Appendix A – Best Management Practices and Forest Plan Consistency

Site Specific Best Management Practices

PRACTICE 11.05 - Wetlands Analysis and Evaluation

Objective: To delineate wetlands within sale areas in order to prevent damage to facilities or degradation of soil and water resources.

Effectiveness: High

Compliance: FPA Rule 4.d.v(c) – Meets

PRACTICE 13.03 - Tractor Operation Excluded from Wetlands, Bogs, & Wet Meadows

Objective: To maintain wetland functions and avoid adverse soil and water resource impacts associated with the destruction or modification of wetlands, bogs and wet meadows.

Effectiveness: Much of this mitigation consists of avoiding the impact [40 CFR 1508.20(a)]. The Forest Service has near-complete control over construction operations. Effectiveness is expected to be high.

Compliance: FPA Rule 3.h.iii - Meets

Implementation: At a minimum, the following specific protective requirements for wetlands identified on the Sale Area Map (SAM) will be incorporated into CT6.61# (Wetlands Protection):

1. Soil and vegetation along lakes, bogs, swamps, wet meadows, springs, seeps, or other sources where the presence of water is indicated will be protected from disturbance which would cause adverse effects on water quality, quantity, and wildlife and aquatic habitat (FPA Rule 3.h.iii].
2. An equipment exclusion zone shall extend a minimum of 50 feet from the wetlands, bogs, and wet meadows.

PRACTICE 13.04 - Revegetation of Surface Disturbed Areas

PRACTICE 14.14 - Revegetation of Areas Disturbed by Harvest Activities

Objective: To protect soil productivity and water quality by minimizing soil erosion.

Effectiveness: Revegetation can be moderately effective at reducing surface erosion after one growing season following disturbance and highly effective in later years. Effectiveness has been shown to vary from 10 percent on 3/4:1 slopes to 36 percent on 1:1 slopes to 97 percent on 1:1 slopes in later years (King, John G. and E. Burroughs. Reduction of Soil Erosion on Forest Roads. Intermountain Research Station General Technical Report, 1988).

Compliance: FPA Rules 3.d.iii & e.i, ii - Meets

Implementation: All temporary roads, landings, and skid trails in the sale area will be seeded within one year after harvesting is completed. Seed mixes and fertilizer specifications will be incorporated into Timber Sale Contract provision CT6.601# (Erosion Control Seeding). Timber Sale Contract provision CT6.623# (Temporary Road, Skid Trail/Skid Road and Landing) will identify that scarification/ripping of compacted landings and closed roads will be a minimum of 4 inches, not to exceed 2 feet.

a. All temporary roads, landings, and skid trails will also be fertilized to give the new plants extra support in becoming established.

b. The standard Idaho Panhandle National Forests moist site erosion control seed mix will be used.

PRACTICE 14.06 - Riparian Area Designation

PRACTICE 15.12 - Control of Construction in Riparian Areas

Objective: To minimize the adverse effects on Riparian Areas with prescriptions that manage nearby logging and related land disturbance activities.

Effectiveness: Moderate

Compliance: FPA Rules 3.g.ii, iii, & iv; 3.f.iv - Meets

Implementation: Riparian areas will be protected through the following requirements that will be incorporated into timber sale layout, or into the timber sale contract as identified below:

1. Provide the large organic debris, shading, soil stabilization, wildlife cover, and water filtering effects of vegetation along Class I streams [FPA Rule 3.g.i-iii]. The following measure(s) are implemented during sale layout:

   (a) A Stream Protection Zone that consists of a buffer of 300 feet slope distance from the edge of the channel for Cocolalla Creek. No timber harvest activities shall occur within the Stream Protection Zone.

   (b) A Stream Protection Zone that consists of a buffer of 60 feet slope distance from the edge of the channel for the intermittent tributaries to Cocolalla Creek. No timber harvest activities shall occur within the Stream Protection Zone.

2. Waste resulting from logging operations, such as crankcase oil, filters, grease and fuel containers, shall not be placed inside the Stream Protection Zones [FPA Rule 3.f.iv and TSC Provision BT6.34].

PRACTICE 14.11 - Log Landing Erosion Prevention and Control;

PRACTICE 14.12 - Erosion Prevention & Control During Timber Sale Operations;

PRACTICE 14.15 - Erosion Control on Skid Trails.

Objective: To protect water quality by minimizing erosion and subsequent sedimentation derived from log landings and skid trails.

Effectiveness: Moderate

Compliance: FPA Rules 3.e.i, ii; 3.d.iii - Meets

Implementation: The following criteria will be used in controlling erosion and restoring landings and skid trails to minimize erosion:

General:

1. Deposit waste material from construction or maintenance of landings and skid and fire trails in geologically stable locations at least 100 feet outside of the appropriate Stream Protection Zone [FPA Rule 3.f.iii].
2. Skid trails and landings will be seeded with a mix specified in C6.601#.

Landings:

1. During period of use, landings will be maintained in such a manner that debris and sediment are not delivered to any streams.
2. Landings shall be reshaped as needed to facilitate drainage prior to fall and spring runoff. Landings shall be stabilized by establishing ground cover or by some other means within one year after harvesting is completed [FPA Rule 3.e.ii].
3. Landings will drain in a direction and manner that will minimize erosion and will preclude sediment delivery to any stream.
4. After landings have served the Purchaser's purpose, the Purchaser shall ditch or slope them to permit the water to drain or spread [Provision BT6.63 (Landings)].

Skid Trails:

1. Skid trails and fire trails shall be stabilized whenever they are subject to erosion, by waterbarring, cross-draining, outsloping, scarifying, seeding, or other suitable means. This work shall be kept current to prevent erosion prior to fall and spring runoff [FPA Rule 3.e.i].
2. The sale administrator and/or watershed specialist will designate the spacing of water bars on skid trails. [Reference FSH 7709.56]

PRACTICE 14.19 - Acceptance of Timber Sale Erosion Control Measures Before Sale Closure

Objective: To assure the adequacy of required timber sale erosion control work.

Effectiveness: High

Compliance: No directly related FPA Rule

Implementation and Responsibility: Timber Sale Contract provision B6.35 requires that upon the purchaser's written request and assurance that work has been completed, the Forest Service shall perform an inspection. Areas that the purchaser might request acceptance for are specific requirements such as logging, slash disposal, erosion control, or snag felling. In evaluating acceptance the following definition will be used by the Forest Service: "Acceptable" erosion control means only minor deviation from established standards, provided no major or lasting

impact is caused to soil and water resources. Certified Timber Sale Administrators will not accept as complete erosion control measures that fail to meet these criteria.

PRACTICE 15.03 - Road and Trail Erosion Control Plan

Objective: To minimize the effects of erosion and the degradation of water quality through erosion control work and road design.

Effectiveness: Moderate

Compliance: No Related FPA Rule

Implementation: Prior to the start of construction, the Contractor shall submit a schedule for proposed erosion control work as required in the Standard Specifications. The schedule shall include all erosion control items identified in the specifications. Erosion control work to be done by the Contractor will be defined in Standard Specification 204 and/or in the Drawings. The schedule shall consider erosion control work necessary for all phases of the project. The Engineer will certify that the Contractors Erosion Control Plan meets the specifications of Std. FS Spec. Section 204.

PRACTICE 15.07 - Control of Permanent Road Drainage

Objective: To minimize the erosive effects of concentrated water and the degradation of water quality by proper design and construction of road drainage systems and drainage control structures.

Effectiveness: Moderate. Designed and controlled ditches, cross drain spacing, and culvert discharge prevent water from running long distances over exposed ground.

Compliance: FPA Rules 4.c.viii; 4.d.iii(a) & (b) - Meets

Implementation: The following items will be included in the timber sale contract provisions or road contract special project specifications.

1. Drainage ways shall be cleared of all debris generated during construction and/or maintenance that potentially interfere with drainage or water quality [IFPA Rule 4(c)(ii), Timber Sale Contract Clause C5.4, and Standard Road Specifications-Special Project Specification 204.04].

2. During and following operations on out-sloped roads, out-slope drainage shall be retained and berms shall be removed on the outside edge except those intentionally constructed for protection of road grade fills [IFPA Rule 4(c)(vi) and Timber Sale Contract Clause C5.4].

3. Cross drains and relief culverts shall be constructed to minimize erosion of embankments. The time between road construction and installation of erosion control devices shall be minimized. Drainage structures or cross drains shall be installed on uncompleted roads which are subject to erosion prior to fall or spring runoff. Relief culverts shall be installed with a minimum grade of 1 percent [IFPA Rule 4(c)(viii) and Standard Road Specifications-Special Project Specification 204.1].

4. Cross drains and relief culverts will be installed so as to minimize concentrations of intercepted water (see also Practice 15.02 f.(3)).

PRACTICE 15.08 - Pioneer Road Construction

Objective: To minimize sediment production and mass wasting associated with pioneer road construction.

Effectiveness: Moderate

Compliance: No directly related FPA Rule

Implementation: The following contract specifications will be required:

1. Construction of pioneer roads shall be confined to the designed location of the road prism unless otherwise approved by the Contracting Officer (Std. FS Spec. 203.11).
2. Pioneering shall be conducted so as to prevent undercutting of the designated final cut slope, and to prevent avoidable deposition of materials outside the designated roadway limits (Std. FS Spec. 203).
3. Permanent culverts will be installed at wet crossings during the pioneer phase unless positive control of sediment can be accomplished during installation, use, and removal of the temporary structure.

PRACTICE 15.09 - Timely Erosion Control Measures on Incomplete Road and Stream crossing Projects

Objective: To minimize erosion of, and sedimentation from, disturbed ground on incomplete projects.

Effectiveness: Moderate

Compliance: FPA Rules 4.c.ii,iii,iv; & 4.d.iii - Meets

Implementation: The following measures will be implemented during projects:

1. Temporary culverts, side drains, flumes, cross drains, diversion ditches, energy dissipaters, dips, sediment basins, berms, debris racks, or other facilities needed to control erosion will be installed as necessary. The removal of temporary culverts, culvert plugs, diversion dams, or elevated stream crossing causeways will be completed as soon as practical;
2. The removal of debris, obstructions, and spoil material from channels and floodplains;
3. Seeding with an erosion control seed mix approved for use on the Idaho Panhandle National Forests to minimize erosion.
4. Install drainage structures or cross drain uncompleted roads that are subject to erosion prior to fall or spring runoff. (Std Spec 204)

Erosion control measures must be kept current with ground disturbance, to the extent that the affected area can be rapidly "closed," if weather conditions deteriorate. Areas must not be abandoned for the winter with remedial measures incomplete.

PRACTICE 15.10 - Control of Road Construction Excavation and Sidecast Material

PRACTICE 15.18 - Disposal of Right-of-Way and Roadside Debris

See also Practice 13.05

Objective: To insure that unconsolidated excavated and sidecast material, construction slash, and roadside debris, generated during road construction, is kept out of streams and to prevent slash and debris from subsequently obstructing channels.

Effectiveness: High

Compliance: FPA Rule 4.c.iii,iv; & 4.d.i,ii,iii

The slash windrow and other erosion control devices will not be placed in existing stream channels or obstruct culvert outfalls. Large limbs and cull logs may be bucked into manageable lengths and piled alongside the road for fuelwood.

Implementation: In the construction of road fills near streams, compact the material to reduce the entry of water, minimize the amount of snow, ice, or frozen soil buried in the embankment. No significant amount of woody material shall be incorporated into fills. Slash and debris may be windrowed along the toe of the fill, but in such a manner as to avoid entry into a stream and culvert blockage.

Where slash windrows are not desirable or practical, other methods of erosion control such as erosion mats, mulch, and straw bale or fabric sediment fences will be used. Where exposed material (excavation, embankment, borrow pits, waste piles, etc.) is potentially erodible, and where sediments would enter streams, the material will be stabilized prior to fall or spring runoff by seeding, compacting, rip-rapping, benching, mulching or other suitable means.

The following standard specs will be included in all road contracts that include clearing and excavation.

1. Standard Specification 201 (Slash Treatment)
2. Standard Specification 203 (Excavation and Embankments)

PRACTICE 15.13 - Controlling In-Channel Excavation

Objective: To minimize downstream sedimentation by insuring that all in-channel excavations are carefully planned.

Effectiveness: High

Compliance: SCA Rule 9,1(a) - Meets

Implementation: Location and method of stream crossings will be designed and agreed to prior to construction. The following items highlight some of the principal provisions incorporated into the TSC that will govern channel protection:

1. Construction equipment may cross, operate in, or operate near stream courses only where so agreed to and designated by the Forest Service prior to construction (B6.5, B6.422). Crossing of perennial stream channels will be done in compliance with the specifications in the Stream Channel Alteration Act Rules and Regulations and included in the project specifications.

2. No construction equipment shall be operated below the existing water surface except that fording the stream at one location only will be permitted, and work below the water level that is necessary for culvert bedding or footing installations will be permitted to the extent that it does not create unnecessary turbidity or stream channel disturbance [SCA Rule 9,1 (a) and Standard Road Specifications-Special Project Specification 204.04].

3. Wheeled or track laying equipment shall not be permitted to operate within 5 feet slope distance of the apparent high water mark of Class II streams and 75 feet of Class I streams. (C6.6 Erosion Prevention and Control).

4. Construction of any hydraulic structures in stream channels will be in compliance with the Rules and Regulations pertaining to the Stream Channel Protection Act, Title 42, Chapter 38, Idaho Code).

PRACTICE 15.21 - Maintenance of Roads

Objective: To conduct regular preventive maintenance operations to avoid deterioration of the roadway surface and minimize disturbance and damage to water quality, and fish habitat.

Effectiveness: Moderate

Compliance: FPA Rule 4.d.i, ii, iii, iv, v - Meets

Implementation: For roads in active timber sale areas standard TSC provision B5.4 (Road Maintenance) requires the purchaser to perform or pay for road maintenance work commensurate with the purchasers use. Purchaser's maintenance responsibility shall cover the before, during, and after operation period during any year when operations and road use are performed under the terms of the timber sale contract (C5.4 - Road Maintenance). Purchaser shall perform road maintenance work, commensurate with purchaser's use, on roads controlled by Forest Service and used by purchaser in connection with this sale except for those roads and/or maintenance activities which are identified for required deposits in C5.411# and C5.412#. All maintenance work shall be done concurrently, as necessary, in accordance with T-specifications set forth herein or attached hereto, except for agreed adjustments (TSC C5.4- T301, 310).

1. Sidecast all debris or slide material associated with road maintenance in a manner to prevent their entry into streams [IFPA Rule 4(d)(i), Timber Sale Contract Clause C5.4, and Standard Road Specification-Special Project Specification T108].

2. Repair and stabilize slumps, slides, and other erosion features causing stream sedimentation [IFPA Rule 4(d)(ii), Timber Sale Contract Clauses C5.4 and C5.253, and Special Project Specification T108].

3. Active Roads. An active road is a forest road being used for hauling forest products, rock and other road-building materials. The following maintenance shall be conducted on such roads.

    (a) Culverts and ditches shall be kept functional.

    (b) During and upon completion of seasonal operations, the road surface shall be crowned, out-sloped, in-sloped or water barred, and berms removed from the outside edge except those intentionally constructed for protection of fills.

(c) The road surface shall be maintained as necessary to minimize erosion of the subgrade and to provide proper drainage.

(d) If road oil or other surface stabilizing materials are used, apply them in such a manner as to prevent their entry into streams [IFPA Rule 4(d)(iii)] and Timber Sale Contract Clauses C5.441 and C6.341].

Effectiveness: These measures should effectively minimize erosion from roads.

4. Inactive roads. An inactive road is a forest road no longer used for commercial hauling but maintained for access (e.g., for fire control, forest management activities, recreational use, and occasional or incidental use for minor forest products harvesting). The following maintenance shall be conducted on inactive roads.

   (a) Following termination of active use, ditches and culverts shall be cleared and the road surface shall be crowned, out-sloped or in-sloped, water barred or otherwise left in a condition to minimize erosion. Drainage structures will be maintained thereafter as needed.

   (b) The roads may be permanently or seasonally blocked to vehicular traffic [FPA Rule 4.d.iv].

   (c) Roads will be seeded and fertilized.

   (d) The roads may be permanently or seasonally blocked to vehicular traffic.

5. Abandoned Roads. An abandoned road is not intended to be used again. No subsequent maintenance of an abandoned road is required after the following procedures are completed:

   (a) The road is left in a condition suitable to control erosion by out-sloping, water barring, seeding, or other suitable methods.

   (b) Ditches are cleaned.

   (c) The road is blocked to vehicular traffic.

   (d) The department may require the removal of bridges and culverts except where the owner elects to maintain the drainage structures as needed.

For roads not in an active timber sale area, road maintenance must still occur at sufficient frequency to protect the investment in the road as well prevent deterioration of the drainage structure function. This will be accomplished by scheduling periodic inspection and maintenance, including cleaning dips and cross drains, repairing ditches, marking culvert inlets to aid in location, and cleaning debris from ditches and culvert inlets to provide full function during peak runoff events (FSH 7709.15).

PRACTICE 15.24 - Snow Removal Controls

Objective: To minimize the impact of snow melt on road surfaces and embankments and to reduce the probability of sediment production resulting from snow removal operations.

Effectiveness: Moderate

Compliance: No directly related FPA Rule

Implementation: For Forest roads that will be used throughout the winter, the following measures will be employed:

1. The Purchaser is responsible for snow removal in a manner that will protect roads and adjacent resources.
2. Rocking or other special surfacing and/or drainage measures may be necessary before the operator is allowed to use the roads.
3. During snow removal operations, banks shall not be undercut nor shall gravel or other selected surfacing material be bladed off the roadway surface. Ditches and culverts shall be kept functional during and following roadway use. If the road surface is damaged, the Purchaser shall replace lost surface material with similar quality material and repair structures damaged in blading operations.
4. Snow berms shall not be left on the road surface or shall be placed to avoid channelization or concentration of melt water on the road or erosive slopes. Berms left on the shoulder of the road shall be removed and/or drainage holes opened at the end of winter operations and before the spring breakup. Drainage holes shall be spaced as required to obtain satisfactory surface drainage without discharge on erodible fills. On insloped roads, drainage holes shall also be provided on the ditch side, but care taken to insure that culverts and culvert inlets are not damaged.

Idaho Panhandle National Forest Forest Plan Consistency (IPNF, II-33)

Specific management objectives in the Idaho Panhandle National Forests Forest Plan pertaining to water resources are:

1. Management activities on Forest Lands will not significantly impair the long-term productivity of the water resource and ensure that state water quality standards will be met or exceeded.

   Idaho State Best Management Practices (BMPs) are designed to protect the long-term productivity of the water resource and ensure state water quality standards will be met. The Little Blacktail Project will meet standard BMPs. Site-specific BMPs were also included with this project as mitigation measures to improve water quality.

2. Maintain concentrations of total sediment or chemical constituents within state standards.

The net production and delivery of sediment from the No Action alternative is only expected to decrease if the recommendations for road reconstruction and maintenance are implemented. Alternative B & C would substantially reduce production and potential for delivery of sediment to streams.

The action alternatives would likely meet State standards for chemical constituents given that "Required Design Criteria for All Action Alternatives," State and site-specific BMPs, and INFS standards would be applied if an action alternative is selected.

3. Implement project level standards and guidelines for water quality contained in the Best Management Practices.

   Specific road maintenance and repair is needed for Alternative A to be consistent with Idaho Forest Practices Rules. The action alternatives are consistent with this criterion. In addition to standard State BMPs, other soil and water conservation practices that are approved BMPs are built into the timber sale contract. Site-specific BMPs are specified and are listed in the BMP portion of this appendix. Soil and water conservation principles were used during alternative design to determine the location and types of treatments including which areas should be avoided or restored. The specified and designed measures surpass those required by the State Forest Practices Act and are consistent with Forest Service standards.

4. Cooperate with the states to determine necessary instream flows for various uses.

   Instream flows are not an issue with any of the proposed projects. Therefore, this Standard is not applicable to any alternative.

5. Manage public water system plans for multiple uses by balancing present and future resources with public water supply needs.

   Streams not defined as public water systems, but used by individuals for such purposes, will be managed to standards established by the state's forest practices rules and/or the National Forests' BMPs or to the fisheries standards whichever is applicable

   Cocolalla Creek is not defined as a public water system, but is used by a few individuals as a domestic water source. State and site-specific standards, and INFS standards are specified and would be applied.

6. Activities within non-fishery drainages, including first and second order streams, will be planned and executed to maintain existing biota.

   The existing biota will be maintained in first and second order streams through standard and site specific BMPs and the application of INFS standards and guidelines. Site Specific BMPs and applicable INFS standards and guidelines are listed and described in the BMP portion of this appendix.

7. It is the intent of this plan that models be used as a tool to approximate the effects of National Forest activities on water quality values.

