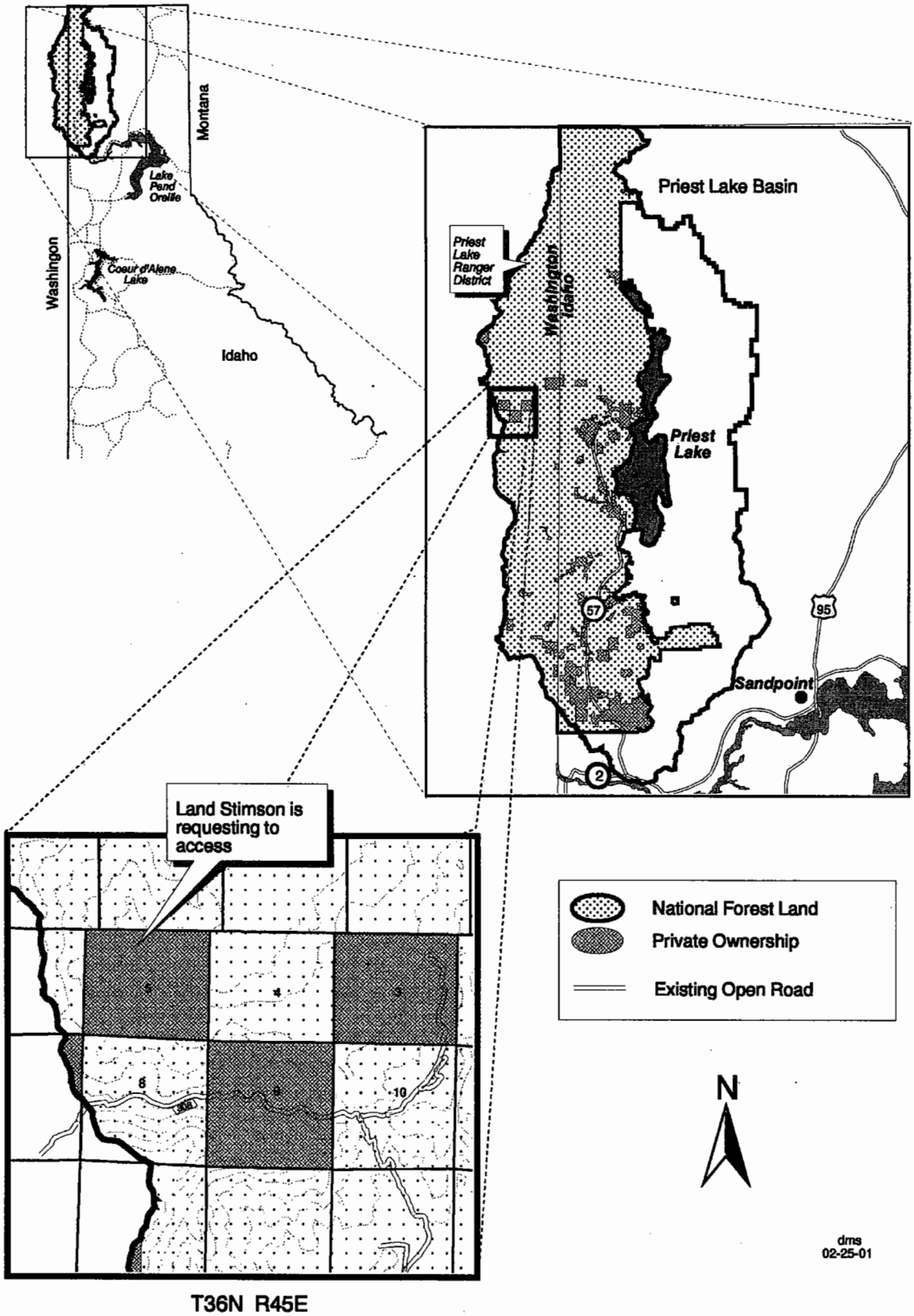

Figure 1 Vicinity Map of the Project Area

II. Decision

I have completed my review of public comments, and analysis contained in the Stimson Access Project Final Environmental Impact Statement. I have concluded that Alternative B will give access to SLC's lands in Section 5, T. 36 N., R. 45 E., WM while minimizing the effects on NFS lands. This SLC parcel is surrounded by NFS lands and no other roaded access currently exists. ANILCA directs the Forest Service to grant landowners access 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." This alternative meets the purpose and need for access required by ANILCA and the standards and guidelines of the Forest Plan of the Idaho Panhandle National Forests by granting access sufficient for SLC to make reasonable use of its property.

Features of Alternative B

This alternative was designed to meet the purpose and need for the project. This alternative will grant SLC a road authorization for a long term road access of about 4,000 feet (0.76 mile) in length by approximately 66 feet in width on NFS lands across Section 8 as shown on figure 2. This access will allow Stimson to construct a road that will be an extension of an existing road on Stimson property in Section 9. The road will be constructed in accordance with plans, specifications, and written stipulations approved by the Forest Service prior to the beginning of construction work. These design standards provide for the protection of soil and water as well as other resource concerns.

Once access is granted, SLC will be responsible for the following actions on NFS lands:

- Removing all timber located within the clearing limits of the new road construction on NFS lands. The right-of-way timber will be sold at an appraised rate approved by the Forest Service contracting officer.
- Constructing and maintaining a road to Forest Service specifications. SLC will be required to construct the road in a manner that meets all federal requirements relating to public safety and protection of forest resources, including:
- Installing and maintaining all drainage structures on the access road.
- Keeping the road closed with a gate year-round to restrict motorized access.
- Implementing and complying with the design features and mitigation measures specified for Alternative B as described below.

Designs and Mitigation Measures Specific to Alternative B

As noted above, my decision fully incorporates the design features and mitigation measures presented in Chapter II of the FEIS. I am fully satisfied that all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted. For further detail, please see pages II-9 to II-18 of the FEIS. A brief outline of the features is presented here.

STIMSON ACCESS PROJECT

Alternative B

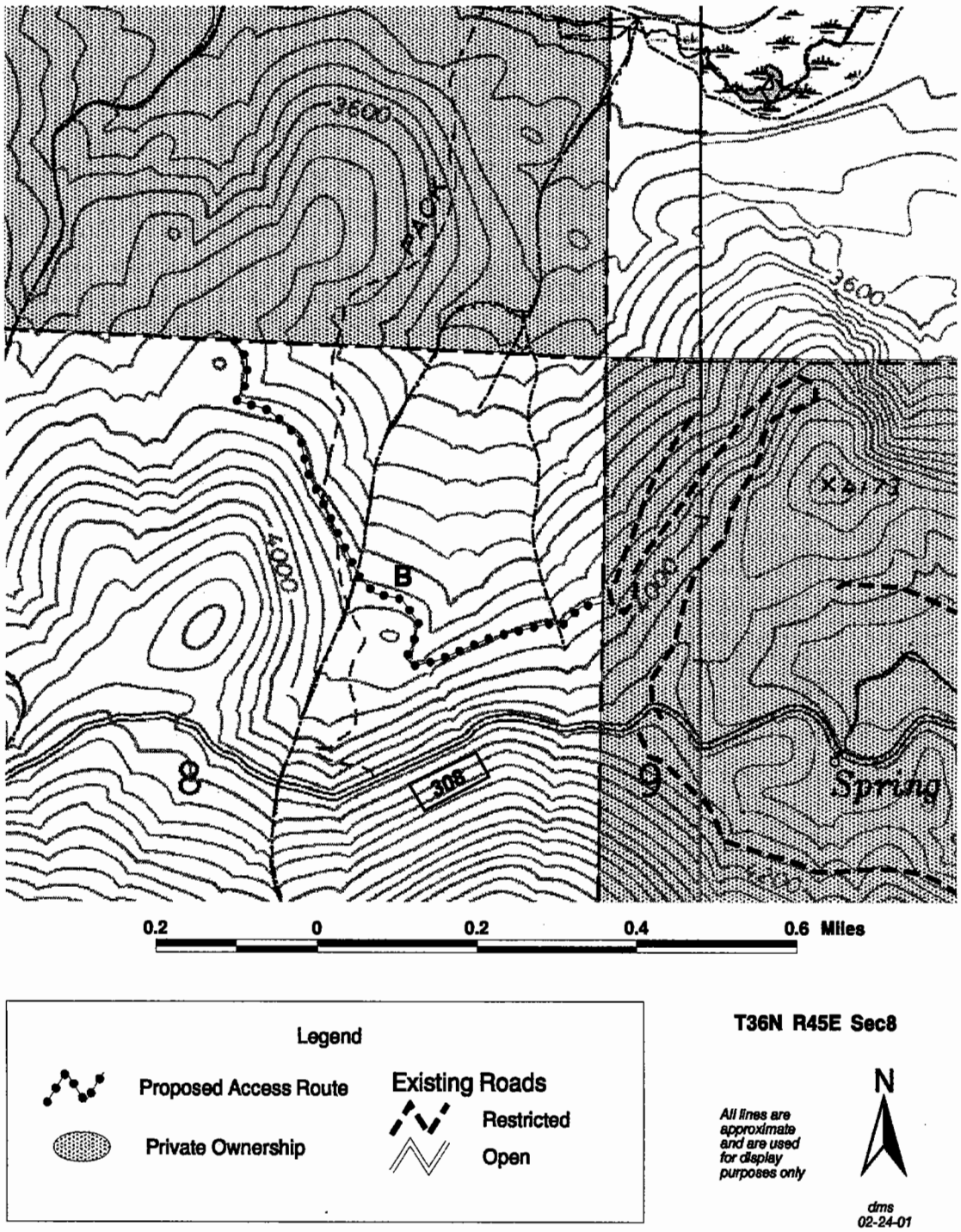

Figure 2. Map of Alternative B - the Selected Alternative

Features Designed to Protect Heritage Resources

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

Features Designed to Prevent Noxious Weed Invasion and Spread

All equipment to be used for road construction will be cleaned before entering NFS lands. This will help prevent the introduction of weeds via equipment moved into the area.

Following road construction, Stimson will be required to seed and fertilize cut and fill slopes with an approved, certified weed-free, native and desired non-native seed mix. SLC also will be required to monitor the road annually for noxious weeds (see Appendix B of the FEIS for the list of weeds) for three years following each period of use for logging or other activities, and treat any noxious weed infestations according to guidelines described in the Priest Lake Noxious Weed Control Project Final EIS (USDA 1997).

Features Designed to Protect Soil, Water, and Fish Habitat

Inland Native Fish Strategy (INFS) Guidelines - All INFS standards will be met (USDA 1995) by incorporating the following standards into the road plan. Specific INFS measures applicable to this project on NFS lands 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.

  Avoiding disruption of natural hydrologic flow paths (RF-2e).

  Avoiding sidecasting of soils or snow within RHCAs (RF-2f).

- RF-4: All stream crossings will be designed and constructed to accommodate the equivalent of a 100-year streamflow event, including associated bedload and debris, where those improvements 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 will be designed to pass flows without fill failure or significant erosion.

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 of the FEIS. The BMPs will be incorporated into the road design for the proposed road authorization, and will be monitored by the Forest Service to ensure compliance. Several of these BMPs are referenced and supplemented by the additional design features and protection measures discussed below:

Ditchline, Cutbank and Fillslope Stabilization: The following design criteria will 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 will 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 will 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 will 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 will be applied within 100 feet of any stream or spring. Exposed slopes within 150 feet of live stream crossings will be hydroseeded. For each acre of disturbed soils, the following will 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 will be stabilized using angular rock measuring no less than 10 inches diameter. This rock will 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 will be stabilized using geogrid materials as per BMP on 15.06-(e) on page A-11.

- Road construction will 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 will not be built across stream courses and will have breaks every 100 feet to allow for wildlife movement. All windrows will be constructed to maximize the interception of sediment moving downslope.

- Clearing slash not required for windrow use shall be piled and burned within designated areas of the authorized road section as per BMPs 13.05 and 15.18 on page A-7 and page A-14. Burn piles shall be placed outside of INFS Buffers and located in such a way as to avoid delivery to streams through ditchlines or surface runoff.

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 will 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 will be installed at a skew of 3 percent perpendicular to the road grade and have a minimum of a 5 percent slope. Placement of the culverts at a sloped angle will require less maintenance.

- Pipe locations will be marked with a flexible plastic marker to ease finding the pipes for future monitoring and maintenance.

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

Rolling the Road Grade: Use graded rolling dips and drivable dips to disperse water from the road surface as often as possible per BMP 1502.6-(5) and (6). This feature will reduce the amount of water that runs down the road surface, and thereby reduce the potential for sediment production and delivery.

Features Designed to Protect TES and Rare Plants

All documented sensitive plant occurrences will be buffered from any road construction or related activity to preserve current habitat conditions and to eliminate the risk of impacts to moonwort and deer fern populations. The authorized route under Alternative B will be located at least 200 feet away from known sensitive plant populations.

A Forest Service botanist will field review the final road layout to ensure that known sensitive plant occurrences are protected. Occurrences will be buffered or the road location shifted to protect the population, as needed.

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

Motorized vehicle access will be restricted on the access road when not being used by SLC to manage their lands in Section 5. The existing SLC gate on their road in Section 9 normally will serve this purpose. However, if the existing gate is opened for SLC management activities on their lands in Section 9, an additional gate or barrier will be required to be installed by Stimson to effectively maintain this restriction on the selected access route into Section 5 to avoid impacting grizzly bear and other wildlife species.

The newly constructed road across NFS lands will be closed to all non-authorized motorized vehicles year-round.

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

Feature Designs for Reciprocal Trail Access

Presently, the Forest Service has no easement for Sema Creek Trail #241 through Stimson's lands and will seek reciprocal access per regulations 36 CFR § 251.63. The Sema Creek Trail #241 would be designated as a fire trail and maintained primarily for fire access (Project Record, Roads, Volume).

Monitoring

The IPNF 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 will be conducted as part of the implementation of Alternative B:

Grizzly Bear Security Monitoring– SLC will provide to the Forest Service at the end of each "bear year" (from March 15 to November 15) a listing of vehicle trips entering Section 8, T. 36 N., R. 45 E., WM by date and activity type (i.e. survey, monitoring, maintenance, etc.). This monitoring will be used to validate the amount of grizzly bear security within the Kalispell-Granite Bear Management Unit, and will be reported in the annual Forest Plan Monitoring Report.

BMP Implementation and Effectiveness Monitoring – The Forest Service will monitor the implementation of applicable BMPs (see Appendix A) and mitigation measures on NFS lands as described previously under Features Designed to Protect Soil, Water, and Fish Habitat. The monitoring will be documented in inspection reports that will be forwarded to the Washington State Department of Ecology. BMP effectiveness will be monitored following at least one runoff season after BMP implementation. Effectiveness monitoring will be conducted through the fifth year after project implementation, subject to availability of funding. One focus of the effectiveness monitoring will be to document any sediment movement off the road prism (e.g. sediment tracks moving toward stream courses).

Noxious Weed Monitoring – SLC will monitor their road authorization across the NFS lands for noxious weeds for a term of three years following each period of use for logging and related activities. A monitoring report will be submitted to the Priest Lake Ranger District annually during the three-year period. Should any noxious weed infestations be identified, Stimson will treat those infestations 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, will be submitted by Stimson 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 U.S. Fish and Wildlife Service, the Forest Service will conduct monitoring on federal lands which 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 SLC) will agree upon necessary monitoring activities during the consultation process with the U.S. Fish and Wildlife Service.

Road Construction Monitoring – The Forest Service will monitor road construction activities as necessary. Monitoring will ensure that project design and mitigation measures are implemented as planned.

III. Public Involvement

The public involvement for this project began in 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. Because of other District and Forest priorities such as the Douglas-fir Beetle outbreak, 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.

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. A news release was sent to local newspapers and radio stations on February 6th. 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. All comments received were considered in the Environmental Assessment and are located in the project file.

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 existing Forest Service policy, which was 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 was to be prepared for all projects that propose road construction in inventoried roadless areas with the Regional Forester serving as the Deciding Officer. A Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) was published in the Federal Register April 30, 2001. A legal ad concurrently was published in the Spokesman-Review. Individuals and groups, who had expressed interest in receiving copies of the Environmental Assessment or had made comments, were notified by letter of the intent to prepare an EIS.

The Draft Environmental Impact Statement (DEIS) was published and mailed on August 3, 2001, to over 70 individuals, agencies and groups for review. The DEIS presented specific information on the proposal, and the results of the environmental analysis. Concerns generated from the comments to the Environmental Assessment were considered in the analysis. During the 45-day public comment period on the Draft EIS, a total of 14 comment letters were received. Letters of comment are included in their entirety with responses to those comments in Appendix G to the FEIS. The comments were used to further analyze the alternatives and prepare the Final EIS.

IV. Other Alternatives Considered

Alternatives, including a "No Action" alternative, were developed based on the issues and concerns brought forward by the public and the Interdisciplinary Team. The National Environmental Policy Act (NEPA) provisions and all regulations for implementing NEPA (as required under 40 CFR 1500) have been followed in the development of the Stimson Access Project EIS and this Record of Decision. The FEIS discloses the expected impacts of each

alternative, and discusses the identified issues and concerns. We fully analyzed four alternatives and I considered each alternative before reaching my decision. These included:

Alternative A

Alternative A is the No Action Alternative. This alternative would deny SLC access across NFS lands at this time. No road construction across NFS lands would occur. Therefore, no direct or indirect effects would occur on NFS lands.

In this instance, No Action would mean the proposed activities on SLC's lands would not occur, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity, or another alternative, to go forward. NEPA regulations require the analysis of a No Action Alternative even if the agency is under court order, legislative command, or statute to act. This analysis provides a benchmark, which enables me to compare the magnitude of environmental effects of the action alternatives.

Alternative C

Alternative C is a modification of the proposed action. Several potential alternate routes to the proposed action were developed early in the environmental analysis process. The route proposed under Alternative C was designed by a Forest Service engineer, and field-reviewed. Alternative C would be a shorter length across NFS lands than Alternative B, and would total 2,500 feet. Two segments--a short portion in Section 4 and a longer segment in Section 8--would be located on NFS lands. This route would require that an additional 1,480 feet be constructed on Stimson's lands to extend an existing road in Section 8. A map of Alternative C is located on page II-12 of the FEIS.

Two mitigations were developed specific to Alternative C to reduce the impacts in addition to several design features and mitigation measures that were common to Alternatives B and C. The specific Alternative C mitigations included constructing the road on NFS lands outside the lynx denning period (April 1 to July 1) because of adjacent denning habitat in Section 4, and locating the road authorization to ensure that a 100-foot buffer be maintained from a known population of moonworts. The purpose of this measure is to ensure that the indirect effect to the moonwort population of increased sunlight resulting from construction of the road does not occur.

The purpose for Alternative C was to locate an alternate route that would reduce the impacts to NFS lands. With a shorter distance, the effects to such resources as wildlife species, watershed and fisheries, the roadless resource, and soils possibly would be reduced. This alternative was identified in the DEIS as the preferred alternative because of its shorter distance across NFS lands. Alternative C, in addition to the other alternatives, was analyzed more fully following issuance of the DEIS in response to comments which were received. The reasons for not selecting this alternative are documented in the Rationale for My Decision discussed later in this document.

Alternative D

Alternative D was developed in response to comments we received on the Draft Environmental Impact Statement. Under this alternative, no road authorization for access would be granted

across NFS lands. As a result, no road construction, mitigation, or other activities would occur on NFS lands or other federal action taken. Alternative D would be similar to the No Action Alternative in that there is no decision regarding any activity on NFS lands.

Under this alternative, however, it would be assumed that SLC would log Section 5 by helicopter because road access through NFS lands in Section 8 or in another location would be denied. Though helicopter logging is assumed in this alternative, I want to be clear that I have no authority to regulate or mandate land management activities on private lands. Because this road access would not be granted, no roads would be built in Section 5. The same approximate acres and level of harvest and post-harvest treatments would be assumed to occur in this alternative. A minimum of one or two helicopter landings most probably would be constructed on Stimson's lands in Section 9, T. 36 N., R. 45 E., WM, because of its proximity to Section 5. The lands would be cleared of vegetation, tree stumps, etc. and subsequently leveled to create a helicopter landing and log loading area. A separate service landing likely would be created for fuel storage.

A variety of land management activities would follow the harvest activities such as stocking surveys, reforestation, fuel reduction, inventory and monitoring, noxious weed monitoring and control. Because no roaded access would be available, helicopters would probably be used to conduct these long-term forest management activities.

Alternatives Considered But Eliminated From Detailed Study

As the Interdisciplinary Team was developing the proposal, comments from the public and from my staff were used to consider other action alternatives as described below. The first four alternatives were developed by a Forest Service engineer and reviewed by the Interdisciplinary Team as feasible alternate routes. Three alternatives were suggested by respondents in response to scoping, and are variations of land acquisition of SLC's lands in Section 5. An eighth alternative, labeled the Mitigation Alternative, also was considered. This alternative was suggested in comments to the DEIS. However, for the reasons stated below, these eight alternatives were not considered in detail.

Section 3 Connection

This alternative route would require a road authorization on NFS lands to connect to SLC's existing roads in Section 3, T. 36 N., R. 45 E. The road authorization would require 1.17 miles of road construction through the entire southern portion of NFS lands in Section 4, and would access Section 5 in the southeast corner of the section.

This alternative would create a larger reduction in grizzly bear security and core habitat than the action alternatives described above 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 additional acres of NFS 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 SLC's property in Section 9, would cross onto NFS lands in Section 4, and basically follow the same route as the Section 3 Connection Alternative discussed above. A road authorization on NFS lands would be required for construction of 0.93 miles of road. SLC 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 the other three action alternatives because this proposed route is located further from currently open roads, and therefore would impact a larger area. As with the Section 3 Connection Alternative, lynx denning habitat in Section 4 would be adversely impacted. The other adverse effects also would be similar to the Section 3 Connection Alternative, and would require crossing the Sema Creek tributary at the same location, potentially affecting sensitive plan populations, and would reduce the South Fork Mountain Inventoried Roadless Area on NFS lands by several hundred acres. For these reasons, this alternative was dropped from further consideration.

North Access Section 31

This route would access Stimson lands in the northwest corner of Section 5 from an existing road on Stimson lands in Section 25. This route would require the longest road authorization with road construction of 1.86 miles across NFS 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 SLC's lands in the northeast corner of Section 9, cross NFS lands into Section 4, and access the extreme southeast corner of Section 5. This route would require 0.78 miles of road construction on NFS lands and 0.07 miles on SLC's 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.

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 three 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 previously.

Land Exchange

In this alternative, SLC would exchange their lands in Section 5, T. 36 N., R. 45 E., for NFS 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 letters 4/21/97; 5/9/97, 6/23/97, 2/16/98, 2/19/99; 5/16/01; 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 in Section 5 (36 CFR § 254.15 (c)(1)(i)). Stimson determined that they could not economically purchase these rights in the foreseeable future; therefore, they were not interested in pursuing an exchange (Stimson letters 2/19/99; 5/16/01). In addition, with the onset of the Douglas-fir Bark Beetle outbreak and in subsequent discussions Stimson was not willing to delay management activities on their land until such time as an exchange could be completed. As stated in the September 2000 lawsuit filed by SLC against the Forest Service, the company wanted to gain immediate access to their lands under ANILCA. Experiences with similar land exchanges currently proposed in Idaho show that exchanges can take years to complete and can be highly controversial. Consequently, a land exchange alternative is beyond the scope of this Environmental Impact Statement because the private landowner was not interested.

Another reason for dismissing this alternative is that it would not meet the Purpose and Need, which was to meet the Agency's responsibility to provide access to non-federal lands as described in Chapter I of the FEIS.

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 SLC property. When discussing a land exchange with SLC, they noted that they do not wish to decrease their land base. Company officials stated that sale 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 Federal Estate

Forest Service policy regarding condemnation of private property is to use this procedure only when the land or interest in the land is essential for management or protection of National Forest resources and when the property cannot be acquired by negotiation. SLC 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 determinations of the effects to grizzly bear, lynx, and bull trout were that planned activities on NFS and private lands are "not likely to adversely affect" these species or their habitat (see project Biological Assessments in Appendix F of the FEIS). For the roadless area resource, the conclusion from the effects analysis was that the amount of acreage within the roadless area complex would be reduced by less than 5 percent from management activities on NFS and private lands (see Chapter III page 102 of the FEIS). 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. It is the Forest Service policy to grant reasonable access, and therefore, eminent domain is not further considered. Therefore, this alternative was eliminated from further consideration.

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

Mitigation

A mitigation alternative was proposed by a commenter to the DEIS. As described in his comment suggesting this alternative, the agency would examine possible mitigation strategies that would add acreage to restore those acres no longer qualifying for roadless status, close additional roads to reduce road densities, provide additional core area to meet minimum guidelines for grizzly bears and to eliminate the deleterious consequences of further loss of existing core areas, and examine restoration opportunities to improve watershed conditions for bull trout/cutthroat trout and enhance reintroduction potential to areas that will be degraded and that currently (may) lack these species.

This alternative would not provide access to SLC, and instead would focus on restoration activities. Several of the opportunities described in the preceding paragraph are a part of ongoing and planned restoration efforts. In recent years, the Priest Lake Ranger District has actively been accomplishing several restoration projects, and will continue those efforts. The District has accomplished several watershed improvement projects, obliterating several miles of roads as well as implementing other improvements. Core area in each Bear Management Unit has been increased through road closures and obliterations to meet the guidelines as described in Chapter III (i.e. the Affected Environment for Grizzly Bears). As an example, one project was decommission and obliteration of the Harvey-Granite and Cache Creek Roads (Roads 319 and 1104) in 1998. This project improved watershed conditions in the South Fork of Granite Creek by obliterating roads adjacent to the stream, increased grizzly bear core habitat and reduced road density in the Kalispell Bear Management Unit, and removed the boundary separating two inventoried roadless areas (South Fork Mountain and Grassy Top) with the removal of Road 319. Another project is being developed and anticipated to begin in 2005, in the Willow Creek drainage on the North Fork of Granite Creek that would have similar effects to these resources.

Because this alternative would not provide access to SLC and, thereby would not meet the Purpose and Need, this alternative was not considered in detail.

V. Decision Criteria And Rationale For My Decision

A combination of different considerations led to my decision to implement Alternative B. I first looked how each alternative responded to the Purpose and Need for action of providing access to SLC. Second, I reviewed the effects of each alternative to ascertain which alternative caused the least impacts to resources on NFS lands. I also reviewed public comments to see how the alternatives responded to issues and management concerns raised by the public, other agencies, and the Interdisciplinary Team members. As the decision maker, I verified that the decision is consistent with the Forest Plan goals, objectives, standards, and guidelines within the project area.

In summary, my decision to select Alternative B for implementation is based on the following four principal factors:

1 How the alternative meets the Purpose and Need for action.

2 How well the alternatives minimize the effects to public resources on NFS lands.

3 How the alternative responds to public comments.

4 How the alternative is consistent with Forest Plan Standards, Goals, Other Applicable Laws, Regulations and Objectives.

The following is my rationale for the decision based on these four criteria:

1. Response to Purpose and Need

I feel my selected action best meets the stated Purpose and Need for Action, and that is why I have selected it over the other alternatives. The Purpose and Need is fully described in Chapter I of the FEIS on page I-1. The Purpose and Need for this project is to meet the Agency's responsibility to provide access to non-federal land, and to do so in a manner that minimizes adverse effects on public lands and resources. The access request by SLC was made 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 access and enjoyment." This statute weighed heavily in my decision and limits my decision-making discretion.

Since the original request was made in 1992, the Forest Service has investigated alternatives to granting a road authorization. These alternatives are fully discussed in Section IVof this document and in the FEIS, Chapter II-19 to II-23 as Alternatives Considered But Eliminated from Detailed Study. The Priest Lake District Ranger repeatedly approached Plum Creek, and later SLC after they acquired the land, concerning a possible federal acquisition or land exchange of Section 5. As documented in several letters included in the project file, SLC is unwilling to decrease their land base in the area. Moreover, one of the requirements necessary for the Forest Service to proceed with an exchange was for the company to acquire the subsurface rights to the land for which they were offering in trade. The Forest Service has no statutory authority to force

or require a land exchange with an unwilling private entity (36 CFR 251.110). I feel that alternatives to acquire Section 5 through a land exchange, purchase, or other means have been fully examined.

One of the requirements of ANILCA is that the access granted be limited to that which is sufficient for the "reasonable use and enjoyment" of the land. It is the responsibility of the authorizing officer to 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 [36 CFR § 251.114(a)]. This analysis was completed, and is documented on pages I-3 and I-4 of the FEIS and discussed below.

SLC manages their land for long-term forestry management, which is their objective in acquiring access to Section 5. They own several neighboring sections in the general vicinity on both the Idaho Panhandle and Colville National Forests. These lands largely have been harvested in the past, or currently are being or planned to be logged in the near future. In the immediate vicinity, two sections--Sections 3 and 9, T. 36 N., R. 45 E., WM--were logged in 1995-1996 with additional harvest activity implemented in both sections in 2002 and in 2003. In both instances as well as on their other lands, roads were constructed and the units harvested by conventional logging equipment. In reviewing additional private lands, other private inholdings have been granted access to harvest their properties or to provide personal access to private residences, on both the Idaho Panhandle and Colville National Forests.

Within the Sema Creek drainage, the Forest Service has had limited logging activity. The last harvesting occurred in 1969 in the headwaters of the drainage when 15 acres were logged. Though no plans currently exist for timber harvest on NFS lands in the Sema Creek watershed, these lands are allocated for timber production (MA-1) and for timber production within big game winter range (MA-4) in the Forest Plan for the Idaho Panhandle National Forests (FEIS, p. I-3). Within the larger Granite Creek drainage on the IPNF as well as on lands on the Colville National Forests to the west, logging historically has occurred on suitable lands. Dusty Peak Timber Sale, as described in Chapter I of the FEIS, page I-10, is located within the Granite Creek drainage. An ecosystem project which includes vegetation restoration through timber removal is planned on NFS lands lying immediately south of the project area in the Kalispell Creek drainage as discussed in Chapter I of the FEIS (page I-12). While NFS lands have broad, multiple-use land management objectives that provide for emphasis on non-commodity resources, vegetation management through timber harvest has been an important part of our management.

In my review of these existing land uses, I certainly believe that SLC's request for access to manage their lands in Section 5 constitutes "reasonable use and enjoyment" of the lands based on contemporaneous use of similarly situated lands in the general vicinity.

I also needed to ensure that "no other reasonable access" existed to Section 5. This parcel is completely surrounded by NFS lands with no existing access as shown on figure 1. Therefore, the Interdisciplinary Team initially developed six alternative routes to access Section 5 in response to the ANILCA request. Upon preliminary analysis, four of the routes were found to cause significant adverse effects on NFS lands including effects to watershed and fisheries;

grizzly bear, lynx, or other wildlife species; sensitive plants; and other resources as documented in Chapter II and in this document (Alternatives Considered But Eliminated from Detailed Study). The Interdisciplinary Team then conducted a detailed analysis of environmental effects on the two remaining alternate routes (Alternatives B and C). Either route would meet the Purpose and Need of this project. This analysis is documented in the FEIS and in the following section. In that section, I will discuss more fully why I selected Alternative B.

I also considered an additional action alternative in response to public comments. Alternative D is a helicopter alternative. Under this alternative, no road authorization would be granted to SLC. Therefore, this alternative would eliminate any direct effects to NFS lands because no road would be constructed across NFS lands. Stimson would log Section 5 by helicopter instead of using conventional harvest equipment requiring roads, which would necessitate the construction of helicopter landings on their property in Section 9. Future management of Section 5 also would require helicopter access as no road access is provided. This alternative was analyzed in detail as documented in the FEIS.

I fully considered Alternative D in my selection process, but did not choose this alternative for implementation. Though helicopter logging has occurred on both private and federal ownerships in the general vicinity because of resource concerns or urgency of removing the timber because of insect attacks, road access predominantly has provided the means for long-term management of the forest resources on all ownerships. Helicopter logging costs are much higher than conventional logging costs, and do not provide long-term management access needs such as for slash disposal, planting, thinning, fire and fuel management. Additional reasons for not selecting Alternative D are discussed in the following sections.

2. Minimizes the Impacts to Resources on National Forest System Lands.

Federal regulations related to granting access require that the action minimizes adverse effects to public resources on NFS lands. I considered this decision element to be critical in my selection of Alternative B for implementation. In my review of the direct and indirect effects on NFS lands, I considered all resources but focused on those key issues that were identified by the Interdisciplinary Team. As discussed earlier, I considered the No Action and three action alternatives. Four additional routes also were considered, but these alternatives were dropped from detailed analysis because of the level of impacts to various resources including grizzly bear and lynx habitat, watershed and fisheries, inventoried roadless areas, and sensitive plant habitat.

No direct or indirect effects to NFS lands would occur in Alternative A, the No Action Alternative. While I did consider the No Action Alternative in my review, this alternative would not meet the Purpose and Need for Action. Alternative A, however, provided a baseline for me to measure the effects of the three action alternatives.

One of the primary considerations in my selection is the effect to wildlife species, especially Threatened and Endangered species. For most species, there would be minimal, if any, effect on NFS lands as discussed in Chapter III of the FEIS. Two listed Threatened species would be affected—grizzly bear and Canada lynx—and the effects to these species were identified as a key issue. The impacts were found "not likely to adversely affect" both species as disclosed in the Biological Assessment for this project (Appendix F of the FEIS, BA, p.17 and p.35). The U.S.

Fish and Wildlife Service provided a biological opinion for grizzly bear and Canada lynx (Appendix F of the FEIS). It was the Fish and Wildlife Service's biological opinion that the selected alternative was not likely to jeopardize the continued existence of either the grizzly bear or Canada lynx (Appendix F, BO, pp. 39 and 40). The Fish and Wildlife Service did not anticipate that the selected alternative will incidentally take any grizzly bears or lynx, therefore, there were no terms and conditions required to minimize incidental take (Appendix F, BO, p. 41).

Both ***grizzly bear*** security and core habitat in the Kalispell-Granite Bear Management Unit (BMU) would be reduced on NFS lands in all three action alternatives. Alternatives B and C are similar in their effects to grizzly bear. Because of its shorter distance, Alternative C would have the least impact on grizzly bears with a reduction of 122 acres of security habitat and 127 acres of core habitat on NFS lands (FEIS, p. III-41). There are slightly more affected habitat acres in Alternative B with 139 acres of security habitat and 151 acres of core habitat being reduced (FEIS, pages. III-38 and III-39). Alternative D would have the greatest effect with a reduction of 691 acres of security habitat and 643 acres of core habitat on NFS lands (FEIS, p. III-42). Though helicopter logging would be a short-term effect lasting 2-3 years, I would have to assume that the loss of both security and core habitat would be long-term because of the ongoing land management needs of SLC. This would equate to approximately 500 additional acres of habitat loss compared to the other two action alternatives. This greater impact for helicopter activities is primarily due to the larger displacement impact for grizzly bears resulting from the aerial logging and the associated flight paths used by helicopters than would normally occur with ground based systems only as discussed on pages II-24 of the FEIS. This additional loss of habitat acres would influence our ability and flexibility to conduct restoration, vegetation management, or recreation activities on NFS lands within the Kalispell-Granite BMU.

There also would be a small reduction of suitable ***Canada lynx*** habitat on NFS lands in both Alternatives B and C. No direct loss would occur in Alternatives A and D because no roads would be constructed. For Alternative B, six acres of forage habitat would be lost (FEIS, p. III-48. Alternative C would cause a loss of two acres of forage habitat and about two acres of denning habitat (FEIS, p. III-50). The forage habitat is low quality because of the age of the stands that regenerated following the 1926 fire (FEIS, p. II-24). These stands provide limited forage capabilities for prey species, especially the snowshoe hare, but are not as productive as younger forested stands that provide high quality forage for snowshoe hare. Denning habitat is somewhat more limited because of the stand-replacing fire of 1926 in the southern portion of the Sema Creek drainage, where the proposed road authorization is located. Therefore, of the two road authorization alternatives, Alternative B would minimize the effects to lynx even though two additional acres would be affected because no denning habitat would be impacted.

The construction of the road in Alternative B or Alternative C would affect ***water resources.*** On NFS lands, Alternative B would require construction of approximately 4,000 feet of road and installation of 5 culverts. Approximately 2,500 feet of road would be constructed in Alternative C with 4 culverts. No road construction would occur in Alternatives A and D. The road construction would generate an estimated 1,090 pounds (about 14.5 five-gallon buckets) of sediment in Alternative B and 380 pounds (5-five gallon buckets) in Alternative C over the length of the road being constructed (FEIS, p. III-66). The sediment generated would not be

delivered at one time and would be routed gradually down the stream within one or two years of the initial road construction (FEIS, pp. III-66 to III-67). Best Management Practices to reduce the sediment will be implemented as part of the action. As discussed on pages II-14 to II-17 of the FEIS, these mitigations are effective in reducing sediment. This limited increase in sediment delivery to the first and second order streams would not cause measurable changes to any of the channels affected by the proposed road construction in either Alternative B or C (FEIS, p. III-67). No increase in water yield would occur because of the limited amount of canopy reduction that would occur with either alternative. Though our analysis estimated that Alternative C would generate less sediment; the location of the road traverses generally wetter ground than the upper location proposed in Alternative B (FEIS, p. III-66).

A potential effect could occur to the ***fisheries resource*** on NFS lands. Bull trout and cutthroat trout existed historically within the Sema Creek drainage. Fisheries can be affected by the removal of trees in riparian areas, which increases stream temperatures by increasing solar radiation to the stream. Riparian impacts on NFS lands are minimal for Alternative B 600 feet for each side of the stream and Alternative C 450 feet for each side of the stream and only occur associated with road construction across non-fish-bearing streams (FEIS, p. III-86). Although the direct effects of Alternative B include more culverts and more road construction than Alternative C, the location of the proposed road authorization would be located farther from fish-bearing streams and, therefore, would have a lower probability of delivering sediment into these streams (FEIS, p. III-87). As discussed on page II-27 of the FEIS, Alternative C location of the road traverses generally wetter ground than the upper location proposed in Alternative B. The road grade for the Alternative B location would be relatively gentle (2-4 percent), allowing rolling grades and grade breaks to be easily installed. Portions of the Alternative C route would require the road grade to be a sustained 10 percent or higher grade. This steeper grade would make it more difficult to install rolling dips or vary the location to avoid wet or unstable areas. As discussed previously under Design and Mitigation Measures, Inland Native Fish Strategy (INFS) guidelines and BMPs will be implemented to minimize any sediment delivery to streams. With the limited effects to stream segments on NFS lands, none of these effects are likely to affect fish in either Alternative B or C (FEIS, p. III-91). No effect would occur in Alternatives A and D because no road construction would occur.

The ***roadless*** resource would be affected by the action alternatives. There would be a direct loss of roadless characteristics in Section 8 on 155 acres in Alternative B and 136 acres in Alternative C because of the construction of the access road (FEIS, p. III-103 and III-106). No direct loss would occur in Alternative D. In all three alternatives, however, the entire portion of Section 8 lying north of Road 308 totaling approximately 324 acres would no longer possess roadless characteristics because it would be essentially surrounded by management activities (FEIS, p. III-112). This isolation would be an indirect effect of the harvest activities that would occur in SLC's lands in Section 5 as discussed in Chapter III of the FEIS. Because of this indirect effect of isolating Section 8, there essentially is no difference among the alternatives even though no roads would be constructed in Alternative D, which assumes that Section 5 would be logged by helicopter.

Sensitive plant populations potentially could be affected by implementing Alternatives B and C. The proposed road location for Alternative B was moved 200 feet from an existing population of

moonwort and deerfern plants. Both species are listed as sensitive plants in the Forest Service Northern Region. A moonwort population is located within the proposed road authorization for Alternative C as well as an area of potentially moist forest habitat. To mitigate any effect as discussed in Chapter II under Features Common to Alternatives B and C, a Forest Service botanist would field review the final road layout to ensure that known sensitive plant populations are protected by moving the road location or buffering the population. This measure would also ensure protection of any additional occurrences found during the field review. The risk that undetected plants would be impacted, and that suitable habitat would be reduced, is higher with Alternative C than Alternative B (FEIS, p. III-119). No effect to sensitive plant populations would occur on NFS lands in Alternatives A and D.

Noxious weeds are an increasing resource concern both nationally and within the NFS lands. There would be no increase in noxious weeds for either Alternatives A and D. Noxious weeds potentially would spread on NFS lands in Alternatives B and C because of the ground-disturbing activities that would occur. However, the mitigations as discussed in Chapter II of the FEIS would reduce this potential risk (FEIS, pp. III-17 and III-18). For both Alternatives B and C, seeding of disturbed areas and cleaning of road construction equipment would occur. Stimson would also be required to monitor and treat noxious weeds following their use of the road (see Section II, Design and Mitigation Measures). I feel confident that these mitigations will reduce the risk of noxious weed infestations.

There is little difference between Alternatives B and C in terms of loss of ***soil productivity***; respectively, a loss of productivity would occur on 6 acres and 3.8 acres. There would be no direct loss of soil productivity for either Alternative A or D because no roads would be constructed. All alternatives would meet Forest Plan guidelines.

Another issue that was identified was the effect to ***recreation***. Minimal difference exists among the alternatives. For all action alternatives, the Recreation Opportunity Spectrum is Semi-Primitive Non-Motorized Recreation because of the existing restrictions to motorized traffic on existing or planned roads (FEIS, p. III-132). Dispersed recreation such as hunting, berry-picking, and backpacking would continue to occur in all alternatives with a potential slight increase in dispersed non-motorized use of the new road in Alternatives B and C (FEIS, p. III-133). Alternatives A and D, Sema Creek Trail 241 would receive less use as it becomes more brushed in and the trailhead becomes less obvious. For Alternatives B and C, Sema Creek Trail would be used for a fire access trail and minimal maintenance would occur. The Forest Service has no easement for this trail through Stimson's lands and will seek reciprocal access per regulations 36 CFR § 251.63.

In summary, there are limited differences among the action alternatives in terms of effects to NFS lands. I do find Alternative B, however, to be the alternative that minimizes the effects on NFS lands based on potential effects to lynx, fisheries, and sensitive plants. There would be fewer acres of effects that would occur in Alternative C for grizzly bear and to soils, but the potential adverse effects to the other resources may be greater. Alternative D would have the greatest effects to grizzly bear, which I consider to be a very important decision criterion.

3. Response to Public Comments to the DEIS

Public comments to the DEIS are included in Appendix G of the FEIS. I considered these comments closely as well as comments I had received earlier in the environmental analysis process. We reviewed and responded to public comment in various ways through the NEPA process, including adding alternatives, adding or modifying design criteria, responding to key issues, and enhancing the analysis.

The following discussion explains the rationale for my decision relative to public comments to the DEIS:

Applicability of ANILCA

I received five comments stating that statutory private property rights need to be honored in regards to access to inholdings. These respondents supported granting Stimson access to Section 5. Other comments stated that ANILCA should not supercede other federal laws and regulations. One letter stated that ANILCA does not apply to lands outside of Alaska.

I have considered these comments. I find that the selected alternative meets the statutory requirements of ANILCA and is consistent with other applicable laws and regulations including such laws as the Endangered Species Act, Clean Water Act, and other laws protecting the environment. These findings are located later in this Record of Decision.

Range of Alternatives

I received several comments regarding the range of alternatives. There were four comments that requested that a helicopter alternative be considered in detail. This alternative was analyzed in detail in the FEIS, and I have considered this alternative in my decision-making process. For reasons I have disclosed in this document, I did not select the Helicopter Alternative.

There also was a request to consider a mitigation alternative. This alternative was considered as described above in the alternative descriptions, but was not analyzed in detail. This alternative did not meet the Purpose and Need for Action, which was to grant SLC access to their lands in Section 5.

Four comments also were received requesting that a land acquisition alternative be analyzed in the FEIS. There were three various acquisition alternatives which were considered in the DEIS, and carried forward in the FEIS. The Priest Lake District Ranger investigated these various options to acquire Stimson Company lands in Section 5 on several occasions, but SLC was not willing to exchange or sell their property as explained in the Description of Alternatives in the FEIS and as documented in correspondence with Stimson. These alternatives were not analyzed in detail, as the effects would be the same as for the No Action Alternative.

I feel that a range of alternatives has been presented in response to public comments. Moreover, upon review, I agree with the rationale why several alternatives were not analyzed in detail.

Cumulative Effects

Cumulative effects were addressed in several of the comment letters. These comments stated that the cumulative effects analysis was inadequate, especially the description of effects on private land.

The descriptions of past, present, and reasonably foreseeable actions were enhanced in Chapter I of the FEIS, especially those occurring on private lands, in response to these comments. The analysis and description of cumulative effects also were expanded in Chapter III for the various resources. Appendix C, which contains maps of Reasonably Foreseeable Actions was added to the FEIS. Further documentation was added to the project file regarding cumulative effects.

Relevant mitigation measures on private land that would improve the project were identified, including those outside the jurisdiction of the Forest Service. SLC indicated several mitigations that they would incorporate in their logging, road construction, and long-term management plans. Several of these are requirements under the Washington Forest Practices Rules (WAC 222) and other State laws, which will be administered by the Washington Department of Natural Resources, Washington Department of Ecology, or Washington Department of Fish and Wildlife. Another example is the Pend Oreille County Weed Control Board that enforces compliance with State and county noxious weed laws or ordinances. These agencies routinely perform such compliance work on private lands in Washington State. Regarding threatened and endangered species, the U.S. Fish and Wildlife Service is involved in working with private landowners and enforcing laws.

Upon reviewing Chapter III of the FEIS, I feel that we have taken the required "hard look" at cumulative effects in this analysis. Past, ongoing, and reasonably foreseeable actions on federal and private lands were adequately identified in Chapter I of the FEIS, and analyzed in Chapter III. The extent of future actions on NFS lands is typically easier to define than those occurring on private lands. However, SLC provided good maps and descriptions of their actions, including those that are reasonably foreseeable. Some logging activities are projected for 2006. There may be a possibility that salvage logging or some other management activity may occur before or after that date. Such future activities are speculative, however, because their parcels of land have been recently logged or will be harvested in the near future as per Stimson's stated harvest plan. If salvaging or other harvest activity would occur, there would be no additional need for roading on Stimson lands within the cumulative effects area(s). According to their lynx management plan (Gilbert, p. 8), harvest of adjacent stands should be delayed until the previously harvested units provide cover.

Threatened and Endangered Wildlife Species

Several of the respondents had numerous comments regarding the effect to Threatened and Endangered Species. There were specific comments regarding grizzly bear, Canada lynx, wolf, and woodland caribou. The comments focused on the impacts to listed species from the proposed activities and made various arguments as to why the Forest Service should not grant access. There also were questions concerning the cumulative effects boundaries for these species or specific habitat parameters.

The analysis for TES wildlife species was supplemented in the FEIS. Clarifications were made in the text in Chapter III of the FEIS or in the Response to Comments. An analysis of the effects to lynx connectivity was added. The cumulative effects description of ongoing and future activities on both public and private lands was expanded. Maps depicting lynx corridors and connectivity and snowmobile use areas were included in the FEIS.

I reviewed the above analysis in the FEIS and Response to Comments as well as the Biological Assessment and Biological Opinion. This review focused on the cumulative effects analysis. I find the analysis to follow established guidelines, and that my selected alternative meets direction as outlined in species recovery plans and other management plans and guidelines including the proposed Forest Plan amendments for grizzly bear and lynx.

Watershed

Similar to Threatened and Endangered species, there were numerous comments regarding the effects to watershed. Most of these comments voiced concern over the lack of adequate cumulative effect analysis of timber harvest and road construction activities on Stimson lands in Section 5. There also were several comments stating that a rain-on-snow or peak flow analysis was lacking for the activities on private land. Other comments concerned sediment modeling. One respondent cited a 1998 preliminary effects analysis.