   All alternatives meet this standard. The Water Erosion Prediction Project Forest Road (WEPP) sediment delivery prediction model was used to predict sediment delivery from roads to streams for all alternatives (Elliott and Hall 1997).

Appendix B – Fisheries Management Direction and Guidelines

INFS Standards and Guidelines (USDA A7-13; 1995)

Only INFS standards and guidelines that apply to the range of alternatives for the Little Blacktail Timber Sale were addressed here; those standard and guidelines that do not apply were added into the project file. These INFS standards and guidelines are addressed with comments in italics as follows:

Timber Management (A-7)

TM-1. Prohibit timber harvest, including fuelwood cutting, in Riparian Habitat Conservation Areas, except as described below.

a. Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting in Riparian Habitat Conservation Areas only where present and future woody debris needs are met, where cutting would not retard or prevent attainment of other Riparian Management Objectives, and where adverse effects can be avoided to inland native fish. For priority watersheds, complete watershed analysis prior to salvage cutting in RHCAs.

b. Apply silvicultural practices for Riparian Habitat Conservation Areas to acquire desired vegetation characteristics where needed to attain Riparian Management Objectives. Apply silvicultural practices in a manner that does not retard attainment of Riparian Management Objectives and that avoid adverse effects on inland native fish.

Using "Standard Widths Defining Interim RHCAs," no timber harvest activities are proposed under the action alternatives within RHCAs in the project area, therefore this standard does not apply.

Effectiveness: High. No harvest is to occur within the RHCAs.

Roads Management (A-7-8)

RF-1. Cooperate with Federal, Tribal, State, and county agencies, and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to attain Riparian Management Objectives.

The proposed activities are all on National Forest lands, but have been coordinated with all those listed where applicable.

Effectiveness: High. This coordination is standard policy.

RF-2. For each existing or planned road, meet the Riparian Management objectives and avoid adverse effects to inland native fish by:

a. Completing watershed analyses prior to construction of new roads or landings in Riparian Habitat Conservation Areas (RHCAs) within priority watersheds.

This project area is not within an INFS priority watershed nor are any activities proposed within RHCAs, for four stream crossings, so no watershed analysis is required by INFS.

b. Minimizing road and landing locations in Riparian Habitat Conservation Areas.

No new roads or landings are proposed within RHCAs under any of the action alternatives, except for four road crossings of intermittent streams for Alternative B. These crossings would be removed when timber sale activities are completed. Therefore, all alternatives meet this standard.

Effectiveness: Moderate to High. Timing of the crossing removal depends on the timing of timber sale activities.

c. Initiating development and implementation of a Road Management Plan or a Transportation Management Plan. At a minimum, address the following items in the plan:

1. Road design criteria, elements, and standards that govern construction and reconstruction.
2. Road management objectives for each road.
3. Criteria that govern road operation, maintenance, and management.
4. Requirements for pre-, during-, and post-storm inspections and maintenance
5. Regulation of traffic during wet periods to minimize erosion and sediment delivery and accomplish other objectives such as protection of the road surface.
6. Implementation and effectiveness monitoring plans for road stability, drainage, and erosion control.
7. Mitigation plans for road failures.

The interdisciplinary team (IDT) evaluated access and road improvement needs within the project area. The project includes drainage improvements to Forest Roads 630, 630A, 630C, 630E, and 315.

Effectiveness: Moderate. Often activities occur for a few days during wet periods before a timber sale administrator or Forest Service Representative is able to stop these activities.

d. Avoiding sediment delivery to streams from the road surface.

1. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe.

This standard is applied directly for the proposed temporary roads. In addition, recommendations are made which would cross drain ditchlines before entering stream channels.

Effectiveness: High. Roads would be constructed with this design.

2. Route road drainage away from potentially unstable stream channels and hillslopes.

This standard was applied by improving the cross drainage of haul routes. This will reduce the potential to concentrate water and deliver it to unstable slopes. Few unstable slopes exist in the project area. Provided that road improvements in the action alternatives are conducted for No Action, all alternatives meet this standard.

Effectiveness: High. Improved road drainage would be part of the road package. Water would be far less concentrated below existing roads than at present.

e. Avoiding disruption of natural hydrologic flow paths.

Restoring slope hydrology would be accomplished through road reconstruction and maintenance, which would frequently cross drain ditch and road surface water and would prevent the diversion of channel flow down the road prism.

Effectiveness: High. Road reconstruction projects would restore the hydrologic flow paths on the north side of Cocolalla Creek by greatly reducing the amount of water diverted down ditchlines and road surfaces.

f. avoid sidecasting of soils or snow. Sidecasting of road material is prohibited on road segments within or abutting RHCAs in priority watersheds.

None of the proposed units are within priority watersheds.

RF-3. Determine the influence of each road on the Riparian Management Objectives. Meet Riparian Management Objectives and avoid adverse effects on inland native fish by:

a. Reconstructing road and drainage features that do not meet design criteria or operation and maintenance standards, or that have been shown to be less effective than designed for controlling sediment delivery, or that retard attainment of Riparian Management Objectives, or do not protect priority watersheds from increased sedimentation.

b. Prioritizing reconstruction based on the current and potential damage to inland native fish and their priority watersheds, the ecological value of the riparian resources affected, and the feasibility of options such as helicopter logging and road relocation out of Riparian Habitat Conservation Areas.

c. Closing and stabilizing; or obliterating and stabilizing; roads not needed for future management activities. Prioritize these actions based on the current and potential damage

to inland native fish in priority watersheds, and the ecological value of the riparian resources affected.

The proposed road reconstruction and maintenance described in Chapters II and III originate from the above standards. The action alternatives would meet this standard. No Action would meet this standard if the needed reconstruction and maintenance were accomplished.

Effectiveness: High. Existing roads are proposed for reconstruction with the Timber Sale Contract, so the likelihood that the projects would be completed is high.

RF-4. Construct new, and improve existing, culverts, bridges, and other stream crossings to accommodate a 100-year flood, including associated bed load and debris, where those improvements would/do pose a substantial risk to riparian conditions. Substantial risk improvements include those that do not meet design and operation maintenance criteria, or that have been shown to be less effective than designed for controlling erosion, or that retard attainment of Riparian Management Objectives, or that do not protect priority watersheds from increased sedimentation. Base priority for upgrading on risks in priority watersheds and the ecological value of the riparian resources affected. Construct and maintain crossings to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

The proposed road reconstruction originates from the above standard. The action alternatives would meet this standard. The No Action Alternative would meet this standard if needed reconstruction and maintenance were accomplished.

Effectiveness: High. The capacity of the Cocolalla Creek crossing would be improved by adding an additional 24-inch culvert. Crossings on temporary roads would meet this same standard. This work would be done under the Timber sale Contract.

RF-5. Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

The only crossing of a fish bearing stream is the Cocolalla Creek crossing on Forest Road 630A. This crossing is not a fish barrier and would not become a fish barrier after the crossing is improved.

Effectiveness: High. There are currently no crossings that are fish barriers in the project area. The proposed road design would maintain fish passage.

Fires/Fuels Management (A-11)

FM-1. Design fuel treatment and fire suppression strategies, practices, and actions so as not to prevent attainment of Riparian Management Objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management actions could perpetuate detrimental conditions, or be damaging to, long-term ecosystem function or inland native fish.

FM-2. Locate incident bases, camps, helibases, staging areas, helispots, and other centers for incident activities outside of Riparian Habitat Conservation Areas. If the only suitable location for such activities is within the Riparian Habitat Conservation Area, an exemption may be granted following a review and recommendation by a resource advisor. The advisor would prescribe the location, use conditions, and rehabilitation requirements, with avoidance of adverse effects to inland native fish a primary goal. Use an interdisciplinary team, including a fishery biologist, to predetermine incident base and helibase locations during presuppression planning.

FM-3. Avoid delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where overriding immediate safety imperatives exist, or, following a review and recommendation by a resource advisor and a fishery biologist, when the action agency determines that an escape fire would cause more long-term damage to fish habitats than chemical delivery to surface waters.

FM-4. Design prescribed burn projects and prescriptions to contribute to the attainment of the Riparian Management Objectives.

FM-5. Immediately establish an emergency team to develop a rehabilitation treatment plan to attain Riparian Management Objectives and avoid adverse effects on inland native fish whenever a wildfire or a prescribed fire burning out of prescription significantly damages Riparian Habitat Conservation Areas.

The proposed fires/fuels management described in Chapter 2, and 3 originate from the above standards. The action alternatives would meet this standard. The No Action Alternative would not meet this standard if wildfire without suppression were allowed.

Effectiveness: Moderate to High. Prescribed fire in the project area is designed to meet these standards. There is a small risk that wildfire in the Project Area may not meet some of these standards, particularly Standard FM-4.

General Riparian Area Management (A-12)

RA-1. Identify and cooperate with Federal, Tribal, State and local governments to secure instream flows needed to maintain riparian resources, channel conditions, and aquatic habitat.

This project does not adversely affect instream flows, therefore, this standard does not apply.

RA-2. Trees may be felled in Riparian Habitat Conservation Areas when they pose a safety risk. Keep felled trees on site when needed to meet woody debris objectives.

None of the alternatives propose activities within the RHCAs so this standard does not apply.

RA-3. Apply herbicides, pesticides, and other toxicants, and other chemicals in a manner that does not retard or prevent attainment of Riparian Management Objectives and avoids adverse effects on inland native fish.

Provided the BMPs listed in the Sandpoint Noxious Weed FEIS are followed, all alternatives would meet this standard.

Effectiveness: High. Standards would be met as required by the Sandpoint Noxious Weed EIS.

RA-4. Prohibit storage of fuels and other toxicants within Riparian Habitat Conservation Areas. Prohibit refueling with Riparian Habitat Conservation Areas unless there are no other alternatives. The Forest Service must approve refueling sites within a Riparian Habitat Conservation Area or Bureau of Land Management and have an approved spill containment plan.

Effectiveness: High. This is a standard BMP that is part of the timber sale contract.

RA-5. Locate water-drafting sites to avoid adverse effects to inland native fish and instream flows, and in a manner that does not retard or prevent attainment of Riparian Management Objectives.

Effectiveness: Moderate. This standard would be applied in the prescribed burn plans associated with the Little Blacktail Project. However, wildfire suppression is beyond the scope of this project and water drafting associated with such an emergency would be addressed as a separate issue.

Watershed and Habitat Restoration (A-12)

WR-1. Design and implement watershed restoration projects in a manner that promotes the long-term ecological integrity of ecosystems, conserves the genetic integrity of native species, and contributes to attainment of Riparian Management Objectives.

Effectiveness: High. The proposed watershed restoration KV projects originate from the above standard. The action alternatives would meet this standard. No Action would meet this standard if the needed restoration projects were accomplished.

WR-2. Cooperate with Federal, State, local, and Tribal agencies, and private landowners to develop watershed-based Coordinated Resource Management Plans (CRMPs) or other cooperative agreements to meet Riparian Management Objectives.

Effectiveness: Moderate to High. Cooperation at the multiple levels as listed occurred within the framework for developing the proposed activities of this project and is consistent with the Cocolalla Lake Watershed Management Plan.

Fisheries and Wildlife Restoration (A-13)

FW-1. Design and implement fish and wildlife habitat restoration and enhancement actions in a manner that contributes to attainment of the Riparian Management Objectives.

The road reconstruction proposed for the Little Blacktail Project originates from the above standard.

Effectiveness: High. Road improvements would be part of the Timer Sale Project.

FW-2. Design, construct, and operate fish, wildlife interpretive, and other user-enhancement facilities in a manner that does not retard or prevent attainment of the Riparian Management Objectives or adversely affect inland native fish. For existing fish and wildlife interpretive and other user-enhancement facilities inside Riparian Habitat Conservation Areas, assure that Riparian Management Objectives cannot be met and adverse effects on inland native fish are avoided. Where Riparian Management Objectives cannot be met or adverse effects on inland native fish avoided, relocate or close such facilities.

There is no user-enhancement facilities located or proposed and is not an issue within the proposed project. Therefore, this standard is not applicable to any alternative.

FW-3. Cooperate with Federal, Tribal, and State wildlife management agencies to identify and eliminate wild ungulate impacts that prevent attainment of the Riparian Management Objectives or adversely affect inland native fish.

Wild ungulate impacts will not prevent attainment of RMOs so this standard does not apply to this project.

FW-4. Cooperate with Federal, Tribal, and State fish management agencies to identify and eliminate adverse effects on native fish associated with habitat manipulation, fish stocking, fish harvest, and poaching.

Cooperation at the multiple levels as listed occurred within the framework for developing the proposed activities of this project. Using the INFS Standard Widths Defining Interim RHCAs for the project activities, habitat manipulation does not apply. Fish stocking, harvest and/or poaching are all regulated by State management guidelines.

Effectiveness: High. Existing habitat would be preserved under this project.

Forest Plan Guidelines (USDA 1987, pp. II – 29-31)

1. **Fry Emergence (Fish Standard 1 and 2):**

The IPNF Forest Plan contains standards for fry emergence that are no longer valid since the Inland Native Fish Strategy was developed. This section explains why.

The objectives for fisheries in the Forest Plan state that the forest "will be managed to maintain and improve fish habitat capacities in order to achieve cooperative goals with the State Fish and Game Department and to comply with state water quality standards. Sediment arising from land management activities will be managed so that in forest fisheries streams the objective is to maintain 80 percent fry emergence success as measured from pristine condition" (II-7). The first two standards for fish use similar language (II-29). The Fishery/Watershed Analysis to determine effects of land management activities on fry emergence is described in Appendix I (I-1, 2).

Appendix I requires that if, during the environmental assessment process, that cumulative effects of the proposed and past activities on stream sedimentation are projected to result in greater than

20% reduction in fry emergence, then additional detailed analysis will be undertaken. The analysis is then used to determine the significance of the project on water resources. If the project is judged to have a "significantly negative effect" on water resources, it will be reviewed by the State for conformance with water quality standards prior to the final decision.

At the time the Forest Plan was written, models determining fry emergence (e.g., Stowell *et al.* 1983) were popular. These empirical models were later found to have limited application and were unreliable outside of where they were developed (J. Kershner, personal communication). In addition, the use of fry emergence survival (regardless of the threshold) as a surrogate for viability came into question, primarily for two reasons:

- First, fry emergence is highly variable. This can be due to changing natural conditions (e.g., floods, temperature regimes, geology) or human-induced causes (e.g., increased sediment input, chemical spills). Both agents are at work in most cases so it is difficult to determine what proportion of egg-to-fry mortality is due to each cause. As a result the underlying relationship between sediment in redds and survival is difficult to predict (Chapman 1988).
- Second, and more important, egg-to-fry mortality is usually density-independent (i.e., a percentage of fry will survive regardless of the number of eggs). This means that in most cases there are enough fry to inhabit all available habitat within a stream. Therefore fry-to-smolt (sub-adult) survival, where density dependent mortality plays a significant role, is a more effective and appropriate predictor of population viability than egg-to-fry survival (for a review of these concepts see Hilborn and Walters 1992). Currently the indicator used as a surrogate of fry-to-smolt survival is stream habitat characteristics.

The 1989 Forest Plan Evaluation and Monitoring Report documents the change away from use of the fry emergence standard (Item G-1, pages C-1 and C-2). The findings were that it was not a good monitoring tool to report stream health. G-1 was combined with item G-3, which includes a comprehensive array of fisheries and hydrology parameters.

The Inland Native Fish Strategy (INFS; USDA 1995) amended the Forest Plans "…except where existing Plan direction would provide more protection" for inland native fish habitat (page 4). All INFS standards and guidelines are intended to either make progress toward Riparian Management Objectives (which describe "good" fish habitat within the context of what is capable of the watershed) or to ensure that activities will not retard the natural rate of recovery of RMOs in a watershed (USDA 1995, A6-A16). In addition, the strategy states that actions that reduce habitat quality, whether existing conditions are better or worse than objective values, are not consistent with INFS direction (USDA 1995, A-3).

INFS supercedes the original IPNF Forest Plan direction because it offers far more protection to inland native fish habitat for the following reasons:

- INFS directs the establishment of Riparian Habitat Conservation Areas (RHCAs) and only allows activities within RHCAs that maintain or improve, and do not retard, the attainment of the RMOs. The original Forest Plan direction actually permitted degradation of water resources at the discretion of the line officer, and allowed "significant" degradation after review by the State.

- Activities that reduce habitat quality to any extent are contrary to INFS direction, regardless of whether RMOs have been attained. The original Forest Plan direction allowed for apparent degradation of fish habitat by permitting up to a 20 percent reduction of potential fry emergence.

In conclusion, this project complies with original Forest Plan direction because, although fry emergence was not computed, a detailed analysis of the effects to fish habitat and water resources was developed as required in Appendix I; and the project has been determined to be fully consistent with the INFS Forest Plan amendment and state water quality standards for supporting beneficial uses (see Watershed discussion).

2. Streams providing spawning and rearing habitat, which are considered critical to the maintenance of river and lake populations of special concern, will be managed at a standard higher than the 80 percent standard. Monitoring will be needed to detect this higher standard. "High Value Streams".

Also, please note the explanation provided under standard #1 for fry emergence.
3. The stream and river segments (if listed) will be managed as low access fishing opportunities to maintain a diversity of fishing experiences for the public and to protect sensitive fish populations. Special road management provisions will be used to accomplish this objective. "Low Access Fishing Streams"

Forest Plan standards 2 & 3 are not inclusive to this analysis because no streams in the analysis area are listed under "high value streams" or "low access fishing streams." However, streams within the analysis area are recognized as to providing beneficial uses.

4. Provide fish passage to suitable habitat areas, by designing road crossings of streams to allow fish passage or removing in-stream migration barriers.

Within the project area, no man-caused fish migration barriers have been identified; therefore this objective does not apply to the Little Blacktail Project. The one fish barrier present on Cocolalla Creek is well outside of the Project Area and consequently mitigation of this barrier is beyond the scope of this project.

5. Utilize data from stream, river, and lake inventories to prepare fishery prescriptions that coordinate fishery resource needs with other resource activities. Pursue fish habitat improvement projects to improve habitat carrying capacities on selected streams.

As stated in Chapter III, but emphasized here; information was utilized from stream inventories, field reviews, historical records, aerial photographs, analysis of watershed conditions, published scientific literature, discussions with Fisheries Biologists and electrofishing/stocking data from the Idaho Department of Fish and Game (IDF&G), the United States Fish and Wildlife Service (USFWS), electrofishing data from the Idaho Division of Environmental Quality (DEQ) and comprehensive knowledge of the fisheries resources in the Cocolalla Creek Watershed. As mentioned in standard #4 above and in Chapter III, road reconstruction and/or obliteration work in the analysis area will reduce the potential of mass failure.

6. Coordinate management activities with water resource concerns as described in MA 16, Appendix I, and Appendix O.

Water resource concerns are protected in Management Area 16 through INFS standards and guidelines.

State of Idaho Governor's Bull Trout Plan

The following describes a "step down" process from the Governors Bull Trout Plan.
Governors Bull Trout Plan (State of Idaho 1996):

- The mission of the plan is to "…maintain and or restore complex interacting groups of bull trout populations throughout their native range in Idaho.
- The Plan created the Basin Advisory Groups, which oversee the Watershed Advisory Groups. The Technical Advisory Team's role is to assist the WAG with issues regarding recovery of bull trout in each key watershed.

Lake Pend Oreille Key Watershed Problem Assessment (Technical Advisory Team 1998)

- Cocolalla Creek threats and limiting factors to restoration of bull trout include loss of habitat due to channelization, loss of riparian communities, temperature (often exceeding 60 F in lower reaches of Cocolalla Creek and tributaries in mid-summer), and fine sediment. Migration barrier prevents bull trout from entering the system. The presence of exotic species (brook trout and brown trout) may pose a potential threat.

Lake Pend Oreille Bull Trout Conservation Plan (Final Draft; LPOWAG July 1999)

- Watersheds were ranked by the TAT based on the following criteria:
    - The probability of persistence for bull trout;
    - Current habitat/watershed conditions;
    - The need for watershed restoration and/or protection;
    - The potential to increase bull trout numbers.
- Low priority watersheds are those subwatershed streams that have no recent bull trout sightings documented, or streams that never produced bull trout as far as historical data shows. The list of low priority watersheds also contains streams that have limiting factors that can only be removed with significant investment.
- Cocolalla Creek is a Low Priority subwatershed for restoration.
- The conservation plan emphasizes restoration activities in High Priority watersheds only. Medium and Low Priority watersheds do not yet have associated restoration actions.

The Final Draft of the Lake Pend Oreille Bull Trout Conservation Plan was forwarded to the Governor's office as the final plan. The WAG has not regrouped to implement the plan; however, many of the restoration activities are being accomplished through other means (Dave Mosier, personal communication, 2001)

Appendix C – Stand Treatments

UNIT ACRES	STAND ID	PREF Rx	STAND ACRES	SIZE CLASS	COVER TYPE	ALT. B LOGGING SYSTEM	ALT B. FUELS	REFO	ALT. C FUELS	ALT. C LOGGING SYSTEM	NO ACTION STRUCTURE	ALTS. B&C - STRUCTURE	NO ACTION COVER TYPE	ALTS. B&C COVER TYPE
5.7	65801003	SW prep	28	MHRS	GF	S	LL/6		LL/6	S	Mat/Lrg	Mat/Lrg	GF	GF
32	65801006	CT FR	32	IMSA	DF	S/T	UB/17 GP/15		UB/17 GP/15	T	Imm/Med	Imm/Med	DF	DF
41.2	65801007	Irreg SW or Irreg ST	68	IMSA	DF	S	UB/41	WL WP PP	UB/41	H/S	Seed/Sap	Seed/Sap	DF	WP
46	65801010	SW prep/GS	47	IMSA	DF	T/S	GP/15 UB/31	plant GS	GP/15 UB/31	T/S	Imm/Med	Imm/Med	DF	DF
25	65801012	SW prep/GS	25	IMSA	DF	T/S	GP/22 YT/3		GP/22 YT/3	H	Imm/Med	Imm/Med	DF	DF
6.7	65801013	Irreg STor Irreg SW	48	IMSA	DF	T	UB/7	WL PP WP	UB/7	T	Seed/Sap	Seed/Sap	DF	WP
42	65801013	CT/GS	48	IMSA	DF	T/S	UB/32 GP/10		UB/32 GP/10	H/T	Imm/Med	Imm/Med	DF	DF
51	65801014	CT w/ GS	67	IMSA	DF	H/T/S	LL/32 UB/6 GP/13		LL/32 UB/6 GP/13	H/T	Imm/Med	Imm/Med	DF	DF
4.2	65801014	SW prep/GS	67	IMSA	DF	H	UB/4		UB/4		Imm/Med	Imm/Med	DF	DF
12	65801014	Irreg SW or ST	67	IMSA	DF	T	GP/12	WL WP PP	GP/12	T	Seed/Sap	Seed/Sap	DF	WP
15	65801015	SW prep/GS	19	IMSA	DF	S/T	GP/15		GP/15	H	Imm/Med	Imm/Med	DF	DF
32.8	65801016	SW prep/GS	33	IMSA	DF	S/T	GP/5 UB/28		GP/5 UB/28	H/T	Imm/Med	Imm/Med	DF	DF
18.7	65801017	Irreg ST or Irreg SW	76	IMSA	DF	S	UB/19	WL PP WP	UB/19	S	Imm/Med	Seed/Sap	DF	WP
49	65801018	CT	50	IMSA	DF	T	LL/49		LL/49	T	Imm/Med	Imm/Med	DF	DF
37.3	65801019	CT	37	IMSA	DF	T	LL/37		LL/37	T	Imm/Med	Imm/Med	DF	DF
214	65801020	Irreg SW & CT	214	IMSA	DF	H/S/T	UB/204 GP/10	PP WL	UB/204 GP/10	H/T	Imm/Med	Seed/Sap	DF	PP
19	65801021	Irreg SW	29	MLRS	DF	H/S/T	UB/14 GP/5	WL WP PP	UB/14 GP/5	H	Mat/Lrg	Seed/Sap	DF	WP
20.7	65801022	Irreg SW	21	MLRS	DF	S/T	GP/7 UB/14	WL WP PP	GP/7 UB/14	H	Seed/Sap	Seed/Sap	DF	WP
43.9	65801023	Irreg SW or Irreg ST	44	IMSA	DF	S	UB/44	WL WP PP	UB/44	S/H	Seed/Sap	Seed/Sap	DF	WP
62.4	65801025	CT/GS	62	IMSA	DF	S/T	UB/62		UB/62	H/T	Imm/Med	Imm/Med	DF	PP
26.7	65801026	CT/GS	28	IMSA	DF	T/S	UB/17 GP/10		UB/17 GP/10	T/S	Imm/Med	Imm/Med	DF	DF
31.9	65801028	Irreg SW or Irreg ST	32	MLRS	WL	T/S	UB/20 GP/12	WL WP	UB/20 GP/12	H	Mat/Lrg	Seed/Sap	WL	WL
29.1	65801030	CT/GS	29	IMSA	DF	T	GP/29		LL/29	H	Imm/Med	Imm/Med	DF	DF
50	65801033	Irreg SW or Irreg ST	50	IMSA	DF	S/T	UB/46 GP/5	PP WL	UB/51	H/T	Seed/Sap	Seed/Sap	DF	PP
17	65801034	ST	17	IMSA	DF	T	UB/17	PP WL WP	UB/17	T	Seed/Sap	Seed/Sap	DF	WP
5	65801035	San Salv	5	IMSA	DF	T	LL/5		LL/5	T	Imm/Med	Imm/Med	DF	DF
8	65801036	CT	26	IMSA	DF	T/S	GP/8		GP/8	T/H	Imm/Med	Imm/Med	DF	DF
13	65801036	Irreg SW or ST	26	IMSA	DF	S/T	UB/13	WL WP PP	UB/13	T/H	Seed/Sap	Seed/Sap	DF	WL
5	65801036	San/Salv	26	IMSA	DF	T	LL/5		LL/5	T	Imm/Med	Imm/Med	DF	DF
3	65801037	ST	27	IMSA	DF	T	GP/3	Plant WP/WL	GP/3	T	Imm/Med	Seed/Sap	DF	WP
4	65801037	CT w/ GS	27	IMSA	DF	T	GP/4		GP/4	T	Imm/Med	Imm/Med	DF	DF

UNIT ACRES	STAND ID	PREF Rx	STAND ACRES	SIZE CLASS	COVER TYPE	ALT. B LOGGING SYSTEM	ALT B. FUELS	REFO	ALT. C FUELS	ALT. C LOGGING SYSTEM	NO ACTION STRUCTURE	ALTS. B&C - STRUCTURE	NO ACTION COVER TYPE	ALTS. B&C COVER TYPE
5	65801039	San/Salv	10	IMSA	C	S	LL/5		LL/5	S	Imm/Med	Imm/Med	C	C
8	65801043	Irreg SW or ST	19	IMSA	DF	H	UB/8	Plant WL	UB/8	H	Imm/Med	Seed/Sap	DF	WL
11	65801043	CT w/ GS	19	IMSA	DF	T/H	LL/11		LL/11	T/H	Imm/Med	Imm/Med	DF	DF
1.7	65801044	SW prep/GS	2	IMSA	DF	S	UB/2		UB/2	S	Imm/Med	Imm/Med	DF	DF
2	65801048	San/Salv	23	IMSA	DF	S	LL/2		LL/2	S	Imm/Med	Imm/Med	DF	DF
22.6	65801049	SW prep/GS	23	MHRS	DF	H/S/T	UB/18 GP/5		UB/18 GP/5	H	Mat/Lrg	Mat/Lrg	DF	DF
5.2	65801050	SW prep	16	IMSA	DF	S/T	LL/5		LL/5	S	Imm/Med	Imm/Med	DF	DF
7	65801051	Irreg SW or Irreg ST	14	IMSA	DF	S	UB/7	WL PP	UB/7	S/H	Seed/Sap	Seed/Sap	DF	WL
7	65801051	CT	14	IMSA	DF	T	GP/7		GP/7	T	Imm/Med	Imm/Med	DF	DF
7.8	65801053	SW prep/GS	8	IMSA	DF	S	UB/8		UB/8	H	Imm/Med	Imm/Med	DF	DF
13.5	65801055	SW prep/GS	14	IMSA	DF	T/S	YT/6 GP/7		YT/6 GP/7	H	Imm/Med	Imm/Med	DF	DF
1.6	65801067	San/Salv	21	IMSA	LP	S	LL/2		LL/2	S	Imm/Med	Imm/Med	LP	LP
11.7	65801068	CT/GS	12	SAWT	DF	S/T	LL/6 GP/6		LL/6 GP/6	S/T	Mat/Lrg	Mat/Lrg	DF	DF
5.79	65801077	CT w/ GS	22	IMSA	DF	T/H	UB/6		UB/6	T/H	Imm/Med	Imm/Med	DF	DF
25	65801079	CT/GS	25	IMSA	DF	S/T	LL/12 GP/13		LS/12 GP/13	S/T	Imm/Med	Imm/Med	DF	DF
36	65802006	CT/GS	38	IMSA	DF	S/T	UB/18 GP/18		UB/18 GP/18	H	Imm/Med	Imm/Med	DF	PP
17	66001004	San/Salv	86	IMSA	DF	S	LL/17		LL/17	H	Imm/Med	Imm/Med	DF	DF
69	66001004	Irreg SW or Irreg ST	86	IMSA	DF	S/T	UB/69	WL WP PP	UB/69	H	Seed/Sap	Seed/Sap	DF	WP
FUELS			**Logging Systems**			**Prescriptions**			**Size Class**					
LL	limb and lop		**T**	Tractor		**SW prep**	Shelterwood Prep		**MHRS**	Mature sawtimber high risk				
GP	Grapple Pile		**S**	Skyline		**CT/FR**	Commercial Thin with final removal		**IMSA**	Imature sawtimber				
UB	Underburn		**H**	Helicopter		**Irreg SW**	Irregular Shelterwood		**MLRS**	Mature sawtimber low risk				
YT	Yard tops					**Irreg ST**	Irregular Seed Tree		**SAWT**	Sawtimber				
						CT	Commercial Thin							
						SW prep/GS	Shelterwood Prep/Group Select							
						San/Salv	Sanitation/salvage							

Appendix D - Vegetation

Regulatory Framework

Regulatory constraints applying to the management of timber resources include the State Forest Practices Acts, Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), National Forest Management Act of 1976 (NFMA), Idaho Panhandle National Forests Forest Plan (USDA 1987) and Forest Service policy.

- *RPA states, "It is the policy of Congress that all forested lands in the National Forest System be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans."*

- *The 1976 National Forest Management Act directs that Forest Plans will be developed which specify guidelines to identify the suitability of lands for resource management; provide for the diversity of plant and animal communities based on the suitability and capability of land areas to meet multiple-use objectives; where appropriate, to the degree practicable, preserve the diversity of tree species similar to that existing in the planning area; insure that timber will be harvested from National Forest System Lands only where soil, slope, or other watershed conditions will not be irreversibly damaged; the lands can be adequately restocked within five years after harvest; protection is provided for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water where harvests are likely to seriously and adversely affect water conditions and fish habitat; and the harvesting system used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber.*

- *Any cut designed to regenerate an even-aged stand of timber must be determined to be appropriate to meet the objectives and requirements of the land management plan and, in the case of clearcutting, is the optimum method; has had an interdisciplinary review of impacts and the cuts are consistent with the multiple use of the general area; will be shaped and blended, to the extent practicable, with the natural terrain; meets established, suitable size limits; and is carried out in a manner consistent with protection of soil, watershed, fish, wildlife, recreation, esthetic resources, and the regeneration of the timber resource.*

- *NFMA amended RPA and requires that stands of trees shall generally have reached the culmination of mean annual increment of growth prior to harvest, but this does not preclude the use of sound silvicultural systems such as thinning and other stand improvement measures; it also allows salvage or sanitation harvest following fire, windthrow, or other catastrophe or within stands in imminent danger of insect and disease attack.*

Forest Service policy directs land managers to:

- *Use only those silvicultural practices that are best suited to the land management objectives for the area. Consider all resources, as directed in the appropriate forest plan.*

- *Prescribe treatments that are practical in terms of cost of preparation, administration, transportation systems, and logging methods.*

- *Monitor practices, using procedures specified in forest plans to ensure objectives are met.*

- *Before scheduling stands for regeneration harvest, ensure, based on literature, research, or local experience, that stands to be managed for timber production can be adequately restocked within five years of final harvest. Five years after final harvest means five years after clearcutting, final overstory removal in shelterwood cutting, the seed tree removal cut in seed tree cutting or after selection cutting.*

- *Perform all silvicultural activities in the most cost effective manner consistent with resource management objectives.*

Forest Service policy further directs that:

- *The size of tree openings created by even-aged silvicultural methods will normally be 40 acres or less. With some exceptions, creation of larger openings will require 60-day public review and Regional Forester approval.*

- *For management purposes, cut areas created by even-aged management will no longer be considered openings when both vegetation and watershed conditions meet management objectives established for the management area.*

- *Management activities will promote programs that provide a sustained yield of forest products consistent with the multiple-use goals established in Regional Guides and the Forest Plan.*

- *Timber management activities will be the primary process used to minimize the hazards of insects and diseases and will be accomplished primarily by maintaining stand vigor and diversity of plant communities and tree species.*

- *Protection of timber stands from insect and disease problems will center around the silvicultural treatments prescribed for timber management activities.*

- *Proposed activities will be consistent with Management Area objectives. Descriptions and objectives of these Management Areas are included in the Forest Plan.*

Tables Showing Coniferous Vegetation Data For Dry And Moist Habitat Types

Table D-1. Acres and percent of forest cover types in Dry Habitat Type Groups.

Conifer Species—Forest Cover Type	*Existing Acres Little Blacktail Project Area	*Percent of Dry Habitat in the Little Blacktail Project Area	Current Percent of Pend Oreille Subbasin*	Historic Percent of Pend Oreille Subbasin*
Douglas-fir	566	100%	74%	20%
Grand-fir/W. Hemlock	0	0%	3%	<1%
W. Larch	0	0%	1%	10%
Cedar	0	0%	0%	0%
Ponderosa Pine	0	0%	10%	60%
No Trees	0	0%	4%	No data
Lodgepole Pine	0	0%	7%	10%
White Pine	0	0%	<1	0%
Sub Alpine Fir	0	0%	0%	0%
Total	566	100%	100%	100%

*Calculated on National Forest lands only

Table D-2. Acres and percent of forest cover types in Moist Habitat Type Groups.

Conifer Species—Forest Cover Type	*Existing Acres Little Blacktail Project Area	*Percent of Moist Habitat in the Little Blacktail Project Area	Current Percent of Pend Oreille Subbasin*	Historic Percent of Pend Oreille Subbasin*
Douglas-fir	1030	66%	38%	20%
Grand-fir/W. Hemlock	135	8%	29%	5%
W. Larch	95	6%	5%	25%
Cedar	190	12%	14%	5%
Ponderosa Pine	0	0%	1%	1%
No Trees	0	0%	<1%	No data
Lodgepole Pine	25	2%	4%	3%
White Pine	98	6%	3%	40%
Sub Alpine Fir	0	0%	5%	1%
Total	1573	100%	100%	100%

*Calculated on National Forest lands only

Table D-3. Acres and percent of forest vegetation structure in Dry Habitat types.

Size	Age in Years	Structure	Acres in Little Blacktail	Percent of acres in the Dry Habitat Type in Little Blacktail	Current Percent of Pend Oreille Subbasin*	Historic Percent of Pend Oreille Subbasin
0-5"		*Early Succession	0	0%	25%	20%
5-21"	<100	Immature Forest	567	100%	47%	20%
9-21+"	>100	Mature	0	0%	25%	17%
> 21”	All >150	Old growth	0	0%	3%	43%
Totals			567	100%	100%	100%

*includes non-forested areas, shrubs, seedlings and saplings

Table D-4. Acres and percent of forest vegetation structure in Moist Habitat types.

Size	Age in Years	Structure	Acres in LittleBlack tail	Percent of acres in Moist Habita in Little Blacktail	Current Percent of Pend Oreille Subbasin*	Historic Percent of Pend Oreille Subbasin
0-5"		*Early Succession	211	14%	24%	25%
5-21"	<100	Immature Forest	1112	70%	49%	42%
9-21+"	>100	Mature	249	16%	20%	21%
> 21”	All >150	Old growth	0	0%	7%	12%
Totals			1572	100%	100%	100%

*includes non-forested areas, shrubs, seedlings and saplings

Table D-5. Existing and resulting acreages of vegetation structure and cover types on Dry Habitat types in the Little Blacktail Project Area.

	Existing		Alternative A (No Action)		Alternatives B & C	
	Approx. Acres	%	Approx. Acres	%	Approx. Acres	%
Structural Stage						
Early Succession*	0	0	50	9	193	34
Immature Forest	567	100	516	91	373	66
Mature Forest	0	0	0	0	0	0
Old Growth	0	0	0	0	0	0
Totals	567	100	566	100	566	100
Cover Type						
Douglas-fir	566	100	566	100	373	66
Grand fir/ Hemlock	0	0	0	0	0	0
Western Larch	0	0	0	0	0	0
Cedar	0	0	0	0	0	0
Ponderosa pine	0	0	0	0	193	34
No Trees	0	0	0	0	0	0
Lodgepole pine	0	0	0	0	0	0
White Pine	0	0	0	0	0	0
Totals	566	100	566	100	566	100

*includes non-forested areas, shrubs, seedlings and saplings

Table D-6. Existing and resulting acreages of vegetation structure and cover types on Moist Habitat types in the Little Blacktail Project Area.

	Existing		Alternative A (No Action)		Alternatives B & C	
	Approx. Acres	%	Approx. Acres	%	Approx. Acres	%
Structural Stage						
*Early Succession	211	14	441	28	525	33
Immature Forest	1112	70	903	58	870	56
Mature Forest	249	16	229	15	178	11
Old Growth	0	0	0	0	0	0
Totals	1572	100	1573	100	1573	100
Cover Type						
Douglas-fir	1030	66	1030	66	652	42
Grand fir/ Hemlock	135	8	135	8	135	8
Western Larch	95	6	95	6	123	8
Cedar	190	12	190	12	190	12
Ponderosa pine	0	0	0	0	98	6
No Trees	0	0	0	0	0	0
Lodgepole pine	25	2	25	2	25	2
White Pine	98	6	98	6	350	22
Totals	1572	100	1573	100	1573	100

***includes non-forested areas, shrubs, seedlings and saplings**

Appendix E – Corporate Monitoring

Issues	Core Data	Unit of Measure	Alternative A	Alternative B	Alternative C
Public Access	Change in miles of drivable classified and unclassified roads	Miles	Classified – 8.0 miles Unclassified – 0.4 mile	Classified – 8.0 miles Unclassified – 0 miles	Classified – 8.0 miles Unclassified – 0 miles
Sediment (*) WEPP Road Model	Changes in sediment delivery due to road construction and drainage improvements	Tons/year	7.9 tons/year	3.3 tons/year	3.1 tons/year
Changes in Forest Structure	Forest Structure by size/age class groups	Percent/acres	Early Succession +13% +491 ac Immature Forest -12% -1419ac Mature Forest -1% -229ac Old Growth 0% 0 ac	Early Succession +24% +718ac Immature Forest -21% -1243 ac Mature Forest -3% -178 ac Old Growth 0% 0 ac	Same as Alternative B.
Changes in Species Composition	Forest composition by Forest Cover Type Group	Percent	Douglas-fir 0% Grand fir/Hemlock 0% Western Larch 0% Cedar 0% Ponderosa pine 0% No trees 0% Lodgepole pine 0% White pine 0%	Douglas-fir -27% Grand fir/Hemlock 0% Western Larch +2% Cedar 0% Ponderosa pine +14% No trees 0% Lodgepole pine 0% White pine +11%	Same as Alternative B.
Habitat Loss and Species Decline	TES Dry and Moist/Cold Site habitat Restoration	Acres	There are 568 acres of capable flammulated owl habitat. There would be a continued shift toward more shade tolerant species in the majority of stands. If left untreated, attributes of dry site habitat would fade away.	Restore and maintain the persistence of 189 acres of capable flammulated owl habitat. In addition, would restore, long-term, dry site forest conditions on 193 acres that have conceded to high incidences of insect and disease. The remaining 186 acres would not be affected.	Same as Alternative B.

Issues	Core Data	Unit of Measure	Alternative A	Alternative B	Alternative C
Changes in Landscape Pattern	Landscape Pattern Measures	Patch size/ edge/core area	Mean patch size, weighted edge density and mean core area of the early succession stage would increase, while those same features of immature and mature stages would decrease.	Mean patch size, weighted edge density and mean core areas of early succession stage would increase while reducing those related to immature and mature stages. The trend to larger mean patch size for the early succession stage is a trend toward the historic range	Same as Alternative B

(*) Net associated risk remained the same for each alternative. The WEPP Road Model (Elliot and Hall, 1997) was used because it displays changes in sediment delivery due to road construction and drainage improvements.

Issues and core data not tracked with this document are discussed below.

Issue/Core Data	Reason not considered in analysis
Hydrologic Integrity	Long-term road density is not affected by this project at the 6th code hydrologic unit code (HUC) level.
Riparian Function	Riparian road density would not change at the project or 6th code HUC level.
Mass Failures and Erosion – Road density on sensitive landtypes	Does not apply.
Water Yield	Changes in water yield were not noticeably different between the no action alternative and the two action alternatives within the Upper Cocolalla Creek Subwatershed. Therefore, increases in water yield or equivalent clearcut acres will not be tracked.
Riparian Function, temperature and large wood recruitment	Standard Inland Native Fish Standards are included as design criteria for this project. The only work proposed in the Riparian Habitat Conservation Areas is the improvement of 4 road crossings over intermittent streams. No change in riparian hydrologic opening acreage is expected with this work.
Restricted Fish Use	There are no fish barriers within the project area.