As stated previously, the cumulative effects analysis was expanded from the DEIS. Descriptions of activities in Section 5 were outlined in Chapter III and supporting information included in the project file. Mitigations that are Washington State Forest Practice Rules or specified in Stimson's plan of operations were disclosed and analyzed. A rain-on-snow assessment was included in the FEIS as well as a discussion on peak flow. Further clarification on the methodology and effects analysis is included in the Response to Comments. Additionally, the project hydrologist, fish biologist, and soil scientist field-visited the area along with a geotechnical engineer and the project engineer to review the proposed activities on NFS lands in response to the comments received to the DEIS (Project Record, Aquatics, Volume 1). An additional field survey on Sema Creek also was conducted by the hydrologist and fish biologist (Project Record, Aquatics, Volume 1). These reports are included in the project file, and were valuable to me in making a decision.

As I discussed under Reason #2 in this Rationale of My Decision section, the effects to watershed are limited on NFS lands in the selected alternative. The mitigations as outlined in Chapter II will reduce the sediment delivery as disclosed in Chapter III of the FEIS.

I closely reviewed the cumulative watershed effects. The road construction and timber harvest on private lands will cause potential adverse effects to water quality, but these effects will be mitigated by Washington State's Best Management Practices (BMPs) and Stimson's plan of operations as disclosed in Chapter III of the FEIS. All activities would comply with the Clean Water Act (FEIS, p. III-53). This plan is include in the project file of the FEIS. In summary, I find that the proposed road authorization in Alternative B along with the reasonably foreseeable actions on Stimson's land will maintain the resiliency and channel morphology of Sema Creek and will not affect downstream watershed beneficial uses (FEIS, pp. III-66 to 76).

Fisheries

There were comments concerning fisheries in three of the letters. Two of the comments stated that inadequate surveys had been completed for bull trout and westslope cutthroat trout. Cumulative effects resulting from actions on Stimson lands also were expressed as a concern.

The analysis for fisheries was supplemented in the FEIS. The cumulative effects description of ongoing and future activities on both public and private lands was expanded. Clarifications were made in the text in Chapter III of the FEIS or in the Response to Comments. Mitigations that would occur on private lands were described, and analyzed (FEIS, p. III-86 to III-89). There also was clarification added concerning the fry emergence standard in the Forest Plan (FEIS, p. III-78).

There would be limited potential effects to fisheries from actions on NFS lands. The potential effects would be short-term and localized, and would only occur on non-fish-bearing streams as I described above in Reason #2 of the Rationale of My Decision (FEIS, p. III-91).

The cumulative effects analysis for fisheries is disclosed in Chapter III of the FEIS and the Biological Assessment for Fisheries (Appendix F). Road crossings and riparian harvest would potentially result in only small increases in water temperature (FEIS, p. III-86).

Roadless

Four letters included comments regarding the roadless resource. Each respondent opposed the loss of acres in the South Fork Mountain Inventoried Roadless Area.

I reviewed the effects analysis on the roadless resources in Chapter III. As I previously stated in Rationale for My Decision criteria #3, I find my selected alternative to be consistent with existing Forest Service policy (FEIS, p. III-93 to 94).

Noxious Weeds

Three letters included comments regarding the spread of noxious weeds on NFS lands and private lands. These comments all expressed concern with increased infestations of weeds that would result from activities on private lands.

Noxious weeds were considered as a key issue in the FEIS. I find that the mitigations specified in Chapter II of the FEIS will prevent new weed infestations from becoming established on NFS lands through the monitoring and treatment of weeds for any of the action alternatives (FEIS, pp. III-124 to 125).

Additional discussion of the cumulative impacts was added to the FEIS in response to these comments. I would expect the cumulative effects to noxious weed infestations on private land to be low based on Stimson's diligence in preventing weed spread on their lands and the enforcement of State and county ordinances by the Pend Oreille County Noxious Weed Control Board.

Soils

Two comments were received regarding the impact to soils. One of these comments concerned the erosive soils on Stimson lands.

Alternative B would cause a loss of soil productivity on six acres on NFS lands because of the road construction. This is consistent with Forest Plan standards (FEIS, pp. III-130 to 131).

Washington Forest Practices Rules administered by Washington State would reduce the effects of timber harvesting and road construction on private lands.

Recreation

There were two comments regarding recreation. One remark was in regard to the loss of Trail 241 resulting from the actions on SLC lands. The other comment concerned the analysis regarding future snowmobile use.

I also reviewed the analysis of snowmobile use as described in the FEIS. The existing and proposed roads on Stimson lands have restricted yearlong access; these restrictions include snowmobiles. Therefore, I feel my decision will not cause dispersed snowmobile use to increase in the project area (FEIS, p. III-131). A map outlining snowmobile use also was included in the FEIS in response to a comment regarding lynx and snowmobile use.

Economics

Two comments stated that SLC should pay for the value of resources affected by the road authorization. I responded to these comments, but they are not pertinent to my decision.

Trail 241 would not be maintained or protected after implementation of management activities in Section 5. Presently, the Forest Service has no easement for this trail through Section 5. It has recently been determined that the Forest Service will seek reciprocal access per regulations 36 CFR § 251.63.

Under ANILCA, the Forest Service must grant access to private inholdings. Annual fees are collected when road authorizations are issued. The collecting of fees, posting a performance bond, and other requirements are outlined in 36 CFR § 252.54. The Forest Service has no legal authority to charge for the value of impacted resources under a valid ANILCA access request.

Comments from Tribal, State and Federal Agencies

During the phases of public involvement, we also received comments from several public agencies. The following discussion summarizes how we responded to their issues and concerns:

Kalispel Tribe of Indians

We met with representatives of the Kalispel Tribe on two occasions, at their tribal headquarters in Usk, Washington, and at the Priest Lake Ranger District, to review the proposed action and alternatives for the Stimson Access Project. We also received comments from the Kalispel Tribe on February 26, 2001, in response to scoping. They stated that Alternative B would not impact

any identified cultural properties important to the Tribe. The Tribe also expressed their concern that we consider the cumulative effects to various resources. The Tribe sent no comments in response to the DEIS.

State of Idaho, Division of Environmental Quality (DEQ)
We received a letter in response to our initial scoping from the State of Idaho. The agency requested clarification whether any portion of the proposed road construction and timber harvest would be within the Kalispell Creek drainage. We responded that the activities were not located in this drainage.

United States Environmental Protection Agency
Please see FEIS, Appendix G, for response to their comments to the DEIS.

The proposed activities were discussed with representatives from EPA. They provided comments on the DEIS. These comments included: 1) expanding the range of alternatives by incorporating a detailed analysis of using helicopter, skyline, or other means of timber extraction on SLC lands or buying the property; 2) expanding the cumulative impacts to water quality; and 3) providing more specific information regarding the reasonably foreseeable actions on public and private lands. The EPA also recommended adding a map showing the topography of the planning area in relation to ongoing, proposed, and reasonably foreseeable actions.
We addressed their concerns with the following:

1) We included a detailed analysis of a helicopter alternative in the FEIS as suggested by EPA. This alternative is described in Chapter II of the FEIS as well as this Record of Decision. The effects are outlined in Chapter III of the FEIS. As explained in our response to their comments (see Appendix G), skyline logging without a road system into Stimson Company lands in Section 5 would not be technologically feasible.

Three different alternatives to acquire Stimson lands in Section 5 were considered including an alternative to purchase the property. These were alternatives we considered, but did not analyze in detail. The effects of each of these alternatives would be identical to the No Action Alternative. Correspondence from SLC stating that they were not interested in reducing their landbase in the area through land exchange, purchase, or other means is included in the project file.

The FEIS considered a total of twelve alternatives as discussed in this Record of Decision. Four alternatives were considered in detail, and the remaining eight alternatives were considered but eliminated from detailed analysis.

2) We expanded the cumulative effects analysis for watershed. This expanded analysis is discussed in Chapter III of the FEIS. Supporting documentation for the watershed cumulative effects analysis is located in the project file.

3) The description of Reasonably Foreseeable Actions on both public and private lands was enhanced throughout the FEIS. A more complete description was provided in Chapter I. Throughout Chapter III, a comprehensive discussion of future activities was included for each

resource being analyzed. We also included maps of Reasonably Foreseeable actions in a separate appendix to the FEIS, Appendix C.

United States Department of Interior, Fish and Wildlife Service
Informal and formal consultation with the Fish and Wildlife Service was conducted through meetings and conversations since the start of this project. The details for consultation with Fish and Wildlife Service are presented under The Endangered Species Act section in this Record of Decision.

4. Consistency with Forest Plan Standards, Goals, Other Applicable Laws, Regulations and Objectives

The National Forest Management Act (NFMA) and accompanying regulations require that "All resource plans...must be consistent with the Forest Plan" [16 U.S.C. 1604 (i)]. Management of NFS lands in the Stimson Access project area is guided by the Idaho Panhandle National Forests Land and Resource Management Plan (LRMP or Forest Plan), approved in 1987. The Forest Plan and the process used to develop it represent agreements on the management and use of the Idaho Panhandle National Forests among a wide variety of people, agencies, Native American tribes, and organizations. Chapter II of the Forest Plan of the Idaho Panhandle National Forests describes in detail Forest-wide management direction, goals, objectives, research needs, desired future conditions and standards. The Stimson Access Project tiers to this document.

As the Deciding Officer, it is my responsibility, prior to issuing any access authorization, to ensure that the location and method of access is consistent with the management of any congressionally designated area and is consistent with the Forest Land and Resource Management Plans to accommodate the access grant. I evaluated the alternatives and compared them to the Forest Plan goals, objectives and resource standards. One of the standards is that "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" (Forest Plan, p. II-10). I find that either Alternative B or C is consistent with this standard. Because no access would be granted in Alternatives A and D, these alternatives would not be consistent with the above Forest Plan direction.

Upon review of the information disclosed in Stimson Access Project FEIS, Chapter III effects analysis for each resource, I find that my decision to implement Alternative B is consistent with all the other Forest-wide and management area standards and guidelines as well as the proposed Forest Plan amendments for grizzly bear and lynx as discussed in Chapter I of the FEIS, (Forest Plan, USDA 1987 pp. III-2 to III-6 and pp. III-17 to III-22). The location of the route as well as the method of access is compatible with the Idaho Panhandle National Forests Plan. Further discussion of Alternative B and its consistency to the Forest Plan is included in the following section, Findings Required by Other Laws and Regulations.

VI. Findings Required By Other Laws And Regulations

I have determined that implementation of the selected alternative would be consistent with requirements of the following laws and regulations.

The Preservation of American Antiquities Act, June 1906
The National Historic Preservation Act of 1966, as amended in 1980 and 1992
Archaeological Resources Protection Act of 1979
Native American Graves Protection and Repatriation Act of 1990
Religious Freedom Restoration Act, 1993
American Indian Religious Freedom Act, 1978, as amended in 1994

This project has been surveyed on the ground by a qualified archaeologist. Only one heritage historic site has been found and inventoried (project file). Activities in Alternative B are designed to protect this site (FEIS, page II-11). The protection measures, designed by the Forest Service Archaeologist, were agreed to by the Washington State Historic Preservation Office (SHPO) in a letter dated February 22, 2001. This concurrence letter is located in the project file.

We consulted with the Kalispel Indian Tribe regarding this project; they were briefed on the project.

The National Environmental Policy Act (NEPA), 1969
We have followed the direction in 40 CFR and Forest Service Handbook (FSH 1909.15) throughout development of this FEIS and project.

The Endangered Species Act, (ESA), 1973
Under provisions of this Act, federal agencies are directed to seek to conserve endangered and threatened species and to ensure that their actions are not likely to jeopardize the continued existence of any of these species.

Informal consultation for this action was previously completed with the U.S. Fish and Wildlife Service on June 17, 2002 (FWS Ref. #1-9-02-I-328) in which the U.S. Fish and Wildlife Service concurred with our determination that the proposed action "may affect, but is not likely to adversely affect" grizzly bears, Canada lynx, woodland caribou, gray wolf, and bull trout (Appendix F of the FEIS). Subsequent to completion of informal consultation, minor design modifications were incorporated into the proposed action, which resulted in slight changes to effects upon grizzly bears that were not analyzed under the previous informal consultation, and which warranted additional analysis to determine if they would result in adverse affects to grizzly bears. The project modifications also resulted in minor changes in the effects to lynx. These changes were slight and did not change the basis of the effect determination for lynx.

As a result of the December 26, 2002, District Court for the District of Columbia order enjoining the Fish and Wildlife Service from issuing any written concurrences on proposed actions that "may impact, but are not likely to adversely affect" the Canada lynx, the Fish and Wildlife Service could not reaffirm their previously referenced concurrence for lynx. Therefore, on May 1, 2003, the IPNF requested initiation of formal consultation with the Fish and Wildlife Service regarding the proposed project's modifications only for grizzly bears and Canada lynx. Because the design modifications did not result in any change in effects to woodland caribou, gray wolf, or bull trout, the original concurrence from the Fish and Wildlife Service on these species was not affected (Appendix F, BO, p. 1).

The Biological Assessments were submitted to the U.S. Fish and Wildlife Service on May 29, 2003, for formal consultation. The Biological Opinion was received by the Idaho Panhandle National Forests on December 10, 2003, with a finding that the proposed Stimson access request would not likely jeopardize the existence of either grizzly bear or Canada lynx. The Fish and Wildlife Service does not anticipate that the selected alternative will incidentally take any grizzly bears or lynx, therefore, there are no terms and conditions required to minimize incidental take (Appendix F BO, pp. 39 to 41).

Clean Air Act Amendments, 1977-1999
The only burning that is associated with Alternative B is the burning of right-of-way slash as described in Chapter II of the FEIS p. II-8) As part of the road construction plans developed by the Forest Service, requirements will be developed to ensure that the burning would be coordinated with the Washington State Department of Natural Resources (DNR). The DNR administers the smoke management program and approves or denies burning based on weather and atmospheric conditions. The project therefore will be consistent with the Clean Air Act and state monitoring requirements.

The Clean Water Act, 1982
The Clean Water Act, as amended (33 USC 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 non-government entity. The Forest Service has the statutory authority to regulate, permit and enforce land-use activities on the NFS lands that affect water quality. Appendix A of the FEIS establishes the connection between the Soil and Water Conservation Practices Handbook employed by the Forest Service and BMPs identified in the Washington Forest Practices Rules and Regulations (Title 222 WAC). It identifies 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 use of Best Management Practices (BMPs) is 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 NFS lands.

The design features, mitigation measures and monitoring listed in Chapter II of the FEIS and Appendix A will protect water quality. This section of the FEIS is fully incorporated in the Record of Decision. This project is consistent with the Clean Water Act.

Executive Order for Environmental Justice
No impacts to minority or low-income populations were identified during scoping or the effects analysis. Refer to FEIS, p. II-8 to II-9.

Alaska National Interest Lands Conservation Act (ANILCA), 1980
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.

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 in the FEIS.

The National Forest Management Act (NFMA), 1976 and Forest and Rangeland Renewable Resources Planning Act

The selected alternative is consistent with the Forest Plan land management allocations and with the standards and guidelines from the Forest Plan. (Refer to FEIS, Chapters II and III for specific consistency findings by resource). The National Forest Management Act and accompanying regulations require that specific findings be documented at the project level. These findings are as follows:

Resource Protection

(1) The selected alternative conserves soil and water resources on NFS lands, and does not allow a significant or permanent impairment of the productivity of the land (Refer to FEIS Chapter III, Aquatics and Soils sections.) The Best Management Practices (BMPs) outlined in Features Common to Alternatives B and C (Refer to FEIS Chapter II) will be implemented in Alternative B.

(2) Activities will not affect potentially serious natural hazards. The treatment of right-of-way fuels included in Alternative B will treat any fuels resulting from the proposed road construction activities. Erosion would be controlled by the use of Best Management Practices as specified in Chapter II and Appendix A.

(3) This action is limited to granting a road authorization to SLC. The timber removal associated with the right-of-way clearing would not increase forest pests because of the treatment of the right-of-way slash following construction. Noxious weeds will be treated in accordance with the mitigation outlined in Chapter II of the FEIS, and as analyzed in the Noxious Weed section of Chapter III of the FEIS. Therefore, this action is consistent with the Forest Plan objectives of minimizing hazards from pest organisms.

(4) Water bodies and their values are appropriately protected (Refer to FEIS Chapter III, Aquatics section). Inland Native Fish Strategy (INFS) guidelines and BMPs, as outlined in FEIS Chapter II, will be implemented to protect water bodies.

(5) The selected alternative will provide and maintain diversity of plant and animal communities. (Refer to FEIS Appendix D, Wildlife, and Threatened, Endangered, and Sensitive Plant sections.)

(6) The activities will either not affect or will maintain sufficient habitat for viable populations of existing native vertebrate species and management indicator species consistent with the multiple-use objectives established in the Forest Plan. (Refer to FEIS Chapter III, Wildlife and Fish sections and Biological Assessments and Evaluations in the project file.)

Security habitat for grizzly bear within the Kalispell-Granite Bear Management Unit (BMU) will be reduced as a result of implementing the selected alternative. While security habitat will be reduced, security habitat that was created through the decommission and obliteration of the Harvey-Granite and Cache Creek road systems (FS Roads 319 and 1104) was designed to offset the anticipated habitat reductions resulting from this proposal (FEIS, p. III-12). As a result, spring, summer, and fall security habitat levels would remain above the 70 percent minimum for this BMU (81.9, 75.8, and 81.8 percent, respectively). Therefore, sufficient habitat will be maintained within this BMU for grizzly bear.

The selected alternative will also affect about six acres of low quality foraging habitat for lynx on NFS lands within the Sema Lynx Analysis Unit (LAU). Activities on SLC land will affect an additional 381 acres of low quality forage habitat. While the amount of low quality foraging habitat will be reduced, denning habitat will not be affected and established thresholds, per the Canada Lynx Conservation Assessment and Strategy (Ruediger et al, 200) will not be exceeded (FEIS, p. III-17). Therefore, sufficient amounts of suitable habitat for lynx will be maintained within the Sema LAU.

No direct or indirect effect to bull trout or westslope cutthroat trout are expected from activities occurring on NFS lands (FEIS p. III-91, Table 11; FISH BA reference p. 19). Therefore, the viability of these species on NFS lands will not be affected by the road construction occurring on NFS lands (FEIS, p. III-93).

(7) The FEIS assessed potential physical, biological, aesthetic, cultural, engineering and financial impacts of the selected alternative and consistency with multiple uses planned for the area. (Refer to Chapters II and III for this analysis.)

(8) Implementation of the selected alternative will not affect critical habitat for threatened and endangered species. (Please see above under Endangered Species Act). No critical habitat has been designated for either grizzly bear or Canada lynx. Therefore, no critical habitat will be affected as a result of implementing the selected alternative (Appendix F, BO, pp. 39 and 40).

(9) The road authorization through Section 8 will be granted to SLC to access their lands. No other future transportation or utility corridors or rights-of-way are anticipated to be needed.

(10) The proposed road construction is designed according to standards appropriate to the planned uses, considering safety, costs of transportation and effects upon lands and resources as discussed on pages I-7 and I-8 of the FEIS. The Forest Service will approve the road construction plans prior to the beginning of construction.

(11) As discussed in this Record of Decision, I have determined the necessity for the road identified in Alternative B of the FEIS to fulfill the statutory requirement of ANILCA. As

discussed in (10), I have also determined that the design standards are appropriate for the intended use. All disturbed soils would be fertilized, seeded and mulched as soon as practical after soil exposure as per BMP 15.06 as specified on page II-15 of the FEIS.

(12) Federal, State and local air quality laws, standards and regulations will be met (please see previous discussion under Clean Air Act).

Vegetation Manipulation
The only vegetation manipulation on NFS lands is the right-of-way clearing for the access road. This access is consistent with the Forest Plan standard for Lands (IPNF Forest Plan, p. II-35), which states that private landowners will not be denied access to their property. The effects of removing the right-of-way timber has been analyzed and disclosed in the FEIS.

Silvicultural Practices
The only timber harvest is associated with right-of-way clearing for the access road. Therefore, this finding does not apply.

Even-aged Management
This finding does not apply to the proposed activities. No even-aged management is being proposed on NFS lands.

Riparian Areas
No management practices on NFS lands that would cause detrimental changes in water temperature or chemical composition, block streamcourses, or deposit sediment are permitted within riparian areas (FEIS, page III-77 to III-81). Alternative B will have no measurable effects on water conditions (FEIS p. III-91) or fish habitat on NFS lands (FEIS, p III-91).

Soil and Water
As described previously under the Clean Water Act, Appendix A of the FEIS establishes the connection between the Soil and Water Conservation Practices Handbook employed by the Forest Service and BMPs identified in the Washington Forest Practices Rules and Regulations (Title 222 WAC). It identifies 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 design features, mitigation measures and monitoring listed in Chapter II of the FEIS (pages II-11-18) and Appendix A include project design features to protect water quality. FEIS Chapter III, Aquatics and Soils sections, describes the soil and water resources, and their responses to the management activities on NFS lands.

Diversity
The diversity of plant and animal communities is described in the Wildlife; and Threatened, Endangered, and Sensitive Plants sections of FEIS Chapter III. Management activities shall preserve this diversity of plant and animal communities as discussed in FEIS Chapter III sections and the Biological Assessments.

VII. Environmentally Preferred Alternative

The environmentally preferable alternative is a required disclosure (40 CFR § 1501.2). The definition of environmentally preferred is the alternative which causes the least damage to the biological and physical environment, and which best protects, preserves, and enhances historical, cultural, and natural resources. In some situations, there may be more than one environmentally preferable alternative.

Alternative A, the No Action Alternative, is the environmentally preferable alternative because of its avoidance of effects. In this situation because there is a statutory requirement to provide access, Alternative B has less overall impact than the other action alternatives as I described in Rationale for My Decision. The effects of Alternative C are similar, but I feel that the potential impacts to lynx, fisheries, and sensitive plants would be greater. Alternative D has less impact on aquatic resources than the other two action alternatives, but has the largest impact on grizzly bear.

VIII. Appeal Rights And Implementation Date

This decision is subject to appeal pursuant to 36 CFR § 215.14. A written Appeal must be submitted within 45 days following publication of the notice of this decision in the Spokesman-Review newspaper, Spokane, Washington. Intended date of publication is March 26, 2004. Send Appeals to:

USDA Forest Service, Northern Region
Attn: Appeals Deciding Officer
P.O. Box 7669
Missoula, Montana 59807

It is the appellant's responsibility to provide sufficient written evidence and rationale to show why my decision should be remanded or reversed. An appeal submitted to the Appeal Deciding Officer becomes a part of the appeal record. An appeal must meet the content requirements of 36 CFR § 215.14 which state:

- State that the document is an appeal filed pursuant to 36 CFR part 215;
- List the name and address of the appellant and, if possible, a telephone number;
- Identify the decision document by title and subject, day of the decision, and name and title of the Responsible Official;
- Identify the specific change(s) in the decision that the appellant seeks or portion of the decision to which the appellant objects;
- State how the Responsible Official's decision fails to consider comments previously provided, either before or during the comment period specified in 36 CFR § 215.6 and, if applicable, how the appellant believes the decision violates law, regulation, or policy.

IX. Contact Person

For further information on this project and implementation, contact Gianna Vaccaro, Project Team Leader, for the Priest Lake Ranger District of the Idaho Panhandle National Forests at (208) 265-6625. The Final Environmental Impact Statement (FEIS), Record of Decision (ROD), and supporting documents are available for inspection during regular business hours at Priest Lake Ranger District; 32203 Highway 57; Priest River, Idaho 83856

X. Signature and Date

I have been delegated the authority and am the Responsible Official for the decisions outlined in this Record of Decision.

Ranotta K McNair 3/15/04

RANOTTA K. MCNAIR
Forest Supervisor
Idaho Panhandle National Forests

DATE

United States Department of Agriculture
Forest Service

Stimson Access Project

Final Environmental Impact Statement

Priest Lake Ranger District
Idaho Panhandle National Forests

March 2004

STIMSON ACCESS PROJECT
Final Environmental Impact Statement
March 2004

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

Responsible Official: Ranotta K. McNair, Forest Supervisor
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ABSTRACT

The Stimson Access Project is a request from Stimson Lumber Company (SLC) to access their private property through National Forest System (NFS) 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 NFS lands in Section 8 of T. 36 N., R. 45 E., Willamette Meridian in the State of Washington. The Stimson Lumber Company land to be accessed is located in Section 5.

Four alternative courses of action have been developed to achieve these objectives. Alternative A would take no action and deny access across NFS lands at this time. Alternative B would grant SLC a road authorization about 4,000 feet (0.76 mile) in length by approximately 66 feet in width on NFS lands in Section 8. Alternative C would grant SLC a road authorization about 2,500 feet (0.47 mile) in length by approximately 66 feet in width. This road authorization would consist of two segments on NFS lands, a short portion in Section 4 and a longer segment in Section 8. No road authorization would be granted to SLC in Alternative D and would assume that the private lands in Section 5 would be harvested by helicopter.

Alternative B is the Forest Service preferred alternative.

Stimson Access Project Environmental Impact Statement

Summary

Introduction

The following pages are a brief summary of the Final Environmental Impact Statement (FEIS) for the Stimson Access Project within the Idaho Panhandle National Forests in the State of Washington.

Changes Between the DEIS and FEIS

A number of changes were completed between the Draft Environmental Impact Statement (DEIS) and the Final Environmental Impact Statement (FEIS) in response to public comments and changed conditions. To review our response to comments, please see Appendix G of the FEIS, which includes both public comments and Forest Service responses. In addition, the DEIS addressed the preferred alternative as being Alternative C. It is now determined that the preferred alternative is Alternative B. The Record of Decision discusses the decision reason. The following is a summary of the changes:

- ***Chapter I*:** Additional clarification and updates were included in Chapter I. Discussion was added concerning the Lynx Forest Plan amendment and the Roadless Area Conservation; Final Rule. The description of several reasonably foreseeable actions and similar actions also was supplemented by additional information. The total acres in Section 5 were changed from 640 to 558, based on measurements from the Forest Service GIS database.

- ***Chapter II:*** The Public Involvement section was updated in Chapter II. Additional clarification also was added to several Issues Not Addressed in Detail. An additional mitigation was added to protect Threatened, Endangered, and Sensitive plants. In response to comments, Alternative D was added; this alternative considered the effects of helicopter logging. Another alternative also was considered in response to comments; this alternative was termed the 'Mitigation Alternative'. A narrative was added to the Comparison of Alternatives section, and Table 1 was modified to include the effects of Alternative D.

- ***Chapter III:*** For each resource area, the analysis of effects of implementing Alternative D was added. The effects analyses for the other alternatives were supplemented or modified to respond to public comments, especially the cumulative effects sections of the chapter. Other updates and clarifications also were added to the various sections. For Alternatives B and C the Forest Service would seek reciprocal access for Sema Creek Trail 241.

- ***Appendices:*** Six appendices were added to the FEIS. Appendix C includes maps of ongoing and reasonably foreseeable activities on National Forest System and private lands. Appendix D contains the Literature Cited, List of Preparers, and FEIS mailing list. Appendix E is supporting documents for the wildlife analysis. The Biological Assessments, Evaluations, and Biological Opinion are contained in Appendix F. As stated above, Appendix G is the

Response to Comments to the DEIS. Appendix H provides documentation supporting the watershed analysis.

Background of Project

The Stimson Access Project is a request from Stimson Lumber Company (SLC) to access its private property through National Forest System (NFS) lands. The application for access was submitted pursuant to the Alaska National Interest Lands Conservation Act (ANILCA). The SLC's land is currently surrounded by NFS lands and no other roaded access exists. The project area for this proposal is located on NFS lands in Section 8 of T. 36 N., R. 45 E., Willamette Meridian in the State of Washington. The SLC's land to be accessed is located in Section 5 (see FEIS Chapter I, Figure 1, pg I-2).

Purpose and Need for Action

The purpose of the proposed action is to provide SLC 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."

Decision to Be Made

The responsible federal official is the Forest Supervisor of the Idaho Panhandle National Forests. There are two elements of the decision to be made. The first decision is to determine which access route, if any, to provide to SLC. The decision must assure that "the route is so located and constructed as to minimize adverse impacts on…[resource] values of the Federal land, and is consistent with all pertinent laws and regulations applicable to the management of NFS lands. The second decision is to determine the reasonable terms and conditions that will apply to this access.

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 provide a good comparison between alternatives during analysis.

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 issue indicators measured for these issues include: 1) acres of core and security grizzly bear habitat affected; 2) percentage of open and total road densities in the Kalispell-Granite Bear Management Unit; and 3) acres of suitable lynx habitat affected.

Issue: **Effects to Aquatic Resources Including Bull Trout and Westslope Cutthroat Trout** - There are concerns that road construction on NFS lands 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 affect bull trout, currently listed as threatened species, and westlople cutthroat trout, a sensitive species. The following issue indicators were used: 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 South Fork Mountain IRA is part of a larger Roadless Area Complex following the decommissioning and obliteration of the FS Road 319, Harvey-Granite road system in 1998. The proposed action could affect the roadless character of this area. The issue indicators for this issue: 1) changes to wilderness attributes and roadless characteristics, such as; natural integrity, apparent naturalness, remoteness, solitude, and special features of the South Fork Mountain IRA and the entire Roadless Area Complex and 2) Changes in acreage with roadless character within the South Fork Mountain IRA and the 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. The issue indicators include: 1) the occurrence of known TES plant populations in the project area and along the proposed and alternate rights-of-way and 2) the extent of suitable habitat for TES plants in the project area and along the proposed and alternate rights-of-way.

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. The issue indicators measured for this issue include: 1) the extent of current known weed infestations in the project area and along the proposed and alternate rights-of-way and 2) the relative amount of ground disturbance and/or canopy removal associated with the action alternatives.

Issue: **Effects on Soil Productivity –** There are concerns that road construction would affect soil productivity. Soils in the proposed road authorization are currently in a natural state (i.e. they are undisturbed because no management activities have occurred there). The issue indicator measured is the amount of soil on NFS 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 project area itself receives a low amount of recreation use. The area surrounding the project area receives a moderate amount of dispersed recreation activities, including huckleberry and mushroom picking, hunting, and scenic drives. FS Road 308 acts as the main route to destination areas such as Petit Lake and the trailhead to Kalispell Rock. Most recreation occurs along the road corridors. The issue indicator is change in Recreation Opportunity Spectrum classification.

Alternatives

Four alternatives were developed in detail. These alternatives include Alternative A, the No Action Alternative; Alternative B, the proposed action, which is to grant the road authorization

as requested; and Alternative C, an alternative route; and Alternative D, a helicopter alternative that would require no access across NFS lands. Alternative B was identified as the preferred alternative in the FEIS.

Alternative A - No Action: This alternative would deny SLC access across NFS lands at this time. This alternative is required by The National Environmental Policy Act 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 SLC a road authorization about 4,000 feet in length by approximately 66 feet in width on NFS lands 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 removed by Stimson for road construction and sold at an appraised rate approved by the Forest Service contracting officer. This alternative meets the purpose and need for access required by ANILCA and the IPNF Forest Plan by granting the access as requested by SLC.

Alternative C - This alternative would grant SLC a road authorization about 2,500 feet in length by approximately 66 feet in width. This road authorization would consist of two segments on NFS lands, a short portion in Section 4 and a longer segment in Section 8. This access would allow SLC to construct a road that would be an extension of an existing road on Stimson's property in Section 9. This alternative would also require an additional 1,500 feet of road construction on Stimson's property in Section 9. Timber harvested within the right-of-way would be removed by Stimson for road construction and sold at an appraised rate approved by the Forest Service contracting officer. This alternative also meets the purpose and need for access required by ANILCA and the IPNF Forest Plan by granting the access as requested by SLC.

Alternative D - Alternative D was developed in response to comments received to the DEIS. Under this alternative, no road authorization for access would be granted across NFS lands. Therefore, this alternative would be similar to the No Action Alternative in that no federal action would be undertaken. Unlike the No Action Alternative, Alternative D would assume that SLC's lands in Section 5 would be logged by helicopter. This alternative does not meet the access requirements of ANILCA for reasons descried in Chapter I.

Eight additional alternatives were developed but not considered in detail included: a) four alternate locations of the proposed access route; b) acquisition of Section 5 through a land exchange with Stimson; c) acquisition of Section 5 through a purchase; d) condemnation of the Stimson land; and e) a mitigation alternative. These alternatives were dropped from detailed consideration for reasons stated in Chapter II of the FEIS.

Environmental Effects

Effects to Grizzly Bear, Lynx, and Their Habitat

In the No Action Alternative, grizzly bear security habitat would remain 82.7 percent during the spring, 82.6 during the fall and 76.6 percent during the summer in the Kalispell-Granite Bear

Management Unit (BMU). Core habitat would total 41,278 acres, or 48.2 percent, within the BMU. Open road density (>1 miles per square mile) would remain at 31.4 percent, and total road density (>2 miles per square mile) would be 28.8 percent.

Both security and core habitat in the Kalispell-Granite Bear Management Unit (BMU) would be reduced on NFS lands and private lands in all three action alternatives. Alternatives B and C are similar in their effects to grizzly bear. Because of its shorter distance, Alternative C would have the least direct impact on grizzly bears with a reduction of 122 acres of security habitat and 127 acres of core habitat on NFS lands. Additionally, there would be a loss of 760 acres and 671 acres respectively for security and core habitat on private lands. There are slightly more directly affected habitat acres on NFS lands in Alternative B with 139 acres of security habitat and 151 acres of core habitat being reduced on NFS lands. On Stimson's lands, the loss resulting from the harvest and related activities would total 741 acres of security and 643 acres of core habitat. Cumulatively, therefore, there would be a loss of 1.0 percent of security and 0.9 percent loss of core habitat (47.3 percent) for both alternatives. Open road density would remain at 31.4 percent for both alternatives. For both alternatives, total road density would increase to 29.7 percent in the BMU. Both alternatives therefore, would not exceed the established Forest Plan standard of 70 percent security habitat in the Kalispell-Granite BMU. There also would be no net loss of core habitat or net increase in road densities considering the FS Road 319 decommission and obliteration project of the Harvey-Granite road system that was completed in 1998. The proposed activities would not likely adversely affect grizzly bear.

Alternative D would have the greatest effect with a reduction of 691 acres of security habitat and 643 acres of core habitat on NFS lands. Though helicopter logging would be a short-term effect lasting 2-3 years, the loss of both security and core habitat would be long-term because the land management needs of SLC. In addition to the reduction on NFS lands, 552 acres of security and 539 acres of core habitat would be lost on private lands. Therefore, cumulatively, security habitat would be 81.2 percent in the spring, 81.1 in the fall and 75.1 percent in the summer seasons. The 1.5 percent loss of core habitat would result in 46.7 percent core in Alternative D. No change would occur to open road and total road density in this alternative. Though there would be greater impacts resulting from implementation of Alternative D, helicopter logging would not be likely to adversely affect grizzly bear.

There also would be a small reduction of suitable ***Canada lynx*** habitat on NFS lands in both Alternatives B and C. No direct loss would occur in Alternatives A and D because no roads would be constructed. For Alternative B, six acres of forage habitat would be lost. Alternative C would cause a loss of two acres of forage habitat and about two acres of denning habitat. Therefore, of the two road authorization alternatives, the effects to lynx in Alternative B would be less because no denning habitat would be lost even though two additional acres would be affected.

In the No Action Alternative (Alternative A), their would be no net change in the current proportions of lynx habitats within the Sema Creek lynx analysis unit resulting from activities either on NFS lands or on SLC's lands within the Sema Creek Lynx Analysis Unit (LAU). For all three action alternatives, there would be a cumulative loss of 375 acres of suitable habitat resulting from the proposed activities on SLC lands in Section 5. These lands currently are classified as low quality forage, and would become unsuitable habitat with implementation of the

activities on private lands. In Alternative B, therefore, a cumulative loss of 381 would occur. No denning habitat would be affected in this alternative. Alternative C would result in the cumulative loss of 377 acres. Alternative D would include only the 375-acre loss resulting from planned activities on Stimson Company lands. All alternatives therefore, would not exceed the established standards and thresholds for lynx management established in the Canada Lynx Conservation Assessment and Strategy.

Effects to Aquatic Resources Including Bull Trout and Westslope Cutthroat

The construction of the road in Alternative B or Alternative C would cause direct and indirect effects to water resources. No road construction would occur on NFS lands in Alternatives A and D, and, therefore, no direct or indirect effects would occur. Alternative B would require construction of about 4,000 feet of road and installation of 5 culverts on federal lands. Approximately 2,500 feet of road would be constructed in Alternative C and 4 culverts would be installed. The road construction would generate 1,090 pounds (an estimated 14.5 five-gallon buckets) of sediment in Alternative B and 380 pounds (5 five-gallon buckets) in Alternative C. The sediment generated would not be delivered at one time, nor at one location along the road. Rather the sediment delivery would be spread along the length of the road and the sediment would be routed gradually down the streams within one or two years of the initial road construction. Best Management Practices to reduce the sediment would be implemented as part of the action. This limited increase in sediment delivery to the first and second order streams on NFS lands would not cause long-term measurable changes to any of the channels affected by the proposed road construction in either Alternative B or C. No increase in water yield would occur because of the limited amount of canopy reduction that would occur in either alternative on NFS lands. Though less sediment would be generated by Alternative C, the location of the road traverses generally wetter ground than the upper location proposed in Alternative B. The road grade for the Alternative B location would be relatively gentle (2 to 4 percent), allowing rolling grades and grade breaks to be easily installed. Portions of the Alternative C route would require the road grade to be a sustained 10 percent or higher grade. This steeper grade would make it more difficult to install rolling dips or vary the location to avoid wet or unstable areas.

The cumulative effects of the action on the watershed resource considered past, present and reasonably foreseeable actions on both federal and SLC's lands. This analysis included the proposed activities of road construction and timber harvest in Section 5 on SLC's lands. Stimson would build 3.6 miles of road with an estimated 27 stream crossings, and would harvest an estimated 522 acres in Section 5. Both sediment delivery and peak flows would increase because of the activities occurring on SLC's lands. For sediment delivery, sediment yield would increase from 10 percent in the No Action Alternative (Alternative A) to 47 and 59 percent respectively for Alternatives B and C. Alternative D would minimally increase sediment yield. Water yield would increase from 2 percent in the No Action Alternative to 12 percent in Alternatives B and C. For Alternative D, water yield also would increase to 11 percent based on the amount of canopy removal that would occur. The 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, provided the best management practices and design criteria are implemented on private lands.

Potential effects could occur to the fisheries resource on NFS lands if either Alternative B or C were implemented. No effect would occur in Alternatives A and D because there would be no road construction on NFS lands for either alternative. Fisheries can be affected by the removal of trees in riparian areas that increases stream temperatures by increasing solar radiation to the stream. Riparian impacts on NFS lands would be minimal for Alternative B (1 acre) and Alternative C (0.8 acre) and would occur as a result of the clearing of vegetation to facilitate the clearing of road construction across non-fish-bearing streams. Although the direct effects of Alternative B include more culverts (5) and more road construction (4,000 feet) than Alternative C (4 culverts, 2,500 feet) on NFS lands, the location of the proposed road authorization would be located farther from fish-bearing streams and, therefore, would have a lower probability of delivering sediment into these streams. No culvert would be located on a fish-bearing stream on NFS lands for either Alternative B or C. Inland Native Fish Strategy (INFS) guidelines and BMPs will be implemented to minimize any sediment delivery to streams. Culverts would be designed and constructed to accommodate the equivalent of a 100-year streamflow event. With the limited effects to stream segments on NFS lands, none of these effects are likely to affect fish in either Alternative B or C.

The activities on SLC's land, however, would have higher potential to impact the fisheries resource in the action alternatives. The stream crossings associated with the road construction on Stimson's lands in both Alternatives B and C would result in the riparian harvest of 6 acres. The riparian harvest could result in localized increases in water temperature below the culvert location. Twenty-seven culverts would be installed. Four of these culverts would be placed on fish-bearing streams. As required by Washington Forest Practices, a hydraulics permit would be required that the landowner acquires this permit prior to the placement of any culverts to ensure proper sizing and installation so as not to impede fish passage. To reduce the risk of sediment delivery, SLC would incorporate site-specific mitigation at the stream crossings in addition to the Best Management Practices (BMPs) required by Washington Forest Practice Rules. There would be some limited timber harvest in the Stream Management Zones in Alternative D, but this timber removal would result in minimal, if any, impact to stream temperature. For Alternative D, the risk of sediment delivery would be low as no road construction or culvert installation would occur on Stimson's lands.

Effects to the Roadless Resource

The South Fork Mountain Inventoried Roadless Area currently totals approximately 5,400 acres on NFS lands, and approximately 1,130 acres on private land for a total of 6,530 acres. The Roadless Area Complex is approximately 23,552 acres. There would be a direct loss of roadless characteristics in Section 8 on 155 acres in Alternative B and 136 acres in Alternative C because of the construction of the access road. No direct loss would occur in Alternative D. In all three alternatives, however, the entire portion of Section 8 lying north of Road 308 totaling approximately 324 acres would no longer possess roadless characteristics because they would be essentially surrounded by management activities. This isolation would be an indirect effect of the harvest activities that would occur in SLC's lands in Section 5. Because of this indirect effect of isolating Section 8, there essentially is no difference among the alternatives even though no roads would be constructed in Alternative D, which assumes that Section 5 would be logged by helicopter.

On Stimson's lands in Section 5, natural integrity, apparent naturalness, and remoteness would be reduced. There would be other areas where naturalness could still be found within the South Fork Mountain Roadless Area. Solitude within the area would be maintained in the long-term outside the periods when management activities would be occurring in Section 5. Special features also would be affected on the private lands. Therefore, basically no difference among the three action alternatives cumulatively would occur related to their effects to the roadless resource.

Effects to Threatened, Endangered, and Sensitive (TES) and Rare Plants

Sensitive plant populations potentially could be affected by implementing Alternatives B and C. All documented sensitive plant occurrences would be buffered from any road construction or related activity. A Forest Service botanist would review final road layout to ensure protection of documented sensitive plant occurrences. The road authorization, as currently proposed under Alternative B, would be located at least 200 feet away from any known sensitive plant populations. The road authorization proposed under Alternative C would be located a minimum of 100 feet from sensitive plant populations. The risk that undetected plants would be impacted, and that suitable habitat would be reduced, is higher in Alternative C than Alternative B. No effect to documented sensitive plant populations or suitable habitat would occur on NFS lands in Alternatives A and D.

There is no legal requirement for private landowners to protect sensitive species or their habitat. There would be moderate potential in all three action alternatives to affect sensitive plant populations or individuals and suitable habitat on private lands. Stream buffers on private lands are probably adequate to protect most occurrences of sensitive plants from direct impacts. Because no ground-disturbing activities would occur in Alternative D, the potential for impacts to any sensitive plant populations on private lands would be less than under the other two action alternatives.

Effects to Noxious Weed Invasion and Spread

Noxious weeds potentially would spread on NFS lands in Alternatives B and C because of the ground-disturbing activities that would occur. For both Alternatives B and C, seeding of disturbed areas and cleaning of road construction equipment would occur that would reduce the potential of noxious weed spread. Stimson would be required to monitor and treat noxious weeds following their use of the road. Six acres potentially would be affected in Alternative B, and 3.79 acres in Alternative C. There would be no increase in noxious weeds for either Alternatives A and D because no ground-disturbing activities would occur.

There would be increased risk of infestation on newly disturbed areas on SLC's lands. Stimson would be responsible for controlling noxious weeds on their lands, and would use handpulling and herbicide treatments. The Pend Oreille County Noxious Weed Control Board is mandated to monitor and enforce compliance on private lands of noxious weed ordinances.

Effects on Soil Productivity

There is little difference between Alternatives B and C in terms of loss of soil productivity; respectively, a loss of productivity would occur on 6 acres for Alternative B and 3.79 acres for Alternative C. There would be no direct loss of soil productivity for either Alternative A or D

because no roads would be constructed. All alternatives would meet Forest Plan guidelines. Soil protection on SLC's lands would follow Washington State Forest Practice Rules.

Effects on Recreation Opportunities

Minimal difference would exist in effects among the alternatives. For all action alternatives, the Recreation Opportunity Spectrum would remain as Semi-Primitive Non-Motorized Recreation because of the existing restrictions to motorized traffic on existing or planned roads. Dispersed recreation such as hunting, berry-picking, and backpacking would continue to occur in all alternatives with a potential slight increase in dispersed non-motorized use of the new road in Alternatives B and C.

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CHAPTER I - Purpose and Need

Introduction

The Stimson Access Project is in response to a request from a timber company to access their private property through National Forest System (NFS) lands. As a result, the Idaho Panhandle National Forests proposes to provide access to 558 acres of land owned by Stimson Lumber Company (SLC). The SLC's land is surrounded by NFS lands and no other roaded access exists. Access would be provided by granting authorization to SLC to construct and use a low standard road across NFS lands. The project area for this proposal is located on NFS lands in Sections 8 and 4, T. 36 N., R. 45 E., Willamette Meridian in the State of Washington[1]. The SLC's land to be accessed is located in Section 5 (see figure 1).

Purpose and Need

Access to Section 5 was originally requested in 1992, when the land was owned by Plum Creek Timber Company. SLC 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.

[1] Acres used for this analysis were derived from a Forest Service database GIS system. This system was used in order to account for partial section calculations needed for this analysis. These acres do not correspond exactly to the acres from the Land Status records. The difference in acres is less than one percent and does not affect the results of this analysis.

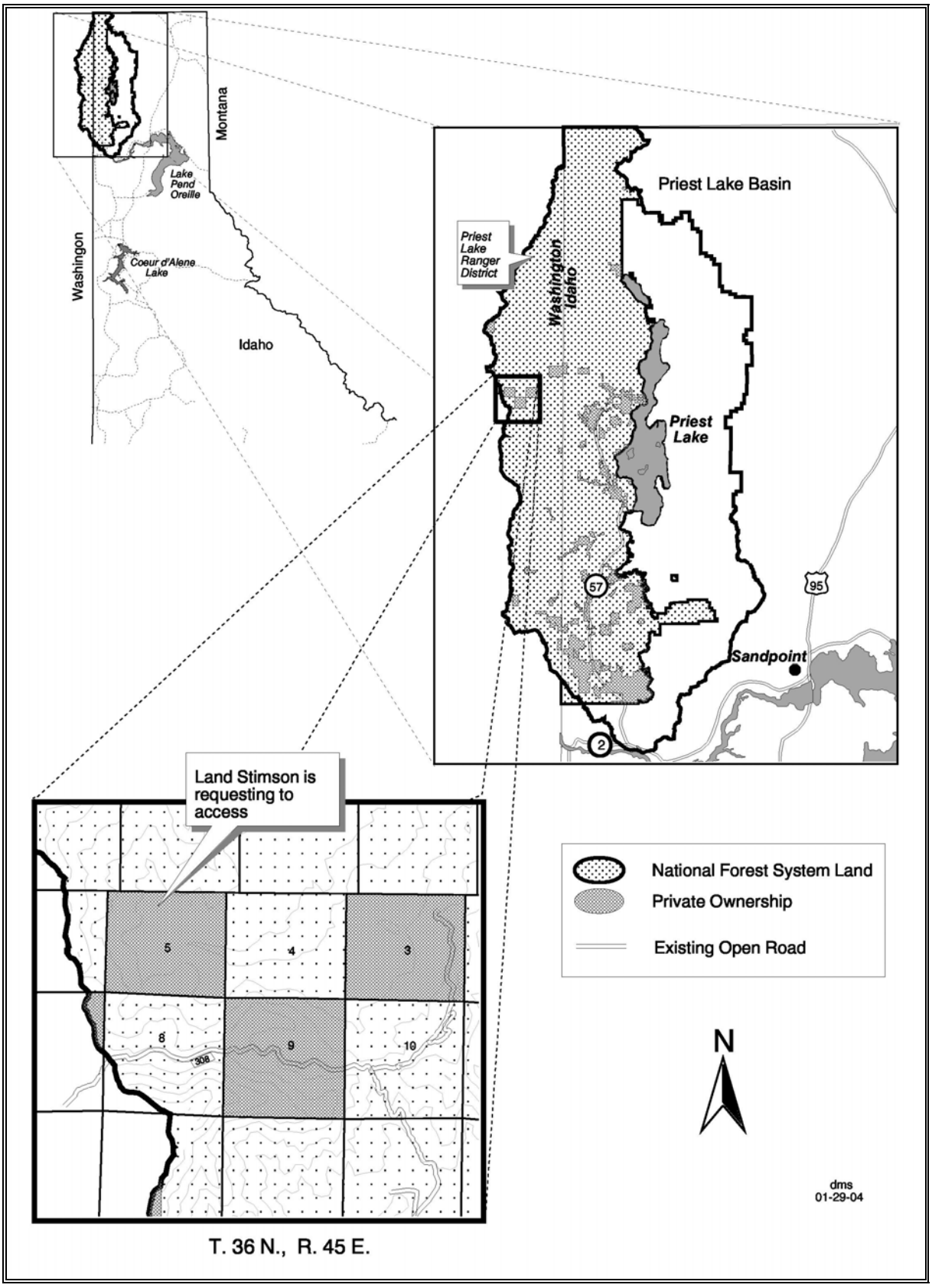

Figure 1. Vicinity Map of the Project Area

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.