Appendix F – Soils

Impacts of project activities on soils and soil productivity were issues that were eliminated from detailed study in the Draft EIS. During the comment period we received questions that specifically addressed soil and soil productivity. In response to these comments this Appendix has been added to the Final EIS to further explain why soils and soil productivity was not considered an issue with this project.

REGULATORY FRAMEWORK

The regulatory framework providing direction for protecting a site's inherent capacity to grow vegetation comes from the following principle sources:

- *The Multiple Use-Sustained Yield Act of 1960,*
- *The National Forest Management Act of 1976 (NFMA),*
- *The Code of Federal Regulations for Forest Planning (36, CFR 200.1),*
- *The Forest Plan and Regional Soil Quality Standards (FSH 2509.18)*

AFFECTED ENVIRONMENT

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.

The most productive part of the project area's soils occurs near the surface at the contact between the forest litter and the mineral soil. Here the litter has been highly decomposed into dark colored amorphous material, which is the richest and most productive part of the soil. This layer is frequently only a few inches thick but its presence is much more important than its thickness would indicate. This organic matter rich layer contains most of the soil nitrogen, potassium and mycorrhizae, which must be present for a site to be productive.

Below this organic horizon is volcanic ash, which occurs as the surface layer of the mineral soil. In north Idaho, the ash layer is typically 16 inches thick, ranging between 7 and 24 inches on most sites. The top part of the ash is usually enriched in organic matter, which also contributes nitrogen, potassium and mycorrhizae to this part of the soil. The lower part of the volcanic ash has less organic matter and is not as fertile as the upper part. The ash has a high water holding capacity and nutrient holding capacity both of which are important for soil productivity.

Below the volcanic ash, the subsoils and substratum tend to be medium textured in the Belt Metasedimentary soils. These subsoil and substratum materials are very weakly weathered. They tend to have a high component of rock fragments, although, this can be quite variable, particularly in the alluvial bottoms.

Most of the productivity of all project area soils is found near the soil surface. This is also the part of the soil that is easiest to disturb by management activities. The soils of this project area are generally rated low to moderate in productivity potential.
A more detailed description of the geomorphology, soils, erosion processes and soil productivity can be found in the draft soil map unit descriptions and a soil characterization for the Purcell Trench portion of the Pend Oreille subbasin.

The database was queried for past activities within stands proposed for treatment under this proposal. Within the project area, eleven stands proposed for treatment were identified as having had previous harvest activity (i.e. tractor logging, pile burning), the remaining stands proposed for harvest do not have any apparent harvest activity. Of these eleven stands, five were identified as having had previous harvest that could have resulted in detrimentally disturbed soils (658-01-006, 020, 034, 036, and 039). These five stands in question were entered into the IPNF Detrimentally Disturbed Soils and Potassium Limited Soils Spreadsheet. This spreadsheet calculates detrimentally disturbed soils based on past activities such as type of logging and fuels treatment. After spreadsheet calculations were done, none of the five stands in question exceeded the Forest Plan soil quality standards. However, two of the five stands were identified as marginal (within five percent of exceeding Forest Plan standards). The stands in question were 658-01-006 and 034.

Field reviews of most of the stands proposed for harvest did not show evidence of past timber harvest. However, there were some stands that appeared to have had past logging activity. Evidence of scattered decomposing stumps were found in several areas however no skid trails could be found. Given these conditions it is possible that some logging may have occurred on snow during the winter months. These areas showed no visible sign of compaction or displacement due to past logging.

ENVIRONMENTAL CONSEQUENCES

Methodology

In order to demonstrate that the Forest Plan standard would be achieved with the alternatives as proposed; a systematic procedure was established to identify the existing condition of each proposed stand in terms of the detrimentally disturbed soils standard, low potassium and those stands that are at risk of not meeting the standard.

To determine potassium limited sites, a map of the proposed harvest units was overlaid on a map of geologic formations to determine which of these units overlapped with low potassium geologic formations. The spreadsheet can be found in the soils productivity section of the project file.

The following three design and management criteria relate to soil productivity in the Little Blacktail Project:

1. Detrimentally disturbed soils within activity areas (harvest units).

All action alternatives would comply with Forest Plan Standards and Regional Soil Quality Standards (FSH 2509.18) related to detrimentally disturbed soils.

Compliance with the IPNF Forest Plan standards requires that at least 80 percent of an activity area (harvest unit and any adjacent roads or landings) must be in a condition of acceptable productivity for trees and other managed vegetation, that is, no more than 20 percent of an activity area may have detrimentally disturbed soil.

Compliance with updated Regional Soil Quality Standards (November 1999, R1 Supplement 2500-99-1) requires that at least 85 percent of an activity area (harvest unit and landings; system roads within this supplement are considered designated and not a part of an activity area) must be in a condition of acceptable productivity. This project will follow the updated Regional Soil Quality Standards.

These standards are based on the lowest magnitude of adverse change detectable, given current monitoring technology (Powers et al. 1990).

The soils in an activity area are considered detrimentally disturbed when the following soil conditions exist as a result of Forest practices:

A. Soil displacement results in the loss of either 1 inch of or half of the humus-enriched surface layer (A-soil horizon), whichever is less. The loss of the litter layer alone could be detrimental on some marginal sites. Displacement removes the most productive part of the soil resource. Roading, ground-based yarding, dozer piling and cable corridors are the major contributors to displacement.

B. Soil compaction results in a 20 percent or more increase in bulk density, or a 50 percent reduction in water infiltration rates typical for volcanic ash influenced surface soil*s.* Soil compaction reduces the supply of air, water and nutrients to plants. Roading, ground based yarding and piling are the major contributors to compaction.

C. Fire consumes most woody debris and the entire duff and litter layer, exposing mineral soi*l.* Burn ashes is white or reddish color, indicating that much of the carbon was oxidized by fire (Burned-Area Emergency Rehabilitation Handbook FSH 2509.13). Burns which create very high temperatures at the soil surface when surface soil moisture content is low results in almost complete loss of surface and upper soil horizon organics. Many of the nutrients stored in these organics can be lost to the atmosphere through volatilization and removed from the site in fly-ash (Garrison and Moore, 1998).

2. Low Potassium Sites - Sites containing geologic formations that are expected to be naturally deficient in potassium bearing minerals.

This criterion relates to the natural deficiency of potassium (K) in the Prichard geologic formation. The Prichard geologic formation contains only traces of potassium feldspars. The other geologic formations that occur as part of the Belt Metasedimentary rocks have higher percentages of potassium feldspar within their mineral composition, but are still

considered “Bad Rock” by the Intermountain Forest Tree Nutrition Cooperative (IFTNC). The IFTNC is actively researching the correlation of K to root disease.

This project area consists of Belt Metasedimentary geology. Unlike many other soil nutrients, potassium is derived almost entirely from the underlying rock formations. On some sites 45 percent of the potassium is held in trees, with the remainder being held in subordinate vegetation, forest floor and soil pools. Within the trees, about 85 percent of the potassium is held in the branches, twigs and foliage (Garrison and Moore, 1998). In most natural circumstances the potassium returns to the soil when the tree dies. If potassium is removed from the site, the loss is long-term. Whole tree yarding and removal of tree tops leads to the direct loss of potassium (Morris and Miller, 1994).

Some very preliminary research being done by the Intermountain Forest Tree Nutrition Cooperative (IFTNC) is showing a possible link to potassium deficiency and the lack of tree resistance to root rot. Most of the root rot concentrations within this project area appear to be on the Revett and Burke geologic formations. The Prichard formation, which appears to have the strongest correlation of root rot to K-deficiency does not occur within the project area. Some soils in the project area have low soil moisture holding capacities and this may also be a factor contributing to tree stress and root rot.

The Intermountain Forest Tree Nutrition Cooperative is continuing to research potassium contents within tree species and different rock types in order to establish more definite minimum thresholds and affects on tree growth and resistance to root diseases. Until these minimum thresholds are developed through research, the Idaho Panhandle National Forest is using management recommendations from the IFTNC as a guideline for maintaining sufficient potassium on a site.

The IFTNC has made the following management recommendations to retain the maximum possible amount of potassium on site after logging:

A. Practice conventional removal (lop and scatter) rather than whole tree removal. The "lop and scatter" technique should be practiced during intermediate as well as final harvest operations.

B. Let slash remain on site over winter so mobile nutrients such as potassium can leach from fine materials back to the soil.

C. Light broadcast burn or underburn for release of potassium and other nutrients.

D. Avoid mechanical site preparation.

E. Plant species appropriate to site.

In this project, we would use all of the recommendations of the IFTNC in the evaluation of alternatives.

3. Maintenance of large woody debris and organic matter.

The third soil productivity criteria common to alternatives B and C relates to the management of coarse woody debris and organic matter which would follow the research guidelines contained in Graham et al., 1994.

This soil productivity criterion is addressed as a mitigation requirement only and is not part of the alternative evaluations, because project alternatives are designed to meet the large woody debris guidelines.

Alternative A (No Action)

Direct and Indirect Effects

A direct effect of increased mortality (caused by disturbance agents such as root rot and bark beetles) is increased down organic matter and fuel loadings. In moist habitat sites, which make up approximately 73 percent of this project area, this increase in organic matter is a benefit to soil productivity. This response would be much less or could be a negative in dry habitat types, which make up approximately 27 percent of this project area. Increased fuel loadings would increase the risk of soil damage (loss of organics, loss of nutrients, reduction of infiltration; this would substantially reduce the productivity of the site) in the event of high severity fires.

Increased fuel loadings on low potassium sites would increase the risk of potassium loss through fly ash removal in the event of high severity fires. If a high severity fire does not occur then potassium would stay on site.

Cumulative Effects

With the no action alternative, there is a risk of high severity wildfire that could consume soil organic matter. Such a fire, if it were to occur, would be predicted to have a moderate to high effect on soil nutrient and soil structure loss. This could result in reduced tree seedling establishment, tree growth and insect and disease resistance. If a high severity fire does not occur then potassium would stay on site and a positive effect would take place. Potassium would be released to the soil through decomposition.

Effects Common to Alternatives B and C

Direct and Indirect Effects

Utilizing the Features Designed to Protect Soil and Site Productivity as outlined in Chapter II would insure that established Forest and Regional Soil Quality standards are met in both alternatives.

A direct effect of management actions, particularly related to road building and within some tractor yarding units where additional designated skid trails are planned, would be an increase in detrimental soil disturbances such as compaction and displacement. These impacts are expected to be within the Forest and Regional Soil Quality Standards. Minor disturbances would occur on skyline and cable units and in areas where fireline is constructed. Compaction, displacement and severe burning affect soil physical, chemical and biological properties, which indirectly can affect the growth and health of trees and other plants.

Positive effects on low potassium sites would occur when the foliage and branches of harvested Douglas-fir trees are allowed to recycle on site, thereby releasing stored nutrients such as potassium and nitrogen back to the soil. Douglas-fir consumes and stores more potassium than most other trees. The release and availability of this stored potassium would benefit larch, ponderosa pine and western white pine, which require less potassium for growth and maintenance (Garrison and Moore, 1998). These more potassium efficient trees would be planted in all regeneration harvest units and favored within the selective harvest units.

Alternatives B and C propose low impact underburning and "lop and scatter" fuel treatments for a total of 996 acres for Alternative B and 1,000 acres for Alternative C. Both of these treatments would retain the maximum possible amount of potassium on the site after logging. All low potassium acres would meet the recommendations of the IFTNC.

On the higher potassium content areas, Alternative B would grapple pile 256 acres, while Alternative C would grapple pile 222 acres. In order to minimize potential potassium concentration, slash would be allowed to over-winter to allow for nutrient leaching to take place.

Cumulative Effects

Building roads, ground-based harvesting, slash removal, cable corridors, or easily identifiable skid trails would increase the percentage of detrimental soil compaction and displacement on proposed harvest sites. However, all impacts are expected to comply with Forest and Regional Soil Quality standards. Detrimental compaction is less likely to occur on those sites that have high rock fragment content in the surface ash soil. The cumulative impacts resulting from detrimental soil disturbance would be predicted to produce slower growing trees, somewhat less stand volume and possibly less resistance to root rot.

Findings

On October 17, 2001 the Forest Soil Scientist field reviewed stands 658-01-006 and 034. These two stands had been identified as having had past tractor logging activity. A walk through of stand 658-01-006 found very little past logging activity. Only the eastern edge of this stand had evidence of past logging and detrimental impacts. The overall detrimental impacts were determined to be less than two percent of the area in that stand.

Evidence of past logging was found during a walk through of stand 034. Random transects were conducted where 88 plots were analyzed for detrimental impacts (compaction, displacement, rutting, sever burns). Four of the 88 plots were found to be detrimentally compacted. This equates to 4.5 percent of the area. Three of the four detrimentally impacted plots occurred on old skid trails and one plot occurred on a heavily used game trail. Both previously identified marginal stands were determined to be well within the Forest and Regional Soil Quality Standards and are no longer considered. A detailed report of the soil survey can be found in the project file.

It was determined that there was an error in the query to the data base for these two stands in question. Both the stands in question occur entirely within Soil/Land type 260, which has a low surface soil and subsoil erosion hazard rating and low sediment delivery potential rating. These ratings indicate that management activities would produce very little to no erosion and sediment.

Effects of Project Related Opportunities

Riparian Road Obliteration - road obliteration is the beginning of restoring the soil productivity on those sites by decompacting the soil and replacing some of the top soil that was buried under the road fills.

Wildlife Burning and Timber Stand Improvement – neither of these opportunities would affect soil productivity.

Inventory and Treatment of New Noxious Weed Invaders - this would also have a positive effect on soil productivity.

Consistency with the Forest Plan

All action alternatives would meet all Regional Soil Quality standards: Soil disturbing management practices would strive to maintain at least 85 percent of the activity area in a condition of acceptable productivity potential for trees and other managed vegetation; large woody debris would follow the research guidelines of Graham et al., 1994, to insure the maintenance of site productivity.

Appendix G - Finances

Alternative B – Transactional Evidence Appraisal and Summary

```
SALE : 95604  LITTLE BLACKTAIL ALT B       ADV. NO. :     0

              BID       APP       TERM  CONTRACT   TOTAL   PAVED  UNPAVED
   FOR DIST    DATE      DATE      DATE   LENGTH    HAUL    HAUL    HAUL
    4    6   08-2002  12-2001  12-2005    40.     32.0    20.0    12.0

                                                          SEED TREE    SHELTERWOOD
  CUT  SAWTIMBER VOLUME   ------- CLEARCUT -------         FINAL CUT   FINAL CUT
 ACRES  VOLUME   /ACRE   ACRES  %AC   VOL    %VOL        VOL    %VOL  VOL    %VOL
  1231  11200.     9.1      0     .0      0    .0         0.    .0    0.    .0

        ----- TRACTOR -----                    ---- GROUND LEAD ----                    ----- SKYLINE -----
   ACRES    %AC    VOL   %VOL    EYD        ACRES    %AC    VOL   %VOL    EYD       ACRES    %AC    VOL   %VOL    EYD
    372   30.2   3385   30.2    750           0     .0      0     .0      0         473   38.4   4303   38.4    800

        ----- AERIAL  -----                    ------  SWING  ------
   ACRES    %AC    VOL   %VOL    EYD        ACRES    %AC    VOL   %VOL    EYD
     386   31.4   3512   31.4   1000           0     .0      0     .0      0

  CALCULATION OF THE YARDING METHOD VARIABLE (YARDMETH)
 YARDMETH = 1.00 * % VOLUME (TRACTOR + FORWARDER)
          + 1.27 * % VOLUME (GROUNDLEAD + HORSE)
          + 1.93 * % VOLUME SHORT SKYLINE (LT 1500)
          + 3.10 * % VOLUME LONG SKYLINE (GT 1500)
          + 8.68 * % VOLUME HELICOPTER
 YARDMETH = (1.00 * 30.) + (1.27 *  0.) + (1.93 * 38.) + (3.10 *   0.) + (8.68 *  31.)

 SPECIES  KEY                          BASE   WWPA      AVG    AVG  AVG LOGS
 GROUP    SPECIES   PROD UNIT  VOLUME   RATE    VALUE    DEF    DBH   /UNIT
 ------------------------------------------------------------------------------
 LP        LP         1    3    2240.   31.39   330.82    8.0    12.     16
 DF        DF         1    3    8960.   31.39   348.92    8.0    12.     16

SAWLOG TOTALS                   11200.   31.39   345.30    8.0    12.    16.


TOTALS FOR U/M 3                11200.   31.39   345.30    8.0    12.    16.


#### END OF EDIT CHECK FOR SALE LITTLE BLACKTAIL ALT B     ####
```

TE APPRAISAL SUMMARY DATE APP: 12/11/2001

SALE NAME:LITTLE BLACKTAIL ALT B CHECKED BY: DATE:
SPEC RD CONST (MI): 5.5 RECONSTRUCTION (MI):13.4 TOTAL SPEC ROADS $: 174400 TIMBER PROP. VALUE/CCF .00
APPRAISED TO : ID HAUL MI : 32 TEMP ROAD CONST(MI) : .0 TEMP ROAD COST : 0 CONTRIB. FUNDS $
0.

		-ID-	-QUANTITY-	-AVERAGE-	-DIFF-	-COEFF-	-DOLLARS
1.	ACTUAL PAST AVERAGE VALUE						133.88
2.	WWPA LUMBER PRICE,L.T.($ / MBF)	WWPA	345.300 -	368.613 =	-23.313 X	.2500 =	-5.83
3.	AVERAGE DBH (INCHES)	ADBH	12.000 -	13.453 =	-1.453 X	5.0240 =	-7.30
4.	AVERAGE TOTAL DEFECT PERCENT	ADEF	8.000				
5.	LOG(ADEF)	LNDEF	2.079 -	2.706 =	-.627 X	-.5840 =	.37
6.	NET VOLUME/ACRE HARVESTED (CCF)	VPA	9.098				
7.	LOG(VPA)	LNVPA	2.208 -	2.472 =	-.264 X	14.6300 =	-3.86
8.	YARDING METHOD COST INDEX * PERCENT VOLUME	YARDME	376.553 -	276.067 =	100.486 X	-.1520 =	-15.27
9.	PAVED HAUL + (3 * UNPAVED HAUL) MILES	TH3	56.000 -	50.202 =	5.798 X	-.1400 =	-.81
10.	NET SAWTIMBER VOLUME IN CCF	VOL	11200.000 -	2416.560 =	8783.440 X	.0010 =	8.78
11.	FOREST SUBGROUP PANHANDLE	FORSUB	1.000 -	.000 =	1.000 X	3.2300 =	3.23
12.							
13.							
14.							
15.							
16.	PREDICTED GROSS VALUE						113.18
17.							
18.	ROAD MAINTENANCE COSTS						-1.50
19.	ENVIR PROTECT COSTS						-25.30
20.	TEMPORARY DEV COSTS						.00
21.	SPECIFIED ROAD COSTS						-15.57
22.	UNUSUAL CONDITION ADJUSTMENT						.00
23.	PREDICTED HIGH BID (CUBIC TE EQUATION: 01-2)						70.81
24.	ROLL BACK FACTOR						-18.66
25.	PRELIMINARY ADVERTISED RATE						52.15
26.	MARKET ADJUSTMENT (40%)						-20.86
27.	INDICATED ADVERTISED RATE (SAWTIMBER)						31.29

					ALL PROD	SAWLOGS
36.	PRODUCT/UNIT CODE	1/3	1/3			
37.	SPECIES	LP	DF			
38.	SPECIES CODE	108	204			
39.	% VOLUME BY SPECIES	20.0	80.0	T	100.0	100.0
40.	VOLUME (CCF)	2240.	8960.	T	11200.	11200.
44.	VALUE INDEX	1.0000	1.2488			
45.	IND RATE BY SPECIES	26.10	32.59	A	31.29	31.29
46.	BASE RATES	31.39	31.39	A	31.39	31.39
47.	ADJ. TO BASE RATES (45-46)	5.29	-1.20	A	.10	.10
48.	ADVERTISED RATE(45+47)OR 46	31.39	31.39	A	31.39	31.39
50.	IND. STAT. NET RATES(48-TP)	31.39	31.39	A	31.39	31.39
51.	APPRAISED NET RATES	31.39	31.39	A	31.39	31.39
52.	BASE INDICES	147.47	160.77	A	.00	.00

SPECIES RATE (SAWTIMBER) = 26.0976 * VALUE INDEX

TOTAL ADVERTISED VALUE FOR THIS UNIT OF MEASURE IS $ 351568.00

Alternative C – Transactional Evidence Appraisal and Summary

```
SALE :  5604  LITTLE BLACKTAIL ALT C       ADV. NO. :     0

               BID      APP      TERM  CONTRACT   TOTAL   PAVED  UNPAVED
   FOR DIST    DATE     DATE     DATE   LENGTH    HAUL    HAUL    HAUL
    4    6   08-2002  12-2001  12-2005    40.     32.0    20.0    12.0

                                                      SEED TREE    SHELTERWOOD
  CUT  SAWTIMBER VOLUME   ------- CLEARCUT -------      FINAL CUT   FINAL CUT
 ACRES  VOLUME   /ACRE   ACRES  %AC   VOL    %VOL      VOL    %VOL  VOL    %VOL
  1229  11200.     9.1      0     .0      0    .0       0.    .0    0.    .0

        ----- TRACTOR -----                  ---- GROUND LEAD ----                  ----- SKYLINE -----
   ACRES    %AC    VOL   %VOL    EYD       ACRES    %AC    VOL   %VOL    EYD       ACRES    %AC    VOL   %VOL    EYD
    364   29.6   3317   29.6    750          0     .0      0     .0      0         135   11.0   1230   11.0    800

        ----- AERIAL  -----                  ------  SWING  ------
   ACRES    %AC    VOL   %VOL    EYD       ACRES    %AC    VOL   %VOL    EYD
     730   59.4   6653   59.4   1000          0     .0      0     .0      0

  CALCULATION OF THE YARDING METHOD VARIABLE (YARDMETH)
 YARDMETH = 1.00 * % VOLUME (TRACTOR + FORWARDER)
          + 1.27 * % VOLUME (GROUNDLEAD + HORSE)
          + 1.93 * % VOLUME SHORT SKYLINE (LT 1500)
          + 3.10 * % VOLUME LONG SKYLINE (GT 1500)
          + 8.68 * % VOLUME HELICOPTER
 YARDMETH = (1.00 * 30.) + (1.27 *  0.) + (1.93 * 11.) + (3.10 *   0.) + (8.68 *  59.)

 SPECIES  KEY                          BASE   WWPA      AVG    AVG  AVG LOGS
 GROUP    SPECIES   PROD UNIT  VOLUME   RATE    VALUE    DEF    DBH   /UNIT
 ------------------------------------------------------------------------
 LP        LP         1    3    2240.   30.89   330.82    8.0    12.     16
 DF        DF         1    3    8960.   30.89   348.92    8.0    12.     16

SAWLOG TOTALS                  11200.   30.89   345.30    8.0    12.    16.


TOTALS FOR U/M 3               11200.   30.89   345.30    8.0    12.    16.
```

TE APPRAISAL SUMMARY DATE APP: 12/11/2001

SALE NAME:LITTLE BLACKTAIL ALT C CHECKED BY: DATE:
SPEC RD CONST (MI): .0 RECONSTRUCTION (MI):13.0 TOTAL SPEC ROADS $: 104000 TIMBER PROP. VALUE/CCF .00
APPRAISED TO : ID HAUL MI : 32 TEMP ROAD CONST(MI) : .0 TEMP ROAD COST : 0 CONTRIB. FUNDS $
0.

		-ID-	-QUANTITY-	-AVERAGE-	-DIFF-	-COEFF-	-DOLLARS
1.	ACTUAL PAST AVERAGE VALUE						133.88
2.	WWPA LUMBER PRICE,L.T.($ / MBF)	WWPA	345.300 -	368.613 =	-23.313 X	.2500 =	-5.83
3.	AVERAGE DBH (INCHES)	ADBH	12.000 -	13.453 =	-1.453 X	5.0240 =	-7.30
4.	AVERAGE TOTAL DEFECT PERCENT	ADEF	8.000				
5.	LOG(ADEF)	LNDEF	2.079 -	2.706 =	-.627 X	-.5840 =	.37
6.	NET VOLUME/ACRE HARVESTED (CCF)	VPA	9.113				
7.	LOG(VPA)	LNVPA	2.210 -	2.472 =	-.262 X	14.6300 =	-3.84
8.	YARDING METHOD COST INDEX * PERCENT VOLUME	YARDME	566.419 -	276.067 =	290.352 X	-.1520 =	-44.13
9.	PAVED HAUL + (3 * UNPAVED HAUL) MILES	TH3	56.000 -	50.202 =	5.798 X	-.1400 =	-.81
10.	NET SAWTIMBER VOLUME IN CCF	VOL	11200.000 -	2416.560 =	8783.440 X	.0010 =	8.78
11.	FOREST SUBGROUP PANHANDLE	FORSUB	1.000 -	.000 =	1.000 X	3.2300 =	3.23
12.							
13.							
14.							
15.							
16.	PREDICTED GROSS VALUE						84.35
17.							
18.	ROAD MAINTENANCE COSTS						-1.50
19.	ENVIR PROTECT COSTS						-23.83
20.	TEMPORARY DEV COSTS						.00
21.	SPECIFIED ROAD COSTS						-9.29
22.	UNUSUAL CONDITION ADJUSTMENT						.00
23.	PREDICTED HIGH BID (CUBIC TE EQUATION: 01-2)						49.73
24.	ROLL BACK FACTOR						-18.66
25.	PRELIMINARY ADVERTISED RATE						31.07
26.	MARKET ADJUSTMENT (40%)						-12.43
27.	INDICATED ADVERTISED RATE (SAWTIMBER)						18.64

					ALL PROD	SAWLOGS
36.	PRODUCT/UNIT CODE	1/3	1/3			
37.	SPECIES	LP	DF			
38.	SPECIES CODE	108	204			
39.	% VOLUME BY SPECIES	20.0	80.0	T	100.0	100.0
40.	VOLUME (CCF)	2240.	8960.	T	11200.	11200.
44.	VALUE INDEX	1.0000	1.2488			
45.	IND RATE BY SPECIES	15.55	19.41	A	18.64	18.64
46.	BASE RATES	30.89	30.89	A	30.89	30.89
47.	ADJ. TO BASE RATES (45-46)	15.34	11.48	A	12.25	12.25
48.	ADVERTISED RATE(45+47)OR 46	30.89	30.89	A	30.89	30.89
50.	IND. STAT. NET RATES(48-TP)	30.89	30.89	A	30.89	30.89
51.	APPRAISED NET RATES	30.89	30.89	A	30.89	30.89
52.	BASE INDICES	147.47	160.77	A	.00	.00

SPECIES RATE (SAWTIMBER) = 15.5465 * VALUE INDEX

TOTAL ADVERTISED VALUE FOR THIS UNIT OF MEASURE IS $ 345968.00

Appendix H – Biological Assessments and Evaluations

United States Department of Agriculture

Forest Service **Idaho Panhandle National Forests**

Sandpoint Ranger District
1500 Highway No. 2
Suite 110
Sandpoint, ID 83864-9509
(208) 263-5111

File Code: 2670 **Date: January 3, 2002**

Subject: Biological Assessment, Little Blacktail Environmental Impact Statement, Sandpoint Ranger District

To: District Ranger

I. Introduction

The purpose of this assessment is to evaluate and describe potential effects of Alternative B (the preferred alternative) of the Little Blacktail Environmental Impact Statement (EIS) on threatened or endangered plant species, and to determine whether any such species or habitat is likely to be affected by the proposed action. This assessment was prepared in accordance with USDA Forest Service policy (FSM 2672.4).

On July 23, 2001 the US Fish and Wildlife Service (USFWS) provided the Idaho Panhandle National Forests with a listing of species (FWS 1-9-01-SP-613) (USDI 2001a) that may be present in the Sandpoint Ranger District. The threatened species water howellia (*Howellia aquatilis* A. Gray) and Ute ladies'-tresses (*Spiranthes diluvialis* Sheviak) are suspected to occur in the district. On October 10, 2001 the listing of Spalding's catchfly (*Silene spaldingii* Wats.) as Threatened was announced (USDI 2001b). This species is also suspected to occur in the district. There are no endangered plant species known or suspected to occur in the district.

II. Proposed Action

The USDA Forest Service proposes several activities on National Forest lands in the Sandpoint Ranger District.

Maps showing the location of proposed treatment units are included in the Little Blacktail EIS. **A copy of the EIS accompanies the Biological Assessment.**

The following treatments are proposed:

Selective timber harvest would occur on approximately 722 acres:

- In stands where significant numbers of healthy desired species are present and are in need on thinning to retain this health,
- In stands estimated not to experience significant mortality within the next 10-20 years but are in need of harvesting to retain healthy, wind-firm trees of desired species for future seed and shelter,
- In stands where dead and dying trees may be salvaged before loss of value, and
- In stands where the focus is to reduce the spread of disease.

Regeneration cutting and reforestation would occur on approximately 509 acres:

- In stands where there is significant mortality or risk of significant mortality within the next 10-20 years

Fuels treatment would occur as follows: prescribed burning would occur on approximately 772 acres, about 194 acres would be limb and lopped, about 256 acres would be grapple piled and approximately 9 acres yarded with limbs and tops attached.

Road construction, decommissioning and management: Approximately 5.4 miles of new road would be constructed. Road work would also occur on 13.5 miles of existing road. All of the newly constructed roads would be decommissioned after use. Of existing roads, about 0.7 mile would be decommissioned and 0.8 miles would be put into storage.

III. Listed Threatened Plant Species

Water howellia (*Howellia aquatilis*) - a member of the family Campanulaceae, is suspected to occur in the Pend Oreille sub-basin ecosystem. According to the Conservation Strategy for *Howellia aquatilis* - Flathead National Forest (USDA 1994), there are currently 110 known occurrences of the species; most occurrences are in Montana and Washington, with only one known occurrence in Idaho.

Water howellia is an annual aquatic species restricted to small pothole ponds or the quiet water of abandoned river oxbows. It occurs at elevations from 10 feet in Washington to 4,420 feet in Montana. The species reproduces only by seed; germination occurs in October, presuming the plant's habitat has dried sufficiently to expose the seeds to oxygen. Because of this restrictive habitat requirement, population numbers in a given year are directly influenced by the extent of pond drawdown at the end of the previous growing season (USDA 1994).

Potentially suitable habitat for water howellia occurs in the northeastern corner of the Decision Area in a small, shallow pond. The pond would be buffered from all harvest activities by a minimum of 300 feet.

Botanists from the US Forest Service, State of Idaho Department of Lands and Idaho Fish and Game Conservation Data Center have conducted floristic surveys of many wetlands in the Pend Oreille subbasin ecosystem over the past decade, but have not located any occurrences of the species. An 1892 sighting approximately 20 miles south of the Decision Area has not been relocated (Shelly and Moseley 1988).

Ute ladies'-tresses (*Spiranthes diluvialis*) - a member of the plant family Orchidaceae, is a Great Basin species. In north Idaho, the steppe zone of the Palouse Prairie, Rathdrum Prairie and canyon grasslands are considered potentially suitable habitat (Moseley 1999, Jankovsky-Jones and Graham 2001). Montane coniferous forest, subalpine coniferous forest and alpine zones are not likely places to find Ute ladies'-tresses (Moseley 1999). Its potential habitat in the Priest, Pend Oreille and Kootenai River sub-basins is considered restricted to low-elevation, low-gradient streams and rivers and open, broad alluvial valleys dominated by mixed conifer/cottonwood, shrub and wet meadow grass and forb communities (Moseley 1999). Most such habitat in the Pend Oreille ecosystem is under private or other ownership.

Although lower elevation riparian habitats in the Decision Area may possess some geophysical characteristics considered to represent high potential habitat for the species, these habitats are generally characterized by conifer-dominated plant communities which have low potential to support the species. In addition, as elevation in the Decision Area increases, most streams generally become moderate- to high-gradient. They have narrow riparian influence and abrupt transition from riparian to upland plant communities. Such conditions generally hold low potential to support Ute ladies'-tresses (Moseley 1999).

Ute ladies'-tresses, a perennial terrestrial species, is currently known from Colorado, Idaho, Montana, Nebraska, Utah, Washington and Wyoming; total population for the species is approximately 25,000 to 30,000 individuals (Moseley 1999).

There are no proposed harvest or project-related activities in or adjacent to potentially suitable habitat for Ute ladies'-tresses.

Spalding's catchfly – a member of the plant family Caryophyllaceae, occurs in dry grassland habitats and grassland inclusions in ponderosa pine and Douglas-fir forest. Suitable habitat for this species is typically dominated by fescues (*Festuca* species) and other bunchgrasses, but also has a high density of forbs. Soil types on which it has been found include loam, silty loam, granitic, loamy basaltic and loess (USDI 2000).

This long-lived perennial forb often exhibits periods of dormancy (both within a growing season and over several growing seasons), which can render habitat clearance surveys problematic (Lesica 1997). Periodic dormancy may allow individuals to persist below ground during drought years (Lesica 1997).

Potential threats to its habitat include conversion to agricultural, residential or other uses; overgrazing; soil compaction and other ground disturbance; exotic species invasion; herbicide use; and activities which would negatively impact the species' pollinators

(Lichthardt 1997). Wildfire and prescribed fire may also be detrimental to individualss, although fires may benefit the species by burning off heavy accumulations of duff and litter which impede germination and seedling growth (Lesica 1999).

Because habitat for Spalding's catchfly cannot be accurately determined using Timber Stand Database information, a Forest-wide habitat analysis was conducted using Satellite Imagery Landtype Classification (SILC). This reflection of the species' habitat occurrence and distribution is an approximation and serves as a coarse filter for habitat suitability. Further review of areas identified by SILC, such as aerial photograph interpretation and field verification, is necessary to determine the true extent of suitable habitat for Spalding's catchfly.

Based on evaluation of SILC and aerial photographs of the Decision Area, habitat for Spalding's catchfly is likely limited to small microsites surrounded by dry forest habitats. Portions of stands proposed for burning to enhance wildlife habitat were identified as having the potential for occurrence of grassland habitat.

V. On-site Inspection

Floristic surveys of the Decision Area were conducted in July of 1998 and May of 2000. All plant species encountered were recorded during the surveys. While the surveys targeted areas proposed for harvest activities, wetlands within the Decision Area were also surveyed. No listed plant species were identified.

Subsequent to the listing of Ute ladies'-tresses in 1998 as suspected to occur in the Idaho Panhandle National Forests, field survey notes were reviewed. It was determined that potential for occurrence of Ute ladies'-tresses in the Decision Area is low. Wetlands and streams in the Decision Area are generally dominated by vegetation characteristic of montane coniferous habitats, which have low potential to support the species.

Subsequent to the proposal to list Spalding's catchfly, a field habitat assessment was conducted in May of 2000, targeting openings identified using Satellite Land Classification (SILC) data. No suitable habitat for this species was encountered during the surveys. Based on surveys and field habitat assessments for Spalding's catchfly for this and other projects, it is unlikely that suitable habitat occurs in or adjacent to federal lands in the Pend Oreille subbasin.

VI. Analysis of Effects

Water howellia - There are no current threats to water howellia or potentially suitable habitat in the Decision Area. This species has not been found in the Pend Oreille subbasin ecosystem since 1892.

All aquatic habitat which could potentially support water howellia would be buffered according to INFS guidelines. The project aquatics specialist determined that none of the

proposed activities would have any direct or indirect effect to any wetland. No cumulative effects would be expected from project implementation.

Ute ladies'-tresses - Habitat potential for Ute ladies'-tresses in the Decision Area was determined to be low. This species has yet to be found in the Pend Oreille subbasin ecosystem. No direct, indirect or cumulative effects would be expected from project implementation.

Spalding's catchfly – Surveys for this species failed to locate any suitable habitat. There is low potential for occurrence of Spalding's catchfly in the Pend Oreille subbasin. No direct, indirect or cumulative effects to the species or suitable habitat would be expected to occur from project implementation.

Determination of Effects

No sightings of water howellia, Ute ladies'-tresses or Spalding's catchfly have been documented in the Decision Area. All potentially suitable habitat for water howellia would be buffered from direct and indirect effects through implementation of INFS guidelines.

Based on the above considerations, implementation of Alternative B would have **no effect** on water howellia, Ute ladies'-tresses or Spalding's catchfly or their habitats.

Prepared by:

/s/ Anna E. Hammet
IPNF North Zone Botanist

Note: All citations can be found in Appendix K

Biological Assessment	**USDA Forest Service**	**Idaho Panhandle National Forests**	**Sandpoint Ranger District 1500 Highway 2, Suite 110 Sandpoint, ID 83864-9509 (208) 263-5111**

File Code: 2670 **Date:** January 7, 2002

Ref: Biological Assessment, *wildlife*, Little Blacktail EIS

To: District Ranger

Introduction

Threatened and Endangered species are managed under authority of the Federal Endangered Species Act (36 U.S.C. 1531-1544) and the National Forest Management Act (16 U.S.C. 1600-1614). The Endangered Species Act requires Federal agencies to make certain that all actions they "authorize, fund, or carry out" will not likely jeopardize the continued existence of any threatened or endangered species.

USDA Forest Service Policy (FSM 2670) requires a review of programs and activities, through a biological assessment, to determine whether any threatened or endangered species is likely to be affected by the proposed action(s). The purpose of this biological assessment is to evaluate the potential effects associated with the Little Blacktail Restoration project.

Listed Species

On July 23, 2001 the U.S. Fish and Wildlife Service provided the Sandpoint Ranger District with a listing of threatened and endangered species that may be present within the evaluation area (FWS reference No. 1-9-01-SP-613). These species include the grizzly bear *(Ursus arctos)*, woodland caribou *(Rangifer tarandus caribou)*, gray wolf *(Canis lupus)*, bald eagle *(Haliaceetus leucocephalus)* and Canada lynx *(Lynx canadensis)*.

Proposed Action

Treatment of vegetation would occur on about 1,231 acres of a 2,139-acre project area. Vegetation prescriptions are designed to trend toward vegetation

conditions created by low-intensity and mixed severity fires, rather than stand replacement fires. Techniques would include selective and regeneration tree harvesting. Harvest systems would include approximately 386 acres of helicopter, 473 acres of skyline and 372 acres of tractor.

Selective harvesting would occur on approximately 722 acres in the following cases:

- In stands where significant numbers of healthy desired species are present and are in need of thinning to retain this health.
- In stands estimated not to receive significant mortality within the next 10-20 years but are in need of harvesting to retain healthy, wind firm trees of desired species for future seed and shelter.
- In stands where dead and dying trees may be salvaged before loss of value.
- In stands where the focus is to reduce the spread of disease.

Regeneration harvesting would occur on approximately 509 acres in the following cases:

- In stands where there is significant mortality or risk of significant mortality within the next 10-20 years.
- In stands where there is a need to modify visual impacts from past clearcutting, and/or, where regeneration harvests are needed to blend in with landscape patterns/characteristics.

To reduce existing fuels and those created by the vegetation treatment, 772 acres are planned for prescribed burned, 194 acres would be limb and loped, 256 acres would be grapple piled, and about 9 acres would be yarded with limbs and tops attached.

There would be approximately 5.4 miles of new temporary road construction to accomplish vegetation restoration activities, and 13.5 miles of existing road work. All newly constructed roads would be decommissioned after use for the project (see Little Blacktail FEIS for a more detailed discussion of the Preferred Action).

Analysis of Effects

Review of species list (FWS reference No. 1-9-01-SP-613) with respect to known species distribution and habitat availability, indicates that there are no threatened or endangered species likely to occur within the evaluation area.

Summary of Analysis of Effects

Species	Species or Habitat Present	Species or Habitat Potentially Affected?	Requiring a Detailed Analysis?	Determination of Effects?
Grizzly Bear ***Ursus arctos horribilis***	**No**	**No**	**No**	**No Effect**
Mountain Caribou ***Ranqifer tarandus caribou***	**No**	**No**	**No**	**No Effect**
Gray Wolf ***Canis lupus***	**No**	**No**	**No**	**No Effect**
Bald Eagle ***Haliaeetus leucocephalus***	**No**	**No**	**No**	**No Effect**
Canada Lynx ***Lynx canadensis***	**No**	**No**	**No**	**No Effect**

Bald Eagle

Bald eagles are winter visitors and yearlong residents of northern Idaho. They are attracted to the area's larger lakes and rivers, which provide most of their foraging opportunities (e.g. fish, waterfowl). Accordingly, bald eagles select isolated shoreline areas with larger trees to pursue such activities as nesting, feeding, loafing, etc. Nesting habitat usually includes dominant trees that are in close proximity to a sufficient food supply and within line-of-sight of a large body of water (usually within 0.25 mile of water). Nest trees typically are large ponderosa pine, Douglas-fir, western larch or cottonwood trees with open crowns in areas that are relatively free from human disturbance (Montana Bald Eagle Working Group 1991).

During migration and at wintering sites, eagles tend to concentrate on locally abundant food and tend to roost communally. Roost sites are usually located in stands of mature or old growth conifers that provide protection from inclement weather.