SLC's ownership in the South Fork Granite Creek drainage consists of three sections (i.e. Sections 3, 5 and 9) totaling 1,771 acres and 35 acres of a partial section (i.e. Section 7) in a checkerboard pattern with Idaho Panhandle National Forests System lands (see figure 1). SLC is a private corporation. Management of its lands is focused on generating revenues from the resources located on them. Two of the SLC's sections of land are roaded and are managed for long-term timber production using conventional land-based logging systems that require roads. In addition, there are numerous sections of SLC's lands in checkerboard pattern with Colville NFS lands west of the Pend Oreille divide. These also are managed for long-term timber production.

To the northeast of the three SLC sections in the Idaho Panhandle National Forests lies a section of land (Section 25) that was owned by Crown Pacific Lumber Company until 2002 when it was sold to Patriot Investments, LLC. This land has been and continues to be managed for long-term timber production.

Idaho Panhandle National Forests System lands surrounding the Stimson's 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 SLC 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. SLC would be required to comply with all State and Federal laws and regulations applicable to private lands. The former Forest Supervisor, David Wright, found that the proposed action would be consistent with these laws and regulations. His rationale is documented in a letter 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 NFS lands on all sides (see figure 1). There is no existing road access.

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. Consultation with the U.S. Fish and Wildlife Service has occurred through the environmental analysis of this project to ensure compliance with ESA.

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 reasonably possible 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 required completion of a Final Environmental Impact Statement (FEIS) for the Forest Plan amendment by February 2002. A Draft Environmental Impact Statement outlining several alternatives and soliciting public comment was released in November 2001 with the FEIS released in March 2002. It is expected that a Record of Decision will be signed in March 2004. The amendment incorporates the above direction as well as monitoring requirements 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.

Another Forest Plan amendment also is in the process of being developed. In April 2000, the U.S. Fish and Wildlife Service (USFWS) listed Canada lynx as a threatened species, citing the chief threat to its continued existence as the lack of guidance to conserve them in federal land management plans. To promote the conservation of lynx, the Forest Service as well as the Bureau of Land Management (BLM) signed the Lynx Conservation Agreement (LCAS) with the USFWS. As part of this agreement, a schedule for amending or revising plans to provide consistent management direction for the conservation and recovery of lynx populations was adopted. The amendment will guide the management of vegetation, grazing, and human use and development, including dispersed and developed recreation, highways, land exchanges and linkage areas. Public scoping for the amendment was initiated in September 2001. The agency has prepared a Draft Environmental Impact Statement (EIS) for the proposed amendment. The Notice of Availability for the draft EIS was published in the Federal Register on January 16, 2004. The Forest Service and BLM preferred alternative is Alternative E, which addresses the issue of wildland fire risk while contributing to lynx conservation. It also responds to findings that grazing, mineral, forest roads and over–the-snow activities do not affect lynx populations. A decision is scheduled for 2004. In the interim, the management guidelines and standards identified in the Canada Lynx Conservation Assessment and Strategy (Ruediger et al., 2000) and Lynx Conservation Agreement (#00-MU-11015600-013) are being used to guide agency actions. The Stimson Access Project follows this direction. If that strategy were modified, this action would be made consistent with those changes.

The proposed access would impact the South Fork Mountain Roadless Area. 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. A decision on the appeal was issued by the 9th U.S. Circuit Court of Appeals on December 12, 2002, that reversed the District Court's injunction (Kootenai Tribe, et al., CV-01-00010-EJL; 2002). On July 14, 2003, the United States District Court for the District of Wyoming permanently enjoined the Forest Service from implementing the Roadless Area Conservation Rule. This decision has been appealed to the United States Court of Appeals for the 10th Circuit by the defendant-intervenors. A decision on this appeal has not been rendered by the court. As a result, the Roadless Area Conservation Rule is not in effect, and the Forest Plan for the Idaho Panhandle National Forests governs the management of inventoried roadless areas on the Forest. The rule, if it would become effective, would supersede existing forest plan management direction (Asleson, personal communication, December 30, 2002). 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."*

In January 2001, the Forest Service Manual, which governs regulations concerning the management, use and maintenance of the National Forest Transportation (Road) System, (Chapter 7700) was revised with a "Final Rule". The Final Rule set forth that if a forest level roads analysis has not been completed, the Responsible Official (in this case, the Priest Lake District Ranger) determines whether a roads analysis is needed at the project scale, and if so, what level of analysis is necessary to support a project-level decision. A road analysis was completed for the Stimson Access Project located in the project file.

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 SLC long-term road access through a road authorization that would authorize the construction and use of a road crossing NFS lands in Section 8, T. 36 N., R. 45 E., Willamette Meridian in the State of Washington.

Once access is granted, SLC would be responsible for the following:

- Removing all timber located within the clearing limits of the new road construction on NFS lands. The right-of-way timber would then be disposed at an appraised rate determined by the Forest Service line officer.

- Constructing and maintaining a road to Forest Service specifications. SLC 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 an approved Forest Service standard gate year-round to restrict motorized access.

Implementation Date

Issuing a road authorization to grant access would occur 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 NFS 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 location of the road authorization and not to any roads or activities occurring on private land accessed by the road authorization.

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 NFS lands through a road authorization 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 NFS lands for this project would meet at least the 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 the Forest Service 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 grant the use of a long-term road authorization providing roaded access to SLC's land in Section 5, for uses related to long-term timber production. Use of roads located on the authorized road area 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 authorized road 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 SLC's lands. The Forest Service may limit such use only to the extent of the terms and conditions placed on the use of the road authorization. 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, indirect and cumulative actions are considered in this EIS.

Direct and Indirect Effects Analysis

Road Construction on National Forest System Lands

Direct and indirect effects of the federal action are limited to those resulting from the construction and use of a road on NFS lands in accordance with all provisions described in the Proposed Action. It is these direct and indirect effects on NFS lands that the Deciding Officer will consider in the selection of an alternative that minimizes the effects to federal lands.

Cumulative Effects Analysis

The Deciding Officer also will review the cumulative effects of the action. The cumulative effects include the past, present, and future actions on private lands as well as reasonably foreseeable actions on NFS lands. These include:

Timber Harvest and Road Construction on Non-Federal Land (Section 5)

SLC proposes to use the long-term road authorization to conduct long-term timber management activities including timber harvest using conventional yarding systems.

Following issuance of the road authorization, it is reasonably foreseeable that SLC would construct roads within Section 5 and that timber would be harvested. Dependent on the issuance of the road authorization, the road construction would be initiated in 2004 and harvest activates probably in 2005. 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 are outside the discretion of the Forest Service.

At this time, Stimson's proposal on their private property includes approximately 3.6 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 installation of relief culverts (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. These mitigations and other design criteria associated with the road construction and harvest operations would be considered to be a part of this reasonably foreseeable action.

A majority of Section 5 would be harvested using a variety of silvicultural systems. An estimated 463 acres would be logged beginning in 2005. A majority of these acres, 325 acres, would use selective harvesting, which would remove 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 22 acres; approximately 70 percent of the basal area would be removed in this treatment and would leave the smaller diameter trees. An estimated 88 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. The above acreage also includes 28 acres of riparian management zones (RMZs) in which approximately 25 percent of the basal area would be removed. Stimson plans to harvest the 463 acres using a ground-based tractor harvest system. All harvesting, road construction, and other activities would be conducted in accordance with Washington Forest Practices (WAC 222) and other laws and regulations. Maps of these activities are included in Appendix C.

For the remaining area of Section 5 totaling approximately 101 acres, 59 acres that would be logged by helicopter in the southwest corner of the section. The proposed treatment would be a shelterwood harvest with an estimated 85 percent of the basal area being removed. The harvest date for these acres is indeterminate depending on market conditions and other factors, and is considered as a reasonably foreseeable action. For purposes of the cumulative effects analysis, the date of this activity would be assumed to occur in 2004-2005. No activity would be done on the remaining 42 acres of the section. These acres are either meadows or are considered as riparian core zones in which timber removal is prohibited in accordance with Washington Forest Practices.

Following the harvest activities, SLC would continue management activities in Section 5. These ongoing management activities would include monitoring, culvert cleaning and other road maintenance work, noxious weed treatment, slash disposal and other fuel reduction, stocking surveys, precommercial thinning, etc. (Opp, personal communication, 6/11/01). No additional road construction would occur because the necessary transportation system would be in place with this entry.

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 SLC's lands will comply with all State and Federal laws and regulations. As with the other future actions on private lands, these activities are based on the most current and best estimates provided by the private landowner.

Use of the projections of activities occurring on SLC's 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. Moreover, the Forest Service does not have the responsibility or authority to assess or enforce compliance with laws outside its authority.

Past Timber Harvest and Road Construction on National Forest System Lands

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 delivery to streams. The effects of these past activities have been considered in the appropriate analyses. Recently completed activities include the following projects (see Appendix C):

- *Dusty Peak Timber Sale.* This timber sale lies within the Kalispell-Granite Bear Management Unit (BMU) in T. 62 N., R. 5 W., BM. The sale was sold in 1998, and closed 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 logging have been completed with the last four units logged in the fall of 2001. A small portion of one unit was skidded in the summer of 2002 to remove the remainder of the felled trees because heavy snows in 2001 occurred before the logs could be removed. Post-sale activities including slash treatment, planting, and noxious weed control occurred in 2003. These post-sale activities used 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 was completed in 2001-2002 except for a small portion outside the Kalispell-Granite BMU. Post-sale activities did include burning piles in 2003. The project had no effect on grizzly bear security or core habitat.

Present Timber Harvest and Road Construction on National Forest System Lands

No road construction or timber harvest activities are occurring on the federal lands where a road authorization could be granted. Within the broader cumulative effects analysis areas, particularly that used for grizzly bear and lynx habitat analysis, post-sale activities are ongoing and specifically considered in that analysis. This includes:

- *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 2001-2004. No road construction was included in this timber sale. Several of the units were logged in the fall of 2000. The timber sale was later enjoined by the District Court for the Eastern District of Washington in 2001. The judge allowed removal of cut timber in the fall of 2001, but any other harvest activities were prohibited until a final ruling was issued. A final ruling was issued in April 2002 that terminated any further timber removal. Approximately 60 percent of the timber sale was logged. Post-sale activities including burning and planting would occur on the harvested acres in 2003-2004.

Other Present and Ongoing Activities on National Forest System Lands

Other activities that may be considered within cumulative effects analyses include ongoing recreation activities and maintenance activities on NFS 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. All are adjacent to open system roads, and are used primarily in the summer months. These sites lie within the Kalispell-Granite BMU.

- *Indian Mountain Lookout.* This site is also located within the Kalispell-Granite BMU. An individual is stationed through the summer months at the tower. Maintenance activities occur periodically in the spring and fall.

- *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 on existing roads.

- *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 permits 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 are on 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. This work is not completed on an annual basis.

- *Noxious weed treatments.* Noxious weed treatments will continue to occur on existing populations throughout 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 System Lands

The following reasonably foreseeable actions on NFS 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 NFS lands in the Sema Creek drainage except as discussed above. Two potential 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 on the eastern edge of the BMU are included in the tentative project area boundary. 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 was started in the fall of 2001, focusing on data collection to be used in the environmental analysis. Planning of this project is ongoing and is anticipated to be completed in 2005. Implementation would begin after that date.

- *Kalispell Project.* This project would be located in the Kalispell Creek portion of the BMU. Though a proposed action for a timber sale 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 proposed action that was developed in 1997 is not consistent with that direction. Analysis of the existing resources was re-initiated in the fall of 2001. An Ecosystem Analysis at the Watershed Scale (EWAS) is currently being completed to assess opportunities for vegetative, aquatic, and terrestrial restoration. The vegetation portion of this project would likely 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. Other potential projects include road relocation, and obliteration, burning of dry-site ecosystems, recreation improvements, and noxious weed control. A new proposed action incorporating these various projects would need to be developed prior to any further work on this project. Once a revised proposal is developed, an EIS would be developed in 2004 with implementation potentially beginning in 2005. Any resultant action would be developed to be consistent with updated management guidelines for grizzly bears and other resources.

- *Willow Creek Road Restoration.* This project would accomplish recontouring, partial recontouring on roads 1122 and 1124. Approximately 8.4 miles of road would be treated. The effect of this activity is anticipated to increase core habitat within the Kalispell BMU by 1.4 percent and .4 percent within t he Sullivan Hughes BMU. This project is anticipated to begin in 2005.

- *Dusty Peak Timber Sale.* Currently, the Dusty Peak Timber Sale area does not meet core habitat criteria. Core habitat within the Dusty Peak Timber Sale Area would be created once roads 1341A and 1341B are decommissioned as planned. This work is anticipated to take place after 2005.

Other Actions on Non-Federal Lands

In addition to the proposed activities in Section 5 that would occur if a road authorization 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. Appendix C includes descriptions and maps of future actions on the non-federal lands. These other non-federal lands include:

- *Section 7; T. 36 N., R. 45 E., WM* - Section 7 lies to the immediate west of the project area along the Priest-Pend Oreille Divide. A small portion of the section totaling approximately 35 acres lies on the Priest side of the Divide. This parcel was included in the cumulative effects analysis for various resources. Selective harvest with 50 percent of the basal area removed is prescribed for these acres. Approximately 30 acres were harvested by tractor-logging in 2003, and the remaining acres will be cable-logged in the future [for analysis purposes, the cable harvest is assumed to occur in 2004]. Roads accessing this parcel were constructed in 2002. The road is barricaded at its junction with Road 308 (Opp, personal communication, February 14, 2004; project file). A map of Section 7 is located in Appendix C.

- *Sections 3 and 9; T. 36 N., R. 45 E., WM* - These two sections are owned by SLC and lie immediately east of the proposed action. Portions of these sections were logged over the past nine years and were included in the analysis of the existing environment for various resources including roadless and various wildlife species. Harvest activity occurred in both sections in 2002 and in 2003 with post-sale activities following the logging. Additional logging is proposed in Section 9 in the future [for the cumulative effects analysis, this harvested is assumed to occur in 2004-2005]. No additional roads would be built in the future because the existing roads service the entire section. The roads currently are all closed by gates (Opp, personal communication, February 14, 2004; project file). Maps of past, ongoing, and future activities in these sections are included in Appendix C.

- *Sections 1, 13 and 25; T. 37 N., R. 44 E., WM* - 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 of existing conditions.

The cumulative effects analysis for lynx also considered the future actions of additional road construction in 2004 and the harvest of approximately 257 acres in Section 1 in 2004-2005. An additional 93 acres in Section 1 are planned for an overstory removal harvest to be logged by helicopter. No definite date has been determined for this activity, but would be assumed to occur at the same time as the helicopter logging in Section 5 [i.e. 2004-2005]. In Section 13 harvest activity was completed for 36 acres in 2002-2003 (Opp, personal communication, February 24, 2004; project file). Reasonably foreseeable harvest actions also will occur in Section 25, T. 37 N., R. 44 E., WM [212 acres, no definite year is planned but would be assumed to occur in the same years as the activities in Section 5]. Maps of past, ongoing, and future activities in these sections are included in Appendix C.

- Section 25; T. 37 N., R. 45 E., WM - Section 25 was owned by Crown Pacific Timber Company until February 2002 when it was sold to Patriot Investments, LLC. The section lies along the Idaho-Washington border. Logging and roading over the entire section occurred in the mid-1990s. These past actions are considered in the analysis of Kalispell-Granite BMU and Sema LAU. No reasonably foreseeable actions would be expected to occur in this section within the next 5-10 years because of the recent logging that occurred.

- Sections 31 and 33; T. 62 N., R. 5 W., BM - These partial sections are also owned by SLC. 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. No reasonably foreseeable actions are proposed for these parcels.

In addition to the proposed harvests and related activities on private lands discussed above, ongoing management activities would be anticipated to occur in each of the parcels. These activities would include monitoring and inventory, stocking surveys, noxious weed control, culvert cleaning and other road maintenance activities, precommercial thinning, and other ongoing land management activities. There also is a potential for salvage harvest on these parcels depending on insect and disease activity though these sections all have been recently harvested. All the non-federal lands are managed for long-term timber production.

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 completed an environmental analysis evaluating a similar access request by SLC across NFS lands just west of the project area (Stimson ANILCA Access Easement FEIS, USDA 2000). A Record of Decision (ROD) was issued in June 2001. These documents and pertinent appendices are included in the project file. The decision would grant road access for SLC to six parcels of their inholdings on the Sullivan Lake Ranger District.

Easements would be granted on seven segments of road for construction of 1.88 miles and reconstruction of 0.81 mile of road on NFS lands for access. This proposal lies within the LeClerc Grizzly Bear Management Unit. This similar action has been considered where appropriate, in cumulative effects analyses and discussions within this EIS such as for the analyses for lynx and roadless areas. The Colville decision was litigated, and subsequently upheld (Selkirk Conservation Alliance, et al. vs. Forsgren; No. 02-35635 D.C. No. CV 01-1511-PA; July 2003).

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 Appendix D. 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, who is the Forest Supervisor of the Idaho Panhandle National Forests[2], will use to make a decision on which alternative to implement.

As mentioned previously, the provision of ANILCA regarding access across NFS 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 SLC. 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 NFS 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.

[2]The Regional Forester of Region 1 was identified as the Deciding Officer for the decision in the Notice of Intent and the draft Environmental Impact Statement. Interim Forest Service Manual Direction at 1925.04b, delegated to the Regional Forester the responsibility to serve as the Responsible Official on the road construction project in an Inventoried Roadless Area. An amendment to a new interim directive 7700-2003-2 effective December 16, 2003 removed the Regional Forester as the Deciding Official; therefore, the Forest Supervisor for the Idaho Panhandle National Forests is now the appropriate Responsible Official.

CHAPTER II - Alternatives

Introduction

Alternatives to the Proposed Action were created after soliciting and receiving public comments on the proposal. The interdisciplinary team (ID 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 (EA) 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 SLC alleging 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 18th; 2001. This stay directed the Forest Service to prepare an EA 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 16th. A news release was sent to local newspapers and radio stations on February 6th. 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 EA 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 the 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 Environmental Impact Statement (EIS) will be prepared for all projects that propose road construction in inventoried roadless areas.

A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on April 30, 2001. A legal ad concurrently was published in the Spokesman-Review. Individuals and groups, who had expressed interest in receiving copies of the EA or had made comments, had earlier been notified by letter of our intent to prepare an EIS on April 12, 2001.

The Draft Environmental Impact Statement (DEIS) was published and mailed on August 3, 2001, to over 70 individuals, agencies and groups for review. The DEIS presented specific information on the proposal, and the results of the environmental analysis. Concerns generated from the comments to the EA were considered in the analysis. During the 45-day public comment period on the DEIS, a total of 14 comment letters were received. Letters of comment are included in their entirety with responses to those comments in Appendix G to the Final Environmental Impact Statement (FEIS). The comments were used to further analyze the proposed action and prepare the FEIS.

Concerns generated from the comments to the EA and following the issuance of the NOI are included in the issues described below. All comments received on the proposal to date were considered while completing both the Draft and Final EISs 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:

- **Key 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 ID Team 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 NFS 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 SLC's lands 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 Bear Management Unit (BMU). There is concern that granting of a road authorization would cause the direct loss of grizzly bear security and core habitat on NFS lands. In addition, the proposed harvest and road construction on SLC's lands as well as other reasonably foreseeable actions on NFS and private lands could 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 of the BMU and that the total road 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 road authorization would occur, and could result in a direct or indirect loss of habitat. Cumulatively, the harvest actions on Stimson's lands could reduce suitable lynx habitat. Other reasonably foreseeable actions within the LAU also could 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 NFS lands would directly or indirectly affect sediment delivery and/or stream channel characteristics, negatively impacting water quality and fish habitat. These impacts to aquatic resources could affect 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 new 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 (see Addendum to Appendices A, B and C of the Forest Plan FEIS page C-22-31). The South Fork Mountain IRA is part of a larger Roadless Area Complex following the decommissioning of NFS Road 319 (Harvey-Granite road system) in 1998. Road 319 is the northern boundary of the South Fork Mountain IRA. There is concern that the proposed action would result in the direct loss of the roadless character on NFS lands. The proposed road construction and harvest activities on Stimson's lands could cause additional cumulative loss 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 wilderness attributes and roadless characteristics, such as; 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 road authorization would be granted. There are concerns that proposed road construction could directly or indirectly affect population viability of TES plants on NFS lands.

Issue Indicators Measured:
- The occurrence of known TES plant populations in the project area and along the proposed and alternate rights-of-way.
- The extent of suitable habitat for TES plants in the project area and along the proposed and alternate rights-of-way.

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

Issue Indicators Measured:
- The extent of current known weed infestations in the project area and along the proposed and alternate rights-of-way.
- The relative amount of ground disturbance and/or canopy removal associated with the action alternatives.

Issue: **Effects on Soil Productivity –** There are concerns that the proposed road authorization and resultant road construction would cause the direct loss of soil productivity on NFS lands.

Issue Indicator Measured:
- Acres of lost soil productivity on NFS 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 NFS 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 beyond what is written below. 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 Service 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, 9th Circuit, 1989). In the case of access under ANILCA, the Forest Service's authority 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. The determination of "Reasonable Use and Enjoyment" is discussed in Chapter I. Therefore, this issue is outside the scope of the Proposed Action.

Applicability of ANILCA to Lands Other than in Alaska – Some respondents 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, 9th Circuit, 1981 and Adams v. United States, 9th 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 in a letter dated February 22, 2001. 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 NFS 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 in Chapter III and further documentation is located in the project file. Other wildlife species (bald eagle, white-headed woodpecker, northern goshawk, peregrine falcon, Harlequin duck, common loon, Coeur d'Alene salamander, northern leopard frog, and Townsend's big-eared bat) were not analyzed because the species or suitable habitat is not present. Rationale for eliminating these species is found in Chapter III with additional references located in the project file.

Effects of New Road Construction on Rain-On-Snow Induced Peak Flows – This concern was received during scoping and in comments to the DEIS. The access routes on NFS lands 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, there would be no direct or indirect effects on NFS lands.

In terms of cumulative effects analysis, a concern was raised that the Forest Service needs to consider the additional risks of adverse streamflow response to rain-on-snow events based on all the activities including the proposed activities on lands owned and managed by SLC.

Rain-on-snow events occur through much of northern Idaho when strong maritime influences with warm moist weather fronts from the Pacific Coast invade during the winter months. These relatively warm and moisture-laden air masses cause mid-winter snowmelt, thaws, and rainfall. Snow packs generally from 3,000 to 4,500 feet accumulate substantial snow in the winter and are often found to achieve isothermal conditions following prolonged warm, moist storm periods. In the Sema Creek drainage, the percentage of the drainage within the elevation (i.e. 3,000 to 4,500 feet) that is most prone to rain-on-snow events is 94 percent. While a very large percentage of this drainage does fall into that elevational band suggesting likelihood that it would be sensitive to rain-on-snow events, its position at higher latitudes moderates its sensitivity to rain-on-snow events. The typical snowpack in Sema Creek is deep, ranging from 6 to 8 feet. This snowpack rarely melts during mid-winter. The snowpack easily absorbs mid-winter rains, when they occur, without substantial melt (Patten 2002 personal communication). Additional explanation is located in the project file. For these reasons, this issue was eliminated from further analysis.

Effects of Activities on Kalispell Creek –Proposed activities would not drain into Kalispell Creek; therefore, this issue was eliminated from further analysis.

Effects of New Road Construction on Scenic Qualities – The effects of the proposed activities on scenic qualities on NFS 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 United States District Court for the District of Wyoming in July 2003, 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 NFS lands because of the small amount of road construction proposed and any newly constructed road across NFS lands would be closed to all non-authorized motorized vehicles. Clearing slash not required for windrow use shall be piled and burned within designated areas within the authorized road section and located in such a way as to avoid delivery to streams through ditchlines or surface runoff. Activities on Stimson's 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 Road Authorization Width is Larger than County Allowances – County road standards are not applicable to roads on NFS lands. For this reason, this issue was eliminated from further analysis.

Effects of New Road Construction on Old Growth – None of the proposed access routes (i.e. Alternatives B and C) would pass through old growth. Therefore, old growth would not be affected, and this issue has been eliminated from further analysis. No effect would occur in Alternative D. Moreover, the entire project area, including Stimson's lands in Section 5, burned over in a stand-replacing fire event in 1926 and does not meet old growth criteria. The Idaho Panhandle National Forests is currently exceeding the forest plan standard for allocated old growth across the forest (IPNF 2002 Forest Plan Monitoring Report, p. 68).

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.

The level of particulate matter emissions resulting from burning of right-of-way slash on NFS lands and slash burning on Stimson's lands would be controlled under Washington State smoke management requirements which meet the Clean Air Act.

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. SLC 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 Forest Plan direction also mandates that private landowners will not be denied reasonable access to their property if access is not available across private land (USDA 1987a, p. II-10). 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 (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. Forest Service actions related to this project would not have disparate effects on 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 the action alternatives. However, the Tribe was concerned about the effects of timber harvest on botanical resources that occur in the Sema Meadows area on Stimson's 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 impactive alternate routes on NFS lands that provide access to SLC's 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.

Four 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 road authorization as requested; and Alternative C, an alternative route. In response to comments to the Draft Environmental Impact Statement (DEIS), a helicopter alternative was added. The helicopter alternative is labeled Alternative D.

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 SLC access across NFS 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 the action alternatives.

Alternative B - Proposed Action

This alternative would grant SLC a road authorization about 4,000 feet (0.76 mile) in length by approximately 66 feet in width on NFS lands in Section 8 (see figure 2). This access would allow Stimson to construct a road that would be an extension of an already existing road on Stimson's property in Section 9.

Once access is granted, SLC would be responsible for the following:

- Removing all timber located within the clearing limits of the new road construction on NFS lands. The right-of-way timber would then be sold at an appraised rate approved by the Forest Service contracting officer.
- Constructing and maintaining a road to Forest Service specifications. SLC would be required to construct the road in a manner that meets all federal requirements relating to public safety and protection of forest resources.

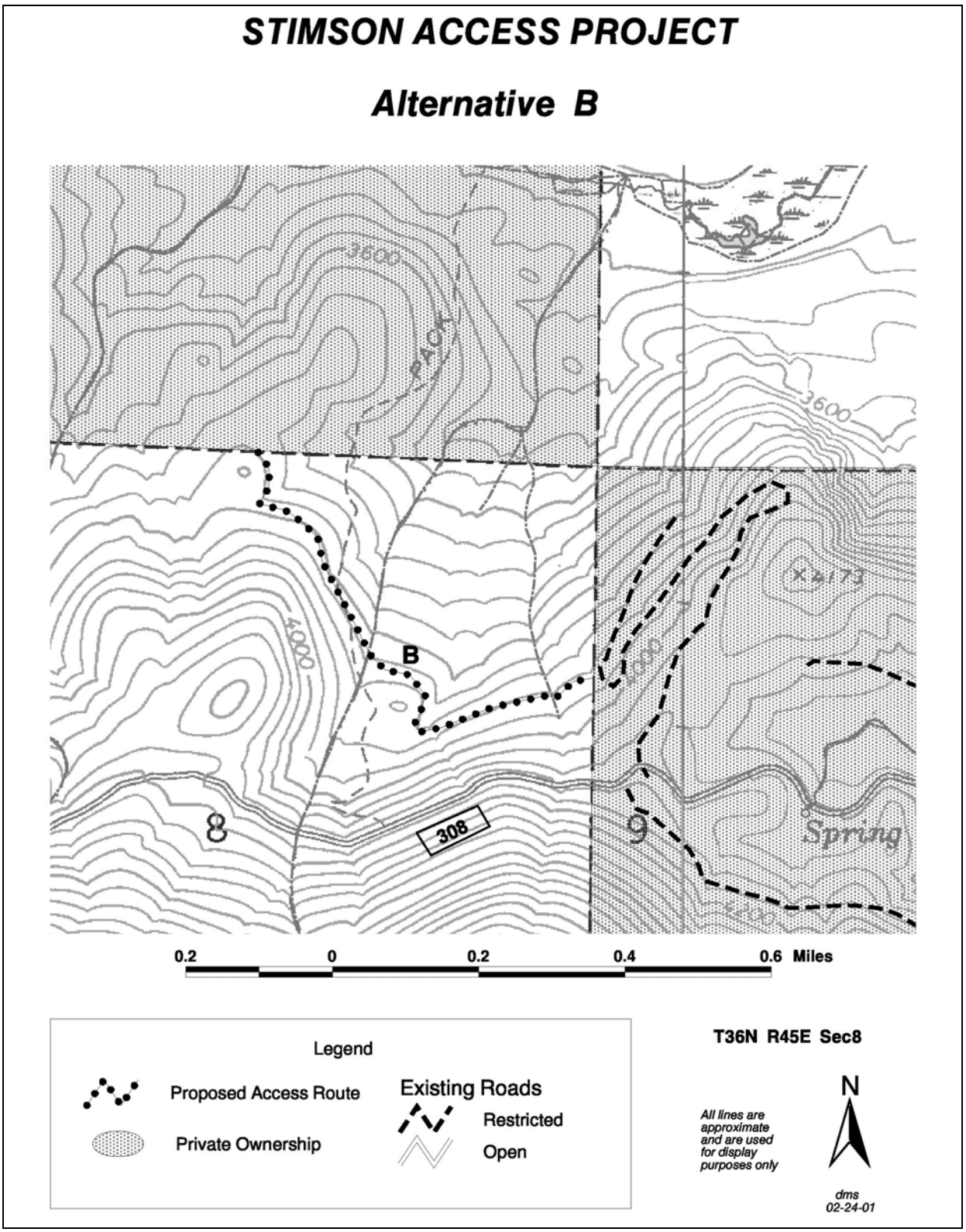

Figure 2. Map of Alternative B—the Proposed Action.

- 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 this chapter for the selected alternative.

Design and Mitigation Measures Specific to Alternative B

Features Designed to Protect TES and Rare Plants

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

Estimated Effectiveness: **high**. By locating the road authorization 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 SLC a road authorization about 2,500 feet (0.47 mile) in length by approximately 66 feet in width. This road authorization would consist of two segments on NFS lands; a short portion in Section 4, and a longer segment in Section 8 (see figure 3). This access would allow SLC to construct a road that would be an extension of an existing road on Stimson's property in Section 9. This alternative would also require an additional 1,468 feet of road construction on Stimson's property in Section 9.

Once access is granted, SLC would be responsible for the following:

- Removing all timber located within the clearing limits of the new road construction on NFS lands. The right-of-way timber would then be sold at an appraised rate approved by the Forest Service contracting officer.
- Constructing and maintaining a road to Forest Service specifications. SLC 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.

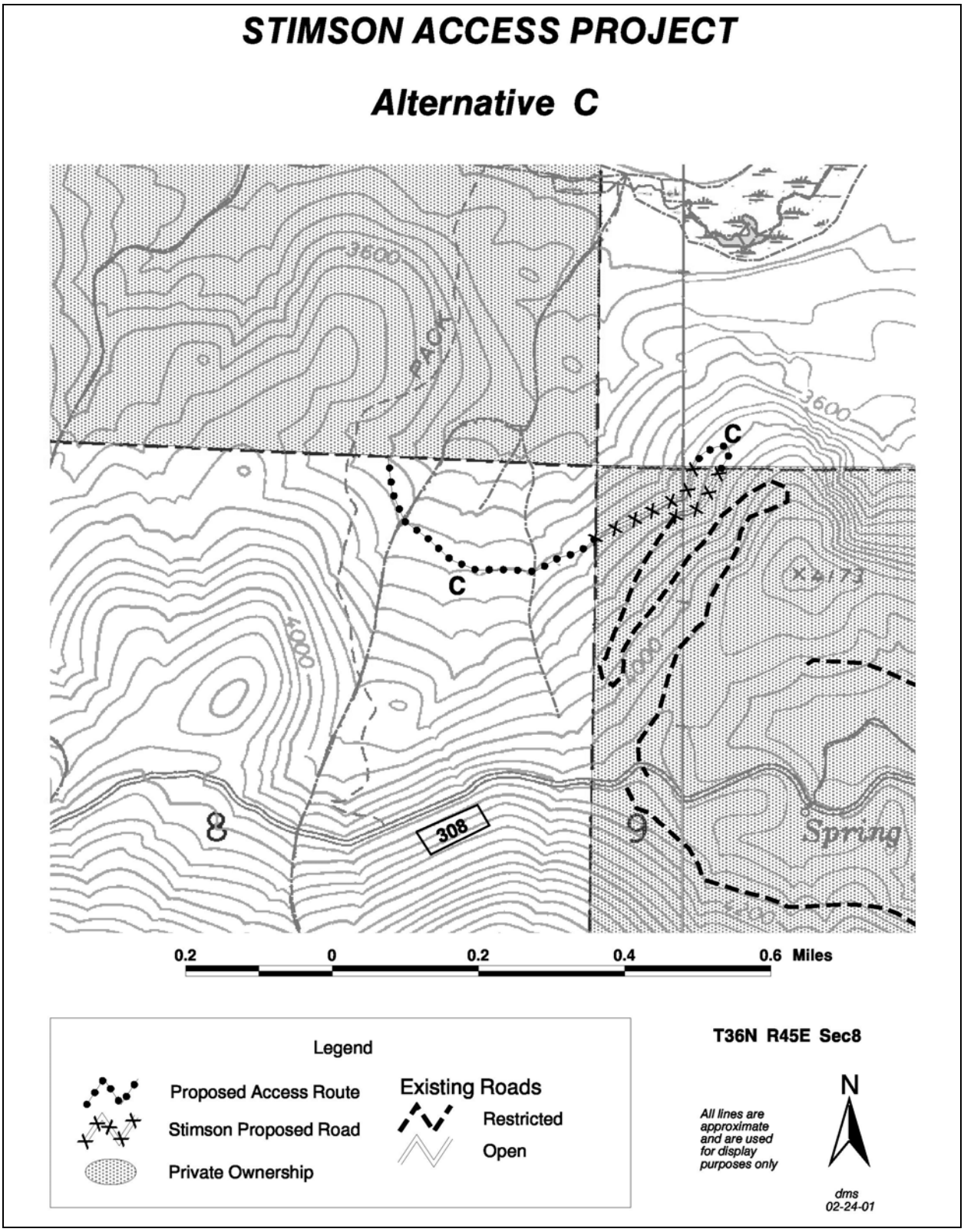

Figure 3. Map of Alternative C—the Alternate Route.

- 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.

Design and Mitigation Measures Specific to Alternative C

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

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

The proposed road would be located to provide a minimum 100-foot buffer from 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 road authorization. A 100-foot buffer would provide adequate protection of the occurrence from "edge effect" by maintaining shading.

Design and Mitigation Measures 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

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

Road Restrictions – The newly constructed road across NFS lands would be closed to all non-authorized motorized vehicles.

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 (IPNF Forest Plan 1999 Monitoring Report, pp. 20-21). 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. A 2002 study by Wielgus, Vernier and Schivatcheva analyzed the use of

open roads (public use allowed) and restricted roads (administrative use only). Grizzly bears avoided open roads (Wielgus et al. 2002, p. 12). The study also indicated that bears did not select against restricted roads (ibid, p. 13). In this study, restricted roads were used by forestry workers that rarely left their vehicles and the roadway, and restricted their off-road activity to cutting units where forest harvesting and silviculture were occurring (ibid, p. 13).

TES Species Sightings – Any threatened, endangered, or sensitive species (including species proposed for threatened or endangered listing) discovered by Stimsons' personnel during use of the road authorization would be reported as soon as possible to the Forest Service. 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 1995b) by incorporating the following standards into the road plan. Specific INFS measures applicable to this project on NFS lands include the following (USDA 1995b, 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 improvements 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 delivering sediment to stream channels would be minimized (USDA 1995b, Furniss 1991; Furniss et al. 1998, pp. 1-13; Furniss, Love and Flanagan 1997, pp. 1-11). These standards would be incorporated into the road construction plans for the access road on NFS lands.

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 road authorization. The Forest Service 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 1996) 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) in Appendix A.
- 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) in Appendix A. 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) in Appendix A.
- 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) and 15.10(c) in Appendix A.
- 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 pages A-10; 15.10 and 15.18 in Appendix A. Windrows slow the velocity of any surface runoff from the road, causing deposition of most sediment (Burroughs and King 1989, 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.
- Clearing slash not required for windrow use shall be piled and burned within designated areas of the authorized road section as per BMPs 13.05 and 15.18 in Appendix A. Burn piles shall be placed outside of INFS Buffers and located in such a way as to avoid delivery to streams through ditchlines or surface runoff.

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 ditch line and culvert inlets would resist erosion (Furniss 1991, p. 10; Burroughs and King 1989, pp. 13-15; Seyedbagheri 1996, p. 43). Relief culverts are an effective way of reducing sediment into streamcourses (Seyedbagheri 1996, pp. 32-33, 43). Erosion control measures including fertilizing, seeding, and mulching would limit sediment generated from newly excavated sites (Burroughs and King 1989, pp. 2-7; Seyedbagheri 1996, pp. 46-47 and 50-52). Hydroseeding of cut and fill slopes can reduce sediment delivery up to 80 percent (Burroughs and King 1989). Restricting construction during wet periods would reduce sediment yields (Seyedbagheri 1996, pp. 32 and 49). Slash filter windrows can reduce sediment delivery 75 to 85 percent (Cook and King 1983, p. 1; Burroughs and King 1989, p. 7; Seyedbagheri 1996, p. 36 and 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 in Appendix A.
- Ditch relief culverts would be installed at a skew of 3 percent perpendicular to the road grade and have a minimum of a 5 percent slope. This supercedes BMP 15.07-(2c) in Appendix A. 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 1996, p. 33). Installing relief pipes at a skewed angle allows the pipe to be somewhat self-maintaining (Seyedbagheri 1996, 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 (Swift 1984; Foltz and Truebe 1995; Burroughs and King 1989, pp. 1-2;). Burroughs and King (1989, 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 1996, p. 32; Furniss, Love and Flanagan 1998, 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 TES Plants

A qualified botanist would review final road layout to ensure protection of documented sensitive plant occurrences as stated above.

Estimated Effectiveness: **high**. The measures would protect the documented occurrences of Mingan moonwort (*B. minganense*) and deerfern (*Blechnum spicant*

Features Designed to Prevent Noxious Weed Invasion and Spread

All equipment to be used for road construction would be washed before entering NFS 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, Stimson 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. Stimson 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 for logging. 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 by Stimson 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 NFS 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.

Features Designed for Reciprocal Trail Access

The Sema Creek Trail 241 is designated as a fire trail and would be maintained for fire access (Road Analysis Process, project file). Presently, the Forest Service has no easement for this trail through Stimson's lands and will seek reciprocal access per regulations 36 CFR § 251.63.

*Estimated Effectiveness: **high.*** Forest Service regulation 36 CFR § 251.63 states "If it is determined that a right-of-way shall be needed by the United States across nonfederal lands directly or indirectly owned or controlled by an applicant for a right-of-way across Federal lands, the authorized officer may condition a road authorization to require the holder to grant the United States the needed right-of-way."

Alternative D – Helicopter

Alternative D was developed in response to comments received on the DEIS. Under this alternative, no road authorization for access would be granted across NFS lands and no road construction would occur on NFS lands. Therefore, this alternative would be similar to the No Action Alternative in that no federal action would be undertaken. Unlike the No Action Alternative, Alternative D would assume that the private lands in Section 5 would be logged by helicopter. Incorporating this alternative allows a detailed analysis of the effects of the harvest.

If this alternative were implemented, SLC would log Section 5 by helicopter because road access through NFS lands in Section 8 would be denied. It would be assumed that the same approximate acres and level of harvest and post-harvest treatments would occur.

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– SLC 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 reported 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 NFS lands as described above. The monitoring would be documented in inspection reports that would be forwarded to the Washington State Department of Ecology. BMP effectiveness would be monitored following at least one runoff season after BMP implementation. Effectiveness monitoring would be conducted through the fifth year after project implementation, subject to availability of funding. One focus of the effectiveness monitoring would be to document any sediment movement off the road prism (e.g. sediment tracks moving toward stream courses).

Noxious Weed Monitoring – SLC would monitor their authorized road area across the NFS lands 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 SLC) 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 NFS lands, 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 From Detailed Study

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 that minimizes adverse effects to resources. 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.

Forest Service Alternatives

Section 3 Connection – This alternative route would require a road authorization on NFS lands to connect to SLC's existing roads in T. 36 N., R. 45 E., Section 3. The road authorization would require 1.17 miles of road construction through the entire southern portion of NFS lands in Section 4, and access 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 to be present and affected. The South Fork Mountain Inventoried Roadless Area (IRA) would be reduced by several hundred more acres of NFS lands in this proposal than with other alternatives. For these reasons, this alternative was dropped from further consideration.

Section 9 Connection –The Section 9 Connection Alternative would start on SLC's property in Section 9, would cross onto NFS lands in Section 4, and basically follow the same route as the Section 3 Connection Alternative discussed above. A road authorization on NFS lands would be required for construction of 0.93 miles of road. SLC would need to build 0.14 miles of road on their property in this alternative.

The effects of this alternative would be similar 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 more acres of NFS lands than with other alternatives. For these reasons, this alternative was dropped from further consideration.

North Access Section 31 - This route would access Stimson's lands in the northwest corner of Section 5 from an existing road on Stimson's lands in Section 25. This route would require the longest road authorization with road construction of 1.86 miles on NFS 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 SLC's lands in the northeast corner of Section 9, cross NFS lands into Section 4, and access the extreme southeast corner of Section 5. This route would require 0.78 miles of road construction on NFS lands and 0.07 miles on SLC's 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.

Alternatives Suggested by the Public

The following three alternatives (Land Exchange, Purchase of Stimson's Land by Forest Service Through the Land and Water Conservation Fund and Condemnation of Stimson's Land for Eminent Domain) were suggested by respondents in response to scoping. An eighth alternative also is discussed. This alternative, labeled the Mitigation Alternative, was added following a comment received in response to the DEIS. The reasons for dismissing these alternatives also are included for each proposed alternative.

Land Exchange - In this alternative, SLC would exchange their lands in Section 5, T. 36 N., R. 45 E., for Forest Service System 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's letters 4/21/97, 5/9/9, 6/23/97, 2/16/98, 2/19/99; 5/16/01, Clearwater Land Exchange 1/9/97)

One of the conditions 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's letters 2/19/99; 5/16/01). 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 SLC 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 EIS. Moreover, this alternative would not meet the Purpose and Need as described in Chapter I.

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

Purchase of Stimson's 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 SLC's property. When discussing a land exchange with SLC, 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's 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.

Currently, neither a land exchange, as discussed in the previous section, nor outright purchase of lands owned by SLC is possible. When Stimson purchased the lands from the Plum Creek Timber Company, they did not include purchase of the mineral rights. A subsidiary company of Burlington Northern, Inc. currently holds the mineral rights. It is the policy of the Forest Service only to purchase or exchange for lands that have mineral rights included.

Condemnation of Stimson's 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. SLC has said they are not interested in an exchange, sale, or conservation easement (Stimson's 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 NFS 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 NFS and private lands, 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.

Mitigation - A mitigation alternative was suggested in comments to the DEIS. As described in the comment suggesting this alternative, the agency would examine possible mitigation strategies. These strategies would include adding acreage or restoring those acres no longer meeting wilderness attributes or roadless characteristics, closing additional roads to reduce road densities, providing additional core area to meet minimum guidelines for grizzly bears and eliminating the deleterious consequences of further loss of existing core areas, and examining restoration opportunities to improve watershed conditions for bull trout/cutthroat trout and enhance reintroduction potential to areas that will be degraded and that currently (may) lack these species.

This alternative would not meet the purpose and need of providing access to SLC, and instead would focus on restoration activities. Several of the restoration opportunities described in the preceding paragraph are a part of our ongoing and planned restoration efforts on NFS lands. Over the past few years, the Priest Lake Ranger District has actively been accomplishing several restoration projects, and will continue those efforts. We have accomplished several watershed improvement projects, obliterating and decommissioning several miles of roads as well as other improvements. The District also has been increasing the core area in each Bear Management Unit through road closures, decommissioning and obliterations to meet the guidelines as described in Chapter III (i.e. the Affected Environment for Grizzly Bears). As an example, one project was the obliteration and decommissioning of the Harvey-Granite Forest Road 319 and Cache Creek Forest road 1104 in 1998. This project improved watershed conditions in the South Fork of Granite Creek by obliterating roads adjacent to the stream, increased grizzly bear core habitat and reduced road density in the Kalispell Bear Management Unit, and removed the boundary (road 319) separating two inventoried roadless areas (South Fork Mountain and Grassy Top). A similar project is being developed in the Willow Creek drainage on the North Fork of Granite Creek that would have similar benefits for several resources. Because this alternative would not provide access to SLC, this alternative was dismissed.

Comparison of Alternatives

This section summarizes each alternative's effects on the key issues. This discussion includes environmental effects in a comparative format that highlights and explains the differences among the alternatives. Table 1 displays the indicators for the important issues for each alternative.

Effects to Grizzly Bear, Lynx, and Their Habitat

In the No Action Alternative, grizzly bear security habitat would remain at 82.7 percent during the spring, 82.6 percent in fall and 76.6 percent during the summer in the Kalispell-Granite Grizzly Bear Management Unit (BMU). Core habitat would total 44,480 acres, or 48.2 percent, within the BMU. Open road density (>1 miles per square mile) would remain at 31.4 percent, and total road density (>2 miles per square mile) would be 28.8 percent.

Both security and core habitat in the Kalispell-Granite Bear Management Unit (BMU) would be reduced on NFS lands and private lands in all three action alternatives. Alternatives B and C are similar in their effects to grizzly bear. Because of its shorter distance, Alternative C would have

the least direct impact on grizzly bears with a reduction of 122 acres of security habitat and 127 acres of core habitat on NFS lands. Additionally, there would be a loss of 760 acres and 671 acres respectively for security and core habitat on private lands. Cumulatively, therefore, there would be a loss of 1.0 percent of security (i.e. 81.9 percent in the spring, 81.8 percent in the fall, and 75.8 percent in the summer) and 0.9 percent loss of core habitat (47.3 percent). There are slightly more directly affected habitat acres on NFS lands in Alternative B with 139 acres of security habitat and 151 acres of core habitat being reduced on NFS lands. On Stimson's lands, the loss resulting from the harvest and related activities would total 741 acres of security and 643 acres of core habitat. Cumulatively, security habitat would be maintained at 81.9 percent in the spring. 81.8 percent in the fall, and 75.8 percent in the summer, and core habitat at 47.3 percent in Alternative B; these percentages are the same as for Alternative C. Open road density would remain at 31.4 percent in both alternatives. For both alternatives, total road density would increase to 29.7 percent in the BMU. Both alternatives therefore, would not exceed the established Forest Plan standard of 70 percent security habitat in the Kalispell-Granite BMU. There also would be no net loss of core habitat or net increase in open road densities considering the road decommission and obliteration project of Road 319 (Harvey-Granite road system) that was completed in 1998. The proposed activities would not likely adversely affect grizzly bear.

Alternative D would have the greatest effect with a reduction of 691 acres of security habitat and 643 acres of core habitat on NFS lands. Though helicopter logging would be a short-term effect lasting 2-3 years, the loss of both security and core habitat would be long-term because the land management needs of SLC. The impact from helicopter activities is primarily due to the larger displacement impact for grizzly bears resulting from the aerial logging and the associated flight paths used by helicopters than would normally occur with ground-based systems only. Therefore, this would equate to approximately 500 additional acres of habitat loss compared to the other two action alternatives. This additional loss of habitat acres would influence the ability and flexibility to conduct restoration, vegetation management, or recreation activities on NFS lands within the Kalispell-Granite BMU. In addition to the reduction on NFS lands, 552 acres of security and 539 acres of core habitat would be lost on private lands. Therefore, cumulatively, security habitat would be 81.2 percent in the spring, 81.1 in the fall and 75.1 percent in the summer seasons. The 1.5 percent loss of core habitat would result in 46.7 percent core in Alternative D. No change would occur to open road and total road density in this alternative. Though there would be greater impacts resulting from implementation of Alternative D, helicopter logging would not be likely to adversely affect grizzly bear.

There also would be a small reduction of suitable Canada lynx habitat on NFS lands in both Alternatives B and C. No direct loss would occur in Alternatives A and D because no roads would be constructed. For Alternative B, six acres of forage habitat would be lost. Alternative C would cause a loss of two acres of forage habitat and about two acres of denning habitat. The forage habitat is low quality because of the age of the stands that regenerated following the 1926 fire. These stands provide limited forage capabilities for prey species, especially the snowshoe hare, but are not as productive as younger forested stands that provide high quality forage for snowshoe hare. Denning habitat is somewhat more limited because of the stand-replacing fire of 1926 in the southern portion of the Sema Creek drainage, where the proposed road authorization is located. Therefore, of the road authorization alternatives, Alternative B would minimize the effects to lynx even though two additional acres would be affected.

In the No Action Alternative (Alternative A), no acres of currently suitable lynx habitat (i.e. low quality forage) will be affected by planned actions occurring on SLC's lands within the Sema Creek Lynx Analysis Unit (LAU). For all three action alternatives, there would be a cumulative loss of 375 acres of suitable habitat resulting from the proposed activities on SLC's lands in Section 5. These lands currently are classified as low quality forage, and would become unsuitable habitat with implementation of the activities on private lands. In Alternative B, therefore, a cumulative loss of 381 acres (6 acres on NFS lands, 375 acres on Stimson's lands in Section 5) of suitable low quality forage would occur. No denning habitat would be affected in this alternative. Alternative C would result in the cumulative loss of 377 acres (2 acres each of low quality forage and 1.8 acres of denning habitats on NFS lands and 375 acres in Section 5 on Stimson's lands,). Alternative D would include only the 375-acres loss resulting from planned activities on SLC's lands. All alternatives therefore, would comply with the standards and thresholds for lynx management established in the Canada Lynx Conservation Assessment and Strategy. The proposed activities would not likely adversely affect Canada lynx.

Effects to Aquatic Resources Including Bull Trout and Westslope Cutthroat

The construction of the road in Alternative B or Alternative C would cause direct and indirect effects to water resources. No road construction would occur on NFS lands in Alternatives A and D, and, therefore, no direct or indirect effects would occur. Alternative B would require construction of approximately 4,000 feet of road and installation of 5 culverts on federal lands. Approximately 2,500 feet of road would be constructed in Alternative C and 4 culverts would be installed. The road construction would generate 1,090 pounds (an estimated 14.5 five-gallon buckets) of sediment in Alternative B and 380 pounds (about five 5-gallon buckets) in Alternative C. The sediment generated would not be delivered at one time and would be routed gradually down the stream within one or two years of the initial road construction. Best Management Practices to reduce the sediment would be implemented as part of the action. As discussed in Chapter II and III of the FEIS, these mitigations are effective in reducing sediment. This limited increase in sediment delivery to the first and second order streams on NFS lands would not cause long-term measurable changes to any of the channels affected by the proposed road construction in either Alternatives B or C. No increase in water yield would occur because of the limited amount of canopy reduction that would occur in either alternative on NFS lands. Though less sediment would be generated by Alternative C, the location of the road traverses generally wetter ground than the upper location proposed in Alternative B. The road grade for the Alternative B location would be relatively gentle (2 to 4 percent), allowing rolling grades and grade breaks to be easily installed. Portions of the Alternative C route would require the road grade to be a sustained 10 percent or higher grade. This steeper grade would make it more difficult to install rolling dips or vary the location to avoid wet or unstable areas.

The cumulative effects of the action considered past, present and reasonably foreseeable actions on both federal and private lands. This analysis included the proposed activities of road construction and timber harvest in Section 5 on SLC's lands. Stimson would build 3.6 miles of road with an estimated 27 stream crossings, and would harvest an estimated 522acres in Section 5. The cumulative effects analysis used a technical report entitled "Erosion and Sediment Control Analysis, Sema Creek" by Western Watershed Analysts, an assessment of site-specific mitigation outlined by SLC to reduce sediment delivery; WATSED modeling; field reviews, Washington State regulatory requirements; and current literature.

Both sediment delivery and peak flows would increase because of the activities occurring on private lands. For sediment delivery, sediment yield would increase from 10 percent in the No Action Alternative (Alternative A) to 46 and 49 percent respectively for Alternatives B and C. Alternative D would minimally increase sediment yield because no roads would be constructed in this alternative. Water yield would increase from 2 percent in the No Action Alternative to 12 percent in Alternatives B and C. For Alternative D, water yield would increase 11 percent based on the amount of canopy removal that would occur. Provided the best management practices and design criteria are implemented on private lands in addition to the Washington Forest Practices being implemented (see Chapter III), then the 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. The sediment would be trapped behind channel obstacles or deposited on the floodplains in the smaller order channels. The balance of the sediment that would reach the mainstem of Sema Creek would be moved during peak flows and would mostly settle out on the grassy floodplains or settle out on the stream meander point bars. Any cumulative increase in sediment and water yield would be efficiently routed through the mainstem of Sema Creek.

Potential effects could occur to the fisheries resource on NFS lands if either Alternative B or C were implemented. No effect would occur in Alternatives A and D because there would be no road construction on NFS lands for either alternative. Fisheries can be affected by the removal of trees in riparian areas that increases stream temperatures by increasing solar radiation to the stream. Riparian impacts on NFS lands would be minimal for Alternative B (1 acre) and Alternative C (0.8 acre) and would occur as a result of the clearing of vegetation to facilitate the road construction across non-fish-bearing streams. Although the direct effects of Alternative B include more culverts (5) and more road construction (4,000 feet) than Alternative C (4 culverts, 2,500 feet) on NFS lands, the location of the proposed road authorization would be located farther from fish-bearing streams and, therefore, would have a lower probability of delivering sediment into these streams. No culvert would be located on a fish-bearing stream on NFS lands for either Alternative B or C. As discussed above under the Features Designed to Protect Soil, Water, and Fish Habitat, Inland Native Fish Strategy (INFS) guidelines and BMPs would be implemented to minimize any sediment delivery to streams. Culverts would be designed and constructed to accommodate the equivalent of a 100-year streamflow event. With the limited effects to stream segments on NFS lands, none of these effects are likely to affect fish in either Alternative B or C.

No effect would occur if Alternative A were selected. The activities on private land, however, would have higher potential to impact the fisheries resource in the action alternatives. The stream crossings associated with the road construction on Stimson's lands in both Alternatives B and C would result in the riparian harvest of 6 acres. The riparian harvest could result in localized increases in water temperature below the culvert location. Twenty-seven culverts would be installed. Four of these culverts would be placed on fish-bearing streams. As required by Washington Forest Practices, a hydraulics permit would be required prior to the placement of any culverts to ensure proper sizing and installation. The culverts would be designed and installed so as not to impede fish passage. Though designed in accordance with Washington State law, the culverts would likely have some indirect effect to fish passage by causing a slight delay in migration timing or minimal increase in energy expenditure. To reduce the risk of sediment delivery, SLC would incorporate site-specific mitigation at the stream crossings in

addition to the Best Management Practices (BMPs) required by Washington Forest Practices. Because few westslope cutthroat trout are in the Sema Creek drainage and bull trout have not been found during the last surveys, these changes would likely reduce the ability of these species to become reestablished in Sema Creek. There would be some limited timber harvest in the Stream Management Zones in Alternative D, but this timber removal would result in minimal, if any, impact to stream temperature. For Alternative D, the risk of sediment delivery would be low as no road construction or culvert installation would occur on Stimson's lands.

Effects to the Roadless Resource

The roadless resource would be affected by the action alternatives as displayed in table 1. The South Fork Mountain Inventoried Roadless Area currently totals 6,530 acres and the Roadless Area Complex is 23,552 acres. There would be a direct loss of roadless characteristics in Section 8 on 155 acres in Alternative B and 136 acres in Alternative C because of the construction of the access road. No direct loss would occur in Alternative D. In all three alternatives, however, the entire portion of Section 8 lying north of Road 308 totaling approximately 324 acres would no longer possess roadless characteristics because they would be essentially surrounded by management activities. This isolation would be an indirect effect of the harvest activities that would occur in SLC's lands in Section 5 as discussed in Chapter III of this FEIS. Because of this indirect effect of isolating the northern portion of Section 8, there essentially is no difference among the alternatives even though no roads would be constructed in Alternative D, which assumes that Section 5 would be logged by helicopter.

The three action alternatives also would cause a change in roadless characteristics. As stated above, there would be an indirect loss of roadless characteristics in Section 8 for all three alternatives because of its isolation from the remainder of the South Fork Mountain Inventoried Roadless Area. In Alternative C, a small corner of Section 4, approximately 1 acre additionally would have a direct loss of roadless characteristics because of the road construction that would occur in that section.

On Stimson's lands in Section 5, natural integrity, apparent naturalness, and remoteness would be reduced. There would be other areas where naturalness could still be found within the South Fork Mountain Inventoried Roadless Area. Solitude within the area would be maintained in the long-term outside the periods when management activities would be occurring in Section 5. Special features also would be affected on the private lands. Therefore, little difference among the three action alternatives cumulatively would occur related to their effects to the roadless resource.

Effects to Threatened, Endangered, and Sensitive (TES) and Rare Plants

Sensitive plant populations potentially could be affected by implementing Alternatives B and C. The road location for Alternative B was moved 200 feet from an existing population of moonwort and deerfern plants. Both species are listed as sensitive plants in Region One. A moonwort population and an area of suitable moist forest habitat are within the proposed road location for Alternative C. Moving the road location to provide a minimum 100-foot buffer would protect the known sensitive plant population. A Forest Service botanist would review the final road layout to ensure that the sensitive plant population is protected. The risk that undetected plants would be impacted, and that suitable habitat would be reduced, is higher in

Alternative C than Alternative B. No effect to sensitive plant populations would occur on NFS lands in Alternatives A and D.

There is no legal requirement for private landowners to protect sensitive species or their habitat. There would be moderate potential in all three action alternatives to affect sensitive plant populations or individuals 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. Because no ground-disturbing activities would occur in Alternative D, the potential for impacts would be less than under the other two action alternatives.

Effects to Noxious Weed Invasion and Spread

Noxious weeds could spread on NFS lands in Alternatives B and C because of the ground-disturbing activities that would occur. However, the mitigations as previously discussed in this Chapter of the FEIS would reduce this risk. For both Alternatives B and C, seeding of disturbed areas and cleaning of road construction equipment would be required. Stimson would also be required to monitor and treat noxious weeds following their use of the road on NFS lands. Six acres (proposed road construction on NFS lands) potentially would be affected in Alternative B, and 3.79 acres (proposed road construction on NFS lands) in Alternative C. There would be no increase in risk for noxious weeds for either Alternative A or D, since no ground disturbing activities on National Forest lands are proposed.

There would be increased risk of infestation on newly disturbed areas on SLC's lands. Stimson would be responsible for controlling noxious weeds on their lands. The Pend Oreille County Noxious Weed Control Board is mandated to monitor and enforce compliance on private lands of noxious weed ordinances. Cumulative effects to noxious weed infestations would therefore be expected to be low to moderate.

Effects on Soil Productivity

There is little difference between Alternatives B and C in terms of loss of soil productivity; respectively, a loss of productivity would occur on 6 acres and 3.8 acres. There would be no direct loss of soil productivity for either Alternative A or D because no roads would be constructed. All alternatives would meet Forest Plan guidelines.

Soil protection on SLC's lands would follow Washington State Forest Practice Rules. For both Alternatives B and C, approximately fifteen acres of Section 5 would be directly impacted by the construction of roads, and an estimated 15-20 percent of the harvest acres would have a loss of soil productivity on private lands because of the tractor harvesting.

Effects on Recreation Opportunities

Another issue that was identified was the effect to recreation. Minimal difference would exist in effects among the alternatives. For all action alternatives, the Recreation Opportunity Spectrum would remain as Semi-Primitive Non-Motorized Recreation because of the existing restrictions to motorized traffic on existing or planned roads. Dispersed recreation such as hunting, berry-picking, and backpacking would continue to occur in all alternatives with a potential slight

increase in dispersed non-motorized use of the new road in Alternatives B and C. For the No Action Alternative and Alternative D, Sema Creek Trail 241 would receive less use as it becomes more brushed in and the trailhead becomes less obvious. The Forest Service has no easement on this trail through Stimson's lands. For Alternatives B and C, the Forest Service would seek reciprocal access for Sema Creek Trail 241 per regulations 36 CFR § 251.63. This trail's primarily use would be for fire access, yet the public would be allowed to access the trail as well.

Federal Regulations at 36 CFR § 251.63 states:

> "If it is determined that a right-of-way shall be needed by the United States across nonfederal lands directly or indirectly owned or controlled by an applicant for a right-of-way across federal lands, the authorized officer may condition a special use authorization to require the holder to grant the United States the needed right-of-way."

Comparison of Alternatives

Table 1. Summary of Significant Issues on National Forest System Lands by Alternative

Issue and Indicator(s)	Alternative A	Alternative B	Alternative C	Alternative D
Effects to Grizzly Bear, Lynx, and their habitat Issue Indicators: *1) Acres of security and core habitat for grizzly bear reduced*	1) No reduction in security or core habitat.	1) National Forest and Total Acres a) Security habitat affected: 139 and 880 acres, respectively. b) Core habitat affected: 151 and 794 acres, respectively.	1) National Forest and Total Acres a) Security habitat affected: 122 and 882 acres, respectively. b) Core habitat affected: 127 and 798 acres, respectively.	1) National Forest and Total Acres a) Security habitat affected: 691 and 1,243 acres, respectively. b) Core habitat affected: 643 and 1,182 acres, respectively.
2) Percentage of open motorized road and total motorized road densities in BMU	2) 31.4 % open motorized road and 28.8 % total motorized road density on NF and cumulatively	2) 31.4 % open motorized road and 29.7 % total motorized road density cumulatively.	2) 31.4 % open motorized road and 29.7 % total motorized road density cumulatively.	2) 31.4 % open motorized road and 28.8 % total motorized road density on NF and cumulatively.
3) Acres of suitable lynx habitat affected	3) No adverse effects to the lynx or its habitat are expected. No suitable lynx habitat would become unsuitable because of planned actions on private lands.	3) National Forest and Total Acres of suitable lynx habitat affected: Six and 375 acres, respectively, of low quality habitat affected. A cumulative loss of 381 acres. Implementation of this alternative would not be likely to adversely affect either grizzly bear or lynx.	3) On NFS lands about 2 acres of low quality foraging habitat and 1.8 acres of denning habitat would be affected. On private land 375acres of low quality foraging habitat in Section 5 would be affected. Cumulative loss is 379 acres. Implementation of this alternative would not be likely to adversely affect either grizzly bear or lynx.	3) No loss of habitat would occur on NFS lands. On private land, 375 acres of low quality foraging habitat would be lost in Section 5. Cumulatively, 375 acres would be lost. Implementation of this alternative would not be likely to adversely affect either grizzly bear or lynx.

Issue and Indicator(s)	Alternative A	Alternative B	Alternative C	Alternative D
Effects to Aquatic Resources Including Bull Trout and Westslope Cutthroat Trout				
Issue Indicators: *1) Quantity of sediment delivered to stream*	1) No sediment delivered to streams from project activities. Cumulative existing sediment delivery is 10 percent.	1) Estimated 1,090 lbs. of sediment predicted to be produced from road construction on NFS lands. Cumulatively, sediment yield would increase to 46 percent. .	1) 380 lbs. of sediment predicted to be produced from road construction on NFS lands. Cumulatively, sediment yield would increase to 49 percent.	1) No direct or indirect sediment delivery to streams because no road construction would occur on NFS lands. Cumulative sediment delivery would increase to 16 percent
2) Changes to channel morphology	2) No changes in channel morphology would occur. Cumulative water yield increase would be 1% above existing with the planned and ongoing activities on SLC's land within the Cumulative Effects Analysis area.	2) Minimal, if any, changes to channel morphology on NFS lands. Water yield would increase cumulatively from 2 percent to 12 percent.	2) Minimal, if any, changes to channel morphology on NFS lands. Water yield would increase cumulatively from 2 percent to 12 percent	2) Water yield would increase from 2 percent to 11 percent. No changes to channel morphology.
3) Amount of riparian vegetation removed	3) No riparian vegetation removed because no road construction would occur.	3) One acre of riparian vegetation removed on NFS lands. Six acres on private land.	3) 0.8 acre and 6 acres of riparian vegetation removed on NFS and private lands respectively.	3) No direct loss of riparian vegetation on NFS lands. No stream crossings on private land that would remove riparian vegetation.
4) Risk of sediment delivery from roads at stream crossings	4) No risk of sediment delivery on NFS and private land from management activities.	4) On NFS lands 4,000 feet of road with 5 stream crossings. On private land 19,061 feet of road and 27 stream crossings.	4) On NFS lands 2,500 feet of road with 4 stream crossings. On private land 20,529 feet of road and 27 stream crossings.	4) Risk of sediment delivery would be minimal, as no road construction would occur on either NFS or private lands.
5) Number of culverts in fish-bearing streams	5) No culverts to be placed in fish-bearing streams.	5) No culverts to be placed in fish-bearing streams on NFS lands and 4 culverts on private land.	5) No culverts to be placed in fish-bearing streams on NFS lands and 4 culverts on private land.	5) No culverts to be placed in fish-bearing streams.

Issue and Indicator(s)	Alternative A	Alternative B	Alternative C	Alternative D
Effects to the Roadless Resource Issue Indicators: *1) Changes to natural integrity, apparent naturalness, remoteness, solitude, and special features.*	1) There would be no change to the existing condition of the roadless resources.	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 could 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.	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 could 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.	1) Natural integrity, apparent naturalness, and remoteness would be reduced in Section 5. There would be other areas and viewpoints, however, where naturalness could still be found. Solitude within the area would be maintained in the long-term except during periods of helicopter operations. Within Section 5, special features would be reduced due to management activities.
2) Acreage with roadless character within the South Fork Mountain IRA and the entire Roadless Area Complex	2) No change in acreage would occur.	2) Acres: 4,529 in the South Fork Mountain IRA and 20,580 acres in the Roadless complex. Management activities in Sections 8 and 5 would directly or indirectly result in these acres no longer meeting roadless characteristics. Remaining roadless area would continue to meet roadless area characteristics.	2) Acres: 4,528 acres in South Fork Mountain IRA and 20,579 in the Roadless complex. Management activities in Sections 8 and 5 would directly or indirectly result in these acres no longer meeting roadless characteristics. A small portion of Section 4 also 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.	2) Acres: 4,529 in the South Fork Mountain IRA and 20,580 acres in the Roadless complex. Management activities in Section 5 would result in these acres no longer meeting roadless characteristics. The acres in Section 8 would also be isolated and no longer would meet roadless character. The remaining roadless area would continue to meet roadless area characteristics.

Issue and Indicator(s)	Alternative A	Alternative B	Alternative C	Alternative D
Effects to Threatened, Endangered, and Sensitive and Rare Plants Issue Indicators: *1) Presence of populations*	1) No adverse effects to sensitive plants.	1) No direct or indirect effects to known populations of sensitive plants; undetected individuals may be impacted.	1) No direct effects to known populations of sensitive plants; indirect effects could occur to one population of moonworts if road authorization location cannot be moved. High likelihood that individuals will be impacted.	1) No adverse effects to sensitive plants on NFS lands. .
2) Acres of suitable habitat affected	2) No suitable habitat affected.	2) Approximately 0.3 acre of moist forest habitat and 0.1 acre of wet forest habitat would be permanently lost. Moderate cumulative effects overall to sensitive plant species.	2) Approximately 1.0 acre of moist forest habitat and 0.1 acre of wet forest habitat would be permanently lost. Moderate cumulative effects overall to sensitive plant species.	2) No effects to suitable habitat on NFS lands. Low to moderate cumulative effects overall to sensitive plant species.

Issue and Indicator(s)	Alternative A	Alternative B	Alternative C	Alternative D
Effects to Noxious Weed Invasion and Spread Issue Indicators: *1) Presence and extent of known weed infestations*	1) No effect on weed spread or introduction. Management activities associated with the proposed action would not be implemented.	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)	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)	1) No effect on weed spread or introduction. Management activities associated with the proposed action would not be implemented.
2) Acres of habitat susceptible to weed invasion.	2) No acres affected	2) Approximately 6 acres on NFS lands would be susceptible to new weed invaders	2) Approximately 3.79 acres on NFS lands would be susceptible to new weed invaders	2) No acres affected
Effects on Soil Productivity Issue Indicator: *1) Acres of lost soil productivity on NFS lands.*	1) There would be no change in current soil productivity conditions, because management activities associated with the proposed action would not be implemented.	1) Approximately six acres of NFS lands would be directly impacted by road construction.	1) Approximately 3.8 acres of NFS lands would be directly impacted by road construction.	1) There would be no loss of soil productivity on NFS lands.
Effects on Recreation Opportunities Issue Indicator: *1) Changes in Recreation Opportunity Spectrum classification.*	1) No changes in the Recreation Opportunity Spectrum.	1) No changes in the Recreation Opportunity Spectrum expected as a result of management activities.	1) No changes in the Recreation Opportunity Spectrum expected as a result of management activities.	1) No changes in the Recreation Opportunity Spectrum expected as a result of management activities.

CHAPTER III - Affected Environment and Environmental Consequences

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 NFS 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. The private lands within the cumulative effects analysis area(s) are all managed for long-term timber production. The activities on non-federal lands are based on the best information available through contacts with the private landowners. It is important to recognize, however, that private land activities are subject to change without federal approval.

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 not 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, wildfires, Native American fires, and insect and disease outbreaks were the major processes affecting habitats in the assessment area. 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.

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 NFS 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 (WDFW) 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; WDFW 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. The depth of the effects analysis depends on the level of effects to a particular species.

Extensive discussion and analysis is not 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 detail.

Species considered present and potentially affected by the proposed actions are discussed in both the Affected Environment and Environmental Consequences sections. Table 2 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, boreal toad and pileated woodpecker. 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.

- **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.

Table 2. Species occurring on the Priest Lake Ranger District and analysis status.

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

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. Approximately 46 observations of wolves have been documented within the district in the last decade. The majority of the reports are direct observations, while some consist of only tracks or scat or vocalizations. Five of these observations documented two or more animals traveling together. Of the 44 observations of wolf or wolf sign, 31 reports are considered highly probable, nine reports with moderate probability and three reports with low probability. Follow-up surveys were conducted on 18 of the reported observations. Not all of the wolf reports were verified in the field, because of the elapsed time frame since the observation was made and the report was received or because of the weather conditions during the time when the observations were made.

Direct observations and observation of wolf sign have occurred near the project area 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. In February 2002, a lone female wolf from Montana was located within the Kalispell Basin, approximately 3 miles south of the project area. This animal was estimated to have spent a few days within the area before moving further west into the Pend Oreille Valley.

Currently, the evidence over the last ten years indicates only single animals and occasionally groups of animals traveling through the area and possible single animals residing within the area. The evidence does not yet imply pack establishment within the drainage. No known mortality has occurred in the recent past within NFS lands. However, within the last ten years, two known mortalities have occurred to the south and southwest of the project area. One of the known mortalities occurred in February 1995, and resulted from efforts to reduce what was believed to be coyote depredation on livestock. An adult male wolf was taken via lethal trapping by the USDA Animal Damage Control Program. This animal was known to be traveling with another animal, which was believed to be a female. Another lone wolf was found dead approximately 15 miles northwest of Newport, Washington, in the fall of 1994. The cause of death of this animal is unknown but is suspected to be human-caused. This animal was a radio-collared female from the Ninemile pack in Montana.

Effects: 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 in nature. As stated in Features Common to All Action Alternatives, any TES species discovered during use of the authorized road would be reported to the Forest Service biologist 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. Proposed activities, either on federal lands or on private lands, would have little impact on big game

populations, and therefore, the potential impact on wolf would be minor. It is anticipated that the proposed activities ***may affect*** wolf through displacement if they occur and may slightly increase mortality risk, but these effects are ***not likely to adversely aff*****ect** wolf or wolf habitat.

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 1993b).

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 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.

Effects: 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 utilized 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 discussed in the Biological Assessment for this project (p. 23). As stated in Features Common to All Action Alternatives, any TES species discovered during use of the authorized road would be reported to the Forest Service biologist 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 as discussed in Chapter I under the Terms and Conditions section. These factors

indicate the project 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 one of the 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. This grizzly bear recovery area includes an area within adjacent British Columbia as part of the overall area identified as necessary to achieve recovery of grizzly bears within this ecosystem.

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. A 2002 study (Wielgus, Vernier, and Schivatcheva) analyzed the use of open roads (public use allowed), restricted roads (administrative use only), and closed roads (no public use). Grizzly bears avoided open roads (Wielgus et al. 2002, p. 12). The study also indicated that bears did not select against restricted roads (ibid, p. 13). In this study, restricted roads were used by forestry workers that rarely left their vehicles and the roadway, and restricted their off-road activity to cutting units where forest harvesting and silviculture were occurring (ibid, p. 13).

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 Bear Management Unit (BMU). 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 1987b, Appendix U).

To facilitate management and effects analysis, each recovery zone is divided into Bear Management Units (BMUs), each of which is approximately the home range size of an adult

female grizzly bear (USDA 2002, p. 3-10). Each BMU has criteria and thresholds for management (Audet personal communication 2001). The process is based on data on the mean home range of 13 adult female grizzly bears greater than five years of age. Based on research, the average home range was determined to be approximately 100 square miles in size. Each BMU was assumed to represent a viable home range that would spatially meet the needs of a resident female grizzly bear. Each BMU is not intended to be the actual home range of known adult female grizzly bears, but is used to analyze cumulative effects (USDI 1993a, p. 110; Interagency Grizzly Bear Committee Taskforce 1994; Audet personal communication 2001; USDA 2002, p.2-3). It is recognized that individual animals would move between BMUs, but such movement had been considered during the establishment of under the recovery plan (USDI 1993a, p. 18). By maintaining sufficient suitable habitat quality in each BMU, then the entire recovery area would remain as viable habitat (Christensen 1982, p.6; USDA 1983, p. 3).

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 Bear Management Unit were established at 70 percent of the BMU (USDA 1995a). 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 goals for grizzly bear were adopted:

- A minimum of 70 percent security habitat would be maintained within the Kalispell-Granite Bear Management Unit (USDA 1995a; IGBC 1998).

- Open Road Densities (ORD) of 1 mi/mi^2 would not be exceeded on more than 33 percent of the grizzly bear management unit. Roads considered as open roads are those without restrictions on motorized vehicle use. (IGBC 1998; Holt personal communication 2001).

- Total Road Densities of 2 mi/mi^2 would not be exceeded on more than 26 percent of the grizzly bear management unit. Total road densities include all open roads and restricted access roads. (IGBC 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 1998). Core areas do not include any gated or restricted roads (USDA 2004a, p. 2-4).

The Kootenai National and Idaho Panhandle National Forests and 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 required completion of a Final Environmental Impact Statement (FEIS) that was completed in March

2002. Alternative E was identified as the preferred alternative in the FEIS (USDA 2002, p.2-15). A Record of Decision (ROD) documenting the decision regarding the Forest Plan amendment is scheduled to be released later in 2004. The ROD will outline management standards by specific BMUs to be incorporated into the IPNF Forest Plan. The following standards for the Kalispell-Granite Bear Management Unit would be adopted if Alternative E is selected (ibid, pp 2-15 to 2-17):

- No standard for security habitat. The security habitat standard would be replaced by the following standards.
- Open Road Density (OMRD) of 1 mi/mi^2 would not exceed 33 percent of the grizzly bear management unit. OMRD includes open roads, other roads not meeting all restricted or obliterated criteria, and open motorized trails. In BMUs not meeting OMRD, actions affecting OMRD must result in a movement toward the standard.
- Total Road Density (TMRD) of 2 mi/mi^2 would not exceed 29 percent of the management unit. TMRD includes open roads, restricted access roads, roads not meeting reclaimed criteria, and open motorized trails. In BMUs not meeting TMRD, actions affecting TMRD must result in a movement toward the standard.
- Core area would be set at 55 percent of the Kalispell-Granite BMU. Core area is defined as an area of secure habitat within a BMU that contains no motorized travel routes or high non-motorized trails during the non-denning season and is more than 0.3 miles (500 meters) from a drivable road. Core areas do not include any gated roads but may contain roads that are impassable due to vegetation or constructed barriers. Core areas strive to contain the full range of seasonal habitats that are available in the BMU and to be fixed in place for a minimum of ten years. In BMUs not meeting the core area standard, actions affecting core area must result in increased post-project core area.

Full implementation of the actions needed to reach the prescribed standards is estimated to take 5-9 years from the date of the Record of Decision (ROD).

Environmental Baseline: The management of security habitat has been an important aspect 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. As discussed in the previous section, the existing Forest Plan standard is to maintain 70 percent security habitat within the Kalispell-Granite Bear Management Unit. Following issuance of the Record of Decision for the Motorized Access Management FEIS, the existing security habitat standard would be replaced by new Forest Plan standards addressing access management as specified above.

The project area is located within the Kalispell-Granite Bear Management Unit (figure 4). The Kalispell-Granite BMU totals 85,640 acres and is one of ten designated grizzly bear management units in the Selkirk Recovery Area (USDI 1993a). 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 82.7 percent during the spring season (March 15 - June 30), at 76.6 percent during the summer season (July 1 - September 10), and at 82.6 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 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 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 is identified as areas free of motorized access during the non-denning period (ibid, p. 2-3). 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 0.3 mile (i.e. 500 meters) from any road or trail that received motorized use during the non-denning period (USDA 2002, p. G-1). 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 Bear Management Unit, 44,480 acres (48.2 percent of the BMU) have been identified and mapped as meeting the requirements of grizzly bear core habitat as currently defined (figure 5). 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 BMU 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 Road 638C further increased the amount of available core habitat. In 1998, the obliteration of Roads 319 and 1104 increased core habitat by 2,043 acres (2.4 percent). This action also resulted in a change in total road density from 29.8 percent to the current level of 28.8 percent. No change in open road density resulted because Roads 319 and 1104 were designated as restricted roads.

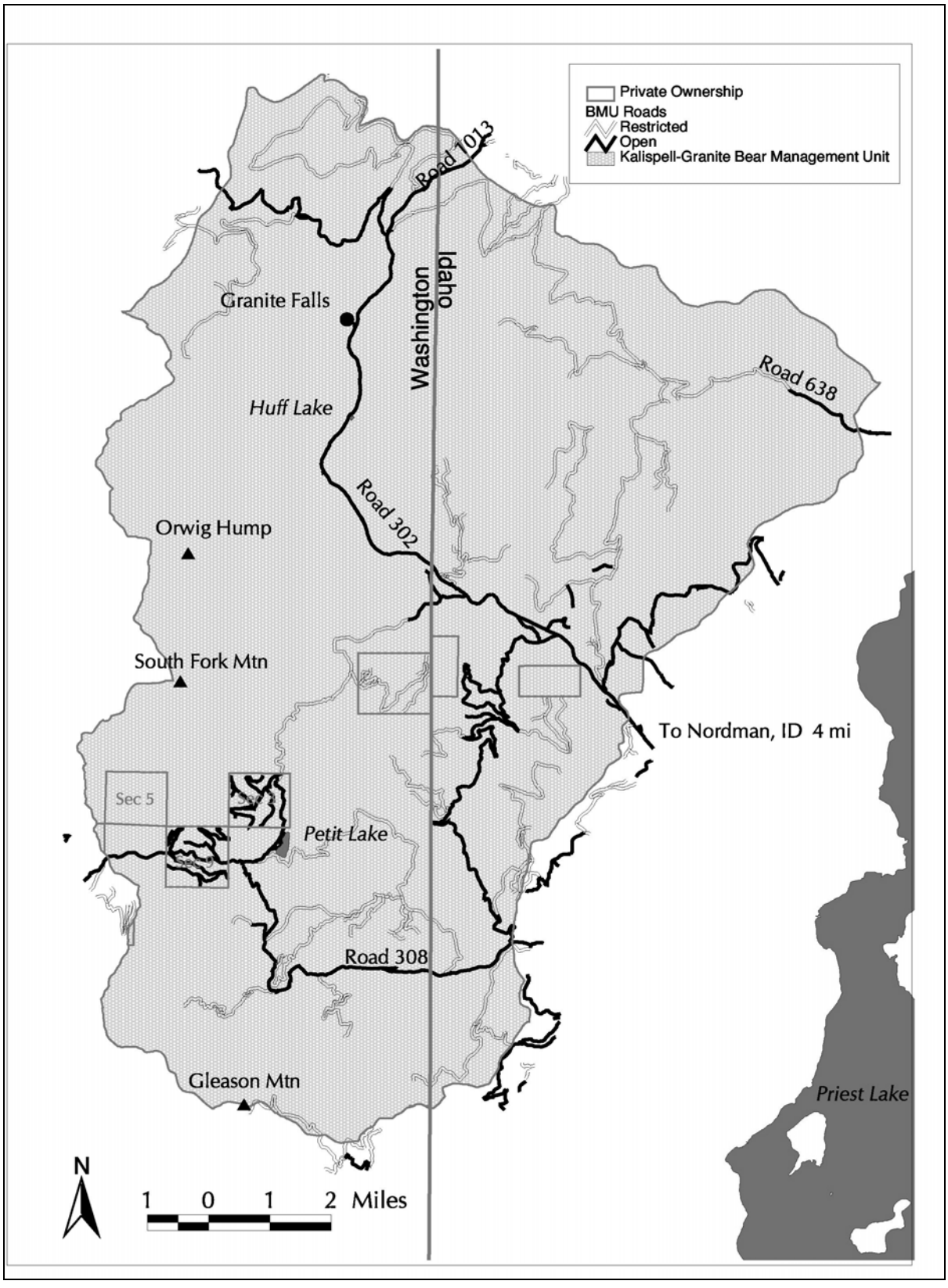

Figure 4. Kalispell-Granite Bear Management Unit

Three other bear management units are adjacent to the Kalispell-Granite BMU (Le Clerc BMU, Sullivan-Hughes BMU and the Lakeshore BMU). The Priest evaluation area, which is located immediately to the south of the Kalispell-Granite Bear Management Unit, has been identified as having year-around occupancy by grizzly bears although it is situated outside of the recovery area boundary

The LeClerc BMU is located immediately to the west of the Kalispell-Granite BMU. Overall conditions for grizzly bears within the LeClerc Bear Management Unit are impacted by the high overall total road density, which results in a lower proportion of grizzly bear core habitat than the other bear management units. This is largely due to the high percentage of private industrial lands that are prevalent within the BMU. The Colville National Forest approved an access request by SLC in 2002 to provide access to Stimson's lands located within the LeClerc BMU.

The Lakeshore BMU borders the eastern boundary with the Kalispell-Granite BMU and consists primarily of Management Situation 2 and 3 (IGBC 1987). The IGBC management situation designations are used to distinguish areas where differing grizzly bear habitat and human use conditions occur and define appropriate management strategies for each.

- MS1 areas are to be managed for grizzly bear habitat maintenance, improvement, and minimization of grizzly bear-human conflict. Management decisions will favor the needs of the grizzly bear when grizzly habitat and other lands use values compete.

- In MS2 areas, the grizzly bear is an important, but not necessarily the primary, use of the area. In some cases, habitat maintenance and improvement may be important management considerations. Reducing grizzly bear-human conflict potential is a high management priority.

- In MS3 areas, grizzly bear conflict reduction is a high priority management consideration. Grizzly bear presence and factors contributing to their presence will be actively discouraged.

This Lakeshore BMU was established concurrently with the Kalispell-Granite BMU but was designed to serve primarily as a buffer adjacent to residential and recreational developments immediately adjacent to Priest Lake. Management directions for this BMU are primarily minimization of grizzly-human conflict potential, reduction of grizzly bear mortality risk and, where feasible, maintenance of key habitat components within secure areas" (IGBC 1994).

The Sullivan-Hughes BMU is located to the north and includes portions of the Salmo-Priest Wilderness Area and high quality habitats such as Hughes Meadow, Hughes Ridge and portion of the Trapper Peak burn which have been documented as to their importance to grizzly bears. This BMU has a higher proportion of core and security habitat than either the Kalispell-Granite or LeClerc Bear Management Units.

The Priest Evaluation Area, which is outside of the recovery area to the south of the Kalispell-Granite BMU, has numerous documented occurrences of grizzly bear. In May 2001, two sub-adult male grizzly bear were trapped within this area and relocated. Road densities are relatively high within this area, although it is believed that the area is currently occupied by grizzly bears.

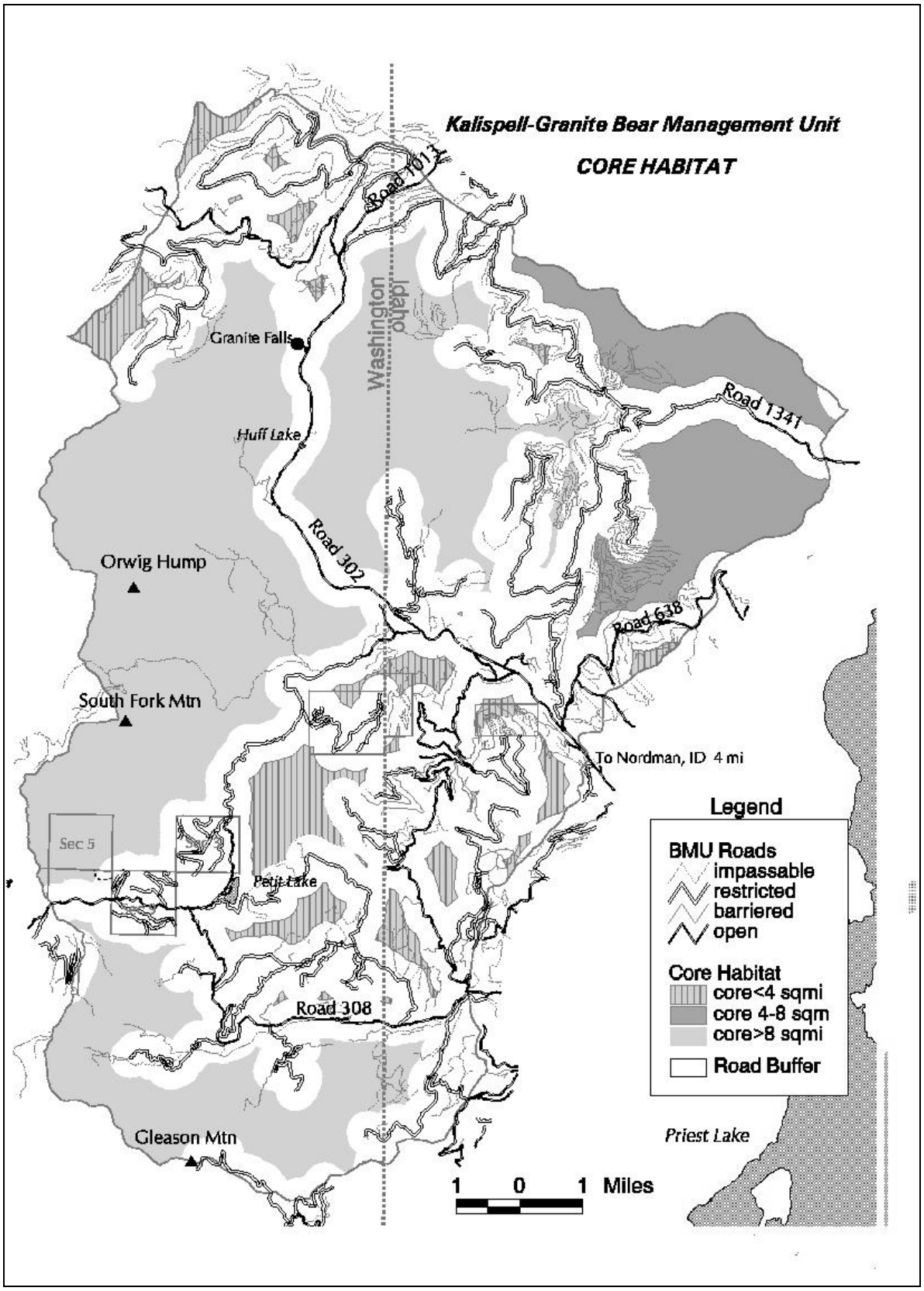

Figure 5. Core habitat within the Kalispell-Granite Bear Management Unit.

Because of the potential for the proposed activities to negatively affect grizzly bear recovery in the Kalispell-Granite BMU, this species is discussed further 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 forest 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 2000). 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 (Ruediger et al. 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.

Mid-successional stages may serve as travel cover and provide low quality forage for lynx but function primarily to provide connectivity within a forest landscape. Lynx seem to prefer to move through continuous forest, and frequently use ridges, saddles, and riparian areas (Ruediger et al. 2000, p. 7). 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 (i.e. not capable). Examples include 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 not-capable 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 (see table 3).

Landscape connectivity is important so that all or most habitat has the potential of being occupied, and populations remain connected (Ruediger et al. 2000, p. 88). Connectivity is provided by inherently important topographic features and vegetation communities that link fragmented forested landscapes of primary habitat together, providing for dispersal movements and interchange among individuals and subpopulations of lynx (ibid, p. 57). Landscape connectivity may take the form of narrow forested mountain ridges or plateaus connecting more extensive mountain forest habitats (ibid). Wooded riparian communities may provide travel cover across open valley floors between mountain ranges or lower elevation forests that separate high elevation spruce-fir forests (ibid).

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 6). 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 LAU. DNA analysis did not reveal the presence of lynx via this survey method (Appendix F, BO p. 34).

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 (Ruediger et al. 2000, pp. 78-79). According to the Canadian Lynx Conservation Assessment and Standards, LAUs should be at least the size of area used by a resident lynx and contain sufficient year-round habitat (p. 77). The size of an LAU should generally be 16,000 – 25,000 acres in contiguous habitat (ibid), based on scientific research regarding home range sizes of lynx (ibid, p. 9). The Sema LAU is 25,149 acres in size and includes a mixture of foraging, denning, and currently unsuitable habitats. LAUs are not intended to depict actual lynx home ranges, but are intended to provide analysis units of the appropriate scale with which to analyze potential direct and indirect effects of projects or activities on individual lynx, and to monitor habitat changes.

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

Table 3. Composition of lynx habitat components in the Sema Lynx Analysis Unit (LAU).

Habitat Attribute	**Acres in LAU**	**Percentage of LAU**
Low Quality Forage Habitat	16,025	64%
High Quality Early Successional Forage Habitats	2,860	11%
Denning Habitat	3,692	15%
Unsuitable Habitat	1,244	5%
Unsuitable Habitat created in last Decade*	689	3%
Not Capable Habitat	1,326	5%

*subset of total unsuitable.

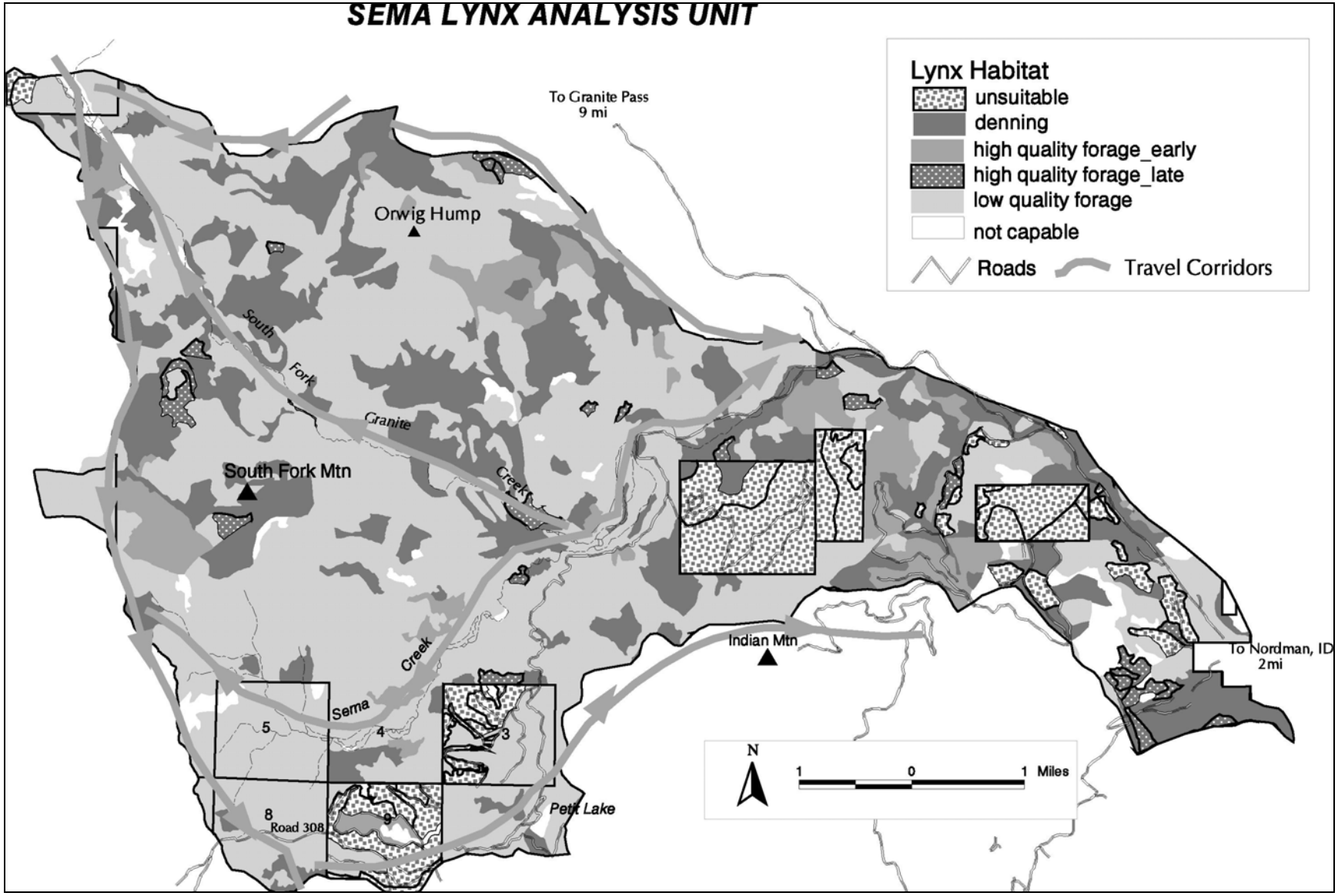

Figure 6. Sema Creek Lynx Analysis Unit.