The Little Blacktail project area is detached from Lake Pend Oreille, separated by high relief slopes that descent to its shoreline. There are no known nesting territories along this portion of shoreline. The nearest known nesting territory is

at least 2.5 miles east of the project area, near Cocolalla Lake. There are no known nocturnal winter roosts in close proximity to this evaluation area (Crenshaw 1986).
Based on the distribution of the species and habitat conditions required or used by the species, bald eagles are not likely to occur within the Little Backtail project area. The project is outside the normal range and use patterns of the bald eagle. Consequently, this project would have ***no effect*** on bald eagles or their habitat.

Gray Wolf

Wolves are highly social animals requiring large areas to roam and feed. Conservation requirements for wolf populations are not fully understood, but the availability of prey and reducing risk of human-caused mortality are considered key components (USDI 1987, Tucker et al. 1990). The risk of human-caused mortality can be directly related to the density and distribution of open roads.

In 1994, final rules in the Federal register made a distinction between wolves that occur north of Interstate 90 and wolves that occur south of Interstate 90, in Idaho. Gray wolves occurring north of Interstate 90 are listed as endangered species and receive full protection in accordance with provisions of the Endangered Species Act. Gray wolves occurring south of Interstate 90 are listed as part of a nonessential, experimental population with special regulations defining their protection and management.

The Little Blacktail project occurs north of Interstate 90. It lies outside the experimental population areas, but within an area expected to support recovery through natural recolonization (Mack and Laudon 1998). Occasional wolf sightings have been reported in northern Idaho. Thus far, sighting information seems to indicate transient or lone individuals, and not associated with a resident pack. However, there have been no recent sightings (within the last five years) reported in the vicinity of the project.

There is no evidence of resident wolf packs (i.e. lack of sightings or observations of reproduction, den sites and rendezvous sites) in proximity to the project area. Although no specific population numbers are available, ungulates (e.g. elk, white-tailed deer) are common enough in the project area to provide food for the occasional wolf that may visit the area. The proposed actions are not expected to impact these ungulate populations in a meaningful way (see Rocky Mountain elk and white-tailed deer discussions in the Little Blacktail EIS). Therefore, this project would have ***no effect*** on gray wolves or their habitat.

Grizzly Bear

Populations of grizzly bears persist in those areas where large expanses of relatively secure habitat exist and where human-caused mortality is low. Grizzly

bears are considered habitat generalists, using a broad spectrum of habitats. Use patterns are usually dictated by food distribution and availability combined with a secure environment. Grizzlies commonly choose low elevation riparian areas and wet meadows during the spring and generally are found at higher elevation meadows, ridges, and open brush fields during the summer.
The proposed project lies outside areas designated for grizzly bear recovery. Grizzly bear are not known to occur within the evaluation area and are not likely to occur in this area based on the known distribution of the species. No reliable sightings of grizzly bear have been documented in the area. Therefore, this project would have ***no effect*** on grizzly bears or their habitat.

Woodland Caribou

The population in the Selkirk Mountains is generally found above 3000 feet elevation in Engelmann spruce/subalpine fir and western red cedar/western hemlock forest types. They are highly adapted to upper elevation boreal forests and do not occur in drier low elevation habitats except as rare transients. Seasonal movements are complex and normally occur as altitudinal patterns, moving to traditional sites for different seasons. The population is threatened by habitat fragmentation and loss, and excessive mortality from predators and illegal human take (USDI 1994).

The proposed project lies outside areas designated for caribou recovery. Woodland caribou are not known to occur within the evaluation area and are not likely to occur in this area based on the known distribution of the species and habitat conditions required or used by the species. Therefore, this project would have ***no effect*** on woodland caribou or their habitat.

Canada Lynx

Lynx are considered low-density species with home ranges averaging 24 square miles, depending on prey abundance. Lynx habitat quality is believed to be lower in the southern periphery of its range because landscapes are more heterogeneous in terms of topography, climate, and vegetation (Ruediger et al. 2000).

In northern Idaho and northwestern Montana, lynx generally occur in moist, cold habitat types above 4,000 feet elevation. However, in parts of northern Idaho, western red cedar and western hemlock habitat types support relatively high densities of hares, and lynx appear to make regular use of these lower habitats documented by historical and current lynx sightings. These lower elevation habitats are boreal in nature and have long winters of deep snow packs.

Important risk factors that can impact lynx populations include alteration of forest habitats, expansion of the range of competitors, and increased levels of human access into lynx habitat.

The Little Blacktail project is situated within a relatively small inclusion of National Forest lands that ascends above the Purcell Trench. It abuts Lake Pend Oreille and is surrounded by lower elevation, rural properties and is isolated from large, contiguous areas of suitable lynx habitat. Consequently, the landscape patterns are not conducive to supporting lynx populations. There have been no documented sightings of lynx in and around the project area.

Also, the Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) directed agencies to delineate lynx analysis units (LAUs) for the evaluation and monitoring of the effects of management actions on lynx habitat. Because landscape patterns are not suitable for lynx survival, the Little Blacktail evaluation area is not part of any designated LAU. Therefore, the Little Blacktail project would have ***no effect*** on the Canada lynx.

Conservation Measures to Reduce or Avoid Adverse Effects

No measures are necessary.

Prepared by

_/s/ David Roberts
DAVID ROBERTS
North Zone Wildlife Biologist

Note: All citations can be found in Literature Cited Appendix K

Sensitive Species Biological Evaluation
Summary of Conclusion of Effects**

Project Name: Little Blacktail Ecosystem Project

Preferred Alternative: Alternative B

Species	No Impact	May impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species	Will impact individuals or habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of viability to the population or species*	Beneficial Impact
Northern Goshawk *Accipiter gentilis*		✓		
Common Loon *Gavia immer*	✓			
Harlequin Duck *Histrionicus histrionicus*	✓			
Flammulated Owl *Otus flammeolus*		✓		
White-headed Woodpecker *Picoides alboiarvatus*		✓		
Black-Backed Woodpecker *Picoides artcusi*		✓		
Fisher *Martes pennanti*	✓			
Wolverine *Gulo gulo*	✓			
Townsend's Big-Eared Bat *Plecotus townsendi*	✓			
Northern Bog Lemming *Synaptomys borealis*	✓			
Boreal Toad *Bufo boreas boreas*	✓			
Northern Leopard Frog *Rana pipens*	✓			
Coeur d' Alene Salamander *Pethodon vandyei idahoensis*	✓			
Peregrine Falcon *Falco peregrinus anatum*	✓			

Comments: determinations are based on the known distribution of the species, the habitat conditions required of the species, and the current habitat conditions within the evaluation area.

/s/ David Roberts Date: January 7, 2002
Wildlife Biologist

* Considered a significant action in NEPA
** The rational for the conclusion of effects is contained in the EIS document and Project File

Biological Assessment, Evaluation (BA/BE) and Bull Trout Matrix

File Code: 2672.4 **Date:** January 8, 2002

Route To: Little Blacktail Project File

Subject: Biological Assessment and Evaluation for Little Blacktail Ecosystem Restoration Project

To: Richard Kramer, Sandpoint District Ranger

Introduction

The U. S. Fish and Wildlife Service (USFWS) lists two fish species that occur, potentially occur, and/or habitat exists within the Kaniksu portion of the Idaho Panhandle National Forests as endangered or threatened under the Endangered Species Act (ESA) of 1973 (Biannual Forest Wide Species List: FWS 1-9-01-SP-613; July 23, 2001). The Kootenai River population of white sturgeon (*Acipenser transmontanus*) is listed as "endangered" (Federal Register, Volume 59, No. 171, September 6, 1994) and the Columbia River Distinct Population Segment of bull trout (*Salvelinus confluentus*) is listed as "threatened" (Federal Register, Volume 63, No. 111, June 10, 1998). Four additional species are listed as “sensitive” by the Regional Forester: Torrent sculpin, interior redband trout, burbot, and westslope cutthroat trout.

The purpose of this document is to analyze the effects of the proposed project, described below, on these six fish species. It was prepared in accordance with Section 7(c) of ESA, and manual direction to review all Forest Service activities to ensure that such activities do not contribute to a downward trend in population numbers or density of sensitive species and/or a downward trend in habitat capability, either of which might ultimately result in the need for federal listing (FSM 2672.1 and 2672.4).

Summary of Activity

The proposal is designed to improve the health and productivity of terrestrial and aquatic habitats by:

- Restoring desired forest cover, structure and pattern, and species composition across the landscape where they are outside natural or accepted ranges.
- Providing for wildlife habitat diversity.
- Restoring fire as an ecological process.
- Reducing the risk of destructive wildfire around the microwave sites at the top of Little Blacktail Mountain and the powerline corridor that serves the electronic equipment.
- Maintaining or improving Cocolalla Creek’s aquatic habitat by reducing existing and potential sediment risks.

Approximately 1231 acres of the 2139-acre project area would be treated.

Harvest techniques include:

- Selective Harvest 722 acres
- Regeneration Harvest 509 acres

Treatment Type	Alt B
Regeneration Harvest Irregular Shelterwood, Seed Tree and Group Selection(even-aged)	509
Selective Harvest Thinning, Shelterwood Preparatory cutting, Improvement cutting, and sanitation salvage cutting	722
Total Acres Harvested	1231
Logging System	
Ground-based Skyline Helicopter Total	372 473 386 1231
Fuels Treatment	
Underburn Grapple Pile Limb and Lop Yard Unutilized Material (YUM)	772 256 194 9
Total Acres Treated	1231
Transportation Miles New Temporary Road Construction Road Work on Classified Roads Road work on Unclassified Roads Decommissioned Temporary Road Decommissioned Unclassified Road Classified Roads put into storage	 5.4 12.8 0.7 -5.4 -0.7 -0.8

No harvest will take place within Riparian Habitat Conservation Areas (RHCAs). Approximately 5.4 miles of temporary road are proposed for construction. Four temporary stream crossings on road 630B1would be constructed over intermittent stream channels. These crossings would be part of the 630B1 road system needed to access the northwest corner of the project area. This road system, along with its crossings, would be removed after timber harvest and associated activities are complete. With the exception of these crossings, no other roads would be constructed within RHCAs.

All 5.4 miles of temporary roads constructed would be decommissioned. An additional 0.7 miles of existing unclassified road would be decommissioned. These roads would be

recontoured, seeded, and brush placed on the disturbed surface. All culverts would be removed and the natural channel cross-section re-established. In addition, approximately 0.8 miles of existing road would be put into storage. Existing roads proposed for storage are currently closed. These roads would be waterbarred, scarified and seeded, and all culverts will be removed. The road prisms will remain intact to provide long-term access for future land management.

Other than activities associated with these roads, activities within RHCAs are limited to those that are expected to benefit fish habitat and watershed health. Road drainage improvements are planned for Forest Roads 630, 630A, 630C, 630E, and 315. Such road improvements include graded rolling dips, additional relief pipes, and spot graveling.

Approximately 12.8 miles of road work is on classified roads and 0.7 on unclassified roads. Approximately 1.5 miles of road 630E is currently open to motorized vehicles under 50 inches wide. After timber sale activities are completed, this road would be returned to its current status. Approximately 0.3 miles of Road 315A is an open road on Stimson lumber land. This road will be closed after project related activities, either at its junction with Road 315 or at the National Forest Boundary.

Location: Harvest units are located in the Cocolalla Creek Watershed, which is part of the Pend Oreille River sub-basin. Cocolalla Creek is the only fish-bearing stream in the project area. The legal description of the project area is: Portions of Township 55 North, Range 2 West, Sections 14,15,21,22,23,27, and 28, Boise Meridian, Bonner County, Idaho.

Duration: The project is expected to take 5 years to complete.

Time period: 2002-2007

Prefield/Field Review

Prefield information was gathered from district fish/hydrology files, stream inventories, field reviews, historical records, aerial photographs, analysis of watershed conditions, published scientific literature, discussions with Fisheries Biologists and electrofishing/stocking data from the Idaho Department of Fish and Game (IDF&G), the United States Fish and Wildlife Service (USFWS), electrofishing data from the Idaho Division of Environmental Quality (DEQ) and comprehensive knowledge of the fisheries resources in the Pend Oreille River Basin. Descriptions are limited to historic natural (i.e., wildfire) and human-caused (i.e., timber harvest and roading) disturbances, overall conditions, and habitat connectivity (migration barriers).

Several roads and streams were reviewed in the field during 1999 and 2000. A R1/R4 stream habitat inventory of Cocolalla Creek within the project area was completed during the 1999 field season.

Existing Habitat Condition:

The following are general descriptions of the watersheds within the analysis area. For detailed descriptions of existing conditions of bull trout populations and habitat conditions for Cocolalla Creek refer to the attached matrix. No known bull trout populations currently exist in the Cocolalla Creek Watershed. There is a two-meter (6.6 ft) high dam that forms a migration barrier to bull trout at all flows approximately three miles upstream of the mouth of Cocolalla Creek at the Pend Oreille River. Due to the possibility of a historic bull trout population, the matrix was completed for Cocolalla Creek.

Cocolalla Creek is a moderate gradient stream that flows from north of Little Blacktail Mountain to Cocolalla Lake then Round Lake and finally to the Pend Oreille River. Bull trout do not currently inhabit the watershed, and an artificial fish barrier exists approximately three miles from the mouth of the creek.

Cocolalla Creek has been modified by human activities for the lower two-thirds of its length. U.S. Highway 95 and the Burlington Northern-Santa Fe Railroad cross Cocolalla Creek three times. Approximately two miles of the stream channel were straightened to drain wetlands for conversion to pastureland.

Analysis of Effects

Species	Habitat Present	Habitat Absent	Species Present	Species Absent
Endangered:				
White sturgeon *Acipenser transmontanus*		X		X
Threatened:				
Bull trout *Salvelinus confluentus*	X			X
Sensitive/Species of Concern				
Burbot *Lota lota*		X		X
Interior redband trout *Oncorhynchus mykiss gairdneri*	X			X
Westslope cutthroat trout *Oncorhynchus clarki lewisi*	X		X	
Torrent sculpin *Cottus rhotheus*	X		***X****	

X:* Species presence unconfirmed, but likely.

Further explanations for above table:

- White sturgeon are found only in the main Kootenai River, outside of the cumulative effects areas for this project;
- Bull trout do not currently inhabit the Cocolalla Creek watershed;
- Burbot only occur in the Kootenai River watershed within North Idaho;
- Interior redband trout inhabit some tributaries to the Kootenai River, but are not known to occur in any of the fish-bearing streams within the cumulative effects area;
- Westslope cutthroat trout inhabit lower Cocolalla Creek and were planted in Cocolalla Lake in the 1960s;
- Torrent sculpin inhabit the Pend Oreille River Basin; however, data on distribution by stream is limited. This species primarily inhabits larger streams (Scott and Crossman 1973; Markle et al. 1996). It is unknown whether they inhabit Cocolalla Creek.

Determination of Effects and Rationale

In this project, Standard Widths Defining Riparian Habitat Conservation Areas (RHCAs) as outlined in the Inland Native Fish Strategy (USDA Forest Service 1995; Appendix D) will be applied. No harvest will take place in riparian areas. As a result, there will be no loss of riparian trees. Ground-disturbing activities within the RHCA are limited to those that are expected to benefit fish resources and watershed health (e.g., road decommissioning,) with the exception of four temporary stream crossings used to access timber in the northwest portion of the project area. These crossings are on intermittent streams and will be removed after timber sale activities are completed.

Direct/Indirect Effects (General):

Timber Harvest:

All harvest units are located outside of RHCAs. No direct or indirect effects are expected from harvest because of the distance between the activity and the riparian area. There may be localized increases in water yield at harvest sites; however, these will not lead to changes in channel flow.

Road Construction/Landing Construction:

New roads (approximately 5.4 miles in length) will be constructed as outsloped roads that follow the natural terrain. Following use, these newly constructed roads will decommissioned as well as 0.7 miles of unclassified road. Approximately 0.8 mile of currently brushed in roads or earthen barriered roads will be put into storage. All stream crossings and drainage culverts will be removed from these roads. Waterbars that do not require periodic maintenance will be installed. Roadbeds will be scarified and seeded with a weed-free seed mix.

No landings will be located in RHCAs. Temporary road construction will create four stream crossings across intermittent stream channels that will be removed after project activities. The WEPP Road sediment delivery model predicts a negligible increase in sediment delivery to the intermittent channels, and a reduction of sediment delivered to Cocolalla Creek when considered along with the road work proposed for Forest Roads 630, 630A, and 630 C.

Watershed Restoration Activities:

With the exception of the four previously mentioned stream crossings, ground-disturbing activities in the RHCAs are restricted to watershed restoration and may include the following (not all of these activities will occur in RHCAs):

> *Decommission* includes removal and recontour of all stream crossings and, as needed, recontour of unstable fill slopes, cut slope stabilization, ripping the road tread, installation of no-maintenance cross ditches, and revegetation. Decommissioning also includes some kind of road closure method such as an earthen berm. All newly constructed temporary roads will be decommissioned.
>
> *Road storage* includes removing all stream crossings and drainage culverts. Waterbars that do not require periodic maintenance will be installed. Roadbeds will be scarified and seeded with a weed-free seed mix. The remaining roads will be closed to traffic by recontouring a portion of the road near the beginning of the road section. Approximately 0.8 miles will be put into long-term storage.
>
> *Road work* will be a critical part of this project in order to comply with BMPs and the Forest Plan related to road maintenance and water quality protection. Road work includes reconstruction which includes installation of additional relief culverts (to more frequently cross drain the road), spot gravelling (to reduce surface erosion), installing graded rolling dips, drivable dips, or drivable waterbars (to cross drain surface water), brushing, blading, shaping, and ditch cleaning (to maintain drainage).

Direct and indirect effects from watershed restoration activities include short-term increases in sediment delivery to streams during culvert and road removals, as well as culvert upgrades. However, there will also be an immediate reduction in risk of sediment delivery from crossing failures.

Prescribed Burning for Fuel Reduction:

On the south-facing dry site units, the prescribed burns would be done in the spring when fuel and soil moisture would not result in a severe burn that could produce hydrophobic soils or eliminate the soil duff layer. Firelines, where needed, would be frequently waterbarred to prevent erosion. The proposed burns are located on slopes with a low potential for sediment production and delivery with the use of riparian buffers (USDA 1995) on prescribed burn units.

Direct and indirect effects from prescribed burning activities include a low potential of sediment from firelines, released nutrients, or water foaming agents would be delivered to streams and tributaries. There will also be an immediate reduction in risk of severe fire from this type of fuel reduction activity.

Mechanical Slash Disposal and Site Preparation:

Proposed units for grapple piling will be accessed from existing roads, skid trails, and firelines. Only areas that can be reasonably accessed will be treated. Erosion from these treatments is not anticipated. The proposed grapple piles are located on slopes with a low potential for sediment production and delivery with the use of riparian buffers on grapple pile units.

Reforestation, Reinforcement and Riparian Planting:

Planting would be done by hand crews and would be accessed from existing system roads. This activity would reduce the amount of time needed for vegetative and hydrologic recovery following regeneration harvesting, which would reduce potential for sediment production and delivery. There would be no direct or indirect effects to fisheries or other cold-water biota from this activity.

Noxious Weed Control:

Implementation of this project is dependent on uncertain funding. Noxious weed controls used in the project area may include biological and chemical treatments. Herbicides have been used sparingly and judiciously in the Cocolalla Creek drainage to treat noxious weeds in accordance with the requirements of the Sandpoint Noxious Weed EIS. Herbicides may be used as part of the Little Blacktail Project to help control noxious weeds. Herbicide use will conform to the guidelines established in the Sandpoint Noxious Weed EIS (USDA, 1998). It was determined in this document that no effects on fisheries or aquatic habitat would occur from using herbicides within these guidelines.

There would be no direct or indirect effects from noxious weed control during the use of spray chemicals using the prescribed INFISH (USDA Forest Service 1995) buffers for activities within RHCAs in the project area. This activity is not expected to add to sediment production and delivery (Sandpoint Noxious Weed Control Project EIS 1998.)

Obliteration of 0.6 miles of Abandoned Road:

Approximately 0.6 miles of abandoned road would be recontoured if funding is available. Most of this road is within the RHCA of Cocolalla Creek. Currently a small intermittent stream is diverted 450 feet down this road. The natural drainage would be re-established for this stream. One culvert crossing Cocolalla Creek would be removed that has a high risk of failure. Natural hill slope hydrology would be re-established on 300 feet of road where snow run-off is intercepted and runs down the road surface to Cocolalla Creek.

This project would reduce sediment delivery, reduce the extended channel network, and reduce riparian impacts to the Cocolalla Creek watershed.

Cumulative Effects

Federal Actions:

Ongoing activities include road maintenance for Roads 630, 630A, and 315. Microwave repeaters on Little Blacktail Mountain will continue to be maintained. The motorized recreation trail will continue to receive moderate to heavy use and continue to be maintained. The area will continue to receive heavy deer hunting and firewood collecting pressure.