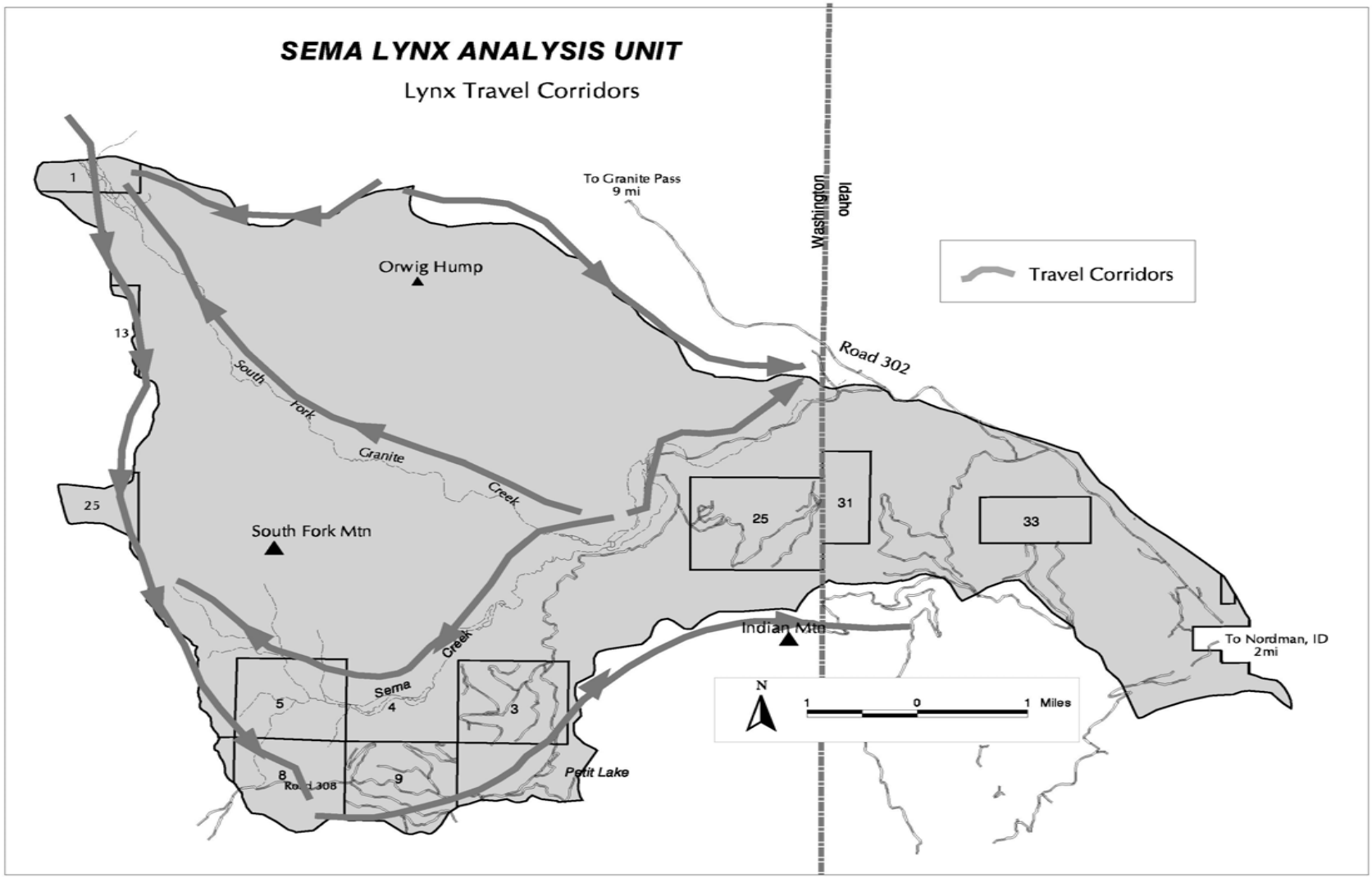

Figure 7. Lynx Travel Corridors

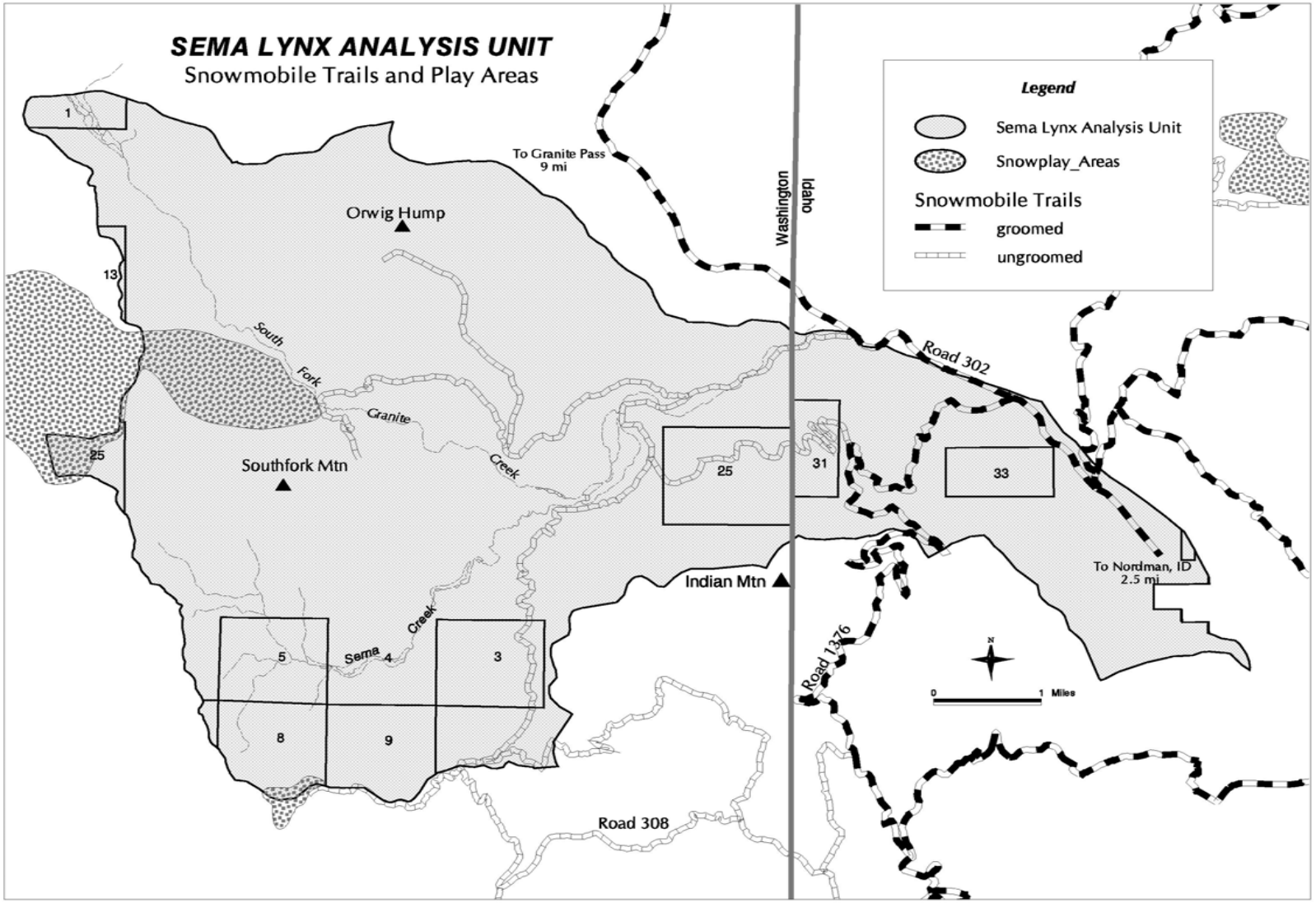

Figure 8. Snowmobile Trails and Play Areas

The Priest-Pend Oreille Divide or "Shedroof Divide" as it also is known, is a major ridge extending southward from Canada, and provides connectivity for lynx within a predominantly north-south orientation within the ecosystem. Spur ridges that radiate from the "Shedroof Divide" also provide connection and lynx movement from the "Divide" and within individual lynx analysis areas such as the Sema LAU. Example of these spur ridges would be the Kalispell-Granite Divide or the South Fork Mountain ridge dividing the South Fork of Granite Creek from Sema Creek. These spur ridges lie somewhat perpendicular to the main Divide (figure 7).

Travel corridors between and within habitats in the Sema LAU and the project area is considered to be abundant because of the overall moderate topography and the extent of forested cover. Lynx utilization of the terrain within the Sema LAU is unlikely to be restricted to ridges and riparian areas because of the prevailing gentle topography. Section 5 can be characterized as an east-facing bowl and is not located along a major ridge system (Gilbert 1996, p. 28). The Sema Creek riparian corridor, however, has been identified as a travel corridor.

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.

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.

Effects: The potential direct and indirect impacts of implementation of the three action alternatives on populations of black-backed woodpeckers are anticipated be minimal. Only a slight reduction in snag habitat would occur (6 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. No reduction would occur on NFS lands in Alternative A or D because no road would be constructed on NFS lands.

Within the cumulative effects analysis area, there would be a reduction in snag habitat on Stimson's 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 SLC's 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 in combination with the extensive habitat on adjacent National Forest sections, it is concluded that project activities would have little impact on black-backed woodpeckers and would not result in reduced viability across the Forest as a whole or the need for federal listing. Because of the limited effects on this species, it will not be discussed further 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.

Effects: The Inland Native Fish Strategy (INFS) guidelines concerning riparian habitat conservation areas (RHCAs) for wetlands and riparian areas would limit sedimentation in toad breeding habitat. Design features in Alternatives B and C 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 Alternative B or C would not result in reduced viability across the Forest or the need for federal listing. Therefore, no further analysis of boreal toads is necessary. No effect to boreal toad habitat would occur in Alternative A or Alternative D.

On Stimson's 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 and Forest Practice Rules (RCW 76.09, 09.350 and WAC 222-30-020(6)) would be implemented on SLC's 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.

Effects: 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 B or C may affect this species but would not result in reduced viability across the Forest or the need for federal listing. This species will not be discussed in Environmental Consequences. No effect would occur in Alternative A or D.

On Stimson's 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 and Forest Practice Rules (RCW 76.09, 09.350 and WAC 222-30-020(6), pp. 30-4 to 30-7) would be implemented on SLC's 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, fishers may inhabit mid-elevations.

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 also can 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. The stands regenerated after the 1926 fire lack the concentrations of large downed wood for denning. No evidence of fisher use in the Sema Creek drainage has been observed during snow tracking surveys.

Effects: No direct or indirect effect on fisher would occur in Alternative A because no activities would occur. There also would be no direct or indirect loss of capable fisher habitat in Alternative D because no road would be constructed on NFS lands.

The direct and indirect effects on fisher by implementation of either Alternative B or C would be similar. New road construction would not contribute measurably to the overall fragmentation of capable or suitable habitat. Because of the lack of denning habitat resulting from the stand-replacing 1926 fire, no suitable denning habitat for fisher would be impacted by proposed management activities. The impact of the new road construction on NFS lands would be minor. Current open road densities in the area would remain low. Moreover, because the road would be restricted to public motorized use, open road densities would not be increased. Implementation of either Action Alternative B or C may impact this species but would not result in reduced

viability across the Forest or the need for federal listing. This species will not be discussed further in Environmental Consequences.

Within the cumulative effects area, suitable fisher habitat is generally lacking because of the 1926 fire. The proposed activities in Section 5 would reduce capable fisher habitat on Stimson's lands in Alternatives B, C, and D. For Alternatives B and C, the roads within the section would be restricted to administrative use by Stimson's officials and their contractors, and used for management activities. Because public use would not be allowed on Stimson's 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). In one study, large areas of medium or scattered mature timber accounted for 70 percent of use (Hornocker and Hash 1981, p. 1291). 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). Wolverines occupy large seasonal and annual home ranges. Hornocker's and Hash's 1981 study in western Montana showed that wolverines occupy home ranges of approximately 400 km² (i.e. 167 mi.²) (p. 1290). Natal dens have been found in snow tunnels, hollow trees, or even caves in the ground (Lyon et al. 1978, p. 130). Effects on wolverine may approximate effects on grizzly bear because both species are wide-ranging, opportunistic, and utilize a variety of habitats for foraging.

In forested habitats, the structural diversity provided by large snags, fallen logs, and stumps will likely provide den sites for wolverines (ibid). Isolation from human disturbance also appears to be an important den-site requirement for wolverines. 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; Krebbs 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).

Effects: No suitable denning habitat for wolverine would be impacted by proposed management activities in any alternative. Wolverines may be displaced during road construction and periods of road use in Alternatives B and C. New road construction on NFS lands associated with these two alternatives 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. No direct or indirect effect would occur in Alternatives A and D. No further discussion of this species will be included in Environmental Consequences.

Within the cumulative effects area on Stimson's lands, suitable wolverine denning habitat is generally lacking because of the relatively low elevation and dense forest stands of Section 5. The forest stands in Section 5 are dense young stands of timber that regenerated following the 1926 fire. These dense stands of timber typically are not utilized by wolverine (Hornocker and Hash 1981, p. 1291). The proposed activities in Section 5 would reduce capable and suitable wolverine habitat in the three action alternatives because of increased human activity during the time of timber harvest and related activities. The potential impacts to habitat security for wolverine would be similar to impacts to grizzly bears (see Environmental Consequences discussion on effects to grizzly bear). The roads within the section, however, would be restricted to administrative use by Stimson's officials and their contractors, and used for management activities. Public use would not be allowed on Stimson's roads, reducing the risk of mortality would be reduced if wolverine were in the area. Implementation of either Action Alternative B or C may impact wolverine but would not result in reduced viability across the Forest or the need for federal listing.

Other Management Indicator Species

American Marten (Martes Americana)

The American marten was selected in the Idaho Panhandle National Forests (USDA 1987a) 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 1990, p. 30). In addition to a closed canopy, marten require an abundance of large downed logs and snags (Buskirk and Ruggiero 1994, 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.

Effects: 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 NFS 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 in Alternatives B and C would not contribute measurably to the overall fragmentation of capable or suitable habitat, resulting in the loss of 6 acres and 3 acres respectively of capable habitat. No loss of capable or suitable habitat would occur in Alternatives A and D. Implementation of any alternative would not result in a loss of viability within the project area or across the Forest. Therefore, this species will not be discussed further in Environmental Consequences.

Suitable marten 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's lands in all three action alternatives. The roads within the section would be restricted to administrative use by Stimson's officials and their contractors, and used for management activities. Public use would not be allowed on Stimson's roads, reducing the risk of mortality.

Pileated Woodpecker (Dryocopus pileatus)

Pileated woodpeckers are relatively common in both cut and uncut mid-elevation forests. They appear to do well in a matrix of forest types (Hutto 1995). However, since foraging habitat represents a wider ecological range of forest age structure, nesting habitat is considered the most critical and limiting feature for pileated woodpeckers.

The pileated woodpecker was selected as a MIS because its highest densities occur in old-growth forests and they need large dead trees for nesting and dead woody material (standing and down) for foraging (Bull et al. 1990). They have specific requirements for nesting, which consist of large trees in relatively uncut stands for nesting purposes. Nest cavities are usually located more than 30 feet above the ground, at a level with the canopy of the surrounding forest (Warren 1990).

As discussed previously in the black-backed woodpecker section, snag habitat within the project area has been strongly influenced by natural fire events, vegetation succession and timber management. Most of the snags created within the area are the product of natural morality caused by insects and disease and from the natural fire events, which swept through the area in the 1920s. Occasional pockets of large snags are found throughout the project area.

Old growth and mature habitat, which are commonly associated with pileated woodpecker habitat, is absent within the project area. Because of the large fires that swept through the area in the 1920s, most of the timber stands are generally 70 to 80 years old and are classified as immature to mature stands

Environmental Baseline: Habitat for pileated woodpeckers is generally absent within the project area. The large expanses of small diameter trees and only occasional pocket of snags afford little opportunity for nesting or feeding by pileated woodpeckers. Habitat within the vicinity of the project area would be considered as unsuitable. Surveys conducted within the project area conducted in 1998 and 1999 detected little evidence of pileated woodpeckers utilizing the project area and adjacent areas. Because of the lack of suitable habitat for pileated woodpeckers within the project area this species will not be discussed further in Environmental Consequences.

Effects: The potential direct and indirect impacts of implementation of the three action alternatives on populations of pileated woodpeckers are anticipated be minimal. Only a slight reduction in snag habitat would occur (6 acres in Alternative B or 3.8 acres in Alternative C). Because of the lack of large snag component within the project area, effects to the large snag component would be minimal to nonexistent. 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. No reduction would occur on NFS lands in Alternative A or D because no road would be constructed on NFS lands.

Within the cumulative effects analysis area, there would be a reduction in snag habitat on Stimson's 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 SLC's 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. Because of the limited effects on this species, it will not be discussed further in Environmental Consequences.

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 1987a). 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.

No winter range exists for other ungulate species such as white-tailed deer or elk because of the elevation and deep winter snowpack.

Effects: The direct and indirect effects on moose by implementation of either Alternative B or C would be minimal or undetectable on NFS lands. Restricting access on the newly constructed road would minimize disturbance to moose. No high quality habitats such as shrubfields would be impacted. There would be no effect to moose habitat in Alternatives A and D. Implementation of any alternative would not result in a loss of viability for moose across the Forest. No further discussion of this species will be included in Environmental Consequences.

Within the cumulative effects area, habitat for moose would be enhanced. In Section 5, the timber harvest in the three action alternatives 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 that 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 Alternatives B and C on populations of both migratory and resident species are anticipated to be minimal. Only a slight change in existing habitats would occur (6 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 System lands. The difference between the two alternatives is considered minor or undetectable. No loss of habitat would occur in Alternatives A and D. This species group will not be discussed further in Environmental Consequences.

In terms of cumulative effects for the three action alternatives, the road building and harvest activities of Stimson's lands 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's lands. Perennial and intermittent streams and wetlands within treatment units would be buffered by Wetland Management Zones (WMZs) as directed by the Washington Forest Act and Forest Practice Rules (RCW 76.09, 09.350 and WAC 222-30-020(6), pp. 30-4 to 30.7). These Forest Practices Act guidelines protecting snags and wetlands and riparian areas would minimize or reduce the effects to bird species dependent on those habitats. Surrounding Stimson's lands in Section 5 are unmanaged Forest Service sections that would provide a variety of habitats for various avian species. Overall effects on land birds on private lands are expected to be minor and would not affect species viability across the Forest.

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 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 Assessments for threatened, endangered, and proposed species is included as Appendix F to this 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 is addresses the effects those actions combined with the proposed Federal action. The effects of reasonably foreseeable actions on NFS and 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 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 may be considered not to affect grizzly bear security habitat depending on the level of administrative or other use (IGBC 1998, p. 7). Administrative use is monitored on an annual basis to ensure that administrative use guidelines are followed (2001 IPNF Forest Plan Monitoring Report, p. 22). In calculating habitat security, the influence zone of open roads on surrounding security habitat is considered to be 0.25 miles (ibid, p. 5). Security habitat is the current Forest Plan standard for grizzly bear management until the decision is finalized for the Forest Plan Amendments for Motorized Access Management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones.

Grizzly bear core habitat is outside of the influence of both open and restricted roads. The influence zone used to determine core habitat is 0.30 miles (500 meters) from roads and 0.125 miles from high-use non-motorized trails (USDA 2002, p. 2-15). For both security and core habitat, helicopter activities are calculated by buffering 0.5 mile from a disturbance activity such as a harvest unit. Open Motorized Road Density (OMRD) and Total Road Density (TMRD) are calculations made with the moving windows technique that includes open roads, restricted roads, other roads not meeting restricted or obliterated criteria, and open motorized (ibid, p. 2-4). The percentage of the Bear Management Unit in relevant road density classes is calculated using a computerized Geographic Information System (GIS).

The basis for the determination of cumulative effects on grizzly bear is the Bear Management Unit. The rationale for cumulative effects analysis for grizzly bears follows the guidance outlined in the IPNF Forest Plan, Appendix U (USDA 1987a). As discussed earlier in the Affected Environment portion of this chapter, each BMU is used to analyze cumulative effects (USDI 1993a, p. 110; IGBC 1994; Audet personal communication 2001; USDA 2002, p. 2-3). For the analyses of the effects of the SLC's access request, the cumulative effects area used for grizzly bear is the Kalispell-Granite Bear Management Unit (BMU) as displayed in figure 4. The harvest and related activities in Section 5 as well as their activities in their other lands were identified as Reasonably Foreseeable Actions when the Kalispell-Granite BMU was originally established in 1995 (USDA 1995a; p. 1-4).

In assessing cumulative effects, the IDT considered activities in the adjacent BMU. As discussed in Chapter I of this document, the Colville National Forest completed an Environmental Analysis evaluating a similar access request by SLC across NFS lands just west of this project area. The affected lands lie with the LeClerc Bear Management Unit (BMU) that borders the Kalispell-Granite BMU to the west. The Colville National Forest issued a Record of Decision in June 2001, which granted road access for SLC across NFS lands to six parcels their inholdings on the Sullivan Lake Ranger District. A Conservation Agreement was included as part of the decision to reduce the effects to grizzly bear and other species (USDA 2001c, Record of Decision, p. 27 and Appendix B, p. 68). The Agreement outlined objectives and specified management guidelines to reduce effects to grizzly bear and included monitoring provisions. The resultant consultation with the U.S. Fish and Wildlife Service concluded that the activities associated with Stimson's access on the Colville National Forest, "will likely adversely affect" grizzly bear within the LeClerc BMU", but "would not result in jeopardy to the grizzly bear or destruction or adverse modification of critical habitat" within the Selkirk Grizzly Bear Recovery Area (ibid, Appendix B, p. 69; Audet personal communication 2001). Based on this finding, the IDT concluded that the effects in the Kalispell-Granite BMU would not cumulatively affect grizzly bears in the LeClerc BMU.

Cumulative impacts from activities adjacent to Kalispell-Granite BMU – As outlined above the BMU provides an appropriate scale at which to consider cumulative impacts to grizzly bears because it approximates the home range of a female grizzly bear. By using fixed boundaries for analysis of impacts to bears, more consistent management of habitat attributes that affect bears occurs. We also are better able to track potential impacts to these habitat attributes than if some variable analysis area concept was employed. In litigation regarding the Colville National Forest decision to grant Stimson access to lands within the LeClerc BMU, the issue of cumulative

impacts with the present proposed action was raised. Although there is a sound biological basis for using the individual BMU as the analysis area for cumulative effects we address in the potential effects from these adjacent activities in more detail.

Because the potential activities within the Kalispell-Granite BMU related to Stimson access are minimal the most likely potential effect would be that bears would be displaced from LeClerc to the Kalispell Granite BMU as a result of activities within LeClerc. During Stimson's activities the Kalispell-Granite BMU would continue to provide adequate habitat attributes to support bears that may be in the area. While there is potential for bears to be displaced out of the area where activities are occurring related to Stimson access request within the Kalispell-Granite BMU it is not likely that those bears would be displaced from of the BMU into adjacent areas since the Kalispell-Granite BMU would continue to provide adequate habitat conditions to support bears continued use. The most likely scenario would be that any bears would be displaced, to other areas of the Kalispell-Granite BMU less affected by human activities. It is unlikely, therefore that there would be any significant potential cumulative effect of the Stimson access proposal even considering activities occurring outside the Kalispell-Granite BMU.

Alternative A

Direct and Indirect Effects: No impacts to grizzly bear or habitat would be anticipated on NFS lands. 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 is 85,640 acres. Currently, security habitat of the BMU is at 82.7 percent during the spring season of March 15-June 30, 76.6 percent during the summer season (July 1 – September 10, and 82.6 percent during the fall (September 11 – November 15). The standard for security habitat within the Kalispell-Granite BMU is 70 percent. If Alternative A were implemented, core habitat would remain at 48.2 percent. No change in open and total road densities would occur. The existing condition for open road density is 31.4 percent. Total road density is 28.8 percent.

The 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 NFS lands that would not affect security or core habitat also were considered. These include the following:

- *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 or core habitat.
- *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.

Past project on NFS lands that presently affect security or core habitat also were considered. This includes 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. Harvest activities were completed in 2003. Post-sale activities such as planting and prescribed burning were finished in 2003 within established administrative use guidelines. Currently, the Dusty Peak Timber Sale area does not meet core habitat criteria. Core habitat within the Dusty Peak Timber Sale Area would be created once roads 1341A and 1341B are decommissioned as planned. This work is anticipated to take place after 2005.

- *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 was completed in 2001-2002 except for a small portion outside the Kalispell-Granite BMU. Post-sale activities did include burning piles in 2003. The project had no effect on grizzly bear security or core habitat.

Past project on SLC's lands that presently affect security or core habitat also were considered. This includes the following:

- *Section 7; T. 36 N., R. 45 E., WM* - Section 7 lies to the immediate west of the project area along the Priest-Pend Oreille Divide. A small portion of the section totaling approximately 35 acres lies on the Priest side of the Divide. This parcel was included in the cumulative effects analysis grizzly bear. Selective harvest with 50 percent of the basal area removed is prescribed for these acres. Approximately 30 acres were harvested by tractor-logging in 2003, and the remaining acres will be cable-logged in the future [for analysis purposes, the cable harvest is assumed to occur in 2004]. Roads accessing this parcel were constructed in 2002. The road is barricaded at its junction with Road 308 (Opp personal communication 2004; see project project file). A map of Section 7 is located in Appendix C.

- *Sections 3 and 9; T. 36 N., R. 45 E., WM* - These two sections are owned by SLC and lie immediately east of the proposed action. Portions of these sections were logged over the

past nine years and were included in the analysis of the existing environment for various resources including roadless and various wildlife species. Harvest activity occurred in both sections in 2002 and in 2003 with post-sale activities following the logging. Additional logging is proposed in Section 9 in the future [for the cumulative effects analysis, this harvested is assumed to occur in 2004-2005]. No additional roads would be built in the future because the existing roads service the entire section. The roads currently are all closed by gates (Opp personal communication 2004; see project file).

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

- *SLC's lands in Sections 3 and 9, T. 36 N., R. 45 E., WM* 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 currently are not considered core habitat. Because of continued management activities in these sections, core habitat would not be assumed to occur in the future. No new roads will be constructed as part of these activities. The existing roads accessing these sections are closed by gates to restrict public motorized access. Only administrative traffic is allowed. At the road entrance, signs outlining the yearlong road restrictions prohibiting public motorized use are currently posted; an example of the sign is found in Attachment K of the 2000 Conservation Agreement among SLC, the Colville National Forest, and the U.S. Fish and Wildlife Service.

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

- *Kalispell Project*. This project would be located in the Kalispell Creek portion of the BMU. The vegetation portion of this project 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. Other potential projects include road relocation and obliteration, burning of dry-site ecosystems, recreation improvements, and noxious weed control. As explained in Chapter I, a proposed action has not been developed. The proposal would 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. Any resultant action would be developed to be consistent with updated management guidelines for grizzly bears and other resources. Because of the reasons stated above, it would be assumed that this foreseeable action would not adversely affect grizzly bears.

- *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. Planning of this project is ongoing and is anticipated to be completed in 2005. Implementation would begin after that date. Any activities would comply with the grizzly bear guidelines as discussed earlier in this chapter. Therefore, it is assumed that this future action would not adversely affect grizzly bears.

- *Willow Creek Road Restoration*. This project would accomplish recontouring, partial recontouring on roads 1122 and 1124. Approximately 8.4 miles of road would be treated. The effect of this activity is anticipated to increase core habitat within the Kalispell BMU by 1.4 percent and .4 percent within the Sullivan Hughes BMU. This project is anticipated to begin in 2005.

- *Dusty Peak Timber Sale*. Currently, the Dusty Peak Timber Sale area does not meet core habitat criteria. Core habitat within the Dusty Peak Timber Sale Area would be created once roads 1341A and 1341B are decommissioned as planned. This work is anticipated to take place after 2005.

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

- Management activities on private industrial lands in Sections 3, T. 36 N., R. 45 E., WM of the BMU. In 2002-2003, Stimson harvested an estimated 300 acres of Section 3 (Opp personal communication 2004; see project file). The harvest included 226 acres of regeneration units and 36 acres of selective cutting. The remaining 38 acres are located in Riparian Management Zones (RMZs) in which an estimated 25 percent of the basal area (i.e. density) of the stand will be removed.

- Management activities on private industrial lands in Section 7, T. 36 N., R. 45 E., WM, SLC implemented a timber harvest on approximately 35 acres located in the northeastern corner of Section 7. Selective harvest was prescribed on 30 acres and harvested in 2003. No date has been specified for the remaining 5 acres of selective harvest, but probably would occur within the next 5 years. Roads accessing this portion of Section 7 were constructed in 2002. The road was barricaded for grizzly bear security at its junction with Road 308. At the road entrance, signs outlining the yearlong road restrictions prohibiting public motorized use have been posted (Opp personal communication 2004; see project file). No loss of security or core habitat would occur in the 8 acres of Section 7 that lies within the influence zone of Road 308, but this future action would reduce core and security habitat on the remaining acres. Though there would be a small loss of acres in security habitat and core habitat, the percentages would not change from the existing condition. This 23-acre loss is included in the cumulative effects for Alternative A. The new roads are included in the calculations for Open Motorized Road Density (OMRD) and Total Motorized Road Density but did not result in a change in the percentages.

- In Section 9, 61 acres were harvested as regeneration units in 2003. Future harvest also is scheduled for 46 acres of overstory removal and 37 acres of regeneration cuts. The harvest date for these acres has not been determined, and will depend on market conditions and other factors. Though no date has been specified, this harvest is

considered as a reasonably foreseeable action in the analysis and may occur within the next 5 years. Because there already is a deduction for activities occurring in Sections 3 and 9, no additional loss of security or core habitat would occur. Moreover, no additional roads would be built and the existing closures to public motorized use would be maintained. No increase would occur to open or total motorized road densities. These harvest and related activities were identified as Reasonably Foreseeable Actions for future analyses when the Kalispell-Granite BMU was originally established in 1995 (USDA 1995a, p. 1-4).

- Section 25; T. 37 N., R. 45 E., WM - Section 25 was owned by Crown Pacific Timber Company until February 2002 when it was sold to Patriot Investments, LLC. The section lies along the Idaho-Washington border. Logging and roading over the entire section occurred in the mid-1990s. These past actions are considered in the analysis of Kalispell-Granite BMU. No reasonably foreseeable actions would be expected to occur in this section within the next 5-10 years because of the recent logging that occurred.

- In addition to the private lands discussed above, private industrial lands exist in Sections 31 and 33, T. 62 N., R. 5 W., BM and Section 25, T. 37 N., R. 45 E., WM. Sections 31 and 33 and the majority of Section 25 were clearcut harvested in the past. No activities will occur in Sections 31 and 33 for the next couple decades (Opp personal communication 2002). A possibility of management activities or timber harvest in Section 25 may occur in the future though none currently is planned (McClintock personal communication 2002). Because the section is completely roaded, no additional new road construction would occur. Existing closures would be maintained to restrict public use during periods of operations. There would be a reduction in habitat security if activities would occur. If these activities would occur, activities on NFS 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 authorized road, the sighting would be reported to the Forest Service biologist. The U.S. Fish and Wildlife Service would determine if any site-specific measures would be needed to protect the animal. Activities on SLC's lands are subject to Section 9 of the Endangered Species Act.

Road density would change slightly, 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 NFS lands, security habitat for grizzly bears would be reduced by 139 acres as shown in table 4. 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.

The existing closure on Stimson's lands in Section 9 also would be maintained. Core habitat for grizzly bear would also be reduced by 151 acres as a result of activities on NFS lands. This alternative would result in the construction of 4,000 feet (0.75 mile) of road on National Forest. No change would occur to Open Motorized Road Density because the road would be closed to public access. The new road is included in the calculations for Total Motorized Road Density but did not result in a change in the percentages because of its limited length.

Cumulative Effects: The cumulative effects for Alternative B incorporates the discussion of the effects analyzed in Alternative A, the direct and indirect effects on NFS lands as discussed above, and the effects of the activities on Stimson's lands.

The proposed access request on NFS lands and the associated harvest activities on private lands in Section 5, T. 36 N., R. 45 E., WM cumulatively would result in a 1.0 percent, or 880 acres reduction in security habitat within the Bear Management Unit as displayed in table 4. Spring security habitat would be reduced to 81.9 percent; fall security habitat would be lowered to 75.8 percent, and summer security habitat at 81.8 percent.

The road construction and tractor harvesting associated with Alternative B would reduce core habitat for grizzly bears by 0.9 percent or 772 acres of the BMU. An additional 96 acres of core habitat would be temporarily impacted by helicopter logging activities within Section 5. This would be a short-term effect with no permanent loss of core habitat because no roads would be constructed. The helicopter logging would occur over a single season lasting approximately 3 months. Core habitat in the BMU would be reduced cumulatively from 48.2 percent to 47.3 percent. Roads 319 and 1104 (the Harvey-Granite and Cache Creek road systems) were decommissioned and obliterated in August 1998, which increased core habitat by 2,043 acres, or 2.4 percent in the Kalispell-Granite BMU. The road obliteration and core increase were intended to offset imminent core losses anticipated with the current access request (Appendix F). The obliteration increased core habitat within the BMU from 45.9 percent to the current 48.2 percent.

The proportion of the BMU with open motorized road densities greater than 1 mi/mi^2 would remain at 31.4 percent in Alternative B. As discussed above under Direct and Indirect Effects, the constructed roads would be restricted to public motorized use. Only administrative use, including those contractors utilized by SLC, would occur on these roads. This would not exceed the management goal of 33 percent. The proportion with total motorized road densities greater than 2 mi/mi^2 would increase from 28.8 to 29.7 percent. The increase in total motorized road density would primarily result from planned road construction on SLC's lands in Section 5.

Stimson would manage their roads and conduct their logging in accordance with the 2000 Conservation Agreement among SLC, the Colville National Forest, and the U.S. Fish and Wildlife Service. This Agreement is included as Appendix E. The guidelines of this plan would be used for their proposed activities in Section 5 (Stimson Access Request Pre-Consultation Meeting, 1-17-01).

Table 4. Impacts to grizzly bear habitat attributes resulting from the proposed access request within the Kalispell-Granite BMU.

	Alternative A	Alternative B		Alternative C		Alternative D	
	Total	National Forest System Lands Only	National Forest System and Private Lands	National Forest System Lands Only	National Forest System and Private Lands	National Forest System Lands Only	National Forest System and Private Lands
Security Habitat Reduction	0 ac.	139 ac.	880 ac.	122 ac.	882 ac.	691 ac.	1243 ac.
Core Habitat Reduction	0 ac.	151 ac	794 ac.	127 ac.	798 ac.	643 ac.	1182 ac.
Open Motorized Road Density (>1mi/mi^2)	31.4 %	31.4 %	31.4 %	31.4 %	31.4 %	31.4%	31.4%
Total Motorized Road Density (>2mi/mi^2)	28.8 %	29.7 %	30.0 %	29.7%	30.0 %	28.8 %	28.8 %

Because the proposed road construction on NFS lands would reduce security and core habitat for grizzly bears, the activity may affect grizzly bears. The reductions in security and core habitat are small or limited on NFS lands. 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 was designed to 'offset' the anticipated core habitat reductions and increase in total road density associated with Stimson's planned activities. Therefore, planned activities on private lands in the BMU are not likely to adversely affect grizzly bear (Appendix F).

Alternative C

Direct and Indirect Effects: Effects would be similar to Alternative B. Grizzly bears may be displaced with implementation. If a bear is discovered during use of the authorized road, the sighting would be reported to the Forest Service biologist 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 motorized road density would not change because use would be restricted. 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 NFS lands, security habitat for grizzly bears would be reduced by 122 acres as shown in table 4. 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. The existing closure on Stimson's lands in Section 9 also would be maintained. Core habitat for grizzly bear would be reduced by 127 acres as a result of activities on NFS lands.

Alternative C would result in the construction of 2500 feet (0.47 mile) of road on NFS lands. As with Alternative B, no change would occur in Open Motorized Road Density because the road would be closed to public access. The new road is included in the calculations for Total Motorized Road Density but, as in Alternative B, did not result in a change in the percentages because of its limited length.

Cumulative Effects: The cumulative effects for Alternative C incorporates the discussion of the effects analyzed in Alternative A, the direct and indirect effects on NFS lands as discussed above, and the effects of the activities on Stimson's lands.

The proposed access request on NFS lands and the associated harvest activities on Stimson's lands in Section 5, T. 36 N., R. 45 E., WM cumulatively would result in a 1.0 percent, or 882 acres, reduction in security habitat within the Bear Management Unit as displayed in table 4. Spring security habitat would be reduced to 81.9 percent; fall security habitat would be 81.8 percent, and summer security habitat at 75.8 percent. This reduction is nearly identical to the effects of 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 48.2 percent to 47.3 percent. An additional 96 acres of core habitat would be temporarily impacted by helicopter logging activities within Section 5. This would be a short-term effect with no permanent loss of core habitat because no roads would be constructed. The helicopter logging would occur over a single season lasting approximately 3 months. Decommissioned and 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 BMU. The roads 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 45.9 percent to the current 48.2 percent.

The proportion of the BMU with open motorized road densities greater than 1 mi/mi^2 would remain as 31.4 percent, which is the same as Alternative B. The established standard of 33 percent would not be exceeded. The proportion with total motorized road densities greater than 2 mi/mi^2 would increase from 28.8 to 29.7 percent in Alternative C. The increase in both the open and total motorized road densities would primarily result from planned road construction on SLC's lands in Section 5.

Stimson would manage their roads and conduct their logging in accordance with the 2000 Conservation Agreement among SLC, the Colville National Forest, and the U.S. Fish and Wildlife Service. This Agreement is included as Appendix E of that document. The guidelines of this plan would be used for their proposed activities in Section 5 (Stimson Access Request Pre-Consultation Meeting, 1-17-01). The constructed roads would be restricted to public motorized use. Though only administrative use, including contractors, would occur on these roads, the roads were considered open roads because of the level of activity during harvest operations.

Because the proposed road construction on NFS lands would reduce security and core habitat for grizzly bears, the activity may affect grizzly bears. The reductions in security and core habitat are small or limited on NFS lands. 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 was designed to 'offset' the anticipated core habitat reductions and increase in total road density associated with Stimson's planned activities. As with Alternative B, planned activities on private lands in the BMU also are not likely to adversely affect grizzly bear.

Alternative D

Direct and Indirect Effects: No road construction would occur as part of this alternative. There would be no direct loss of grizzly bear habitat on NFS lands resulting from road construction and use as for the other two action alternatives.

Cumulative Effects: The cumulative effects for Alternative D incorporates the discussion of the effects analyzed in Alternative A, the direct and indirect effects on NFS lands as discussed above, and the effects of the activities on Stimson's lands.

In this alternative, helicopter access would be considered the continuing means of access to Stimson's lands in Section 5 for management activities as described in Chapter II. The helicopter logging associated with Alternative D cumulatively would result in a reduction in security habitat by 1.5 percent from existing conditions. This reduction would result from a half-mile reduction in security from the proposed logging activities in Section 5. This reduction for helicopter operations would cause an indirect effect on NFS lands, and a direct effect on SLC's lands where the logging would occur. The habitat security reduction would total 1,243 acres would occur with 691 acres of NFS lands, and 552 acres of Stimson's lands within the Bear Management Unit being impacted as displayed in table 3. Spring security habitat would be 81.2 percent, fall security habitat would be 81.1 percent, and summer security habitat would be 75.1 percent in Alternative D. This reduction is higher than the other two action alternatives.

Management activities associated with Alternative D cumulatively would result in the highest reduction of core habitat. Core habitat would be reduced by 1,182 acres, or 1.5 percent. This reduction from existing conditions would occur on both NFS lands (643 acres) and Stimson's (539 acres) lands. Core habitat in the BMU therefore would be reduced cumulatively from 48.2

percent to 46.7 percent. Decommission and obliteration of Roads 319 and 1,104 (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 BMU. As discussed for the other alternatives, 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 45.9 percent to the current 48.2 percent.

Because no roads would be constructed on NFS or private lands in Alternative D, the existing open motorized road density would not increase from the existing condition of 31.4 percent. The total motorized road density also would not change from 28.8 percent.

Reasonably foreseeable activities on SLC's lands in Section 5 would reduce the amount of available security habitat and core habitat for grizzly bears because of helicopter operations. 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. Planned activities on private lands in the BMU are not likely to adversely affect grizzly bear in Alternative D.

Lynx (Lynx Canadensis)

Analysis Process

Lynx Analysis Units (LAUs) were specified to encompass areas of suitable habitat and to approximate the known annual home range size for a resident lynx (Ruediger et al. 2000, p. 78). 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 was used in a computer model to measure effects.

Direct effects would include the loss of suitable habitat or direct mortality on NFS lands. Indirect effects would include changes in suitable habitat through time. The cumulative effects area for lynx would be the Sema Lynx Analysis Unit (LAU), and considers past, present, and reasonably foreseeable actions on NFS and private lands. The Sema LAU is 25,147 acres.

Alternative A

Direct and Indirect Effects: This alternative would have no direct effect on lynx or their habitat on NFS lands. 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. No effect would occur to existing travel corridors and connectivity.

The indirect effect of this alternative would be that 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; these groomed routes receive heavy use from December to the end of the snowmobiling season in the spring. These routes are located over five miles from the project area. One identified 'snowmobile play area' of approximately 900 acres is located in the western portion of the lynx analysis unit (USDA 2000e). This area is located along the Priest-Pend Oreille Divide near Monumental Mountain in the vicinity of Bunchgrass Meadows, approximately two miles from Section 5, where SLC has requested road access. The 'play area' is accessed by ungroomed routes on the Colville side of the Divide. Open and semi-open areas adjacent to groomed snowmobile trails often receive periodic dispersed snowmobile use. Ungroomed roads including Roads 308 and 311 receive lower levels of dispersed snowmobiling use. Roads on Stimson's lands are gated, and closed yearlong to public motorized use, including snowmobiles; each road is posted at its entrance. A field survey by the wildlife biologist during the winter of 2000-2001 documented low to moderate use of Roads 308 and 311. No dispersed snowmobile use was noted off these roads at the time of the survey.

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 historically has been a documented source of lynx mortality and serve as travel routes for potential competitors and predators of lynx (Ruediger et al. 2000, pp. 22-23, 8). As with the action alternatives, no increase in groomed snowmobile routes or dispersed snowmobile use would be expected to occur in the No Action Alternative.

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. Existing habitat is shown on figure 6. As shown in table 5, high quality foraging habitat is 64 percent; denning habitat is 15 percent; and unsuitable habitat is 5 percent. Guidelines for denning and suitable habitat, as specified in the existing conditions for lynx, would be met in Alternative A. Unsuitable habitat as shown on figure 6, has resulted from recent timber harvest activity in the late 1980s and early 1990s on NFS lands in the extreme eastern portion of the LAU. No harvesting has occurred on NFS lands in the LAU since that time. Several older harvest units on NFS lands currently are considered as high quality forage areas because of the density of sapling and pole-sized trees. Any future actions on NFS lands would require consultation with the U.S. Fish and Wildlife Service to ensure that lynx habitat would be maintained according to established guidelines. Past actions on private industrial lands within the LAU which were considered in the cumulative effects analysis include:

- Section 3, T. 36 N., R. 45 E., WM: Past harvesting includes 92 acres of selective harvest and 142 acres of regeneration harvest. These units were logged in 1995-1996. All acres are considered unsuitable habitat. Section 3 contains no defined travel corridor because of the overall moderate topography within the section.

- Section 9, T. 36 N., R. 45 E., WM: Approximately 164 acres of Section 9 were logged in 1995-1996. These treatments included 36 acres of overstory removal with the remainder

being regeneration harvests. The acres of overstory removal are considered forage habitat because of the sapling and pole-sized timber. Planting occurred on 77 acres of the regeneration units in 1999. An additional 243 acres were logged in 2000-2001; a majority of these acres are considered unsuitable habitat because they were regeneration harvests. A predominant ridge (i.e. Kalispell-Granite Creek Divide) runs along the southern portion of the parcel. To maintain connectivity along this ridge, cover was retained (Gilbert 1996, p. 28). In addition, 98 acres were harvested as regeneration units in 2003. These acres are classified as unsuitable habitat.

- Section 3, T. 36 N., R. 45 E., WM. Stimson harvested an estimated 300 acres in 2002-2003. The harvest included 226 acres of regeneration units and 36 acres of selective cutting; these acres are unsuitable habitat. Currently these acres are considered low quality forage habitat

- Section 7, T. 36 N., R. 45 E., WM. SLC in 2003 harvested on approximately 30 acres located in the northeastern corner of Section 7. These acres currently are classified as low quality forage habitat, and are unsuitable habitat. Harvesting would of been conducted to maintain cover at least 300 feet in width to maintain connectivity along the main north-south ridgeline (Gilbert 1996, p. 28).

- Section 1, T. 37 N., R. 44 E., WM: The southern third of the section is located within the Sema LAU. Approximately 45 acres in the southwestern portion were harvested in 1986. The unit was clearcut and planted, and is a sapling-sized stand. These acres presently are considered unsuitable habitat.

- Section 13, T. 37 N., R. 44 E., WM: The 38 acres located on extreme eastern portion of this section is included in the Sema LAU. Harvesting occurred on 9 acres in 1999. These 9 acres in addition to 22 adjacent acres were selectively logged in 2002, but retained their value as low quality forage because of the limited tree removal. These acres are considered as low quality forage. The main north-south ridge (i.e. Priest-Pend Oreille Divide) runs through this section; this ridgeline is an important feature in maintaining landscape connectivity. Harvesting was conducted to maintain cover at least 300 feet in width to maintain connectivity (Gilbert 1996, p. 29).

- Section 25, T. 37 N., R. 44 E., WM: Only the eastern portion of this section lies within the Sema LAU. Roads were constructed, and 162 acres were selectively logged in 1996-1997. The logging in this section maintained suitable habitat, with the harvested acres being classified as low quality forage. The main Priest-Pend Oreille Divide transverses this section. To maintain connectivity along the ridgeline, harvesting was conducted to maintain cover along the ridge over time (Gilbert 1996, p. 29). The cover was a minimum of 300 feet in width.

- Section 25, T. 37 N., R. 45 E., WM: This former Crown Pacific section was logged in the mid-1990s. These acres are considered unsuitable lynx habitat except for two parcels adjacent to the northern boundary, which are presently classified as denning habitat. No reasonably foreseeable actions have been identified for this parcel because of the fairly recent logging activity which covered the entire section.

- Sections 31 and 33, T. 62 N., R. 5 W., BM: These partial sections were clearcut logged in the 1980s, and currently are unsuitable lynx habitat. No activities are planned in this section in the reasonably foreseeable future.

Reasonably foreseeable actions on NFS 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 (i.e. classified) road construction is anticipated; any needed roads would be unclassified temporary roads. Preliminary work on an EIS is scheduled for this summer. Planned implementation of the project would not occur until 2004 or later. Any activities would comply with lynx management guidelines. No other timber sale is planned in the LAU.

- *Special use permits for outfitting and guide services*. These permits, which covers the entire LAU, includes short-term activities that may effect but are not likely to adversely affect lynx.

- *Maintenance of open roads and trails.* These annual maintenance activities on existing developments may effect but are not likely to adversely affect lynx.

- *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 in Section 3, T. 36 N., R. 45 E., WM. Stimson plans to harvest 38 acres which would occur in Riparian Management Zones (RMZs) where 25 percent of the basal area would be removed, but would retain low quality forage habitat values. No harvest would occur in existing denning habitat. Currently these acres are considered low quality forage habitat

- Planned timber harvest in Section 7, T. 36 N., R. 45 E., WM. SLC has scheduled for a selected timber harvest on approximately 5 acres located in the northeastern corner of Section 7. No date has been specified for the 5 acres of selective harvest, but probably would occur within the next 5 years. These acres currently are classified as low quality forage habitat, and would remain as low quality forage habitat following the timber harvest operations. Harvesting will be conducted to maintain cover at least 300 feet in width to maintain connectivity along the main north-south ridgeline (Gilbert 1996, p. 28).

- Planned Timber Harvest in Section 9, T. 36 N., R. 45 E., WM. In Section 9, 30 acres of partial cuts and 16 acres of overstory removal will be logged in the future; these areas would remain as forage habitat. The harvest date for these acres has not been determined, and will depend on market conditions and other factors. Though no date has been specified, this harvest is considered as a reasonably foreseeable action in the analysis and may occur within the next 5 years. No denning habitat would be affected.

- Planned Timber Harvest in Section 1, T. 37 N., R. 45 E., WM. A 68-acre commercial thin/selective harvest in the southwestern portion of the section is planned for 2005. The eastern portion of the section is programmed for an overstory removal cut in the future. No date has been scheduled for the overstory removal harvest, but would probably occur within the next 5 years. Within the riparian management zone, approximately 20 percent of the basal area would be removed in the future though no date has been specified; these areas would remain as low quality forage habitat. No harvest activity would occur in the riparian core zone of the South Fork of Granite Creek, which has been identified as a landscape corridor. The riparian core zone is considered not-capable habitat.

- Planned Timber Harvest in Section 13, T. 37 N., R. 44 E., WM. The 38 acres located on extreme eastern portion of this section is included in the Sema LAU. Harvesting occurred on 9 acres in 1999 and 22 acres in 2002. Five acres of overstory removal will occur in 2005. The main north-south ridge (i.e. Priest-Pend Oreille Divide) runs through this section; this ridgeline is an important feature in maintaining landscape connectivity. The logging in this section would maintain suitable habitat, with the harvested acres being classified as low quality forage. Harvesting will be conducted to maintain cover at least 300 feet in width to maintain connectivity (Gilbert 1996, p. 29). The remaining three acres of the section are a rock outcrop lacking tree cover, and are considered as not-capable habitat.

- Section 25, T. 37 N., R. 44 E., WM: Only the eastern portion of this section lies within the Sema LAU. In the future, 222 acres will be logged though no date has been established. It is anticipated, however, that this harvest activity will occur within the next five years. The majority of these acres were previously logged in 1996-97. The harvest would remove approximately 40 percent of the basal area on 212 acres, and 10 percent on the remaining 10 acres. No additional roads would be constructed. The logging in this section would maintain suitable habitat, with the harvested acres being classified as low quality forage. The main Priest-Pend Oreille Divide transverses this section. To maintain connectivity along the ridgeline, harvesting was conducted to maintain cover along the ridge over time (Gilbert 1996, p. 29). The cover was a minimum of 300 feet in width.

- Management activities on SLC's lands in Sections 31 and 33, T. 62 N., R. 5 W., BM. In addition to the private lands in Washington State as discussed above, SLC also owns the private industrial lands in Sections 31 and 33, T. 62 N., R. 5 W., BM, in Idaho. These sections were clearcut harvested in the 1980s, and currently are considered as unsuitable habitat. These areas would become suitable foraging habitat in approximately 10-15 years based on the current age and density of the trees. Precommercial thinning has the potential to occur on these parcels to maintain the vigor of the sapling-sized trees though SLC has not indicated that the activity would occur within that timeframe. Precommercial thinning would maintain both sections as unsuitable lynx habitat.

- Management activities on former Crown Pacific lands in Section 25, T. 37 N., R. 45 E., WM. Section 25 was logged in the mid-1990s as a regeneration harvest. Because of the level of removal, a majority of the section is considered as unsuitable lynx habitat except for approximately 65 acres in the northwest corner. The 65 acres were not logged as heavily,

and currently meet denning habitat criteria. Patriot Investments has indicated that no management activities are planned in this section within the next 5-10 years. If logging would occur on these acres within that timeframe, the 65 acres would become unsuitable habitat until the regenerated trees provide forage habitat.

The above actions were considered in the cumulative effects analysis. Low quality forage habitat would be impacted by these future activities but would remain as low quality forage habitat and are not anticipated to become unsuitable habitat. Other management activities such as inventory and monitoring, noxious weed control, and road maintenance also would be expected to continue on both private and federal lands. These seasonal activities such as culvert cleaning would have minimal, if any, effect on lynx because of their short duration. No precommercial thinning is planned in these sections in the reasonably foreseeable future.

For the No Action Alternative, landscape connectivity and travel corridors would be maintained on SLC's lands. Connectivity would be maintained, and would follow the guidelines of the Salmo-Priest and Little Pend Oreille Lynx Range Management Plan (Gilbert 1996).

Alternative B

Direct and Indirect Effects: The construction of 4,000 feet of road on NFS 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 NFS 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 if Alternative B were implemented. 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: The cumulative effects for Alternative B incorporates the discussion of the effects analyzed in Alternative A, the direct and indirect effects on NFS lands as discussed above, and the effects of the activities on Stimson's lands. The planned timber sale activities in Section 5 (managed by the SLC) in combination with direct effect of loss of six acres on NFS lands in Alternative B would affect 381 acres of currently low quality forage habitat for lynx. As a result, these 381acres of low quality forage would become unsuitable lynx habitat and would remain unsuitable for approximately 15-25 years or until vegetation regrowth has occurred. The remaining harvested acres would remain as low quality forage based on the level of canopy removal and amount of immature trees that would be left following harvest. With the addition of the reasonably foreseeable actions outlined for the No Action Alternative, the cumulative effect on lynx habitat therefore would total 381 acres in Alternative B. The federal and private activities, along with any other reasonably foreseeable actions, would cumulatively reduce low

quality forage from 64 to 62 percent of the LAU (table 5). The proportion of denning habitat within the LAU would not change. Currently, 15 percent of the LAU consists of denning habitat. Within a LAU, denning habitat should comprise at least 10 percent of the LAU as discussed in the Affected Environment portion of this section.

The proportion of unsuitable habitat in the LAU would be increased from five percent to eight percent as shown in table 5. 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 established guideline is that management actions shall not change more than 15 percent of lynx habitat within a LAU to an unsuitable condition within a 10-year period (Ruediger et al. 2000, p. 80).

Table 5. Summary of impacts to lynx habitat attributes in the Sema Lynx Analysis Unit (LAU).

Habitat Attribute	Existing Condition		Alternative A		Alternative B		Alternative C		Alternative D	
	Acres	%	Acres (change)	%	Acres (change)	%	Acres (change)	%	Acres (change)	%
Denning Habitat	3,692	15	0	15	0	15	-1.8	15	0	25
High Quality Forage Habitat	2,860	11	0	11	0	11	0	11	0	9
Low Quality Forage Habitat	16,025	64	0	64	-381	62	-377	62	-375	62
Unsuitable Habitat	1,244	5	0	5	+381	8	+379	8	+375	8
Unsuitable Habitat created in last Decade (Included in Unsuitable Habitat)	689	3	0	3	+381	4	+379	4	+375	4
Total	**23,821**									

Note: Values for Alternative A include reasonably foreseeable actions on private lands in the LAU, whereas values for Alternatives B, C, and D include those reasonably foreseeable actions in addition to impacts in Sections 5 and 8.

The unsuitable habitat would be forest openings created by timber harvest on Stimson's lands in Section 5. 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 15-25 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 juxtaposition, seasonal forage and denning habitat from management activities. This model would be utilized in timber sale planning on SLC's lands (Duke Engineering and Services 1998) to reduce the impacts to lynx habitat.

Connectivity would be maintained on Stimson's lands and across the landscape. As stated in the existing condition, Section 5 can be characterized as an east-facing bowl and is not located along

a major ridge system. Because of the prevailing gentle topography of Section 5, lynx movement would not likely be restricted to the low ridges within the section. Stream buffers would be implemented adjacent to Sema Creek in accordance with Washington Forest Practices (WAC 222-30-022). These buffers adjacent to Sema Creek would maintain travel corridors through Section 5.

New road construction on NFS and Stimson's 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. At the road entrance, signs outlining the yearlong road restrictions prohibiting public motorized use would be posted; an example of the sign is found in Attachment K of the 2000 Conservation Agreement among SLC, the Colville National Forest, and the U.S. Fish and Wildlife Service. This Agreement is included in the project file. The guidelines of this plan would be used for their proposed activities in Section 5 (Stimson Access Request Pre-Consultation Meeting, 1-17-01). Therefore, minimal, if any, increase in snowmobile use would be anticipated to occur resulting from implementation of Alternative B because snowmobiles are included in these restrictions. Field surveys by the Forest Service wildlife biologist during the winters of 2000-2001 and 2001-2002 documented no sign of snowmobile use on these closed roads.

The open road density within the Sema Lynx Analysis Unit also would not change if Alternative B were implemented because of these yearlong restrictions to public motorized use. Lynx are more vulnerable to human-caused mortality near open roads (Ruediger et al. 2000, p. 27).

Because the proposed road construction on NFS lands would impact suitable habitat for lynx, the activity may affect lynx. However, the reduction in suitable habitat on NFS lands would be minimal, and the established thresholds would not be exceeded. 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 by harvest activities 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 (Biological Assessment).

Alternative C

Direct Effects: The construction of 2,500 feet of road on NFS 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 in Section 4 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 NFS 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 NFS 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. The planned timber sale activities in Section 5 (managed by the SLC) would affect 377 acres of currently low quality forage habitat for lynx. Therefore, the loss of suitable habitat would be 379 acres for Alternative C. The federal and private activities, along with any other reasonably foreseeable actions, would cumulatively reduce low quality forage from 64 to 62 percent of the LAU as shown in table 5. The proportion to denning habitat within the LAU would not change though there would be a 1.8-acre reduction in Alternative C. Currently, 25 percent of the LAU consists of denning habitat. Within a LAU, denning habitat should comprise at least 10 percent of the LAU as discussed in the Affected Environment portion of this section. Overall, cumulative effects associated with Alternative C would not differ from Alternative B, as discussed in the preceding section.

The proportion of unsuitable habitat in the LAU would be increased from five percent to eight percent for Alternative C, as shown in table 5. 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 established guideline is that management actions shall not change more than 15 percent of lynx habitat within a LAU to an unsuitable condition within a 10-year period (Ruediger et al. 2000, p. 80).

As with Alternative B, connectivity would be maintained on Stimson's lands and across the landscape. As stated in the existing condition, Section 5 can be characterized as an east-facing bowl and is not located along a major ridge system. Because of the prevailing gentle topography of Section 5, lynx movement would not likely be restricted to the low ridges within the section. Stream buffers would be implemented adjacent to Sema Creek in accordance with Washington Forest Practices (WAC 222-30-022). These buffers adjacent to Sema Creek would maintain travel corridors through Section 5 and provide for connectivity and low quality forage habitat.

Because the proposed road construction on NFS lands would impact suitable habitat for lynx, the activity may affect lynx. However, the reduction in suitable habitat on NFS lands would be minimal, and the established thresholds would not be exceeded. 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 because of harvest prescriptions and thus may affect lynx. Because the established thresholds and standards for the management of lynx habitat would be met, it was determined that the cumulative effect of these activities would not be likely to adversely affect lynx (see Appendix F).

Alternative D

Direct and Indirect Effects: No road construction would occur on NFS lands in this alternative, and therefore there would be no direct effect on NFS lands if this alternative were implemented.

As described in Alternative A, the indirect effect of natural stand successional processes would continue on NFS lands in the analysis area if Alternative D were implemented. 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: For Alternative D, the effects of past, ongoing, and future actions would follow the discussion as outlined for the No Action Alternative except for the proposed harvest activities in Section 5 on SLC's lands. In this alternative, logging would be accomplished by helicopter and no road construction would occur. It would be assumed that the same harvest prescriptions would be followed as for the other action alternatives, which would cumulatively reduce low quality forage from 64 to 62 percent of the LAU as shown in table 5. An estimated 375 acres of low quality forage would be converted to unsuitable habitat in this alternative. No denning habitat would be affected in this alternative. The proportion of unsuitable habitat in the LAU, therefore, would be increased from five percent to eight percent for Alternative D, as shown in table 5. This would fall within the established guidelines both for total portion of the LAU in unsuitable habitat and for unsuitable habitat created within the last decade.

As with Alternatives B and C, connectivity would be maintained on Stimson's lands and across the landscape. Stream buffers would be implemented adjacent to Sema Creek in accordance with Washington Forest Practices (WAC 222-30-022). These buffers adjacent to Sema Creek would maintain travel corridors through Section 5.

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 the cumulative effect of these activities would not be likely to adversely affect lynx or lynx habitat if Alternative D were implemented.

Consistency with the Forest Plan and Other Regulatory Direction

All four alternatives would be consistent with the Forest Plan standard (see Chapter II) for providing for recovery as outlined in species recovery plans or other management plans and guidelines for federally listed species such as grizzly bear and Canada lynx; and Forest Plan Standard (see Chapter II) for maintaining viable populations of all species. The effects of the alternatives would not be likely to adversely affect these species as discussed in the Biological Assessment and Biological Opinion (Appendix F, pg. 39- 40). None of the alternatives would have a measurable effect on the persistence and viability of Threatened, Endangered, Sensitive, and Management Indicator Species within the Priest Lake watershed.

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. According to Goal #18 the Forest will "maintain high quality water to protect fisheries habitat, water-based recreation, and 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 NFS 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 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 NFS lands. State-recognized BMPs that would be used during project design and implementation on NFS lands are contained in Appendix A.

The Washington Forest Practice 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 lands also would comply with these regulations.

The Washington Department of Natural Resources (DNR) is the agency responsible for enforcement of these regulations on SLC's 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 fisheries.

Methodology

The data for this analysis includes field data, aerial photos from 1996 and 2001, 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, six separate field reviews were conducted by hydrologists, a fish biologist and a soil scientist: two in October 1997, one in November 1997, one in June 2001, one in September 2001, and one in October, 2001. The October 1997 field reviews included a reconnaissance of both potential road locations and a stream survey of those tributaries that would be affected by the road location. The November 1997 review documented the condition of the mainstem of Sema and the major tributaries that were crossed. The June 2001 survey reviewed the roads that had been constructed by Stimson. Some of the same roads that were surveyed in 1997 were resurveyed at that time. The September 28, 2001, field survey was the most extensive survey of the stream system that was completed for this project. The review on October 3, 2001, focused upon a specific road segment of Alternative B. Information from these surveys is located in the project file. Additionally, field surveys were conducted in September and October of 2001 by a Forest Engineer and Geotechnical Engineer. They reviewed the Alternatives B and C road locations. Their reports are also included in the project file.

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. In the summer of 2001, two Interdisciplinary Team members flew over Sema Meadows to review the stream system and to document the condition of the beaver dams in the meadow. They noted that most of the beaver dams were gone. Copies of these photos are 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 (Elliot and Renner 1996) 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 on NFS lands. References including Rosgen 1996; Ketcheson and Megahan 1996 and the X-DRAIN model were used to predict the possible effects of the actions on the streams. These references provide the basis for determining the effectiveness of the prescribed mitigation measures and how the 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.

WATSED was another analysis tool that was utilized to assess the effects to stream systems. This analysis tool was used to estimate the cumulative effects to watershed resulting from past, present, and future actions on NFS and SLC's lands within the cumulative effects analysis area. This computer model spatially and temporally compiles typical watershed response relationships as a result of forest practices. The values of WATSED estimates a series of anticipated annual values over a period of years.

In the WATSED model, sediment yield and peak flow serve as relative indicators of potential hydrologic responses in the watershed with a specified series of events. The indicators are a limited estimate of the expected relative cumulative watershed sediment budget. The estimate is derived from a model that compiles watershed responses that might result from forest management-related disturbances such as roading, logging and burning over time and space. The forest management activities used to calibrate the model include standard BMPs and Soil and Water Conservation Practices. Site-specific non-standard BMPs are not integrated, and, therefore, must be integrated into the final analysis of watershed probable responses. The percent change estimates are relative to the expected "natural" sediment and peak flows. The relative percent change for these "natural" parameters is, by definition, zero percent if no disturbances have occurred. In most watersheds, however, the relative changes are greater than zero, because of past management activities, and since the responses are calculated by a deterministic model. It is important to note that the WATSED model does not evaluate in-channel and stream-bank erosion or rain-on-snow events in its peak flow analysis.

The modeled response variables are one basis for estimating effects of an alternative in this project. The estimated responses are considered along with other sources of information and analyses to determine the findings of probable effects. Models, such as WATSED and X-DRAIN, are designed to address and integrate a vast and complex number of conditions and organize the evaluation according to rule sets. For WATSED, the rule sets were based on research, and data and analysis collected locally. Models, however, also include simplifying assumptions, and do not include all possible controlling factors. Therefore, the use of models is to provide one set of information to the technical users, who, along with knowledge of the models and its limitations, other models, data, analyses, experience, and judgment must integrate all those sources to make the appropriate findings and conclusions.

An assessment of rain-on-snow events was also conducted as discussed in Chapter II under the section, Issues not Considered in Detail. The Sema Creek drainage is not prone to the damaging effects of rain-on-snow events. A further discussion of rain-on-snow is 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 and WATSED models, scientific literature, and GIS technology.

The X-DRAIN model was run to estimate a relative comparison of sediment delivery between action alternatives on NFS lands. 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. pp. 1-2; Elliot, Hall and Scheele 1999, 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 1989, p. 7; Seyedbagheri 1996, p. 36 and pp. 59-60; Hanna 2002, pp. 58-61 and p. 73). Immediate hydroseeding of cut and fill slopes can reduce sediment delivery up to 80 percent (Burroughs and King 1989; Hanna 2002, pp. 11-12). 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, and not delivered at a single point.

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, WATSED, and scientific literature. This issue comparison among the 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 and 2001, 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 in figure 10. This sub-drainage is located in the western-most headwaters of the Sema Creek drainage that includes the entire watershed upstream of the point where the stream makes a sharp turn in the western half of Section 4 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 NFS lands in Section 8 are located between 0.6 miles to one mile upstream from the mainstem of Sema Creek. The streams flowing across the proposed road authorization 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 settle out in one of the numerous meanders of the low gradient mainstem of Sema Creek. 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's property in Section 9, T. 36 N., R. 45 E., WM, 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 SLC's land did not have the more stringent design criteria that are incorporated into the road crossings proposed under this federal action and the additional mitigation requirements proposed on SLC's roads in Section 5. 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 low gradient E4 meadow complex (see figure 9). The tributaries in the proposed project area ultimately flow into this E4 channel reach of Sema Creek. E4 channel types are hydraulically efficient channel forms, which maintain a high sediment transport capacity (Rosgen 1996, pp. 5.130; Rosgen 1994, pp. 174-192). Typically E4 stream channels have high meander width ratios, high sinuosity, low width/depth ratios, and a well-developed floodplain (ibid). The meandering and sinuosity of this channel type causes a resistance to flow that causes the stream energy to dissipate. The sediment load drops because the stream energy dissipates in this slower-moving channel-type. Flows greater than the bankfull stage overtop the streambanks and extend out onto the floodplain (Rosgen 1996, p. 5-21; Pauk, field review, November 3, 1997). Finer sediments are widely deposited over the floodplain, concentrated behind obstacles such as vegetation (Gordon et al. 1992, p. 305). The floodplain of Sema Creek is 600 feet wide at this location (Pauk, field review, November 3, 1997). Valley floors are thus gradually built up of layers of coarse material from old streambeds and glacial deposits, and finer silts and clays, which have dropped out of suspension onto the floodplain (ibid). Streambanks are composed of silt and are densely rooted with grass sod mats and other shrub species as noted in the field reviews. The vegetation within the riparian zone makes this channel type very stable (Rosgen 1996, p. 5-130; Pauk, field review, November 3, 1997; Cobb; field review, September 28, 2001). E4 channel types are very stable unless the stream banks are disturbed, and significant changes in sediment supply and/or streamflow occur (Rosgen 1996; p. 5-130).

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 (Cobb September 28, 2001). The overhanging channel banks are very well vegetated and stable (Pauk, November 3, 1997, Cobb September 28, 2001). Numerous side channels flow through the floodplain (Cobb September 28, 2001), and are normally dry. During periods of peak flow, these side channels function to dissipate the flow. Within this specific portion of Sema Creek, field surveyors found several older beaver dams in the 1996 aerial photos and earlier field surveys.

Figure 9. Sema Meadows

These beaver dams trapped natural sediment moving through the system, moderated the streamflows, and provided physical structure to the creek. The dams most likely slowed the water enough over the years to allow natural sediment to settle out. In 2001, the field review noted that most of the beaver dams had failed and only remnants of them remained (Cobb September 28, 2001). It is most likely that these dams failed during the unusually high 1996-97 peak spring runoff. The channel is very sinuous and thus the debris from the failed dams settled out in the floodplain in close proximity to the points of failure. The low gradient of the channel and the natural sinuosity of the E4 channel add to the tendency of the stream to drop its sediment load.

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. The basin area is therefore, generally wet with water near the surface in many areas (Nieman 2001). 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.

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 (Nieman 2001). 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; Nieman 2001).

When the mass failure occurred about 5,000 years ago, 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, which are located higher on the slope, would be 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, T. 36 N., R. 45 E., WM, 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 tributary streams to be inherently unstable. Therefore, mitigation to avoid sediment delivery is important in minimizing impacts in these streams.

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 (USDA Draft in progress) is presented in the project file. Roughly two percent of the drainage has been harvested and road density is about 1.2 miles/mile^2. A majority of the harvesting has occurred only on SLC's lands within the Sema Creek. This harvesting was completed using primarily conventional tractor logging methods and even-aged harvest systems where the residual stand of trees has canopy closures of less than 20 percent.

Within the cumulative effects area, 15 acres of NFS lands in the upper reaches of the watershed were logged in Section 31, T. 37 N., R. 45 E., WM 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 and roading has occurred on SLC managed lands in Sections 7 and 9, T. 36 N., R. 45 E., WM.

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 SLC's lands (see project file) suggest that sediment delivery to the tributaries of Sema Creek has increased from the road construction. It is estimated that the road density on SLC's lands is 3.9 miles/mile^2 for that portion of the cumulative effects area in SLC's management. 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 reached Sema Creek and was trapped behind the now failed beaver dams and was deposited on the floodplain during peak flow. In a subsequent field review of these roads in 2001, no erosion or sediment delivery from the roads was evident largely because of the revegetation of the road surface and the cut and fill slopes (Cobb June 6, 2001).

Environmental Consequences

Direct effects are those that are immediately detected either in time or space as a result of the proposed road authorization on NFS 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 10). 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. Unlike the streams that would be crossed by the road authorization 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). The Upper Sema Creek drainage above these meadows, and therefore, is the appropriate cumulative effects area because the finer sediments drop in these meadows and peak flows extend out into the floodplains as discussed earlier in this chapter under Reference Reaches.

Reasonably Foreseeable Activities that would occur on NFS 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 SLC's lands within the cumulative effects area, reasonably foreseeable actions include:

- Timber harvest and road construction in Section 5, T. 36 N., R. 45 E., WM (522 acres and 3.6 miles of road) possibly beginning in 2004 and ending in 2005.
- Approximately 5 acres in Section 7, T. 36 N., R. 45 E., WM will be cable-logged in the near future.
- Additional logging is proposed in Section 9, T. 36 N., R. 45 E., WM [for the cumulative effects analysis, this harvested is assumed to occur in 2004-2005]. No additional roads would be built in the future because the existing roads service the entire section.

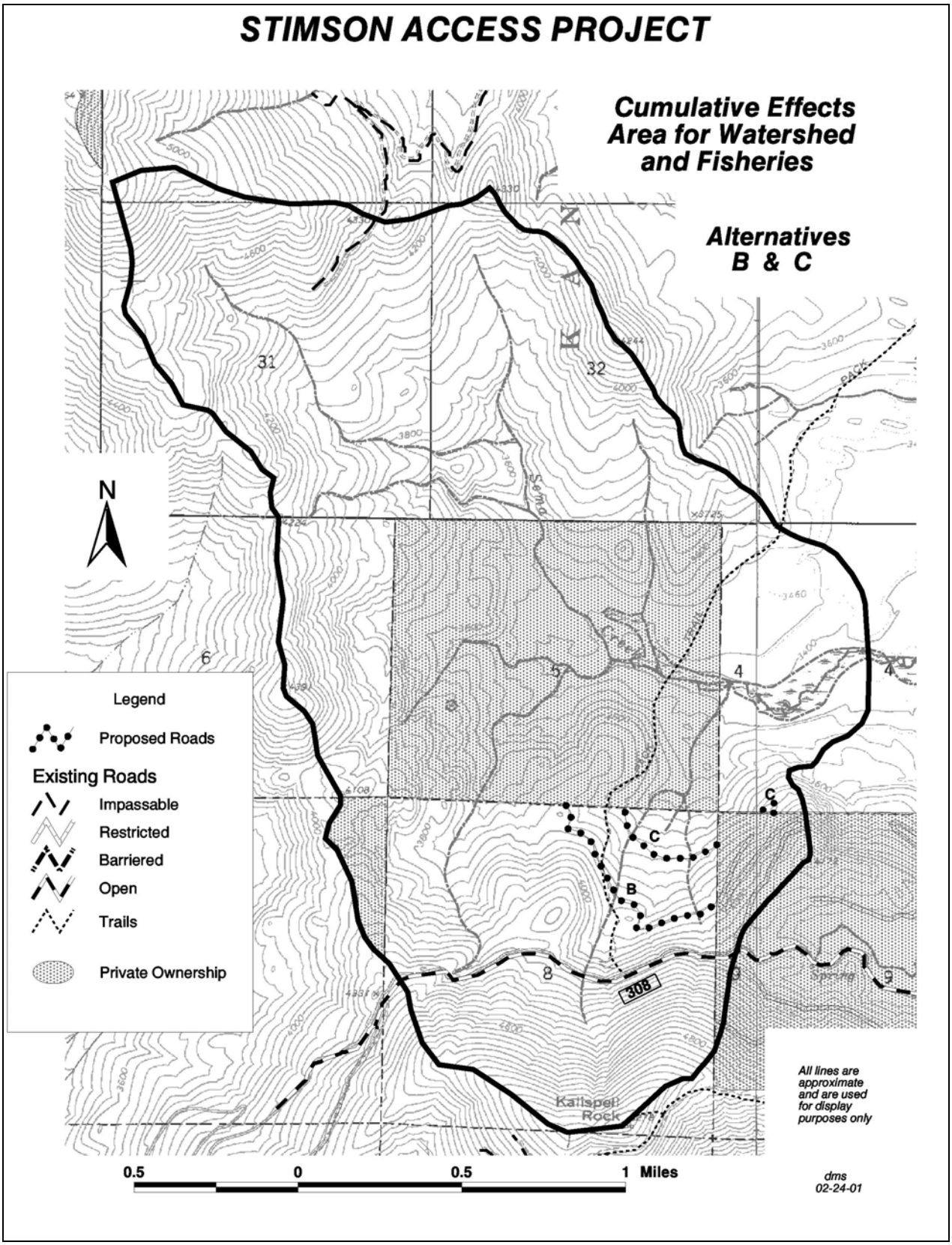

Figure 10. Cumulative effects analysis area for Water Resources and Fisheries.

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, T. 36 N., R. 45 E., WM, 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 NFS 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, T. 37 N., R. 45 E., WM. 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 authorization for road access, there are no reasonably foreseeable activities planned to occur on NFS 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 308, and would follow guidelines as established in the Priest Lake Noxious Weed Control Project FEIS (USDA 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 308. 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 NFS 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, T. 36 N., R. 45 E., WM would not occur. Therefore, there would be no effects to watershed in Section 5 for the No Action Alternative.

On SLC's lands within the cumulative effects area, past timber harvest and road construction has occurred in Sections 7 and 9, T. 36 N., R. 45 E., WM (approximately 59 acres of Section 9 are included within the cumulative effects analysis area for watershed). In 1995-1996, SLC built roads and logged approximately ten acres within the cumulative effects area. 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. Approximately 1.1 miles of road were constructed within the cumulative effects area in Section 9 (5,950 feet) and 2,112 feet of road in Section 7. The mass failure potential was rated as moderate on 350 feet, and low on the remaining mileage. Sediment delivery potential is high on 350 feet, moderate on 450 feet, and low on the remaining segments. All of the recent road construction in Section 7 was on soils with low risk for mass failure potential and low risk for sediment delivery. 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. 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.

Relatively recent timber harvesting on lands currently managed by Stimson has occurred in Sections 7 and 9. In 2001-2002, an additional 28 acres were logged by a tractor harvest system. These acres were selectively harvested with 60 percent of the basal area removed. In 2003, approximately 30 acres were tractor logged in Section 7.

The remaining non-harvested acres in Section 9 will be logged in the future. No additional road construction would occur because roads accessing this portion of the section were constructed in 1995-1996. Planned harvest includes 21 acres of shelterwood. A cable logging system would be used for the shelterwood units in which 85 percent of the basal area would be harvested. This harvest is planned for 2004 or 2005. These proposed activities would be expected to comply with the Washington Forest Practice 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 the project area would remain unchanged. The roads in Section 9 were constructed in 1995-96. According to the WATSED model results, the impacts of the logging in Sections 7 and 9 were minimal in terms of sediment yield. Annual sediment yield would increase one percent from existing levels in the first year. The roads that were constructed in 1995/96 in Section 9 are no longer delivering sediment to the streams as verified by a field review in the summer of 2001. The roads constructed in Section 7 are located on a dry ridgeline.

Predicted Changes to Channel Morphology: If the No Action Alternative were chosen, then the tributaries draining the project area would not change. The tributaries would continue to deliver sediment at natural rates to larger Sema Creek. The previous activities in Section 9 are no longer delivering sediment (see previous discussion under sediment delivery) though water yield peaks would be slightly increased from the recent and planned timber harvesting in Sections 7 and 9. Water yield would increase one percent in the first year according to the WATSED analysis. The canopy removal and subsequent water yield increase would not be beyond the ability of the channel to assimilate and is within the historic range of natural variability. 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 NFS lands. On federally managed ground, it is estimated that Alternative B would require construction of approximately 4,000 feet of road and installation of 5 culverts, whereas Alternative C would require construction of about 2,500 feet of road and installation of 4 culverts. Alternative C would also require construction of two segments of road totaling 1,468 feet on Stimson's lands in Section 9.

For Alternative B, the culverts would be installed on three year-round streams, a perennial spring, and one intermittent stream. The route would cross landtypes that are rated low for mass failure potential (project file). The sediment delivery potential for the Alternative B route is rated approximately equally between low and moderate. All crossings are located on non fish-bearing streams.

The stream crossings for Alternative C are located on two perennial and two intermittent streams. The mass failure potential of landtypes on NFS lands for the Alternative C route is rated low, and the sediment delivery potential is rated as low for 800 feet and moderate for 1,700 feet on NFS lands. The 1,468 feet that would be constructed on Stimson's lands is rated as low for 1,000 feet and moderate for 468 feet in terms of mass failure potential; sediment delivery is rated as low for 1,000 feet and high for 468 feet. The stream crossings are located on non fish-bearing streams.

The project engineer and a geotechnical engineer reviewed both road locations; their reports are included in the project file. Neither route would increase the probability of a large-scale mass failure if the design features outlined in Chapter II were incorporated. Alternative C traverses generally wetter ground than Alternative B (project file). The road grade for the Alternative B road location would be relatively gentle (2 to 4 percent), allowing rolling dips and grade breaks to be easily installed. Portions of the Alternative C route would require the road grade to be a sustained 10 percent or higher grade. This steeper grade would make it more difficult to install rolling dips or vary the location to avoid wet or unstable areas.

The predicted sediment delivery values for each action alternative on NFS lands are located in table 6. 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 upper route), the estimated amount of sediment delivery to the streams would be equal to approximately 1,090 pounds of sediment or about 14.5 five-gallon buckets of sediment.

Similarly, in Alternative C (the lower route), 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. In the mainstem of Sema, the sediment would deposit on the inside meander bends and during flood events the sediment would deposit on the grass-dominated floodplains of the sinuous mainstem of Sema Creek.

According to the Priest River Sub-basin Geographical Assessment (USDA draft in progress), 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 that resulted from natural occurrences. Historic events such as the large stand replacing fires of 1926 likely increased water and sediment delivery far beyond those delivery rates predicted under either action alternative (Minshall and Brock 1991, pp. 129-130; Minshall et al. 1989, pp. 111-118; Anderson et al. 1976, pp. 249-258).

Table 6 Predicted sediment delivery values, adjusted for BMP effectiveness, for each roaded Action Alternative, using the WEPP model.

Alternative	Modeled Sediment Delivery per year for the entire road authorization, adjusted for BMP effectiveness
Alternative B	1,090 pounds
Alternative C	380 pounds

Predicted Changes to Channel Morphology: Channel morphology is a function of the balance between water and sediment yields to a stream system. The increases in sediment delivery and water yield 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 on NFS lands under either action alternative.

Water yield increases would be minimal for either action alternative because of the limited amount of vegetation that would be removed. The small increase in water yield would be dispersed across the landscape and not concentrated in any one draw. By implementing the site-specific BMPs outlined in Chapter II, the small increase in water yield from the construction of either access road would not be detected in the streams. In summary, there would be minimal direct or indirect effects to water yield from the road construction on NFS lands.

Sediment movement and deposition is a natural function of these streams. 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. This site was reviewed in October 2001. The field surveys indicated that this was an intermittent draw with no obvious signs of disturbance or mass wasting at the site (project file). The planned stream crossing at this site was located on a gentle slope. At this particular crossing, however, it is predicted with the WEPP model 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. The effect of the increased sediment delivery to channel morphology would include some pool filling and sediment being deposited on the floodplains during high flow events. Given the projected amount of sediment that could be delivered using the predictions of the WEPP model, 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. However, the risk of the sediment delivery predicted in the WEPP model would actually be much lower based on the site-specific review at this location which indicated a gentle slope and lack of water as discussed above.

The rest of the streams that would be crossed by either action alternative would be only minimally affected by the annual increases in sediment. The predicted sediment delivery to these streams based on the WEPP analysis and field reviews would be much less than the sediment delivery previously noted for the crossing on Alternative B. The immediate impact to channel morphology on the smaller streams would be limited to short-term 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. 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 or in the E4 channel type.

In summary, the amount of projected sediment and water yield resulting from the proposed stream crossings on NFS lands would not cause long-term changes in channel morphology to any of the stream systems given the implementation of Best Management Practices to reduce sediment delivery, avoid concentration of water, and minimize the disturbance of the riparian zones.

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 NFS 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 NFS lands in Section 8, T. 36 N., R. 45 E., WM, and that Stimson would harvest the timber on their land and construct the road system in Sections 5, 7, and 9. Stimson would build 3.6 miles of road with an estimated 27 stream crossings in Section 5. These crossings would involve 17 perennial streams or permanent springs or seeps and 10 intermittent streams. Four of

these culverts would be located on fish-bearing streams (see table 10). The mass failure potential on the landtypes where all these proposed roads would be located is rated as low. For Stimson's roads in Section 5, sediment delivery potential is rated as high for 0.5 mile of road with the remainder being low (1.1 mile) and moderate (1.7 miles).

Harvest operations would include an estimated 522 acres as described in Chapter I. Maps of the proposed activities and stream crossings are included in Appendix C. 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. 36 N., R. 45 E., WM by Western Watershed Analysts (McGreer and Schult 1998), and 2) a letter authored by Stimson's personnel on April 29, 1998, documenting their intentions for reducing sediment delivery to the streams. Both these documents are included in the Appendix H. Provided the best management practices and design criteria identified in these two documents are implemented on SLC's lands, 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.

In addition to the aforementioned documents, the cumulative effects analysis for this project used the WATSED model, the field reviews, current literature and information supplied by SLC.

Sediment Delivery to Streams: The proposed road construction on NFS lands under either Alternative B or C in combination with the Reasonably Foreseeable proposed harvest and road construction activities within Sections 5, 7, and 9 would have little measurable effect on sediment delivery to the tributaries feeding into Sema Creek based on the following analysis.

A hydraulics permit would be required by the State of Washington prior to placement of any of culverts (WAC 220-110-010 and WACs 220-110-030). This permit must be obtained from the Washington Department of Fish and Wildlife prior to constructing any form of hydraulic project or other work that will use, divert, obstruct, or change the natural flow or bed of any river or stream or that will utilize any of the water of the State or materials from the stream beds. In fish-bearing waters, culverts shall be designed and installed so as not to impede fish passage (WAC 220-110-070). Culverts would be installed to maintain structural integrity to 100-year peak flow with consideration of debris. To minimize erosion, the disturbance of the bed and banks would be limited to that necessary to place the culvert, and restored to pre-project configuration with revegetation of the banks completed within one year with native vegetation (ibid). The culvert would be installed in the dry or in isolation from the stream flow by installation of a bypass culvert or pumping the stream flow around the work area (ibid). SLC would comply with these State of Washington requirements (Opp 1998 personal communication).

Specific design features were outlined in "Erosion and Sediment Control Analysis Sema Creek, Section 5 and 8, T. 36 N., R. 45 E., WM by Western Watershed Analysts (McGreer and Schult 1998). These consultants were hired by SLC to assist them in the development of a comprehensive plan for control of sediment delivery to the tributary channels of Sema Creek for this project, and to provide a referenced discussion of the effectiveness of these measures. This report is included in Appendix H. Site-specific design criteria that would be incorporated on roads in Section 5 to control short-term sediment include:

- For each stream crossing, two additional drainage structures would be installed. The first structure would be an armored rolling dip (i.e. rock drain) approximately 60 feet from the high water mark of each stream and the road would be outsloped between the stream crossing and the dip. A second drainage structure, either an armored rolling dip or a culvert, would be installed 150 feet from the rolling dip. Between these two drainage structures, there would be a transition from outsloping the road to insloping. Aggregate surfacing would be placed at a depth of 6 inches or more between the stream crossing and the second drainage structure.

- The ditch line would be rocked from the stream crossing to the second drainage structure (i.e. approximately 210 feet).

- All cut and fill slopes would be seeded and fertilized. Additionally, cut slopes and fill slopes near stream crossings would be seeded, fertilized, and matted from the stream crossing to the first drainage structure. On the fill slope, a continuous filter windrow would be constructed from the stream crossing to the first drainage structure.

- Cut slopes would be sloped 1:1 to allow effective placement and function of the matting. On gentle slopes, cutslope height may be so small that matting is impractical. In these situations, rock armoring may be used.

- Beyond the first drainage structure, filter windrows would be used on the fillslopes. These would have breaks as necessary to accommodate wildlife passage.

- Slope armoring would occur below all drainage structures located within 200 feet of stream using concentrations of rock and/or slash to prevent rilling or gullying.

McGreer and Schult predicted that the sediment delivery from the road system would be effectively reduced by the above site-specific mitigation measures based on referenced scientific research. These site-specific measures would be implemented in addition to Washington Forest Practice Rules for road construction and logging activities (WAC 222-24 and 222-30) as adopted in July 2001; these rules are included in the Appendix H. From their modeling, total sediment delivery would total 8.4 tons/year, representing an increase over natural conditions of less than 2 percent for the first two years following construction, and would decline in subsequent years.

In their construction design for the roads in Section 5, Stimson would incorporate several features in addition to those proposed above by McGreer and Schult (Opp 1998 personal communication). These additional features include:

- The number of ditches and relief culverts would be minimized by using rolling grades whenever possible. This practice would avoid the potential of relief culverts being plugged, forcing water over or down the road and the loss of fine material from native and graveled surfaces. The potential for sediment production and delivery would be reduced because of improved dispersion and re-infiltration of water (Seyedbagheri 1996, p. 32; Furniss, Love and Flanagan 1997, pp. 8-11).

- Ditching and relief culverts would be used primarily only where subsurface water is intercepted by a road cut. When ditches and relief culverts would be installed, relief culverts would be a minimum 18 inches, and would have a skew of 30 degrees. This would allow the pipe to be more self-maintaining (Seyedbagheri 1996, pp. 33 and 44). Roads would have drivable, rocked drain dips approximately 50 feet below all relief culverts, with a maximum of 250 feet spacing between dips on grades greater than 4 percent. Fills at these locations would be armored, and slash piled at the toe of the tip to minimize surface erosion. Armoring and logging slash minimize sediment delivery to streams (Seyedbagheri 1996, pp. 37-39; Hanna 2002, pp. 45-46).

- Ditches would be a maximum 200 feet in length. Reducing the length of ditches limits the quantity and velocity of water flow by relief ditches or other cross drainage structure would reduce the amount of surface erosion and potential sediment transport distances (McGreer and Schult 1998, p. 3).

- Roads would be visited annually for maintenance needs. Road maintenance is a requirement under the Washington State Forest Practice Rules (WAC 222-24-052). These include keeping drainage structures functional; diverting ground water that has been captured by ditches by using culverts, drivable dips or other cross drainage; maintaining the road surface to minimize surface erosion and sediment delivery; outsloping, water barring, and removing berms from the outside edge during and following road use. If Washington DNR determines that the road maintenance is inadequate, the department would require the landowner to install additional or larger drainage improvements. Road maintenance is an effective means to reduce effects to water quality (Seyedbagheri 1996, pp. 65 to 67; Hanna 2002, p. 74).

There are a number of seeps and forested and unforested wetlands (WAC 222-16-035) located in Section 5. These would be protected by Forest Practice Rules, WAC 222-24-015 and 222-30-020, to minimize the effects to wetlands. This mitigation should protect the form and function of these wetlands and the larger Sema Meadows.

The WATSED model was used as a tool to analyze the potential cumulative effects of the alternatives upon water and sediment yields. The WATSED model is an analysis tool that spatially and temporally organizes some typical watershed response relationships as a result of forest practices. The estimated responses are combined with other sources of information and analyses to determine the findings of probable effects. The model is a predictive tool and the values should not be used as absolute values, but rather as a comparison of possible alternatives. It is a very useful tool for cumulative effects analysis because it combines a number of activities across the landscape and synthesizes the data for further professional analysis. For this analysis, the deterministic model was used to compare the effects of the No-action alternative, the two roaded alternatives (Alternatives B and C), the helicopter alternative (Alternative D), and a stand- replacing fire (to compare the natural range of variability). For Alternatives B and C, the WATSED model applied the specific mitigation measures prescribed by McGreer and Schult in 1998. The WATSED model outputs for water yield and sediment yield are presented in figures 11 and 12 respectively. The percent change estimates are relative to the expected “natural” sediment and peakflows in watersheds with similar geomorphology, climate, and land use. The difference among alternatives with respect to these two estimated response values is relative to the magnitude of the different alternative actions. Rarely, in the region where this model was developed and is used, are

differences in estimated sediment less than 10 to 20 percent, and peakflows less than 5 percent even detectable in any given watershed due to technical limitations in measurements and the natural variability of these parameters. It appears that most streams and water resource uses usually do not respond measurably to those magnitudes of changes unless they are sustained for long periods. The WATSED model does not evaluate in-channel and stream-bank erosion or rain-on-snow events in its peak flow analysis.

The WATSED model output for sediment yield is presented in figure 11. The model predicts that the road construction would increase sediment yield approximately three and one half times the level that would occur under Alternative A. Sediment yield would increase from 10 percent in the No Action Alternative to 46 and 49 percent respectively in Alternatives B and C in 2004 when the road construction would be assumed to be completed. This increase would gradually diminish over the following ten years. A portion of the predicted sediment increases would not reach the mainstem of Sema Creek. This sediment would become trapped behind in channel obstacles and/or would be deposited on the floodplains in the smaller order channels. The balance of the sediment that would reach the mainstem of Sema Creek would be moved during peak flows and would mostly settle out on the grassy floodplains or settle out on the stream meander point bars (Rosgen 1996, p. 5-21; Gordon et al.1992, p. 305; Pauk, field review, November 3, 1997; Cobb; field review, September 28, 2001).

Provided the sediment reduction techniques presented in the Western Watershed Analysts technical report (McGreer and Schult, 1998) and the April 1998 Stimson's letter (Opp 1998 personal communication) are 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 deposited in the inside of the meanders and on the heavily grassed floodplains of Sema Meadows as discussed in the previous paragraph. 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: Channel morphology is a function of water and sediment yields and how the two balance within the stream system. As part of the cumulative effects analysis, the WATSED model was used to assess both water and sediment yield. The cumulative effects of sediment yield were presented above. In this section, the predicted effects of the proposed activities on water yield are considered cumulatively with sediment yield and how they collectively affect channel morphology for Alternatives B and C.

According to the output of the WATSED model, there is essentially no difference in water yield and recovery between Alternatives B and C as displayed in figure 12. The amount of increase in water yield is relatively high (12 percent) because such a large percentage of a relatively small analysis area would have the timber removed. The proposed harvested area in Section 5 equals about one quarter of the cumulative effects analysis area. The impact of the water yield would be diluted as the water moved downstream. Nevertheless within the confines of the cumulative effects analysis area, the increase in water yield would cause the annual stream peaks to increase and subsequently more flooding would be expected to occur in the meadows.

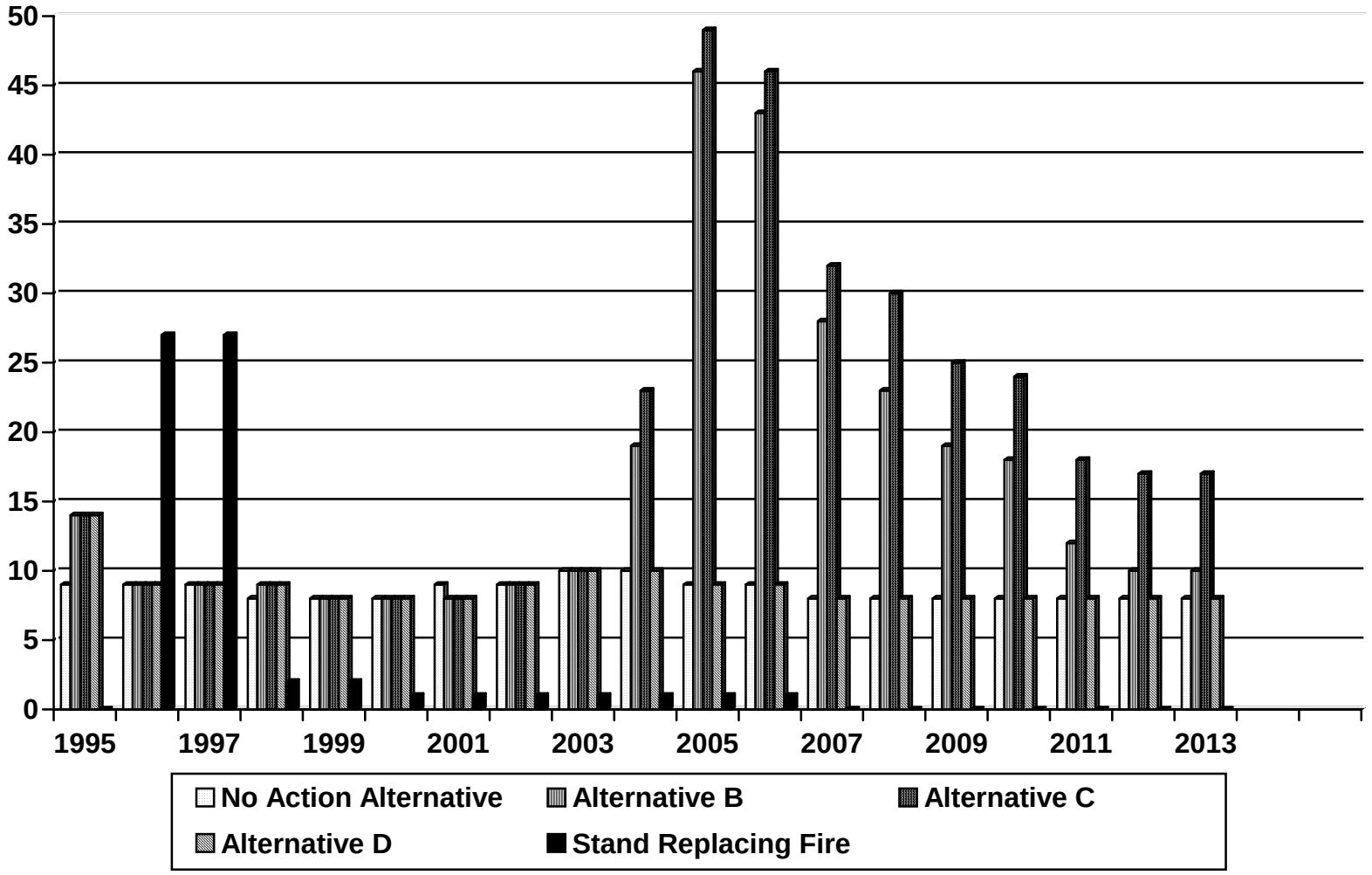

Figure 11. Predicted sediment yield increase and recovery for the Sema Creek Analysis Area (1995-2013) measured in percent increase of annual sediment yields.