In consideration of potential influences from direct and indirect effects associated with the proposed project, the cumulative effects are not expected to change the existing condition or trend for fisheries resources in the cumulative effects areas. Activities in the project area will have no effect on threatened fisheries resources (since they do not persist in the watershed) and are not expected to adversely affect sensitive fish species or their habitat. Long-term benefits are anticipated if the proposed activities were to occur.

Private Actions:

Land use in the Cocolalla Creek Watershed upstream of Cocolalla Lake includes forested land (83%), hay and pasture (15%), and residential use (2%). Much of the lower Cocolalla valley area was developed for agriculture. Land development for agricultural use started early in the 20th Century and continued through the 1970s when a 2-mile section of Cocolalla Creek was straightened and a wet meadow was drained to improve pasture (Gilmore 1996).

Some level of harvest and road construction could reasonably be expected on private lands. The magnitude of this activity is unknown. Also, agricultural use and urbanization is expected to continue, though acreage in commercial farms is expected to decline (Gilmore 1996).

Sediment, and associated nutrients, is the primary issue of concern in the Cocolalla Creek watershed. The road improvements in the Little Blacktail Project would reduce total sediment delivery to streams in the watershed. As a result, a negligible short term increase in sediment delivery to Cocolalla Creek and a small long term decrease in sediment delivery is expected from this project. Reductions in sediment delivery to Upper Cocolalla Creek will be noticeable if combined with other improvements downstream on private land.

For the Direct/Indirect/Cumulative Effects to Population and Stream Habitat Components by watershed see attached matrix.

Effects on Species

White sturgeon: This project will have *no effect* on white sturgeon because there is no habitat within the effects area.

Bull trout: This project will have *no effect* on bull trout. Bull trout do not currently inhabit the Cocolalla Creek Watershed and they will not be reintroduced into the system while the fish barrier above the mouth is in place. Road related activities, including construction, reconstruction, maintenance, obliteration, and culvert upgrades produce a short-term increase in sediment delivery to streams in the watershed. However, these activities, except for construction, will reduce sediment delivery in the long term. Removal and upgrades of culverts will also immediately decrease the risk of sediment from crossing failures. Therefore, the long-term effects from the project is a net reduction in sediment and is a benefit to habitat if bull trout were to be reintroduced in the future.

Burbot: This project will have *no effect* on burbot because there is no habitat within the effects area.

Interior redband trout: This project will have *no effect* on interior redband trout or their habitat. Interior redband trout inhabit none of the streams potentially affected by this project.

Westslope cutthroat trout: Aspects of this project (road-related activities) in the short term *may affect individuals, but will not lead toward a trend to federal listing of westslope cutthroat trout*. Road construction produces a short-term increase in sediment delivery to streams in the watershed, but improved road drainage would reduce sediment delivery to stream channels in the long term. This reduction in sediment is expected to lead to improved rearing and spawning habitat.

Torrent sculpin: Aspects of this project (road-related activities) in the *short term may affect individuals, but will not lead toward a trend to federal listing of torrent sculpin*, if they are present in streams potentially affected by this project. Road construction produces a short-term increase in sediment delivery to streams in the watershed, but improved road drainage would reduce sediment delivery to stream channels in the long term. This reduction in sediment is expected to lead to improved rearing and spawning habitat.

Conditions, Mandatory Conservation Requirements and Recommendations

The Conditions of this Biological Assessment must be met to preserve the determination stated in this document unless otherwise agreed and documented by the appropriate personnel. They include:

1. Road Activities:

    - Road activities will be accomplished using the design criteria as established in Chapter II of the Environmental Impact Statement (EIS) – "Features Related to Temporary Roads";
    - Temporary road construction within RHCAs are expected to occur at four stream crossings on intermittent channels, but will be removed after project activities.

2. BMPs (Best Management Practices):

    - BMPs for watershed resources will be adhered to (see Chapter II-Features Designed to Protect Water and Fish Habitat, and Appendix A in the EIS).

3. Timing:

    - Road work (e.g. replacement of culverts, installation of rolling dips, armoring of culverts) and road decommissioning within any live crossing will take place after July 15th to reduce risk of effects from sediment during spring runoff and to avoid effects to westslope cutthroat trout redds.

Recommendations of this Biological Assessment include fisheries enhancement opportunities that were identified during the assessment of the cumulative effects area. These opportunities do not need to be implemented to preserve the determination stated in this document.

Prepared By: /s/ Shanda Fallau Dekome Date: January 8, 2002
Forest Fisheries Biologist

Note: All citations can be found in Appendix K

CHECKLIST FOR DOCUMENTING ENVIRONMENTAL BASELINE AND EFFECTS OF PROPOSED ACTION(S) ON RELEVANT INDICATORS

Authorizing Agency: Bureau of Land Management/**US Forest Service** Management Unit(s): **Sandpoint RD**
Section 7 Watershed: **Cocolalla Creek** Subwatershed Name:
Action Type: **Timber**/Grazing/Minerals/**Roads**/Recreation/Miscellaneous
Specific Actions (list):
Little Blacktail Timber Sale

Pathway	Indicators	Status of Baseline	Effects of the Action(s)	Basis for Rationale
Subpopulation Characteristics	Subpopulation Size	FA/FR/**UR**/?	R/**M**/D/NA	PJ and Pop. data; No bull trout inhabiting Cocolalla Creek, possibly historic. Project implementation will not change this.
	Growth and Survival	FA/FR/**UR**/?	R/**M**/D/NA	PJ and Pop. data; No bull trout populations in Cocolalla Creek.
	Life History Diversity and Isolation	FA/FR/**UR**/?	R/**M**/D/NA	PJ and Pop. Data. Neither resident or fluvial forms present in Cocolalla Creek drainage. Neighboring populations not strong. A migration barrier, which consists of a 2-meter high concrete dam, exists near the mouth of Cocolalla Creek.
	Persistence and Genetic Integrity	FA/FR/**UR**/?	R/**M**/D/NA	PJ and Pop. data; No known bull trout inhabit Cocolalla Creek drainage; possible historic presence. Brook trout present in Cocolalla Creek, hence possible hybridization.
Water Quality .	Temperature	FA/**FR**/UR/?	R/**M**/D/NA	**FA** in the headwaters, **FR** above Cocolalla Lake, and **UR** below Cocolalla Lake. PJ; Stream temperatures are high in much of Cocolalla Creek below the project area due to habitat modifications and conversion to agricultural use. Cocolalla Creek is listed as water quality limited under section 303(d) of the Clean Water Act. One of the pollutants of concern is thermal modification. The Beneficial Use Reconnaissance Project collected one temperature reading of 21^{o}C on August 1, 1995.

				This measurement was taken in the lower portion of the creek (IDEQ, 2000.) In the summer of 1995, temperature measurements ranged from 11 to 12°C in upper Cocolalla Creek and 13 to 14°C in lower Cocolalla Creek. Below Cocolalla Lake, August temperature was 22°C (Gilmore, 1996.) Water temperatures were measured during a habitat survey done in the Cocolalla Creek headwaters in July and August 1999 ranged from 10°C to 12°C. No harvest planned within the RHCA using INFISH measures, temperatures not affected by project.
	Sediment	FA/**FR**/UR/?	R/**M**/D/NA	PJ and survey data; Survey data indicates that there is considerable amount of fines (silt) within spawning habitat in Cocolalla Creek. Mean percent surface fines is 28.8. Contributing factors include: roads/road crossings and past management activities. The Little Blacktail Project includes road reconstruction and drainage improvement as part of Cocolalla Creek. A reduction in short and long term risk of sediment delivery is expected as a result of removal of continual sources of sediment. The WEPP road sediment delivery model predicts a reduction in sediment delivered to stream channels in the Cocolalla Creek Headwaters. Reductions from an existing 7.9 tons per year to 3.3tons per year is expected. Fines stored behind old beaver dams and within pools would continue to route through the Cocolalla Creek system for some time.
	Chemical Contaminants/Nutrients	**FA**/FR/UR/?	R/**M**/D/NA	Not a 303 (d) stream for chemical contaminants or nutrients.
Habitat Access	Physical Barriers	FA/FR/**UR**/?	R/**M**/D/NA	PJ and survey data; A two-meter high dam exists near the mouth of Cocolalla Creek. This dam is a fish barrier at all flows. This fish barrier is not on federal lands and mitigating this structure is outside of the scope of the Little Blacktail Project.
Habitat Elements	Substrate Embed.	FA/FR/**UR**/?	R/**M**/D/NA	PJ and survey data; In spawning habitat surveyed, embeddedness is relatively high (aver. = 28.8% surface fines) **See sediment.**
	LWD	FA/**FR**/UR/	R/**M**/D/NA	PJ and survey data. No harvest in RHCA—no change in LWD

		?		from project. Survey data indicates that LWD frequency is low, at 13.3 pieces per 100 meters. This is partially due to past riparian timber harvest, though a minimum buffer of 30 feet was left along Cocolalla Creek, as well as past beaver activity which led to deciduous timber along Cocolalla Creek in several areas.
	Pool Frequency & Quality	FA/**FR**/UR/ ?	R/**M**/D/NA	PJ and survey data; Pool habitat somewhat limited due to limited amount of LWD. Embeddedness of substrate as a result of fines has reduced quality if not to some degree quantity of pools. No harvest within RHCA. Temporary road construction within RHCAs is expected to occur at four stream crossings on intermittent channels, but will be removed after project activities. These crossings are on first order intermittent channels with no fish. The Wepp Road model predicts minimal sediment delivery from these sources. No change to pool quantity is anticipated from this project; possible improvement to quality as a result of long-term sediment reduction due to restoration activities.
	Off-channel habitat	FA/**FR**/UR/ ?	R/**M**/D/NA	PJ and survey data; little to no off channel habitat noted from stream surveys, very few braids or side-channels, appropriate for the major channel type (Rosgen B). No loss of off-channel habitat from project (FR.). Approximately 2 miles of Cocolalla Creek has no side channel habitat due to the artificially straightened channel immediately upstream of Cocolalla Lake, created for agricultural purposes (UR.)
	Refugia	FA/**FR**/UR/ ?	R/**M**/D/NA	PJ; Natural refugia is limited as a result of habitat modifications below the project area and the fish migration barrier (human caused). What does exist is in low to moderate quality pools. Refugia not affected by this project.
Channel Condition and Dynamics	Width/Depth Ratio	FA/**FR**/UR/ ?	R/**M**/D/NA	PJ and survey data; W/D ratio from field surveys is what would be expected using Rosgen stream classifications and is good overall on Forest Service Lands. No effect to w/d ratio from project (FA.) Width/depth ratio has been affected by direct channel modifications for several miles of Cocolalla Creek

				above Cocolalla Lake on private lands (UR.)
	Streambank Condition	FA/**FR**/UR/?	R/**M**/D/NA	PJ and survey data; Within the project area, streambanks are stable (FA.) Streambanks have been straightened and riparian vegetation removed in some areas downstream of the Little Blacktail Project Area on private lands (UR.)
	Floodplain Connectivity	**FA**/FR/UR/?	R/**M**/D/NA	Survey data and PJ; Cocolalla Creek has good access to the floodplain within the project area. Much of the Cocolalla Creek floodplain is seasonally flooded, even in areas managed for agriculture.
Flow/ Hydrology	Change in Peak/Base Flows	**FA**/FR/UR/?	R/**M**/D/NA	For both action alternatives, due to the design of the prescriptions, percent water yield would increase to 4.8%, or 0.2 above the existing condition. With this slight increase, there would be no measurable effect in the duration and intensity of peak flows, which would have no direct, indirect and cumulative effects from implementation of this project**.**
	Increase in Drainage Networks	**FA**/FR/UR/?	R/**M**/D/NA	PJ and survey data; There is little evidence of increased channel length in Project Area channels. A small increase in the channel network is due to poor road drainage on Forest Roads 630 and 630A. This condition will be mitigated by improved road drainage on these roads. Proposed stream crossings will be designed so that ditchlines will not drain directly into stream channels. These crossings will also be obliterated after timber sale activities are completed. No increase in active channel length with project.
Watershed Conditions	Road Density and Location	FA/**FR**/UR/?	R/**M**/D/NA	Road density in the Upper Cocolalla Creek subwatershed area is 6.4-mi./ sq. mi (project file). Roads are found at all elevations. Approximately 5.4 miles of temporary roads are proposed for the Little Blacktail Project Area. With new temporary road construction, road densities will temporarily increase to 6.5-mi/sq mi for up to eight years. However, road densities would be reduced to 6.2-mi/sq mi in the Upper Cocolalla Creek subwatershed once temporary and unclassified roads are decommissioned. There will be no increase in riparian road

				density.
	Disturbance History	FA/**FR**/UR/?	R/**M**/D/NA	PJ and modeling. Early historical fires, timber harvest, road construction, conversion to agricultural use, and urbanization are all disturbance factors. Though some disturbances in the project area are recovering, much of the lower Cocolalla watershed is experiencing increased urbanization, timber harvesting, and continued agricultural use. Drainage improvement on Forest Roads 630 and 630A will reduce the effects of disturbance in the project area while activities that create disturbance continue on private lands.
	Riparian Conservation Areas	FA/**FR**/UR/?	R/**M**/D/NA	PJ and survey data; Past timber harvesting in the RHCAs occurred in a few locations in the project area. These clearcuts are recovering. No change to RHCA conditions with project. A proposed KV project would obliterate approximately 3000 feet of road within the RHCA. The KV project would reduce impacts to the RHCA.
	Disturbance Regime	FA/**FR**/UR/?	R/**M**/D/NA	PJ and survey data. Overall, natural processes within the watershed are stable, with the exception of private land-channel modifications immediately upstream of Cocolalla Lake. Restoration activities will improve resiliency by reducing sediment delivery to stream channels. This will be accomplished through road improvements.
Integration of Species and Habitat Conditions	Habitat Quality and Connectivity	FA/FR/**UR**/?	R/**M**/D/NA	PJ. Fluvial and resident forms of bull trout are absent in Cocolalla Creek. The migration barrier near the mouth of Cocolalla Creek prevents bull trout from accessing the watershed. Habitat modifications have reduced habitat quality. Reduced sediment delivery to Cocolalla Creek will improve fish habitat over time in the headwater drainage. This improvement will likely not be noticeable downstream unless additional habitat improvement projects are completed on private land. The proposed project will not change habitat quality and connectivity

Status: Functioning Appropriately - FA Functioning at Risk - FR Functioning at Unacceptable Risk - UR
Effect: R - Restore: the action will result in a positive change in the indicator evaluated
M - Maintain: the action will have no effect on the status of the indicator evaluated
D - Degrade: the action will result in a negative change in the indicator evaluated
PJ: Professional Judgment

DICHOTOMOUS KEY DETERMINATION

1. Does the authorizing agency have discretionary authority to grant, modify, or amend provisions of the use authorization(s)? **Yes**/No

A "**No"**, results in a "**NO EFFECT**" determination and the evaluation is completed. If "**Yes**", move to question #2.

2. Are there naturally reproducing species listed or proposed for listing currently or historically present at any time of the year in riverine habitat directly or indirectly affected by the actions? **Yes**/No

If "**Yes**", continue with question #3 through #11. If "**No**", document the "**NO EFFECT"** determination and the evaluation is completed.

3. Can the action change the existing input of Large Woody Debris (LWD) into historic or occupied habitat? Yes/**No**/NA
4. Can the action affect stream morphology for historic or occupied habitat? Yes/**No**/NA
5. Can the action affect properly functioning condition of the riparian area for historic or occupied habitat? Yes/**No**/NA
6. Can the action affect water quality and/or quantity in historic or occupied habitat? Yes/**No**/NA
7. Can the action affect the water flow regime/annual hydrography in historic or occupied habitat? Yes/**No**/NA
8. Can the action affect juvenile or adult behavior related to survival or reproduction? Yes/**No**/NA
9. Will the action involve toxic and/or hazardous materials, which may reach, occupied habitat? Yes /**No**/NA
10. Can the action affect juvenile or adult access to habitat? Yes/**No**/NA
11. Can the action affect substrate material? Yes/No**/NA (**See rationale within BA – "Effects on Species")

"**No**" responses to question #3-11 would result in a **"NO AFFECT"** finding and should be documented in the action file.

A "**Yes**" to any of the questions #3-11, results in a "**MAY AFFECT**" determination; continue with questions #12-14.

12. Are the effects described in #3-11 inconsequential/temporary in nature? Yes/No/NA
13. Do the actions employ Best Management Practices (BMP's) designated to meet State water quality standards? Yes/No/NA

14. Is mitigation established that would preclude or reduce measurable effects on species and their habitat? Yes/No/NA

"**Yes**" responses to #12-14 results in a "**NOT LIKELY TO ADVERSELY AFFECT**" determination.

"**No**" responses to #12-14 results in a "**LIKELY TO ADVERSELY AFFECT**" determination. **If the project can't be mitigated to a "NOT LIKELY TO ADVERSELY AFFECT," go to Documentation of Expected Incidental Take.**

The following mitigation has been identified for projects to reverse any "**LIKELY TO ADVERSELY AFFECT**" determinations:

Project	**Mitigation**
Little Blacktail Timber Sale- This project will have *no effect* on bull trout, specifically since bull trout do not inhabit the Cocolalla Creek Watershed.	

DETERMINATION OF EFFECT BY PROJECT AND AGENCY

Agency: USFS/BLM **Mgmt Unit:** Sandpoint RD

ACTION	**DETERMINATION**
Little Blacktail Timber Sale	No Effect

Biologist Signature: /s Shanda Fallau Dekome

Agency: USFS/BLM **Mgmt Unit:**

ACTION	**DETERMINATION**

Biologist Signature: _____

Appendix I – Response To Public Comments, Federal Agency Letters, And List Of Individuals, Agencies And Organizations Receiving This FEIS

Response to Public Comments

Introduction

This appendix 1) lists the names of individuals, agencies and organizations that commented, 2) explains how public comments were received, processed and evaluated, 3) shows the individual comments received and our responses to them, 4) provides entire copies of the federal agency letters we received, and 5) provides a list of who received this FEIS and/or the Summary. Public involvement activities to date are described in Chapter II, Public Involvement.

Processing and Evaluating Public Comments

We received seven letters submitting comments on the DEIS. The names and their mailing list identification numbers are shown at the beginning of the "Response to Comments" section. Content Analysis is the method we used to categorize all substantive comments, issues and ideas. As comment letters were received, they were date-stamped and copies were distributed to the decision maker and the interdisciplinary team for review. The letters were then prepared for the content analysis process--substantive comments were coded, then grouped into categories by subject and entered into a computer database system. Substantive comments are those comments that express a specific concern relating to the proposed project. Statements contributing extraneous information were not coded.

Once entered into the computer program, all the comments were sorted by category so that specialists could identify similar comments and easily respond to comments pertaining to their expertise. The comments we received provided the basis for creating new alternatives, changing the original alternatives presented in the DEIS, adding and changing designs and analyses, and making clarifications in the FEIS.

Responses to Comments

The following individuals, groups, and agencies submitted comments on the Little Blacktail DEIS. The number next to each name corresponds to the respondent's mailing list identification number. These numbers help identify who submitted each comment.

1819 Carol and Lanny Wigren
6266 Warren Grant, Little Blacktail Ranch Park Homeowners Assoc.
6104 Steve Paulson, Friends of the Pond
5200 Mike Mihelich, Kootenai Environmental Alliance
6116 Rein Attemann, The Lands Council
1916 Andrew Smith, U.S. Environmental Protection Agency
4596 U.S. Department of the Interior

Comments are displayed in italics and organized by Subject in alphabetical order. All responses are in bold type.

Air Quality

COMMENT*:* The proposal to use prescribed fire does not agree with public opinion on burning in this area. 6104

RESPONSE: One of the objectives for this project is to reduce fuel loadings and the potential for a large-scale wildfire that would destroy the microwave sites and powerline on Little Blacktail Mountain. By reducing the fuel loadings through a combination of timber harvest and underburning these objectives can be met on a schedule of our choosing when the soil, weather, fuel, and other conditions are optimal. As described in Chapter III, under the air quality section, the planned prescribed burns will produce far less particulate matter than a large, stand replacing fire. This is because a stand-replacing wildfire would burn during the hottest, driest times of the year and will consume most, if not all, of the foliage, limbs, small trees, and brush and kill most if not all of the overstory.

COMMENT*: It is inappropriate, especially in this densely populated area to further degrade our air quality with these {prescribed fire} techniques. 6104*

RESPONSE: Within the air quality analysis in Chapter III the amount of emissions were estimated using FOFEM (First Order Fire Effect Model). The predicted emissions are within the standards required by law. Also, as described in Chapter III, prior to any prescribed burning, permission must be given to the district by a Montana-based monitoring unit that monitors meteorological data, air quality data, and what burning is planned in the airshed. These decisions are made daily depending on these conditions. Also, as described in Chapter III, under the air quality section, a prescribed burn will produce far less particulate matter than a large, stand replacing fire. This is because a stand-replacing wildfire will burn during the hottest, driest times of the year and will consume most, if not all, of the foliage, limbs, small trees, and brush.