The physical characteristics of the channel bed and banks within the cumulative effects analysis area would not be adversely impacted. More sediment would be transported by the stream and would settle on the grassy floodplains. As discussed by Rosgen in 1994 (p. 177), E channel types are located in broad valleys/meadows and are very efficient and stable. Therefore, the additional sediment and water yield delivered to the stream would gradually move through the system with the sediment being incorporated into the stream meander points and on the grassy floodplains.

Several unique attributes of this drainage are important to consider when assessing the possible impacts of this peak water yield increase upon channel morphology. First, the basin is a very moist basin and has an annual precipitation of about 40 inches per year. The natural runoff from this basin is about 8,500 acre-feet, which is a relatively high number. The existing Sema Creek channel within the analysis area is very stable as documented by several field reviews and discussed under Reference Reaches earlier in this section. The stream within the cumulative effects analysis area winds through a very grassy meadow. The channel itself is very sinuous and the banks are heavily armored with native deep-rooted grasses. The meadow itself averages several hundred feet wide and like all similar meadows evolved with flooding. The channel is a classic E4 channel type and has full access to its floodplain.

In assessing the effects of the roaded action alternatives upon channel morphology, it is important to examine the natural range of variability for peak water yields and sediment yields. The streams through the basin have evolved in response to the wildfires that periodically burned large portions of the landscape. As an example, the 1926 fire burned over the entire Sema Creek drainage with only isolated trees or scattered pockets of trees surviving the fire. Such an event would increase water yield and sediment delivery. The WATSED model was used to predict the effects of such an event to compare the effects of the proposed activities with historical fire occurrences; 1996 was used as the base year to model the effects of a fire. The results are displayed in figures 11 and 12. The predicted water yield by WATSED was 51 percent over base and sediment yields were 27 percent for a stand-replacing wildfire as occurred in 1926. Therefore, the predicted water yield peak increases of 12 percent that would occur in Alternative B or C lie within the historic range of natural variability. Though the water yield peak may be within the historic range of natural variability, the landscape today has been and will continue to be altered by existing and proposed roads. The construction of roads within the drainage effects the rate of sediment delivery within the basin. This sediment delivery would be reduced by the site-specific best management practices discussed above. Therefore, it would be anticipated that there would be no long-term changes to channel morphology as a result of implementing either alternative.

The proposed activities would increase the existing flooding within the Sema Meadows. With the proposed activities, it would be likely that the depth of the floodwaters inundating Sema Meadows would increase. The floodwaters would slowly drain from one meadow to the next and the timing of the peak flows would likely be extended. The impact of a longer and higher peak flow would not alter the channel characteristics in this specific drainage. The channel naturally evolved under even higher water peak flow regimes when stand-replacing fires occurred.

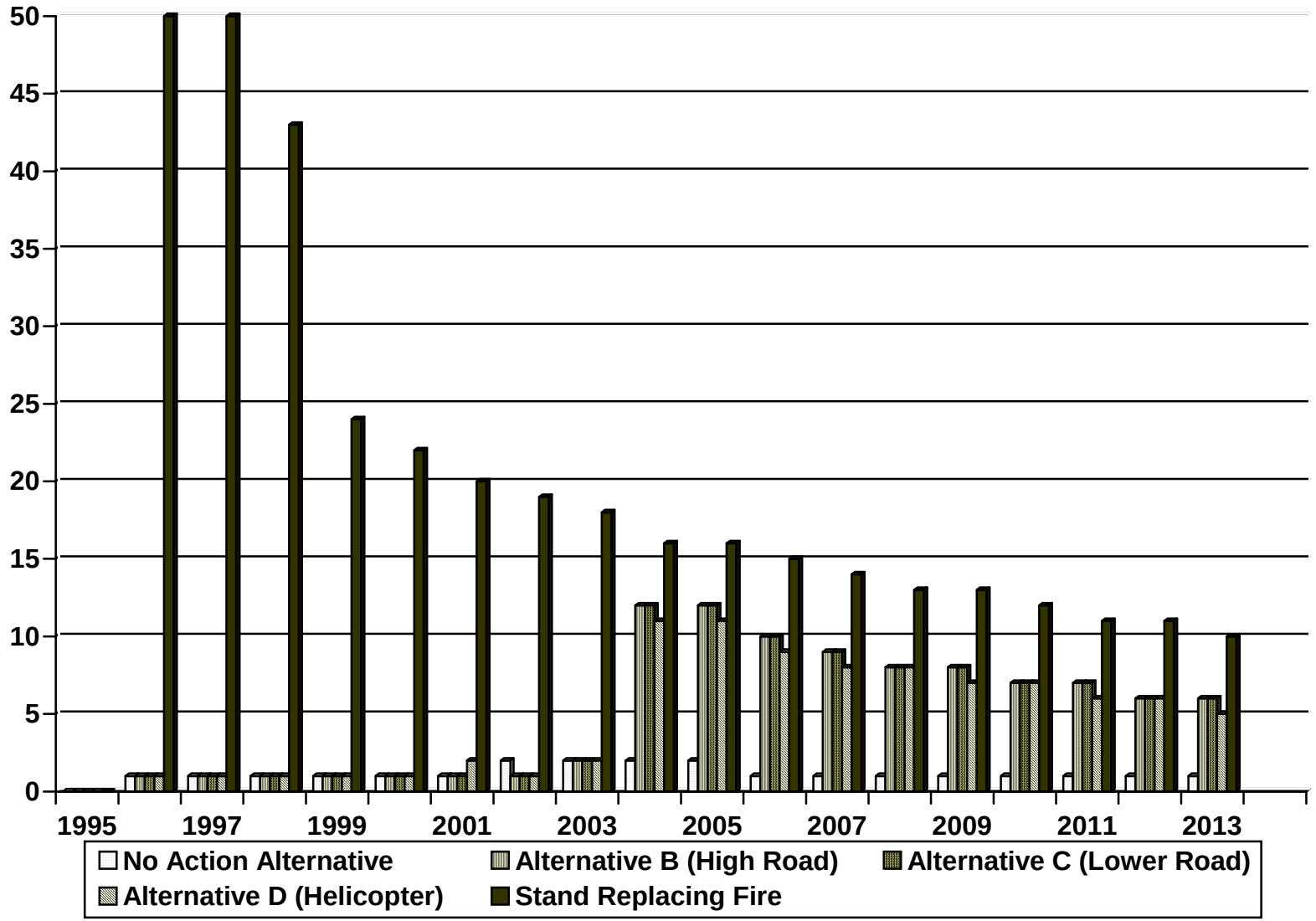

Figure 12. Predicted percentage annual peak water yield increases and recovery for the Sema Creek Analysis Area (1995-2013).

The increased water yield generated by either Alternative B or C would slowly flow out of the large meadow and move downstream flooding other meadows in Sema Creek, prior to augmenting the flow of the South Fork of Granite. Over the course of several years (3 to 7 years) the sediment pulses generated from the Stimson's inholdings would move gradually through the stream system. Much of the sediment would be stored along the stream channel on meander bends and up on the floodplain. Gradually these deposits would become stabilized by vegetation.

The proposed actions on NFS land in Alternatives B and C, along with the reasonably foreseeable proposed treatments on SLC's ground and existing conditions within the Sema Creek watershed suggests that the resiliency and channel morphology of Sema Creek would be maintained based on the channel-type of Sema Creek, field reviews, and scientific literature.

Alternative D

Direct and Indirect Effects: Selection of Alternative D would mean that neither road access alternative would be implemented, and would assume that all logging in Section 5 would be done by helicopter. Therefore, conditions on NFS lands in Section 8, T. 36 N., R. 45 E., WM would remain unchanged in terms of soil and water conditions.

Sediment Delivery to Streams: Because no ground-disturbing activities would occur as part of this action on NFS lands, Alternative D would have direct and indirect effects similar to the No Action Alternative. Some delivery of sediment to streams from the channel banks and instream erosion from natural processes would occur. There would not be any detectable changes in the existing level of sediment delivery into the streams.

Predicted Changes to Channel Morphology: There would be no change to channel morphology on NFS lands in Section 8 because no roads would be constructed.

Cumulative Effects: The cumulative effects for Alternative D follows the discussion for Alternative A. The past, ongoing, and reasonably foreseeable actions on NFS lands as described in the cumulative effects discussion for Alternative A would have minimal cumulative effects on the watershed. Under this alternative, it is assumed that the timber stands would be treated just as they would be under either Alternative B or C, but that no additional roads would be constructed.

Sediment Delivery to Streams: Implementation of Alternative D would minimally increase the existing sediment delivery to streams. The sediment that was delivered to the streams from previous road construction activities would gradually move through the system and would not adversely impact the streams. The WATSED analysis indicated that a one percent increase in sediment yield would occur over a two-year period if Alternative D were implemented.

Predicted Changes to Channel Morphology: According to the output of the WATSED model as presented in figure 12, selection of Alternative D would have similar impacts to channel morphology as would either of the other two action alternatives. Water yield increase would be 11 percent, which equates to an 8 percent increase from the No Action Alternative. The difference would be that under Alternative D, no additional sediment would be delivered to the

streams, but water yield increases generated off of Section 5 would be almost identical to those predicted under the implementation of either roaded alternative. The impact of this alternative would be elevated flooding in the Sema Meadows but there would not be any deleterious effects to the stream from the flooding. The amount of flooding would be within the historic range of natural variability (see figure 12). There would be no measurable changes to channel morphology. The physical characteristics of the channel bed and banks within the cumulative effects analysis area would not be adversely impacted.

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 Practice Rules.

The proposed access routes across NFS 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) (USDA 1987a) provides management goals and objectives for the protection of the fisheries resources (p.1, Items 8, 9, 11, 13, 18, and 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 1995b). 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 (pages C-1 and C-2). The findings were that it was not a good monitoring tool to report stream health (Dekome 2001, see project file). G-1 was combined with an expanded G-3, which includes a more comprehensive array of fisheries and hydrology parameters in the 1998 monitoring report (page 78). Moreover, the Inland Native Fish Strategy (INFS) offers more protection to habitat because Riparian Habitat Conservation Areas are established under INFS, and any activities that reduce habitat quality are contrary to INFS direction even if the activities would have been allowable within the previous standard of 20 percent reduction in fry emergence.

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 SLC's 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. 1991b). 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 (USDA 1987a), as amended by INFS (USDA 1995b), are achieved.

The cumulative effects analysis area for this project is upper Sema Creek (figure 10). This boundary is delineated for cumulative effects because it is likely the furthest spatial extent of measurable effects as discussed in the watershed portion of this chapter and the Sediment Delivery Risk section 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 highly sinuous nature and low gradient of Sema Creek, any sediment generated from the proposed roads on NFS lands would not likely be transported beyond the large meadow located in the western half of Section 4 as discussed in the watershed portion of this chapter.

SLC's activities related to this access proposal include timber harvest and road building on SLC's lands. 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 SLC's actions will be conducted in compliance with Washington Departments Forest Practice Rules (WAC 222; the rules can be accessed at *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 Practice 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). The Washington DNR is currently in consultation with the U.S. Fish and Wildlife Service over these practices.

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. 1991a). 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, prefer extremely cold ($<10^{o}$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 1995b). The effects are divided between those that would occur from actions on NFS lands and those likely to occur from actions on SLC's lands.

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 1995b, 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 1995b). The riparian harvest on NFS lands would be confined to the removal of riparian vegetation resulting from the road construction activities. On SLC's lands, riparian harvest would result both from the road construction and from timber removal within 300 feet of fish-bearing streams and 75 feet on intermittent streams consistent with the Washington Forest Practices Rule WAC 222-30-22 and discussed in the project file.

*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 risk 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 though 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). The entire Granite Creek drainage is considered bull trout habitat by the Washington Department of Fish and Game (WAC 222-16).

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 1987a). The Forest Plan identifies cutthroat trout and bull trout as potential MIS for fisheries conditions.

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 redside 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 Forester's 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 (1987) 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 Tobasco 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). Because of 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 (1987) found low densities (0.1/100m2) 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 1987).

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 and field surveys, 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 (Cobb September 28, 2001). Each meadow has a meandering stream channel with sandy substrate. Beaver dams have occurred historically in each meadow, flooding the main and side channels. As part of a natural cycle, many of the dams are old, failing, and are filling with sediment and breaching in places. It is anticipated that the beaver populations will eventually reoccupy the mainstem of Sema as they have for hundreds of years. 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. Limited beaver activity is present, but dams are not as numerous as in the meadow channels (Cobb September 28, 2001). One beaver dam was noted in this section in 2001. 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 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 the larger Granite Creek drainage, 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 NFS lands within the Sema Creek watershed. Recently, SLC harvested portions of two sections in the watershed as discussed in Chapter I. SLC in 2003 harvested on approximately 30 acres located in the northeastern corner of Section 7. Additional harvest occurred in the northwest corner of Section 9 in 2002-2003 as described in the watershed portion of this chapter.

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 NFS lands within the cumulative effects analysis area that have had any adverse effects to the fisheries resources. No timber harvest has occurred on NFS lands 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 NFS 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 NFS 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.

Cumulative Effects Common to All Alternatives

Within the cumulative effects area, Section 5 and portions of Sections 7 and 9 are owned by SLC. No past or existing logging or road construction has occurred in Section 5. Under the No Action Alternative, no harvest or road construction would occur in Section 5. Harvesting will occur in Section 7 as discussed in Chapter I. Roads accessing this portion of Section 7 were constructed in 2002. Additional harvest occurred in the northwest corner of Section 9 in 2002-2003 as described in the watershed portion of this chapter. No additional road construction would occur as these roads are already constructed. There are no fish-bearing streams located within Sections 7 or 9. The harvest and associated activities would have complied with guidelines of the Washington Forest Practices Act to protect the aquatic resources. For these reasons there should be no additional measurable effects to fisheries.

Effects Common to Alternatives B and C

Riparian Harvest - Riparian harvest can increase stream temperatures by increasing solar radiation to the stream.

Direct and Indirect Effects*:* Riparian harvest on NFS lands is minimal and only occurs associated with road construction across non-fish-bearing streams. The loss of riparian

vegetation on NFS lands would result only from the timber removal associated with road construction in Riparian Habitat Conservation Areas (RHCAs) (USDA 1995b). A comparison of the direct effect of riparian harvest on NFS lands reveals little difference between the action alternatives. For each side of the stream, there would be 600 feet affected in Alternative B, and 450 feet in Alternative C within designated RHCA buffers (i.e. 150 feet on permanent non-fish-bearing streams and 75 feet on intermittent streams. As portrayed in table 7, this removal would equate to 1.0 acre of riparian harvest in Alternative B and 0.8 acre in Alternative C on NFS lands, assuming a clearing width of 36 feet at each steam crossing (Jackson 2001 personal communication). The indirect effect of riparian timber removal would be limited to site-specific increases in water temperature no more than 150 feet downstream of where culverts would be installed because of the limited tree removal affecting shading of the stream. Neither action alternative would pose a risk to the MIS.

Cumulative Effects: The proposed road construction would result in a loss of riparian vegetation on SLC's lands as shown in table 7. Under both alternatives, the loss of riparian vegetation would total 6.0 acres for the 27 stream crossings on SLC's lands assuming RHCA buffer widths and an average clearing limit of 36 feet where the road crosses the stream. Because of the overall, gentle terrain within Section 5, however, the clearing limits at the stream crossings probably would be less than the 36 feet used to estimate the loss of riparian vegetation. The cumulative loss of riparian vegetation would total 7.0 acres in Alternative B and 6.8 acres in Alternative C.

Table 7. Approximate acreage of riparian vegetation removed (within 300 feet of permanent fish-bearing streams, 150 feet from permanent non-fish-bearing stream, or within 75 feet of non-fish-bearing intermittent streams) based on RHCA buffers. Estimated clearing limit of vegetation at each crossing is estimated to be 36 feet.

	Approximate Amount of Riparian Vegetation Removed by Stream Crossings			
Ownership	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**
NFS	0	1.0 acres	0.8 acres	0
SLC	0	6.0 acres	6.0 acres	0
Total	**0**	**7.0 acres**	**6.8 acres**	**0**

On the SLC's lands in Section 5, loss of riparian habitat would not only result from road construction as depicted in table 7 but also the riparian buffers delineated in Washington Forest Practice Rules which are narrower than those required by the Inland Native Fish Strategy (INFS) (USDA 1995b) on NFS lands. Table 8 outlines the difference in riparian buffer widths between INFS and Washington State Forest Practices (WAC 222-030-022). These buffer widths consist of the stream and the area on either side of the stream extending from the edges of the active stream channel or channel migration zone (i.e. floodplain). On NFS lands, timber harvest and equipment is prohibited unless these widths are not needed to meet riparian management objectives as determined by a watershed analysis or otherwise documented.

On Stimson's lands, an estimated 10,600 linear feet of Type 3 streams and 13,000 feet of Type 4 streams exist within the area of proposed activities. These streams would be buffered according to Washington State Forest Practice Rules as outlined in table 8 and explained in the project file.

Table 8. A comparison of stream protection widths defined by INFS (Riparian Habitat Conservation Areas) on Forest Service System lands and Washington State Forest Practices (Riparian Management Zones).

Stream Classification	Forest Service (RHCAs)	Washington State (RMZs)
Permanent, Fish-bearing (Type 3)	300 feet	110 feet (30-foot no harvest)
Permanent, Non-fish bearing (Type 4)	150 feet	50 feet
Intermittent (Type 5)	75 feet	30 feet
Wetlands/bogs	150 feet	50 feet

Approximately 41.7 acres would lie within these buffer zones. There would be no reduction in shade within 75 feet of the Type 3 streams according to Washington State Forest Practices. Limited harvest could occur within these Riparian Management Zones (RMZs) except within a 30-foot core zone of fish-bearing streams where no harvest or equipment is allowed. Logging is only permitted outside the 30-foot core zone when the basal area for trees greater than six inches dbh (diameter at breast height) exceeds 150 square feet per acre. In this instance, the harvest must leave 50 trees per acre including the 21 largest trees, a basal area of at least 110 square feet per acre, and downed wood totaling 20 tons per acre. This amount of basal area (i.e. 110 square feet per acre) would provide shade to the stream. On Type 5 streams, equipment and timber harvest would be allowed within 30 feet of the intermittent streams but disturbance cannot exceed 10 percent of the ground and any excess ground disturbance must be mulched or seeded. 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).

Sediment Delivery Risk - The direct risk of sediment delivery is related to the length of new roads constructed and number of new stream crossings. The risk of sediment delivery generally increases with the amount of road construction and the number of culverts installed, as discussed above under Management Action Indicators. Roads can divert flow (Jones and Grant 1996) and sediment (Furniss et al. 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.

Direct and Indirect Effects: A comparison of the direct and indirect effects of stream crossings and road construction from Federal actions shows little difference between Alternatives B and C (table 9). Although the direct effects of Alternative B include more crossings (5) and more road construction (4,000 feet) than Alternative C, the location of the proposed road authorization 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 NFS 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 as discussed in the watershed portion of this chapter.

Cumulative Effects: The cumulative effects analysis, however, took the conservative approach and assumed the worst-case scenario - a massive failure at a stream crossing on NFS or SLC's 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 and as required by Washington State Forest Practice Rules (WAC 222-24-040(3)(a). Also, the mass failure hazard for all of Section 5 is rated as low, which reduces the probability of such an event occurring. Provided the sediment reduction techniques that Stimson has incorporated into their road construction designs are followed in addition to the Washington Forest Practice Rules being implemented, 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 as discussed in the watershed portion of this chapter. If a mass failure 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 NFS lands could be a measurable amount of sediment entering near where the tributaries flowing from NFS lands join Sema Creek. Under this scenario, the sediment would settle out quickly the mainstem of upper Sema Creek or in the floodplains as discussed in the watershed portion of this chapter. If these minimal direct effects of the Federal action are combined with those on SLC's lands, the cumulative effects of this project could be to reduce habitat diversity and alter channel morphology in the meadows of Sema Creek.

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.

Table 9. Road Construction and Stream Crossings by Alternative

Ownership	Alternative A		Alternative B		Alternative C		Alternative D	
	L	#	L	#	L	#	L	#
NFSl	0	0	4,010	5	2,535	4	0	0
SLC	0	0	19,061*	27	20,529**	27	0	0
Total	0	0	23,071	32	23,064	31	0	0

L is the length of new road construction in feet; # is the number of culverts to be placed in stream channels.
Higher values indicate higher risk and pose some minimal risk to possible historic MIS habitat.
*Length of new road construction in Section 5.
**Length of new road construction in Sections 5 and 9.

Fish Passage - It has been well documented that most culverts increase the difficulty of passage of fish though 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.

Direct and Indirect Effects: Because no culverts are planned for placement in fish-bearing streams on NFS lands as shown in table 10, no direct, indirect, or cumulative effects to fish passage are expected from implementation of either action alternative.

Cumulative Effects: Four culverts would be placed in fish-bearing streams on Stimson's lands in Section 5 within the cumulative effects area for either Alternative B or C. As discussed in the watershed portion of this chapter, a hydraulics permit would be required by the State of Washington prior to placement of any culverts (WAC 220-110-010 and WAC 220-110-030). In fish-bearing waters, culverts shall be designed and installed so as not to impede fish passage (WAC 220-110-070). Although these culverts would be designed in accordance with Washington State law, they 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, these pipes should have almost no effect on the MIS, since the culverts would be at the upper extent of the historic range of these fishes.

Table 10. The number of culverts likely to be placed in fish-bearing streams.

	Number of Culverts			
Ownership	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**
NFS	0	0	0	0
SLC	0	4	4	0
Total	0	4	4	0

Alternative D

Direct and Indirect Effects: Under this alternative, there would be no direct or indirect effects to any MIS habitat components on NFS lands as no roads would be constructed.
Cumulative Effects:

Riparian Harvest - As depicted in table 7 for Alternative D, no removal of riparian vegetation would occur associated with road construction because no roads would be constructed.

As with the other action alternatives, streams would be buffered according to Washington State Forest Practices as outlined in table 8. The same requirements would be implemented within the Riparian Management Zones (RMZs) as for the other action alternatives. These include a 30-foot no-harvest buffer and no reduction in shade within 75 feet of fish-bearing streams. Harvesting could occur within the RMZs as long as the basal area was maintained according to the Forest Practice Rules. The difference between Alternative D and the other action alternatives would be that no ground-based equipment would be used in this alternative. Because most of the riparian vegetation would remain on fish-bearing streams to provide shade as required by Washington Forest Practices, implementation of Alternative D would not have a measurable effect on fish at the boundaries of the cumulative effects area (Upper Sema Creek).

Sediment Delivery Risk - In Alternative D, there would be no risk of increased sediment delivery. No culverts would be installed on NFS or SLC's lands in Section 5.

Fish Passage - No culverts in fish-bearing streams would be installed as shown in table 10, and, therefore, there would be no effects to fish passage in Alternative D.

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. No or minimal change in riparian or stream conditions would be necessary to re-establish populations at the watershed scale.

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 sub-watershed 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 (USDA 1995b).

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 sub-watershed 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

Table 11 summarizes the direct and indirect effects of the proposed Federal action and reasonably foreseeable activities on private lands. 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 of the Federal action on the MIS (see table 11). Alternative A would have no direct or indirect effect on the MIS because no action would be taken on NFS 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 NFS lands, none of these effects are likely to affect fish. In addition, both action alternatives would result in nearly identical management activities on SLC's lands.

Consistency with the Forest Plan and Other Regulatory Direction

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 SLC's 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 NFS 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.

Table 11 Effects to Management Indicator Species

	Ownership	Likely to result in beneficial effect to populations	Likely to result in beneficial effect to individuals	No change in conditions	Likely to result in long-term risk to individuals	Likely to result in long-term risk in populations	Remarks
Alternative A	NFS			X			No direct or indirect effects – this is the No Action Alternative
	SLC			X			Assumes there would be no management activities on SLC's lands in Section 5.
Alternative B	NFS			X			The minimal direct and indirect effects of building five road crossings across non-fish-bearing streams would not lead to changed conditions within fish-bearing streams.
	SLC				X		Road crossings and riparian harvest could result in small increases in water temperature and sediment delivery risk. New culverts could make passage more difficult. .
Alternative C	NFS			X			The minimal direct and indirect effects of building four road crossings across non-fish bearing streams would not lead to changed conditions within fish bearing streams
	SLC				X		Road crossings and riparian harvest could result in small increases in water temperature and sediment delivery risk. New culverts could make passage more difficult.
Alternative D	NFS			X			No direct or indirect effects on NFS lands. No road authorization would be granted.
	SLC				X		Riparian harvest could result in small increases in water temperature.

The actions taken on SLC's lands associated with the proposed road authorization 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 SLC's lands would increase the road density on SLC's 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.

Based on the information presented in this document, all three alternatives would meet the Forest Plan Fisheries Standards (USDA 1987a) as amended by the Inland Native Fish Strategy (USDA 1995b). Consultation with the US Fish and Wildlife Service (USFWS) regarding the effects of this project on federally listed bull trout was completed on June 17, 2002 (USFWS Ref. # 1-9-02-I-328). 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. The Land and Resource Management Planning Handbook (FSH 1909.12) provides guidance in the inventory and mapping of roadless areas.

In 1984 the Washington Wilderness Act (P.L. 98-339) became law. The purpose of the Act was to: 1) designate certain NFS lands in the State of Washington as components of the National Wilderness Preservation System and 2) insure that certain other NFS 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 (page II-4) states, "Roadless areas will be managed based on the direction and goals established for the respective management area within which they are located."

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. In July of 2003, the United States District Court for the District of Wyoming (Case No. 01-CV-86-B), permanently enjoined the United States Department of Agriculture from implementing the Roadless Area Conservation Rule. This decision has been appealed but no decision has yet been rendered.

Affected Environment

A roadless area is defined as 5,000 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 13). The Addendum to Appendix C of the Forest Plan FEIS contains detailed information on the South Fork Mountain Roadless Area on pages C-22 through C-31.

The inventoried area included approximately 5,400 acres of NFS lands and approximately 1,130 acres of private lands (all of Section 5, and portions of Sections 3, 7, and 9) for a total of approximately 6,530 acres[1]. 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, over 1,100 acres of the South Fork Mountain IRA no longer meet roadless characteristics. The acreages include portions of Sections 3, 7, 9, and 10, T. 36 N., R. 45 E., WM, as displayed in table 12.

Sections 3 and 9 belong to SLC. Stimson has constructed roads and actively managed both parcels for timber management purposes beginning in 1995. Because of management activities, neither of these sections meets the roadless area characteristics.

[1] See project file for rationale on Forest Plan discrepancy regarding Inventoried Roadless Area resources, South Fork Mountain IRA

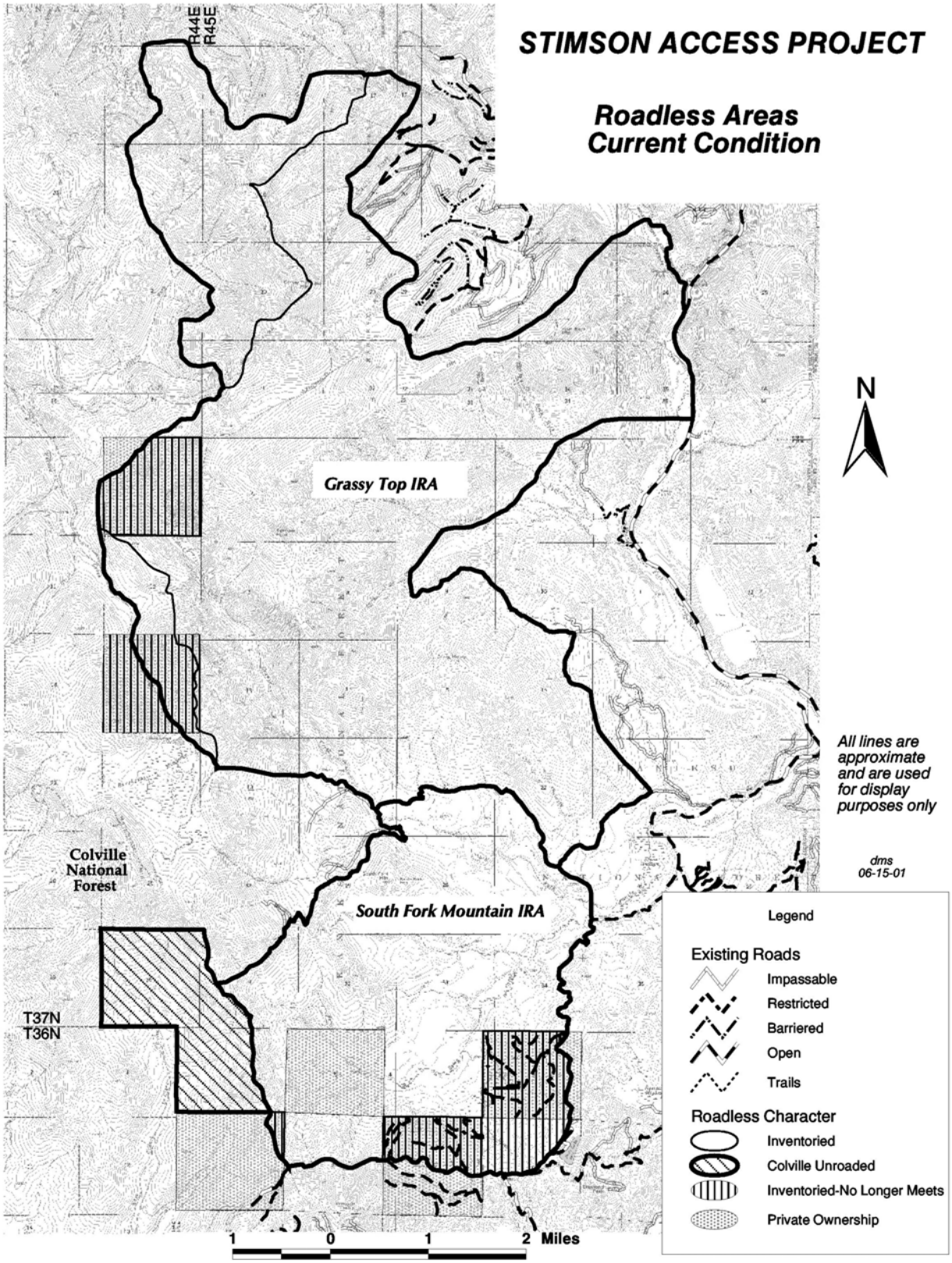

Figure 13. Map showing current condition of the Roadless Areas.

SLC logged the portion of Section 7, T. 36 N., R. 45 E., WM that lies within the South Fork Mountain IRA. This 35-acre parcel lies in the southwestern corner of the IRA. Roads accessing this parcel were constructed in 2002 with the harvest of approximately 30 acres in 2003. The remaining five acres are proposed to be logged within the next five years. These future activities would reduce the roadless character on these acres. Because of these activities, the entire 35 acres no longer meet the roadless character definition.

Additionally, the north half of NFS lands in Section 10, T. 36 N., R. 45 E., WM, which is included in the South Fork Mountain IRA, was affected by the management activities of SLC in Sections 3 and 9. Because of Stimson's activities in Sections 3 and 9, the northern portion of Section 10 is isolated from the remainder of the roadless area and no longer meets the roadless character definition. This northern portion of Section 10 is approximately 267 acres as shown in table 12.

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, T. 37 N., R. 44 E., WM, a portion of Section 31, T. 37 N., R. 45 E., WM, and Section 6, T. 36 N., R. 45 E., WM. Section 36 formerly was owned by the State of Washington, and the Colville National Forest acquired this parcel through a land exchange in 1991 (refer to Stimson ANILCA Access Easement FEIS, Sullivan Lake Ranger District, Colville National Forest, 2000).

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

Location (Ownership)	South Fork IRA	Grassy Top IRA
Section 3 (Stimson)	490	
Section 9 (Stimson)	327	
Section 7 (Stimson)	35	
Section 10 (NFS)	267	
Section 1 (Stimson)		577
Section 13 (Stimson)		305
Total Acres – 2,001	**1,119**	**882**

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 approximately 13,781 acres on the Idaho Panhandle National Forests and approximately 2,000 acres on the Colville National Forest for a total of 15,781 (figure 13). 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 FEIS (USDA 1987b).

Portions of Sections 1 and 13, T. 37 N., R. 44 E., WM are in private ownership and account for approximately 882 acres within the Grassy Top Inventoried Roadless Area. Both sections also are owned by SLC, 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 NFS lands in the Grassytop IRA meet roadless character guidelines.

Roadless Area Complex

Road 319, 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.

The Roadless Area Complex (RAC) will be included in the cumulative effects discussion. 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, approximately 1,241 acres), account for a total of about 23,552 acres as shown in table 13. However, subtracting those acres (approximately 2,001 acres) that no longer meeting roadless characteristics would reduce the acreage to approximately 21,551 acres of contiguous land meeting roadless characteristics.

Following is the approximate gross acreage breakdown for the RAC (refer to figure 13 and table 13):

Table 13. Total Acres in the Roadless Area Complex.

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

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

Existing Roadless Characteristics Descriptions

This analysis evaluates the effects on the wilderness attributes considered in Forest planning (FSH 1920) and the roadless characteristics identified in the Roadless Policy (36 CFR § 294.11). Table 14 describes the link between the wilderness attributes and the roadless characteristics.

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.

Table 14. Wilderness Attributes and Roadless Characteristics

Wilderness Attributes	Roadless Characteristics
Natural Integrity (is the extent to which long-term ecological processes are intact and operating)	High quality or undisturbed soil, water, and air Sources of public drinking water Diversity of plant and animal communities Habitat for threatened, endangered, candidate, proposed, and sensitive species dependent on large areas Reference landscapes
Apparent Naturalness (means the environment looks natural to most people)	Natural appearing landscapes with high scenic quality
Remoteness (perceived condition of being secluded, inaccessible, and out of the way) and **Solitude** (personal, subjective value defined as the isolation from sights, sounds, and presence of others and the development of man)	Primitive, semi-primitive non-motorized, and semi-primitive motorized classes of dispersed recreation
Special Features (unique geological, biological, ecological, and cultural or scenic features) and **Special Places** (what is it about the area that causes one to visit for pleasure or their livelihood)	Other locally identified unique characteristics Traditional cultural properties and sacred sites
Manageability and Boundaries (ability to manage a roadless area to meet the minimum size criteria (5,000 acres) for wilderness	No criteria

The portion of the South Fork Mountain Roadless area to the north of the SLC Sections (3, 5, 7 and 9) is considered to be a High Integrity Landscape as defined by the draft North Zone Geographic Assessment. This landscape is unique in the moist and cold forests of northern Idaho/northeastern Washington because of the following combination of characteristics:

- The best large contiguous landscape in northern Idaho/northeastern Washington in terms of high biodiversity at multiple scales, natural processes functioning in historic manner, natural landscape patterns present at multiple scales, and lack of human-caused homogenization.
- The least fragmented landscape—contains large, naturally created patches of both early successional and late successional vegetation as well as a good variety of patch sizes and patterns.

- Contains both the greatest concentration and largest patches of moist Old Growth forest in northern Idaho/northeastern Washington.
- High concentrations of habitat for wildlife species of concern, including grizzly bear, woodland caribou, Canada lynx and northern gray wolf.
- Low road density.
- Upper Granite Creek is a high integrity, relatively intact riparian system. Sema Creek, which is a tributary of Upper Granite Creek, currently meets water quality standards for the State of Washington.

The portion of the roadless area south of the SLC Sections, (3, 5, 7 and 9) is considered to be a Mixed Integrity Landscape as defined by the draft North Zone Geographic Assessment. In general this landscape contains either:

- A moderately to heavily roaded matrix of young forest harvested and regenerated within the last 40 years.
- Includes some important areas of wetlands and riparian plant communities, but these are often adjacent to other highly altered areas or roads.
- Includes sub-alpine areas with moderate fragmentation.
- Isolated federal tracts of land surrounded by private or State lands.

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. The South Fork Mountain Roadless Area is classified as a semi-primitive non-motorized area, per the 1996 Kalispell-Granite Access Management Project Decision Notice. No motorized recreation uses are currently provided for in the roadless area.

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 20). 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. The area also contains habitat for a variety of wildlife species. 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.

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 and wilderness attributes on NFS lands within the South Fork Mountain IRA were considered.

The cumulative effects analysis was separated into two parts: for five of the wilderness attributes, that correspond to 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.

The effects analysis follows the methodology outlined in Our Approach to Effects Analysis (USDA 1991); this methodology is included in the project file. Additional direction for evaluating the effects on the roadless resource was provided by the Roadless Area Inventory Protocol (11/20/96). This protocol provides guidance in the validation of the existing inventory of roadless areas that are identified in existing forest plans and for effects analysis on the roadless resource in project analysis (ibid). Regeneration harvests, logged by any means, including helicopter, where logging activities are evident and canopy closure is not similar to surrounding uncut areas, should not be included within a roadless area. This would include "leave strips" between units where these strips are less than 1/3 mile in width. Harvest units with non-regeneration prescriptions such as intermediate and uneven-aged harvests may or may not be included depending on the site-specific conditions. Examples include those areas containing early logging activities related to historic settlement of the vicinity, areas where stumps and skidtrails or roads are substantially unrecognizable, or areas where clearcuts have regenerated to the degree that canopy closure is similar to surrounding uncut area (FSH 1909.12-7.11a, Section 9).

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 approximately 5,411 acres as shown in table 15.

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 NFS 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, T. 36 N., R. 45 E., WM, and Sections 1 and 13, T. 37 N., R. 44 E., WM 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 SLC's lands in Section 5, T. 36 N., R. 45 E., WM 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 previously in Existing Roadless Characteristics Descriptions. Natural changes would be expected to occur through time resulting from such disturbance factors as wind, wildfire, insects, and diseases.

The removal of Road 319, which originally separated the South Fork Mountain IRA and the Grassy Top IRA as discussed previously 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).

There is one reasonably foreseeable action that may occur in the future that would potentially change the acreage of the existing roadless Roadless Area Complex. The action is located in the unroaded area adjacent to the South Fork Mountain IRA. This 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. The decision for this project was upheld by the 9th Circuit Court in July 2003. When this project is implemented, approximately 89 acres on the western side of Section 6, T. 36 N., R. 45 E., WM, would be removed from roadless character due to road construction on NFS lands. The effects of the road construction in Section 6 would not break up or fragment the area to any degree because it would take place on the far western edge of the unroaded area. The addition of the road would add more traffic noise and the visitors experience would be somewhat diminished on the western edge of the area (see figure 13). Opportunities for solitude would also become more restricted because of the increased activity adjacent to the unroaded area resulting from timber harvest on adjacent SLC lands. However, existing outdoor recreation opportunities would not be affected on NFS lands (Stimson ANILCA Access Easement FEIS, page 155).

Table 15. Effects of each alternative on the amount of Roadless Acres

Alternative A	**South Fork Mtn. Inventoried Roadless Area**	**Roadless Area Complex**
Gross Area (Includes Stimson property):	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	1,119	2,001
Direct and Indirect loss of roadless characteristics:	0	0
Cumulative loss of roadless characteristics:	0	89
Net Area Remaining in Roadless Character:	5,411	21,462
Alternative B		
Gross Area (Includes Stimson property):	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	1,119	2,001
Direct and Indirect loss of roadless characteristics:	155	155
Cumulative loss of roadless characteristics:	558 + 169 = 727	727 + 89 = 816
Net Area Remaining in Roadless Character:	4,529	20,580
Alternative C		
Gross Area (Includes Stimson property):	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	1,119	2,001
Direct and Indirect loss of roadless characteristics:	136	136
Cumulative loss of roadless characteristics:	558 + 189=747	747 + 89 = 836
Net Area Remaining in Roadless Character:	4,528	20,579
Alternative D		
Gross Area:	6,530	23,552
Past Actions: Area currently no longer having roadless characteristics:	1,119	2,001
Direct and Indirect loss of roadless characteristics:	0	0
Cumulative loss of roadless characteristics:	558 + 324=882	882 + 89 = 971
Net Area Remaining in Roadless Character:	4,529	20,580

The reasonably foreseeable action described above would leave a total of 21,462 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, T. 36 N., R. 45 E., WM, because of the road authorization and resultant road construction. This would result in an approximate 2.8 percent reduction in the amount of roadless acres on NFS lands in the South Fork Mountain IRA, and would leave approximately 5,245 inventoried acres within this roadless area on NFS lands (refer to project file map). This is considered an irretrievable loss of roadless area.

Cumulative Effects: The majority of the Reasonably Foreseeable Actions on NFS 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 northeast quarter of Section 8 resulting from the implementation of the road authorization 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, T. 36 N., R. 45 E., WM and Sections 1 and 13, T. 37 N., R. 44 E., WM 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. However, access to SLC's lands in Section 1 T. 36 N., R. 44 E., WM, on the Colville National Forest, would affect about 89 acres of currently unroaded NFS lands in Section 6 (T. 36 N., R. 45 E.,), which is adjacent to the South Fork Mountain IRA (see figure 14). As a result the 1,241 acres of contiguous unroaded area adjacent to the South Fork Mountain IRA (Section 36, T. 37 N., R. 44 E., a portion of Section 31, T. 37 N., R. 45 E., and Section 6, T. 36 N., R. 45 E.,) would decrease by approximately 89 acres. Cumulatively, all but 89 acres (1,152 acres) of this unroaded area would maintain its roadless character and would not become isolated from the South Fork Mountain IRA as a result of the activities occurring or proposed to occur on NFS lands and SLC's lands. No other foreseeable actions are planned for these sections.

With the implementation of Alternative B, the road construction and timber management activities would occur on SLC's lands in Section 5, T. 36 N., R. 45 E., WM. The proposed activities on Stimson's lands would result in the direct loss of roadless character of 558 acres within the South Fork Mountain IRA. The management activities of Stimson's lands in Section 5 also would result in the additional indirect effect of isolating the remaining 169 acres of NFS lands in the northwest quarter of Section 8, T. 36 N., R. 45 E., WM, 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. Therefore, Alternative B would result in the cumulative loss of 727 acres within the South Fork Mountain Roadless Area.

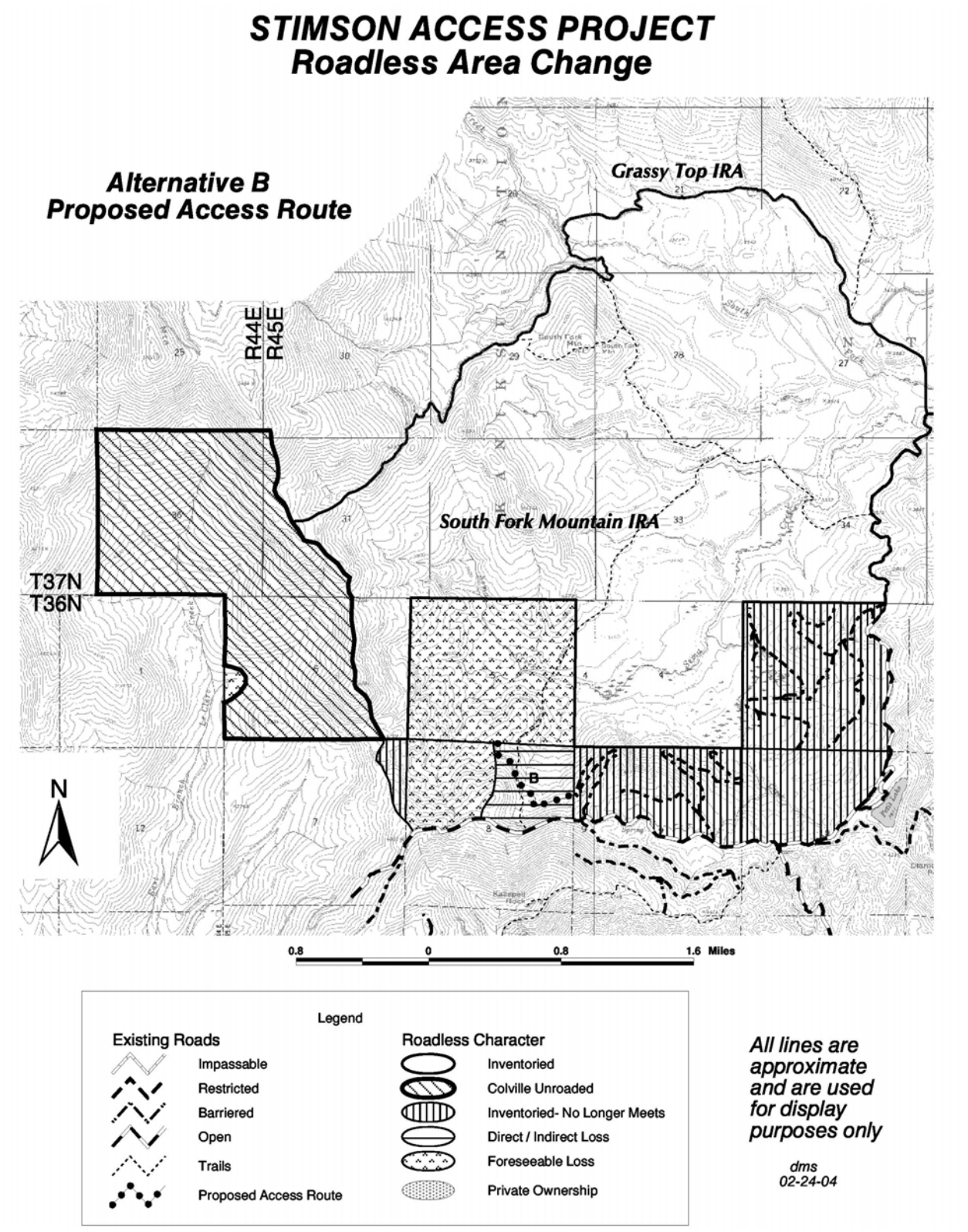

Figure 14. Roadless Area change with Alternative B.

As a result, the loss of 727 acres in addition to the direct loss of 155 acres in the northeast quarter of Section 8, cumulatively would leave approximately 4,529 acres within the South Fork Mountain IRA.

For Alternative B, the wilderness attributes and roadless characteristics would be described as follows, assuming that SLC'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 (i.e. SLC's lands in Section 5 and NFS lands in Section 8) would have a managed condition with evidence of human activities. A majority of the South Fork Mountain IRA (i.e. north of SLC's lands in Sections 3 and 5) still would maintain its natural integrity outside of those areas directly or indirectly impacted by implementation of Alternative B.

That portion of the South Fork Mountain IRA north of the SLC sections of land would still be considered a high integrity landscape containing unfragmented habitat, low road density, and suitable habitat for wildlife species of concern (see wildlife effects section).

Water quality within the entire IRA would be maintained because the predicted amount of sediment delivered from the road system would be effectively reduced through implementation of site-specific mitigation measures. While some amount of sediment is predicted to be delivered that would be higher than what is currently moving through the system, it would be within the range of natural variability that resulted from natural occurrences (see hydrology effects discussion section).

There would be a risk of weed introduction and spread with the implementation of activities on NFS and SLC's lands. However, with the proposed design criteria and mitigation measures to be implemented, the risk of noxious weed spread would be minimized (see noxious weed effects discussion).

While there would be effects to air quality, they would be local and limited to minor amounts of dust during the construction and use period. The level of particulate matter emissions resulting from burning of right-of-way slash on NFS lands and slash burning on Stimson's lands would be controlled under Washington State smoke management requirements which meet the Clean Air Act. Therefore air quality would be maintained.

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 could 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. The South Fork Mountain Roadless Area would continue to be managed as a semi-primitive non-motorized area.

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 241, may or may not be preserved depending on Stimson's management activity. Presently, the Forest Service has no easement for Trail 241 through Stimson's land and will seek reciprocal access. Unique plant species would still be found in the roadless area where they exist, including Section 8 as discussed in the TES Plants section later in this chapter. Direct, indirect, and cumulative effects to wildlife and fish species for all alternatives are discussed elsewhere 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 8 and 5, the acres from both of these sections would no longer meet roadless characteristics. The remaining 4,529 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 additional reasonably foreseeable action would occur. As discussed in Alternative A, approximately 89 acres on the western side of Section 6, T. 36 N., R. 45 E.,WM would be removed from roadless character due to road construction on NFS lands. This reduction would leave a total of 20,580 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 the southwest corner of Section 4, T. 36 N., R. 45 E., WM for a total loss of 136 acres as a result of granting the road authorization and resultant road construction. This would result in an approximate 2.5 percent reduction in the amount of roadless acres on NFS lands in the South Fork Mountain IRA, leaving approximately 5,264 inventoried acres within this roadless area (refer to project file map). This is considered an irretrievable loss of roadless area.

Cumulative Effects: The majority of the Reasonably Foreseeable Actions on NFS 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 135 acres in the northeast corner of Section 8 T. 36 N., R. 45 E., WM, and the loss of one acre in the southwest corner of Section 4, T. 36 N., R. 45 E., WM resulting from the implementation of the road authorization 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, T. 36 N., R. 45 E., WM and Sections 1 and 13, T. 37 N., R. 44 E., WM 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. However, access to SLC land in Section 1 would affect about 89 acres of currently unroaded NFS land in Section 6 (T. 36 N., R. 45 E.,), which is adjacent to the South Fork Mountain IRA (see figure 15). As a result the 1,241 acres of contiguous unroaded area adjacent to the South Fork Mountain IRA (Section 36, T. 37 N., R. 44 E., a portion of Section 31, T. 37 N., R. 45 E., and Section 6, T. 36 N., R. 45 E.,) would decrease by 89 acres. Cumulatively, all but 89 acres (1,152 acres) of this unroaded area would maintain its roadless character and would not become isolated from the South Fork Mountain IRA as a result of the activities occurring or proposed to occur on NFS lands and SLC's land. No other foreseeable actions are planned for these sections.

With the implementation of Alternative C, the road construction and timber management activities would occur on SLC's lands in Section 5, T. 36 N., R. 45 E., WM. The proposed activities on Stimson's lands would result in the direct loss of roadless character of 558 acres in Section 5, within the South Fork Mountain IRA. The management activities of Stimson's lands in Section 5 would result in the additional indirect effect of isolating the remaining acres in the northwest quarter of Section 8 (approximately 189 acres). These 189 acres in Section 8 would no longer possess roadless area characteristics because they would be essentially surrounded by management activities. Therefore, Alternative C would result in the cumulative loss of 747 acres within the South Fork Mountain Roadless Area.

As a result, the loss of 747 acres in addition to the direct loss of 136 acres (135 acres in the northeast portion of Section 8 and the one acre in southwest corner of Section 4) cumulatively would leave approximately 4,528 acres within the South Fork Mountain IRA as displayed in table 15 and illustrated in figure 15.

For Alternative C, the wilderness attributes and roadless characteristics would be described as follows, assuming that SLC'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 (i.e. SLC's land in Section 5 and NFS lands in Section 8) would have a managed condition with evidence of human activities. The southwest corner of Section 4 (approximately one acre) would also have a managed condition due to the construction of the switchback in the access road.

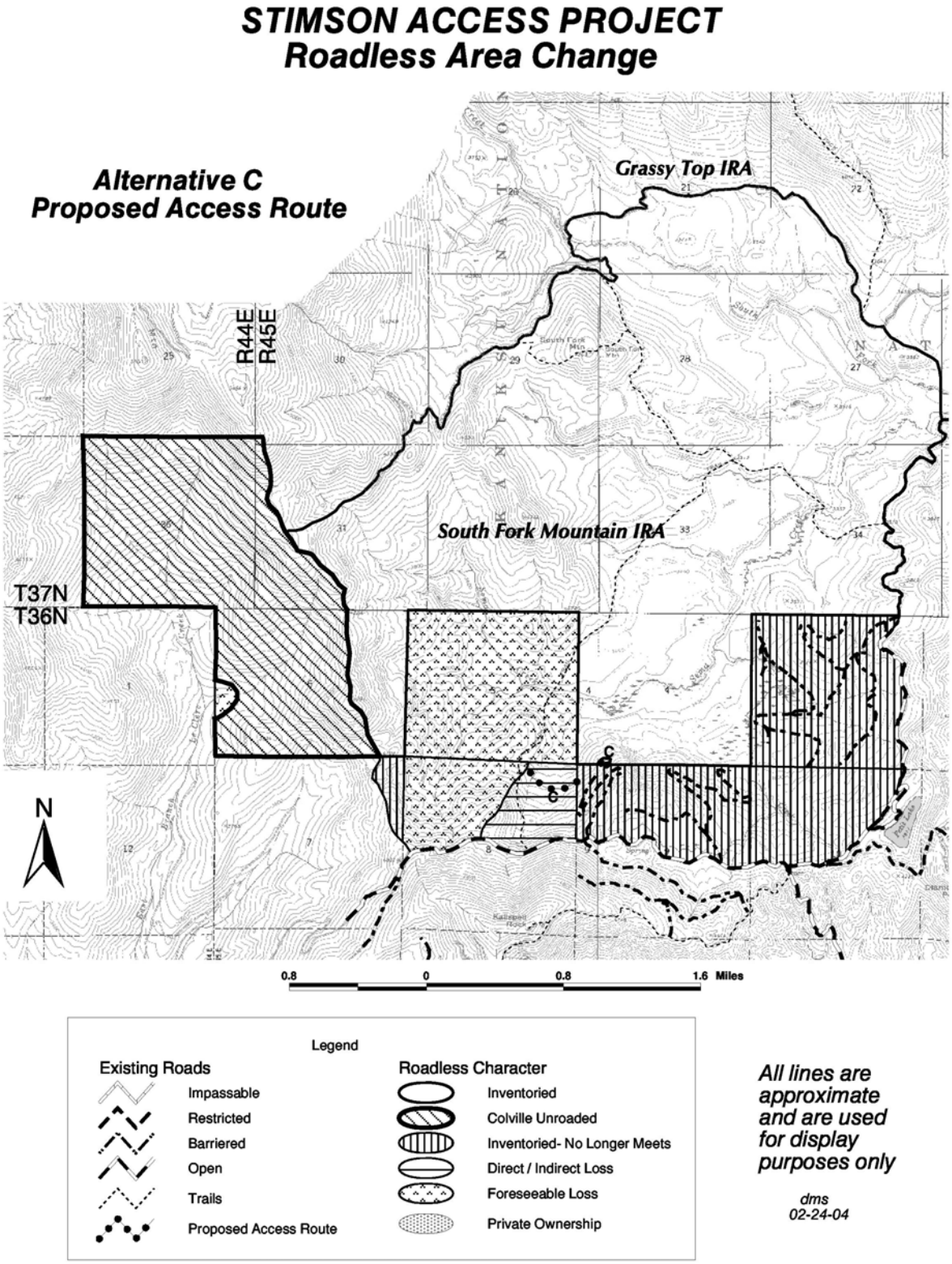

Figure 15. Change in Roadless Area with Alternative C.

A majority of the South Fork Mountain IRA (i.e. north of SLC's lands in Sections 3 and 5) still would maintain its natural integrity outside of those areas directly or indirectly impacted by implementation of Alternative C.

That portion of the South Fork Mountain IRA north of the SLC sections of land would still be considered a high integrity landscape containing unfragmented habitat, low road density, and suitable habitat for wildlife species of concern (see wildlife effects section).

Water quality within the entire IRA would be maintained because the predicted amount of sediment delivered from the road system would be effectively reduced through implementation of site-specific mitigation measures. While some amount of sediment is predicted to be delivered that would be higher than what is currently moving through the system, it would be within the range of natural variability that resulted from natural occurrences (see hydrology effects discussion section).

There would be a risk of weed introduction and spread with the implementation of activities on NFS and SLC's lands. However, with the proposed design criteria and mitigation measures to be implemented, the risk of noxious weed spread would be minimized (see noxious weed effects discussion).

While there would be effects to air quality, they would be local and limited to minor amounts of dust during the construction and use period. The level of particulate matter emissions resulting from burning of right-of-way slash on NFS lands and slash burning on Stimson's lands would be controlled under Washington State smoke management requirements which meet the Clean Air Act. Therefore air quality would be maintained.

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 Sections 5 and 8, and the southwest corner of Section 4 where the road authorization would occur. There would be other areas and viewpoints, however where naturalness could 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 Sections 8 and 4, and activities on SLC's lands in Section 5. Vehicular traffic sounds would be heard during road construction in 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. The South Fork Mountain IRA would continue to be managed as a semi-primitive non-motorized area.

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: 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 241 may or may not be preserved depending on Stimson's management activities. Presently, the Forest Service has no easement for Trail 241 through Stimson's land and will seek reciprocal access. 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 these sections would no longer meet roadless characteristics. The remaining 4,528 acres of the 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 western side of Section 6, T. 36 N., R. 45 E., WM would be removed from roadless character due to road construction on NFS lands. This reduction would leave a total of 20,579 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 15.

Alternative D

Direct and Indirect Effects: Alternative D would not grant a road authorization on NFS lands for road access. Instead, it would be assumed that Stimson would harvest their lands in Section 5 by helicopter. With implementation of this alternative, there would be no loss of roadless character on NFS lands by the construction of a road in Section 8.

Cumulative Effects: The cumulative effects of reasonably foreseeable actions on NFS lands and private lands follow the discussion of cumulative effects for the other alternatives. The Reasonably Foreseeable Actions on NFS 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. The continuing timber harvest and management activities on private lands in Sections 3 and 9, T. 36 N., R. 45 E., WM and Sections 1 and 13, T. 37 N., R. 44 E., WM 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.

As in Alternatives A, B and C, the continuing timber harvest and management activities on private lands in Sections 3 and 9, T. 36 N., R. 45 E., WM and Sections 1 and 13, T. 37 N., R. 44 E., WM also would not result in a change in acres of the South Fork Mountain IRA or the

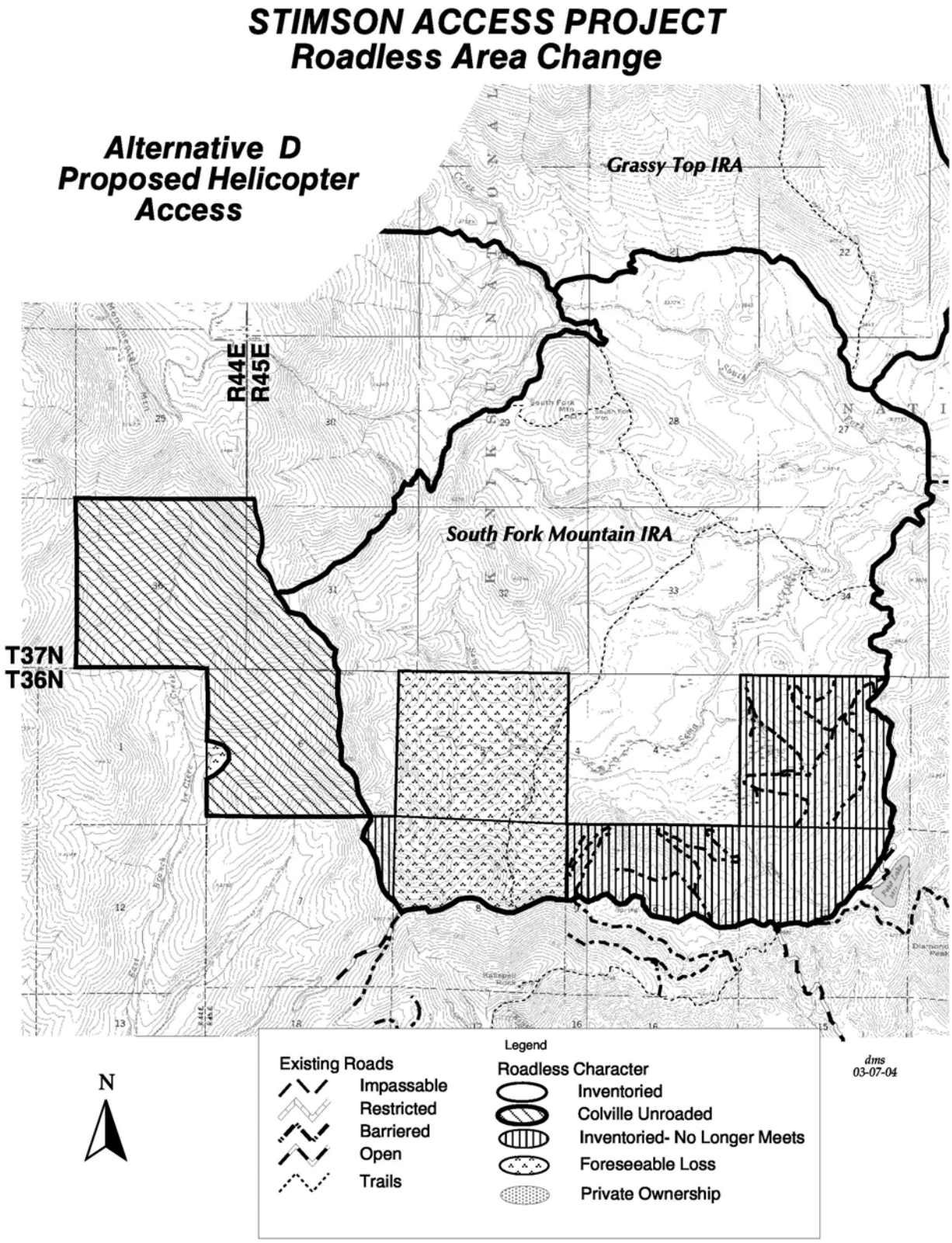

Figure 16. Change in Roadless Area with Alternative D.

Roadless Area Complex. These acres currently do not meet roadless character because of past activities. However, access to SLC land in Section 1 (T. 36 N., R 44 E) would affect about 89 acres of currently unroaded NFS lands in Section 6 (T. 36 N., R. 45 E.), which is adjacent to the South Fork Mountain IRA (see figure 16). As a result the 1,241 acres of contiguous unroaded area adjacent to the South Fork Mountain IRA (Section 36, T. 37 N., R. 44 E., a portion of Section 31, T. 37 N., R. 45 E., and Section 6, T. 36 N., R. 45 E.,) would decrease by 89 acres. Cumulatively, all but 89 acres (1,152 acres) of this unroaded area would maintain its roadless character and would not become isolated from the South Fork Mountain IRA as a result of the activities occurring or proposed to occur on NFS lands and SLC's land. No other foreseeable actions are planned for these sections.

With the implementation of Alternative D, timber management activities would occur on SLC's lands in Section 5, T. 36 N., R. 45 E., WM beginning in 2004. A majority of the section (approximately 325 acres) would be logged in selective cuts. The level of canopy removal from the partial and selective cuts would be visually evident from Road 308 and from within Section 5, along with other viewpoints within the South Fork Mountain IRA. Stumps and logging debris would be apparent in Section 5.

The management activities of Stimson's lands in Section 5 would result in the isolation of the north half of Section 8. Approximately 324 acres in Section 8 would no longer possess roadless area characteristics because the north half of Section 8 would be less than a mile in width, and would be essentially surrounded by management activities occurring on Road 308 and Stimson property (Roadless Area Inventory Protocol, 1996).

Therefore, Alternative D would result in the cumulative loss of 882 acres within the South Fork Mountain Roadless Area. As a result, the loss of 882 acres in Sections 5 and 8, would leave approximately 4,529 acres within the South Fork Mountain IRA as displayed in table 15 and illustrated in figure 16.

For Alternative D, the wilderness attributes and roadless characteristics would be described as follows, assuming that SLC's lands would be managed for long-term timber production:

Natural Integrity: The proposed harvest operations would affect the natural integrity in Section 5 as discussed above. Though no roads would be constructed in this alternative, the proposed harvests would change the vegetative character, and therefore, the natural integrity of the area.

The majority of the South Fork Mountain IRA would remain as a predominantly coniferous forest with dense immature timber and underbrush.

The SLC's lands in Section 5 that previously possessed roadless character as viewed from Road 308 would now be in a managed condition whereas the land in Section 8 would have a natural appearance but would be isolated from the remainder of the South Fork Mountain IRA. A majority of the South Fork Mountain IRA (i.e. north of SLC's lands in Sections 3 and 5) still would maintain its natural integrity. That portion of the South Fork Mountain IRA north of the SLC sections of land would still be considered a high integrity landscape containing

unfragmented habitat, low road density, and suitable habitat for wildlife species of concern (see wildlife effects section).

Water quality within the entire IRA would be maintained because the predicted amount of sediment delivered from the harvest activities would be effectively reduced through implementation of site-specific mitigation measures. While some amount of sediment is predicted to be delivered that would be higher than what is currently moving through the system, it would be within the range of natural variability that resulted from natural occurrences (see hydrology effects discussion section).

Because no road construction would occur, there would be minimal soil disturbance associated with helicopter logging operations. The potential risk of noxious weed spread would be much lower than for the other two action alternatives (see noxious weed effects section).

While there would be effects to air quality, they would be local and limited to minor amounts of dust during the construction of helicopter landings and management activities. The level of particulate matter emissions resulting from slash burning on Stimson's lands would be controlled under Washington State smoke management requirements which meet the Clean Air Act. Therefore air quality would be maintained.

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 because of stumps and logging debris. The main difference among the action alternatives would be that road prisms would not be present in Alternative D. There would be other areas and viewpoints within the remainder of the South Fork Mountain IRA where naturalness could still be found.

Remoteness: Section 5 would exhibit less of a feeling of seclusion and inaccessibility than existing conditions because of the physical evidence of harvest activities. Helicopter and chainsaw sounds would be heard during logging operations, or when other management activities are occurring in Section 5. These sounds would be expected to be greatest during harvest operations, and then taper off after the logging is completed. The sounds would not be apparent throughout the entire roadless area and places with a remote feel could still be found

Compared with Alternatives B and C, the area would retain more feeling of remoteness because no roads would be constructed. The area would not be accessible to motorized vehicles. The South Fork Mountain IRA would continue to be managed as a semi-primitive non-motorized area.

Solitude: A high degree of solitude would still be found within the South Fork Mountain IRA, except if one were adjacent to Section 5 during periods of helicopter logging or other management activities, when people, equipment and sounds would be present. A feeling of isolation could still be found within Section 5 when activities are not occurring.

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 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 (see TES plants effects section). Other special features, such as South Fork Mountain, would be physically unaffected by management activities.

Manageability/Boundaries Element: Because of the cumulative impacts from activities occurring in Section 5 and associated effects to Section 8, the acres from both of these sections would no longer meet roadless characteristics. The remaining 4,529 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 to the north of the private land would remain intact.

As with Alternatives A, B and C, one reasonably foreseeable action would occur within the Roadless Area Complex (RAC). Approximately 89 acres on the western side of Section 6, T. 36 N., R. 45 E., WM would be removed from roadless character due to road construction on National Forest System lands. This reduction would leave a total of 20,580 acres in the cumulative effects area (RAC) in roadless character following implementation of Alternative D; this total would be the same as Alternative B and one more acre than Alternative C as shown on table 15.

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.

Alternative A would not be consistent with the Forest Plan standards for Lands (USDA 1987a, page II-35). The Forest Plan requires that private landowners will not be denied reasonable access to their property subject to compliance with applicable regulations and Forest Service policies.

Alternative D would not be consistent with ANILCA. ANILCA provides that an owner of private land within the National Forest can secure access across NFS lands for the "reasonable use and enjoyment" of the private land. Any grant of access is subject to regulations at 36 CFR § 251.14, Subpart B and 251.110. These regulations provide for granting of road authorizations for access purposes, but such authorizations are made subject to the requirements of all other applicable laws. Chapter I documented the reasonable use and enjoyment of the land within the project area based on contemporaneous uses made of similarly situated lands in the area and any other relevant criteria.

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, three threatened species are suspected to occur in the IPNF - water howellia (*Howellia aquatilis*), Ute ladies'-tresses (*Spiranthes diluvialis*) and Spalding's catchfly (*Silene spaldingii*) (USDI 2003).

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.

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 2004b), 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 Forest Service botanist.

Field Survey Results and Post-Survey Review

Field surveys of the proposed road authorization under Alternative B were conducted in August of 1995. Surveys of the road 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 road authorization 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 within the proposed road authorization under Alternative C.

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 road authorizations cross two drainages with well-developed riparian zones, but no sensitive plants were found at the proposed crossings. All highly suitable habitat was thoroughly surveyed.

The 1995 and 1997 field survey results and habitat assessment TSMRS queries were reviewed after the listing as Threatened of Ute ladies'-tresses in December 1998, the revision of the Regional Forester's Sensitive Plants list on March 10, 1999 and the proposal to list Spalding's catchfly in 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, Ute ladies'-tresses, or 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[1]. Mingan

[1] 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).

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).

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 Forest Service 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. This area represents the likely limit of effects to rare plant populations from implementation of the action alternatives. Those limits are largely based on the expected distance of spore or seed dispersal and potential for colonization of rare plant populations in areas of suitable habitat. Past management activities on private and NFS 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's lands in the parcel to which access is requested
- **Ongoing road maintenance** on Stimson and NFS lands in the watersheds
- **Noxious weed treatment** on Stimson and NFS lands in the watersheds

The majority of NFS lands in the Sema and Tobasco Creek watersheds have had no management activities. No past or planned timber sale has occurred on NFS lands in either drainage. The only scheduled Forest Service management activities in the drainages are maintenance of Road 308 and noxious weed treatment as noted above. Noxious weed treatments and monitoring

would occur on known infestations adjacent to Road 308 and other infestations as they are discovered. Because these activities would occur on the road surface and cut and fill slopes, there would be a low risk of impacts to sensitive plants.

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 NFS 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

Alternative A

Direct and Indirect Effects: Management activities on NFS 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 on NFS lands.

Cumulative Effects: Past logging and road construction activities on SLC's lands in the analysis area have likely impacted individuals, and have certainly impacted suitable habitat. Suitable habitat occurs in Sections 3 and 9 where roads have been constructed and areas logged since 1995-1996. Additional logging is planned in these two sections**,** though no roads would be constructed. Cumulative impacts to sensitive plants from activities on SLC's lands would be expected to be moderate with implementation of Alternative A, but would be less than under Alternative B or C.

Alternative B

Direct and Indirect Effects: The road authorization proposed under this alternative would not directly or indirectly impact any documented sensitive plant occurrences. The original road authorization 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 personal communication). As a result, the proposed road 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*) falls within the currently proposed 66-foot road authorization on NFS lands. The moonwort occurrence is localized within a moist forest microsite under a relic cedar overstory. The proposed road authorization would be relocated to provide a minimum 100-foot buffer from any road construction activity. Therefore, no direct or indirect effects to the documented occurrences of sensitive moonworts would occur.

Areas of highly suitable moist forest habitat would be directly impacted under this alternative. The risk that undetected moonworts would be impacted is higher than under Alternative B. Although implementation of Alternative C may 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 cumulative effects analysis area.

Effects Common to Alternatives B and C

Sensitive moonworts *(*Botrychium *species)*

Direct and Indirect Effects: As stated in Chapter II under Features Common to Alternatives B and C, a Forest Service botanist would field review the final road layout to ensure that known sensitive plant populations of moonworts are protected. Occurrences would be buffered or the road location shifted to protect the population, if needed. This measure also would assure protection of any additional occurrences found during the field review. However, undetected individuals of Mingan moonwort and western goblin in marginal to moderately suitable habitat could be impacted under Alternative B or C.

Cumulative Effects - Because of the potential for impacts to individuals, implementation of Alternative B or C 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 Alternative B or C 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. Suitable habitat for sensitive moonworts exists in Sections 3 and 9 where roads have been constructed and areas logged since 1995-1996. Additional logging is planned in these two sections in 2002-2003, though no roads would be constructed. In both alternatives, an estimated 550 acres would be logged with 3.6 miles of road constructed in Section 5. These planned timber harvest and road construction activities on private lands are expected to continue to impact some suitable habitat, with the possibility that some moonwort occurrences may be lost. Riparian Management Zones, as required by Washington Forest Practices, would offer minimal protection of suitable habitat. There is no statutory requirement to maintain sensitive plant populations or suitable habitat on private lands.

Ongoing road maintenance and noxious weed treatments and other reasonably foreseeable actions on NFS lands are not expected to contribute to cumulative impacts. Although

occurrences and suitable habitat may be lost resulting from activities on private lands, 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 road authorization proposed under Alternative C. There would be no direct or indirect impacts to this species from implementation of Alternative B or C.

A Forest Service botanist would field review the final road layout to ensure that known sensitive plant populations of deerfern are protected. Occurrences would be buffered or the road location shifted to protect the population, if needed. This measure also would assure protection of any additional occurrences found during the field review.

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 Alternative B or C would not, by itself, contribute cumulative impacts to deerfern from actions on NFS lands.

Past and future logging and road construction activities on SLC's lands in Sections 3 and 9 have impacted suitable habitat for this species, and some individuals may have been impacted. The planned timber harvest and road construction activities in Section 5 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 or disturbed 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 Alternative B or C. 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 Alternative B or C would not, by itself, contribute cumulative impacts to most sensitive species of this guild on NFS lands.

Past and future logging and road construction activities on SLC's lands in Sections 3 and 9 have impacted suitable moist forest habitat, and likely some sensitive species of this guild. The planned timber harvest and road construction activities in Section 5 are expected to continue to

impact species and some 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 Alternatives B and 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 wet forest habitat that would be affected, implementation of Alternative B or C would not, by itself, contribute significant cumulative impacts to most sensitive species of this guild on NFS lands.

Past and future logging and road construction activities on SLC's lands in Sections 3 and 9 have impacted suitable wet forest habitat, and likely some sensitive species of this guild. The planned timber harvest and road construction activities in Section 5 are expected to continue to impact species and some suitable habitat.

Stream buffers on SLC's 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.

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.

Alternative D

Direct and Indirect Effects: The effects of Alternative D would be the same as for the No Action Alternative. With Alternative D, there would be no direct, indirect or cumulative impacts to any documented occurrences of threatened, endangered or sensitive plant species or Forest species of concern or suitable habitat on NFS lands.

Cumulative Effects - The past and future activities in Sections 3 and 9 would have the same effects as discussed for the No Action Alternative as well as for Alternatives B and C.

Because no road authorization would be granted in Alternative D**,** no road construction would occur on NFS or SLC's lands. There would be no loss of suitable habitat or undetected individuals of species occurrences on NFS lands.

Logging on SLC's lands would be done by helicopter, which would minimize ground disturbance and would result in a reduced potential for impacts to any occurrences of sensitive species and suitable habitat. The proposed reduction in forest canopy would possibly affect moonwort populations and other species sensitive to increased sunlight resulting from canopy removal. Riparian Management Zones, as required by Washington Forest Practices, would provide minimal protection to suitable riparian and wet forest habitat.

Overall, cumulative impacts from implementation of Alternative D would be expected to be moderate, but there would be less potential for impacts to sensitive plant species or Forest species of concern and suitable habitat than under Alternative B or C.

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.

Across the Forest, suitable habitat for sensitive plant species appears to be well distributed. Approximately 625,000 acres have been identified as having the potential to support sensitive plant species in a wide array of plant communities. As of the 2002 Forest Plan Monitoring Report, approximately 72,531 acres (about ten percent) of suitable habitat have been surveyed for sensitive plants.

In the 1998 Forest Plan Monitoring Report, sensitive species trends across the Forest were qualitatively assessed (see pp. 112-116 of that report). Of the sensitive plant species assessed, 11 species were considered to have fairly secure populations with stable trends and few observed threats; 28 species had mostly stable populations with some concerns and threats; and for 16 species there was a serious concern. Estimates for this assessment were based on the best information available, including known population size, distribution and threats. Mingan moonwort was considered to have serious concerns regarding population viability on the Forest.

Since implementation of the Forest Plan in 1987, impacts to highly suitable habitat for many sensitive plant species have diminished with the implementation of laws and policies protecting riparian areas, wetland and peatland habitats and policies designed to maintain old growth forests.

At the project level, to prevent further declines in populations of sensitive species, suitable habitat has been identified and surveyed, and all documented occurrences of sensitive moonworts would be protected from disturbance.

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 personal communication).

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 NFS and SLC's lands. Infestations on NFS 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 road authorization proposed under Alternatives B and C 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 the Sema and Tobasco Creek watersheds.

Alternative A

Direct and Indirect Effects: 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.

Cumulative Effects: As discussed in the Priest Lake Noxious Weed Control Project FEIS, management activities in the past have resulted in the spread of noxious weeds in areas of ground disturbance. Outside of the activities listed below, no harvest or other ground-disturbing activities have occurred on NFS lands over the past three decades or are planned in the reasonably foreseeable future. In the Sema and Tobasco drainages, therefore, infestations

primarily are located adjacent to road systems on NFS lands. The following reasonably foreseeable actions were considered in the cumulative effects analysis for noxious weeds (other ongoing and reasonably foreseeable actions listed in Chapter I would not affect noxious weeds and are not discussed):

Road maintenance: Ongoing road maintenance of SLC's and Forest roads would create soil disturbance that is conducive to weed spread. Monitoring and treatment of infestations as proposed on both NFS (USDA 1997) and SLC's (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 System lands: Current noxious weed control practices on SLC's and NFS lands are expected to continue (USDA 1997). The goals of the Priest Lake Noxious Weed Control Project are outlined on page 1-2 of the FEIS (USDA 1997). Weed monitoring and control efforts are expected to continue to reduce the incidence of existing infestations.

Timber harvest and road construction activities on Stimson Lumber Company's lands: On SLC's lands within the drainages, logging and road construction have occurred the past seven years on Stimson's lands in Sections 3 and 9. Noxious weeds occur adjacent to the roads in these sections. These roads are currently treated for noxious weeds using mechanical, chemical and cultural control methods (Opp 2001). It is assumed that most noxious weed species that occur on NFS lands in the analysis area also occur on SLC's lands. No known spread of weeds to adjacent NFS lands has occurred from these existing infestations.

Ground-disturbing activities from logging operations will occur in these sections over the next one to three years. Because the road system has been built in Sections 3 and 9, no additional road construction would be anticipated. Timber harvest would be expected to increase susceptibility to invasion of weed species on SLC's lands. Noxious weeds could be introduced on logging equipment and vehicles. 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 SLC's 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). Existing yearlong restrictions to public motorized uses of roads in Sections 3 and 9 also would greatly reduce the risk of noxious weed introduction. 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.

Alternative B

Direct and Indirect Effects - There would be a risk of weed introduction and spread with road construction on the proposed road authorization on NFS lands. Alternative B would result in approximately 6 acres of disturbed soils that would be susceptible to infestation by noxious

weeds. 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. Seeding of disturbed areas has been found to minimize the introduction and establishment of noxious weeds. The requirement of cleaning road construction equipment also would reduce the potential of spreading noxious weeds (FSM 2080, Region 1 Supplement No. 2000-2001-1).

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 (USDA 1997), the yearlong restrictions on motorized use of the road would greatly reduce the risk of noxious weed introduction.

The SLC would be required to monitor and treat weeds along the newly constructed road segment for a three-year period following use of the road for logging (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 existing infestations.

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

Alternative C

Direct and Indirect Effects: The direct and indirect effects would be similar to those under Alternative B. Because this proposed road authorization 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. The risk of infestation would be reduced by design criteria and mitigation measures as proposed in Chapter II - Features Common to Alternatives B and C.

Effects Common to Alternatives B and C

Cumulative Effects - With the proposed design criteria and mitigation measures, both Alternatives B and C would minimize cumulative effects to weed infestations. In addition to the cumulative effects discussed under the No Action Alternative, the following reasonably foreseeable actions were considered in the cumulative effects analysis for noxious weeds:

Timber harvest and road construction activities on Stimson Lumber Company's lands in Section 5: With the implementation of either Alternative B or C, SLC would conduct road construction and forestry management activities in Section 5, the parcel to which access is being requested. Road construction and forestry management would be expected to increase susceptibility to invasion of weed species on SLC's lands. Noxious weeds could be introduced on logging equipment and vehicles. While weed infestations in Section 5 are currently not documented, any existing infestations could spread to newly disturbed areas (such as roads, skid trails and skyline corridors) in both alternatives. It is assumed that weed species present in the area, such as knapweed and goatweed, may be introduced into Section 5.

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). Stimson would maintain the existing closures to motorized public use on their roads. 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.

Alternative D

Direct and Indirect Effects - Because no ground disturbance would occur on NFS lands under this alternative, there would be no direct or indirect effect on noxious weed spread. The risk of noxious weed spread on NFS lands would be reduced from the other two action alternatives. As with the other action alternatives, treatment of existing noxious weed populations would continue to occur as specified in the Priest Lake Noxious Weed Control Project (USDA 1997). Because no activities would occur on NFS lands in this alternative, no additional noxious weed mitigation would occur on NFS lands.

Cumulative Effects –In addition to the cumulative effects discussed under the No Action Alternative, The following reasonably foreseeable actions were considered in the cumulative effects analysis for noxious weeds:

Forestry management and road construction activities on SLC's lands in Section 5:

If Alternative D would be selected, Section 5 would be harvested by helicopter. No roads would be constructed into and within Section 5. The ground-disturbing activities associated with road construction would not occur in this alternative. Minimal soil disturbance would result from during helicopter-skidding operations. The risk of noxious weed spread on SLC's lands would be much lower than for the other two action alternatives.

As part of this action, helicopter landings would be constructed on Stimson's lands, most likely in Section 9. The clearing and site preparation to construct these landings would increase the risk of weed spread on and from these sites to adjacent Stimson's lands. Seed from noxious weeds would have the potential of infesting new areas by being transported during helicopter operations if sanitation practices such as cleaning equipment (i.e. helicopter) are not implemented. 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's lands include hand pulling of small infestations and herbicide application with registered chemicals done by licensed applicators for larger areas (Opp 2001).

Given the above considerations, cumulative effects to noxious weed infestations would be less than for Alternative B or C, depending on the landowner's diligence in preventing weed spread in harvested areas and the enforcement of State and county ordinances.

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 and Alternative D meet Forest Plan direction by not creating disturbance conducive to new noxious weed invasions or spread of existing weed populations on NFS lands. Both Action Alternatives B and C 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. All alternatives would be consistent with Forest Plan guidelines.

It should be noted that, since the Forest Plan was implemented in 1987, the issue of weed infestations on NFS lands has evolved to encompass broader issues of native ecosystem integrity and the effects to non-commodity resources and ecosystem processes. Funding levels for noxious weeds programs in the IPNF have increased dramatically since the mid-1990s, and the trend is toward sustaining or increasing those funding levels (see the project file). The Forest Plan revision process will consider the increased emphasis on weed management.

Soils

Regulatory Framework

Direction for protecting site productivity comes from the following principal sources:

- Multiple Use-Sustained Yield Act of 1960,
- National Forest Management Act of 1976 (NFMA),
- Code of Federal Regulations for Forest Planning (36 CFR § 200.1),
- Forest Plan and Regional Soil Quality Standards (FSH 2509.18)

The Multiple Use-Sustained Yield Act of 1960 directs the Forest Service to achieve and maintain outputs of various renewable resources in perpetuity without permanent impairment of the land's productivity.

Section 6 of the National Forest Management Act of 1976 (NFMA) charges the Secretary of Agriculture with ensuring research and continuous monitoring of each management system to safeguard the land's productivity.

The Code of Federal Regulations for Forest Planning that followed NFMA requires the Forest Service to measure effects of prescriptions, including "significant changes in land productivity" (Code of Federal Regulations 36, CFR Part 200, Section 1, 1987).

To comply with NFMA, the Chief of the Forest Service has charged each Forest Service Region with developing soil quality standards for detecting soil disturbances indicating a loss in long-term productive potential on NFS lands. These standards and guidelines are built into Forest Plans.

Management direction in the IPNF Forest Plan (p. II-17) is to manage the soil resource to maintain long-term productivity on NFS lands. The objective is that management activities on forest lands will not significantly impair the long-term productivity of the soil or produce

unacceptable levels of sedimentation resulting from soil erosion. Forest Plan standards (pp. II-32 and 33) include:

(1) Soil-disturbing management practices will strive to maintain at least 80 percent of the activity area in a condition of acceptable productivity potential for trees and other managed vegetation. Unacceptable productivity potential exists when soil has been detrimentally compacted, displaced, puddled, or severely burned as determined in the project analysis;

(2) Projects should strive to maintain sufficient large woody debris to maintain site productivity; and

(3) In the event of whole tree yarding, provisions for maintenance of sufficient nutrient capital should be made in the project analysis.

The Regional Soil Quality standards were revised in November 1999. As included in Forest Plan Standard (1) as discussed above, detrimental soil disturbance includes the effects of compaction, displacement, rutting, severe burning, surface erosion, loss of surface organic matter, and soil mass movement. The revised standard specifies that 85 percent of an activity area must have soil that is in satisfactory condition. In areas where more than 15 percent detrimental soil conditions exists from prior activities, the cumulative detrimental effects from project implementation and restoration should not exceed the conditions prior to the planned activity and should move toward a net improvement in soil quality. These standards do not apply to intensively developed sites such as mines, developed recreation sites, administrative sites, and system or other permanent roads. The above standards apply only to NFS lands.

On SLC's lands, the Washington Forest Practice Rules would apply to the protection of the soil resources. The Washington Department of Natural Resources (DNR) is the agency responsible for enforcement of these regulations on private lands.

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 as well as climate and vegetation.

The discussion of soils and soil productivity is restricted to a simple comparison of the amount of NFS lands that would be removed from productivity from the action alternatives and the reduction in current soil productivity on NFS and SLC's 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 NFS 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 road authorizations 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

Direct and Indirect Effects*:* 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 or indirect effects would occur.

Cumulative Effects: Past activities on NFS lands in the cumulative effects analysis area have been minimal. Little harvest or other management activity has occurred in the drainage except for historic road construction of Roads 308 and Petit Lake Road 311. None of the reasonably foreseeable actions on NFS lands, as outlined in Chapter I, would further impact soil productivity within the project area. Therefore, no further impacts to soil productivity on NFS lands would be expected to occur.

Existing detrimental effects to soil productivity have occurred almost entirely on SLC's lands. SLC logged portions of Sections 3 and 9, beginning in 1995-1996. Road construction and tractor harvest associated with these activities have reduced soil productivity on those areas. The past road construction and logging in these sections caused an irretrievable loss of soil productivity by compaction and displacement of the soil on the road surface, cut and fill slopes, and skid trails. Future timber harvest on these two sections in upper Sema Creek by SLC would be expected to reduce soil productivity on those lands.

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 NFS lands (i.e. lands from the top of cut slope to the toe of the road fill will be taken out of production).

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 3.8 acres of NFS lands would be directly impacted.

Effects Common to Alternatives B and C

Cumulative Effects: Past activities on NFS lands in the cumulative effects analysis area have been minimal as discussed for Alternative A. The road construction on NFS lands proposed in either alternative would be an irretrievable commitment of soil productivity potential within the road corridor. Because of the scope of Alternatives B and C, implementation of either alternative by itself would not contribute significant cumulative effects to soil productivity. No further impacts to soil productivity on NFS lands would be expected to occur from what was discussed for Alternative A.

For both alternatives, the effects to soil productivity would occur almost entirely on SLC's lands. Past impacts to soil productivity within the cumulative effects area have primarily occurred on SLC's lands as discussed in Alternative A. For both Alternatives B and C, the proposed future timber harvest and road construction on Stimson-owned property in Section 5 would reduce soil productivity. A total of 15 acres (approximately 3.6 miles of new road) would be impacted by the construction of roads, resulting in an irretrievable loss of soil productivity through soil displacement and compaction. An estimated 463 acres would be logged in 2003-2004 by a ground-based tractor system, resulting in soil compaction and displacement in the resulting skid trails. Detrimental effects to soil productivity would approximate 15-20 percent of the area logged by tractor based on Forest Service monitoring on NFS lands (Methodology for Determining Soil Impacts, 1993).

For the remaining area of Section 5, an additional 59 acres would be logged in the future with a helicopter system. This area is located in the southwestern corner of the section. Because no roads would be constructed or ground-based logging equipment used, impacts to soil productivity would be minimized.

Subsequent precommercial thinning, planting, and fuel reduction treatments on the harvested acres would have minimal soil impacts.

Alternative D

Direct and Indirect Effects: Under this alternative, no direct or indirect effects to soil productivity would occur because no road would be constructed on NFS lands. The effects, therefore, would be the same as for the No Action Alternative.

Cumulative Effects: Stimson's lands in Section 5 would be logged by helicopter. Because no roads would be constructed or ground-based logging equipment used, impacts to soil productivity would be minimized. Helicopter logging would require the construction of a minimum of one or two landings, approximately an acre in size. The site productivity on these locations would be impacted by the resultant soil displacement and compaction as well as the removal of large woody debris.

Consistency with the Forest Plan and Other Regulatory Direction

According to the Forest Plan, management activities on NFS 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). That standard does not apply to intensely developed sites such as permanent roads. Therefore, all alternatives would meet Forest Plan standards and guidelines, as revised, for soil productivity on NFS 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 SLC'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. Snowmobiling is generally confined to Road 308 with minimal, if any, use occurring off the existing road. A field review by the wildlife biologist in the winter of 2000-2001 was conducted to assess dispersed winter recreation use in the area. He found no dispersed snowmobile use off Road 308 through the project area.

The roads on Stimson's lands in the project area have yearlong closures prohibiting motorized use except for administrative traffic. Each road is gated, and signed. This closure to motorized use includes ATVs, motorbikes, and snowmobiles. No damage to the existing gates or unauthorized motorized use behind the gate has been known to occur (Meeting Notes, January 17, 2001).

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 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, 1995). Trail 241 crosses Stimson's property in Section 5. The Forest Service has never obtained an easement for the trail across Stimson's 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 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, and 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 continue to be closed to non-authorized motorized access as stated in Chapter II.

Because Sema Trail 241 is not maintained for public use, recreation use would not be expected to increase. If Alternative B would be implemented, the proposed road would obliterate a portion of the trail in Section 8 where the road crosses. This location would be marked by tree blazes or other identifying marking as discussed in the Design and Mitigation Measures Specific to Alternative B in Chapter II. The trail markings would ensure the feasibility of identifying the location of the remaining trail sections.

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 continue to be closed to non-authorized motorized access as stated in Chapter II.

The effects to Trail 241 on NFS lands would be similar to Alternative A. A very low level of use would continue to 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. No physical impact would occur to the tread of Trail 241 because the proposed road in this alternative would not cross the trail.

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.

Alternative D

Direct Effects and Indirect Effects: The effects of Alternative D would be similar to the No Action Alternative. 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.

No change would occur to Trail 241 on NFS lands. A 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.

Cumulative Effects for All Alternatives

Alternative A: With the implementation of Alternative A, recreation use would not be expected to change from existing levels on both NFS lands and SLC's lands.
On Stimson's lands, recreation use would continue to be low. The existing roads on Stimson would continue to be closed to non-administrative motorized use.

Alternatives B and C: With the implementation of either Alternative B or C, a slight increase in dispersed recreation use may occur over time as people discover the non-motorized road system into Stimson's lands in Section 5. The road system could be used as an access point for people to access the South Fork Roadless Area for such activities as hunting, huckleberry-picking, etc. Recreation use would continue to be non-motorized because of the existing road closure. Use would be very limited during periods of management activity in Section 5 because of administrative traffic, machinery noise, and changes in vegetative conditions. Some recreationists would possibly avoid Section 5 because of the changes caused by roading and management activities. Both alternatives also would cause increased traffic on Road 308 resulting from harvest and other management activities occurring on Stimson's lands.

For both action alternatives, Trail 241 would not be maintained or protected after implementation of management activities in Stimson's lands in 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 roads in Sections 5, 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 Access Management DN, 1995). Therefore, any unauthorized use would be expected to be minimal.

Alternative D: With the implementation of Alternative D, recreation use would not be expected to change from existing levels on both NFS lands and SLC's lands.

On Stimson's lands, recreation use would continue to be low. The existing roads on Stimson would continue to be closed to non-administrative motorized use. The project area would continue to be managed for a semi-primitive non-motorized experience.

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).

Adverse Effects Which Cannot be Avoided

Implementation of either of the action alternatives would inevitably result in some adverse environmental effects on NFS 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's 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 NFS 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 on National Forest System Lands

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. These findings apply to NFS lands.

Air Quality

Under the action alternatives, the Forest Service would ensure that burning activities would be conducted on NFS lands in a manner that avoids violations of State standards. Burning of fuels resulting from road construction activities 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 inputs from the Palouse and Columbia basin are competing uses of the monitored airspace. The effect to air quality would be short-term; no long-term effect would occur.

Fuels

There would be a short-term increase in fuel loading during the construction of the access road in Alternative B or C 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 NFS lands. There would be no effect to long-term productivity.

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 authorization in Alternatives B and C.

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).

Roadless Areas

The road construction proposed on NFS lands with Alternatives B and C would directly and indirectly result in an irretrievable loss of roadless characteristics on 155 and 136 acres, respectively, of NFS land, within the South Fork Mountain IRA. Alternatives A and D would not construct any road; therefore, there would be no direct or indirect loss of roadless area characteristics within the South Fork Mountain IRA.

Associated road construction and timber harvest on SLC land in Section 5 would result in an additional irretrievable loss of roadless character on NFS lands. Approximately 169 and 189 acres, respectively, of roadless character, located in the western portion of Section 8, would also be lost with implementation of Alternative B or C. This irretrievable loss would result from the isolation of the remaining roadless acres in Section 8 from the remainder of the South Fork Mountain IRA. With the loss of these acres, along with the loss from Alternative B or C, the loss of roadless characteristics would occur in the remainder of Section 8 on approximately 324 acres. In addition, with the implementation of Alternative C, approximately one acre of roadless characteristics would be lost in Section 4. Implementation of Alternative D would result in the loss about 324 acres of roadless character on NFS lands within Section 8, also due to its isolation from the remainder of the roadless area.

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 authorization. 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

Compliance with Environmental Justice Executive Order

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. NFS 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.