Alternatives

COMMENT: *If Alternative B is indeed the preferred alternative, then it should have been clearly stated in the body of the EIS and not just in the abstract. The Final EIS should clearly identify the preferred [alternative]...while the ROD should identify the environmentally preferable alternative. Supporting rationale should be provided for selecting the preferred and environmentally preferable alternatives. 1916*

RESPONSE: Section 1502.14(e) requires "…identify the agency's preferred alternative, if one or more exists, in the draft statement, and identify such alternative in the final statement…". We identified the preferred alternative in the cover letter and the abstract for the Draft EIS. It was an oversight to not include the preferred alternative in the main document of the Draft. The Final EIS and the ROD have appropriate discussions pertaining to the preferred alternative and environmentally preferable alternative.

COMMENT: *This DEIS does not contain an appropriate range of alternatives. 6104*

COMMENT: *The range of alternatives in the DEIS is too narrow....The only difference from Alternative B and C is that the latter has no road building, but throughout the DEIS the FS*

continuously analysis [sic] affects [sic] similarly and states that there is ultimately no difference in affected environment, consequences or cumulative affects [sic]. 6116

RESPONSE: Overall we considered a total of nine alternatives. We dismissed 6 and carried forward three. The three we carried forward were the No Action alternative and two alternatives that best meet our purpose and need. According to NEPA and applicable case law, we did evaluate a reasonable range. Reasons for dismissal of the other six alternatives are explained in Chapter II, Alternatives Considered But Eliminated.

COMMENT: *You must analyze a true no-action alternative, one that proposes no active management such as on going fire suppression. 6116*

RESPONSE: Analysis of the No Action alternative typically assumes that regular administrative activities will continue to occur in the project area. In this case, fire suppression would still occur under the No Action alternative. The Forest Service has been changing its policies on fire suppression activities nationally, recognizing that fire suppression has contributed to the disruption of natural fire processes, as it has in the Little Blacktail project area. However, the solution to the problems fire suppression has caused is not to let all wildfires burn. The Little Blacktail area is in such close proximity to non-federal ownerships, abandoning fire suppression is not an option. Through a formal agreement with the Forest Service, the State of Idaho has fire protection responsibilities for the National Forest lands in the Little Blacktail area due to the amount of surrounding private ownership. See the Fire and Fuels section in Chapter III for more information about fire suppression policies, fire history in the Little Blacktail area, and effects discussions.

COMMENT: *The EIS describes current conditions where high tree density can lead either directly to stand-replacing fires or to increased tree mortality from insect and disease, higher fuel loading, and then a stand-replacing fire. Since the first alternative does not preclude logging as a tool, the EIS needs to explain why a non-commercial thinning could not be done or would not be better for the environment before rejecting this alternative...clearly the No Harvest, if not also the non-commercial alternative would leave the forest susceptible to stand-replacing fires. The question then is would such a fire be within historical range of variability (HRV) leaving a desirable mosaic pattern or would it be outside HRV setting too much of the landscape back to early seral conditions. If such a fire would be within HRV, the EIS should explain how a stand-replacing fire compares to a clearcut in achieving environmental objectives. If outside HRV, can environmental objectives be met by only thinning forests leaving dense mosaic patches? 1916*

RESPONSE: We have expanded our discussion in Chapter II, "Alternatives Considered But Eliminated" to better explain why no-harvest or non-commercial harvest alternatives were not considered in greater detail. As you stated, such alternatives would leave the forest susceptible to a stand-replacing (lethal) fire. We have stated in the Fire and Fuels section that lethal fires are within the historic range of variability for this area. However, the amount of private land development and its proximity to the project area prohibits a return to this historic range without risking escape of such a large fire and losses of private lands and developments (see Fire and Fuels section, Chapter III, Environmental Consequences).

COMMENT: *The EIS does not explain how no logging or non-commercial logging precludes the Forest Service from addressing the sediment risks on Cocolalla Creek, one of the objectives in the purpose and need statement. 1916*

COMMENT: *The draft EIS states that the alternatives to "Rehabilitate the Ecosystem Without a Commercial Logging Operation" and "No Harvest Restoration Only" described on page II-28 were dismissed from further consideration because they were "found to not meet the intent of the purpose and need"...From our understanding about the current conditions on the landscapes and project objectives, we believe that these two alternatives do meet the purpose and need, albeit perhaps not as completely or quickly as the two action alternatives.... The forward as this would offer an interesting comparison of passive versus active approaches to ecosystem restoration and their resulting impacts to the environment. In the end, fiscal realities may force the Forest Service to select an active approach in the ROD but at least it will be clearly understood why....We recognize a significant difference between these alternatives and alternatives B and C is the economic loss of wood fiber. While this is significant, the purpose and need of this project is to address ecosystem needs and not the need for wood fiber. The EIS is silent on this important aspect which can be considered when selecting the alternative in the ROD but should not be used to preclude alternatives to meet the purpose and need. 1916*

COMMENT: *The objectives are written so as to preclude restoration-only alternatives....Please consider this a request that this project include a non-commercial restoration alternative. You also need an alternative that would feature all the watershed restoration actions your analysis shows is necessary to significantly improve watershed conditions--one that also has no logging....Please be sure to analyze the effects of the road obliteration and restoration work alone, without the timber sale, in a non-commercial restoration alternative....You also need to include an alternative that would "treat" the vegetation, in response to your "purpose and need" without logging....The DEIS rejects burning as a way to deal with the problems you are creating with continued fire suppression. 6116*

COMMENT: *Friends would like to see an alternative that does not include timber harvest, and does include stream and road re-habilitation. 6104*

RESPONSE: We have expanded our discussion in Chapter II, "Alternatives Considered But Eliminated" to better explain why Rehabilitate the Ecosystem Without A Commercial Logging Operation was dismissed. In considering this alternative a number of scenarios were developed: (1) Treat the vegetation without commercial logging by using either prescribed burning only or use of stand-replacing fire to achieve objectives, and (2) Accomplish only watershed restoration or road obliteration work.

COMMENT: *[T]he objective in the purpose and need statement to reduce the risk of destructive wildlife around the microwave sites and the powerline corridor appears to be an opportunity project...This is a separate need which appears independent to the ecosystem improvement needs of this project. The noncommercial or no logging alternatives should not preclude consideration of logging around the structures in order to protect them. 1916*

RESPONSE: We have expanded our discussion in Chapter I under Purpose and Need to include an additional explanation of the need for each of the objectives. Chapter III also offers more details to the tie between the purpose and need and the objectives.

COMMENT: *Assuming that Alternative B is the preferred alternative, the draft EIS did not provide the rationale for selecting it as the preferred alternative. This rationale is important since Alternative C appears to have less environmental impact than Alternative B while still meeting the purpose and need. 1916*

RESPONSE: Alternative B was identified as the preferred alternative because it was the proposed action for this project. See the ROD for rationale in choosing the selected alternative.

COMMENT: *Microwave Fire: Alt A requiring heavy equipment is not acceptable.*

Logging: It appears that the 216 acres of helicopter logging, the major portion would be done in our backyard…Alternative B is, of course, our preference as compared to 753 acres in Alt C with 3 times the amount.

Reconstruction: Alt B does not have statement that roads would be managed with long-term intent for non-motorized use. I hope this is included in Alt B. 1819

RESPONSE: We have adjusted our figures for the logging systems based on new information between the Draft and Final EISs. However, there is still a greater amount of helicopter logging under Alternative C. Chapter II discusses how roads will be managed within the Little Blacktail project area. Under Issues Eliminated from Detailed Analysis it states "there would be no change in the existing transportation and recreation plans." In other words, all drivable roads and trails on the existing transportation system would remain open. Those roads on the landscape not on the existing transportation plan would be decommissioned.

COMMENT: *Microwave Fire: Alt B with reduced forest fuels with hand crews being able to put a fire out is an immense improvement.*

Sediment in Cocolalla Creek: Yes, Alt B. is a great improvement with 3.7 tons vs. 7.9 tons in alt A.

Fire Suppression: Alt B is highly preferable to reduce these increasing risks of more destructive fires that would kill most trees. 1819

RESPONSE: With the addition of new road construction mitigation described in Chapter II under Features Related to Temporary Roads, the estimate for sediment delivery decreased. It went from 3.7 to 3.3 tons/year.

COMMENT: *Presently the Draft EIS simply states that public involvement took place and that the result of these activities exists in project files. These results should be summarized in the draft EIS. No coordination with the regulatory and resource agencies is reported to have taken place. 1916*

RESPONSE: The Draft EIS devoted six paragraphs to public involvement describing the methods, landowner meetings, and agency contacts that were made. Summary statements are made in reference to meetings held (i.e. "We answered questions and concerns related to the project proposal"). Details of the meetings and documentation of consultation are included in the project file since much of this information does not belong in the NEPA document. This information is available upon request to those interested in the specific items covered at these meetings. The Final EIS includes additional agency contacts that have been made.

COMMENT: *An index should be included in the final EIS. 1916*

RESPONSE: Although it is required, an index was not included in the EIS because of the time it takes to compile one. Until now, no one has ever requested an index.

Environmental Analysis

COMMENT: *[Regarding helicopter logging] How many weeks, months, years is not mentioned. 1819*

RESPONSE: Most large timber sale contracts give the timber purchaser about 5 years to accomplish their work. It's up to the purchaser to decide if they are able or want to accomplish the contract quickly or stretch it out over the life of the contract. In deciding when to log, much of the decision depends on the current market conditions and availability of loggers. It is up to the purchaser to decide when logging will occur. So, although helicopter logging could theoretically last 5 years, it would not be a daily occurrence and would likely occur in concentrated periods coinciding with when trees are cut and when weather is favorable for flying. In all likelihood, a helicopter company would typically schedule a project of this size for 1 or 2 summer seasons.

COMMENT: *The DEIS....violates NEPA by not providing a comprehensive economic evaluation documenting all costs and benefits related to the proposed action....the Forest Service must analyze the market and non-market benefits of unlogged forests in the project area...In failing to disclose an accurate cost/benefit analysis based upon current market conditions, the DEIS provides extremely misleading economic information to the public... 6116*

COMMENT: *The DEIS fails to incorporate [the] present net value of each alternative. 6116*

RESPONSE: Economics was an issue that was considered in the Draft EIS but eliminated from detailed analysis as discussed in Chapter II. As result of the comments received, the Final EIS has added "Finances" to the list of analysis issues, which focuses on the costs of project activities. We have not analyzed non-market benefits. Title 40, Code of Federal Regulations for NEPA (40 CFR 1502.23) states "For the purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost benefit analysis and should not be when there are qualitative considerations." Qualitative benefits are discussed in individual resource sections.

COMMENT: *The information presented in the DEIS does not show that Alternatives 2 and 3 meet the requirements of the CWA, NEPA and the IPNF Forest Plan. 5200*

RESPONSE: Chapter III consists of the Affected Environment and Environmental Consequences of all alternatives for each resource analyzed. This analysis meets the requirements of NEPA. Each of these sections discusses whether the alternative and its effects are consistent with the Forest Plan. The Watershed section addresses whether the alternatives are compliant with the Clean Water Act in the section entitled "Consistency With The Forest Plan and Other Regulations".

COMMENT: *The Final EIS needs to analyze the findings of the aquatic conservation strategy studies and silvicultural research described in [the Northwest Forest Plan Research Synthesis] PNW-GTR-498 as they relate to the sediment and DF issues in the Little Blacktail project area. 5200*

RESPONSE: The Research Synthesis is a document that supports direction for the Northwest Forest Plan, a regional strategy for the Forest Service that is applicable to the National Forests of Oregon, Washington and parts of California that support spotted owl habitat. We have been using the research and science from the Interior Columbia Basin Scientific Assessment because it focuses on the ecology of this interior region.

We did look at the Research Synthesis and found the discussions on Douglas-fir did not provide any new insight in relation to what we are proposing with this project. It addressed issues of mean annual increment, research that is underway on silvicultural options, and the role of genetic selection in the use of different silvicultural techniques. The Douglas-fir issues we are dealing with in the Little Blacktail project are focused around the problems of root disease in homogeneous Douglas-fir stands that historically were dominated by other seral species. The discussions on aquatic conservation strategies are very similar to the research that supports the direction we already have in place through the Inland Native Fish Strategy.

COMMENT: *With cutting taking years, underburning taking 2 seasons, restoration taking up to 5 years, and now salvage for 6 years after project completion, we will have a very long term impact on our community which you dismiss as short-term and not significant. I disagree…. "Fire, smoke, helicopters, logging equipment are considered as short-term and not considered in the effects analysis." I highly disagree as all these will have a huge impact upon us. When you add all your various short term stages up, the cumulative effect will last many years... 1819*

RESPONSE: When considering short-term versus long-term impacts on the environment we looked at the amount of time it would take for an activity to be completed. It is true that some of the activities will occur over a period of many years, however no one activity will occur for an entire year. It is more likely that any one activity (or a group for that matter) would occur for some months out of a year. For example, the timber sale contract could be a five-year contract but the actual work on the ground would not take place every day of the five years to complete. It is likely that in one season roads would be built and the following year or two logging would take place in some of the harvest units. It is for this reason we considered those activities discussed in your comment as short-term.

COMMENT: *Sediment delivery to streams and lakes, aquatic habitat, fisheries and wildlife habitat, OHV access, open and closed road densities, road failures, and noxious weed spread are threats to the environment that are not adequately addressed in the DEIS. 6104*

RESPONSE: All of these issues mentioned were addressed in the Draft EIS and have been addressed and analyzed throughout the Final EIS in Chapters II and III. We feel confident that our analysis is adequate according to the requirements of the National Environmental Policy Act.

COMMENT: *Has the agency considered evidence that forest conditions are more reflective of climate change than fire suppression? The DEIS omits climatic change as a reason for current forest composition in the face of evidence we are undergoing rapid and unprecedented global climate change. 6116*

RESPONSE: There are many factors that contribute to the current condition of the forests and fire suppression is only one of them. To consider global climate change is difficult,

because it is not a variable that we can readily change and analysis works best for large landscapes. Joyce and Nungesser (2000, p.1) examined the potential impact of carbon dioxide and climate on forests. They found that most modeling analyses of the impact of climate change used a 50-km (31 miles) scale and was best used for national and regional scales. They concluded "moving the climate change analyses to a finer spatial scale, for example 10-km x 10-km grid size, did not necessarily improve the estimates of the impact of climate change on forest productivity."

COMMENT: We were unable to find a definition of "historical range of variability" in the DEIS. Charts in the DEIS routinely compare "historic" conditions to "current" conditions. What is "historic"? Is it a hundred years ago, or a thousand years ago? How did you get the data? Have you considered the NFMA definition of range of variability? For a project to claim that an area is outside of range of variability,…it would need to make the case that the area has not seen current conditions in a length of time encompassing the late Holocene Epoch—a period of centuries to millennia in length. The DEIS utterly fails to make the case that the current vegetative condition failed to exist at any time within the late Holocene Epoch. 6116

RESPONSE: A Glossary has been added to the FEIS and the following definition for Historical Range of Variability has been added:

> ***Historical Range of Variability (HRV)* –** The natural fluctuation of ecological and physical processes and functions that would have occurred during a specified period of time. In this EIS, HRV refers to the range of conditions that are likely to have occurred prior to settlement of the project area by Euroamericans (approximately the mid 1800s), which would have varied within certain limits over time. HRV is discussed in this document only as a reference point, to establish a baseline set of conditions for which sufficient scientific or historical information is available to enable comparison to current conditions.

Data were gathered primarily from the North Zone Geographic Assessment, which researched an extensive amount of historic documents and literature derived from past Forest Service information and local historical societies. The NFMA definition you reference at CFR 219.36 is a definition that has been added to the new planning regulations which will not be in effect until May 2002:

> "The expected range of variation in ecosystem composition, and structure that would be expected under natural disturbance regimes in the current climatic period. These regimes include the type, frequency, severity, and magnitude of disturbance in the absence of fire suppression and extensive commodity extraction."

The definition for current climatic period says it "typically encompasses the late Holocene Epoch <u>including the present, including likely climatic conditions within the planning period</u>. The climatic period is typically centuries to millennia in length…" **As stated in the definition in our glossary, this analysis focuses on the reference point that is approximately the mid-1800s. We believe this time period is adequate as it resides within the late Holocene Epoch, including the last two centuries.**

COMMENT: *The EIS needs to clarify which objectives of the purpose and need is relying on available post-sale funding and which objectives will certainly be met with the timber harvesting.*

The need, timing, priority, and likelihood of the project-related opportunities should be provided in the final EIS. 1916

RESPONSE: Timber harvesting will help meet the objectives (1) to restore desired forest cover, structure and pattern, (2) provide for wildlife habitat diversity and (3) restoring fire and reduce the risk of destructive wildfire around the microwave sites and the powerline corridor. Road work would be accomplished through the timber sale contract, thereby meeting the last objective of (4) maintaining or improving Cocolalla Creek's aquatic habitat by reducing existing and potential sediment risks. Project-related opportunities sometimes receive post-sale funding. These are described in Chapter II with the explanation "These projects are not considered mandatory to project implementation. The determination of which post sale projects are accomplished is dependent upon project priority and availability of funding."

COMMENT: *Please explain the K-V funding process. 1916*

RESPONSE: K-V funds (from the Knutson-Vandenberg Act) are a percentage of the monies generated by the sale of National Forest timber. These funds can be used to accomplish other work in a timber sale such as road obliteration or watershed restoration activities within the timber sale area.

COMMENT: *Please explain what monitoring will occur on this sale as required by the Forest Plan...Also, what monitoring for population trends, soil quality and water quality has occurred in this area? Has monitoring occurred for old growth dependent species? 6116*

The discussion on pages II-23 and 24 do not indicate whether there are written Evaluations of Monitoring data that may have been gathered as part of Monitoring of the 1989 Blacktail timber sale or the 1992 Blacktail Salvage timber sale. The final EIS needs to indicate if any written Evaluations of Monitoring data exist for either or both of the timber sales. 5200

RESPONSE: Both the Draft and Final EIS discuss in Chapter II under Monitoring the type of information that will be tracked for Forest Plan monitoring. The Forest Service manages habitat for species viability we do not monitor population trends. Soil quality and water quality have been monitored by sale administrators in the form of timber sale reports from past logging activity in the area. There is so little old growth in the area therefore no monitoring for old growth dependent species has occurred.

Both sales mentioned were monitored from sale activities through regeneration activities. Data from regeneration monitoring is included in the project files under Vegetation. The sale administrator, in the form of timber sale reports, did sale activity monitoring for both these sales. These reports can be found in the district historical files. Fuel reduction monitoring was done on the ground. Best Management Practices Monitoring was conducted during road construction and reconstruction as well as during the life of both sales.

COMMENT: *The DEIS does not account for cumulative impacts to the forest, wildlife, old growth, or the aquatic habitats within the Cocolalla Drainage. 6104*

RESPONSE: Cumulative effects have been analyzed for all the resources you mention. Each resource section in Chapter III has a cumulative effects discussion.

COMMENT: *We request environmental analysis detail all other projects (private, State and National Forest) in the watershed that would lead to cumulative effects as required by NEPA. The analysis should contain maps documenting past logging activities (1989-90 and 19925 [sic] p.III-6) and existing roads, including regeneration level, cover level and opening size. 6116*

RESPONSE: We have listed all the past, present, and reasonably foreseeable actions in Chapter I, Scope of Analysis. These include activities on non-federal lands. Maps showing past logging, existing roads, regeneration level (stand structure and cover), and opening size are located in Chapter III as they were for the Draft EIS.

COMMENT: *The analysis of cumulative effects in the draft EIS is confusing....It is suggested that cumulative effects be addressed in a single subsection and not be spread through the consequences section....The analysis of cumulative effects also appears to be weak. No spacial boundaries or time frames for the analysis are provided....The identification of past actions appears to be limited to timber harvest and road construction. We did not see a description of present actions. 1916*

RESPONSE: We have chosen to discuss cumulative effects separately under each resource section because of the different ways cumulative effects are analyzed for each resource. For example, not all past, present and reasonably foreseeable activities are applicable to every resource. Not all resources share the same cumulative effects analysis areas (CEAs), and contrary to your statement, spatial boundaries of these CEAs have been described.

We have made revisions to each resource section to better define the time frames for our effects analyses. These discussions can be found in the "Methodology" or "Analysis Process" sections.

The Final EIS has a more detailed list of Past Activities in Chapter I. In addition, a new header has been added to the Final EIS under Scope of our Analysis titled Past, Present and Ongoing Activities which describes those activities that have occurred in the past, are still occurring, and may continue for an undermined amount of time into the future.

COMMENT: *The Final EIS needs to indicate whether data used from the GA is included as part of the project files 5200*

RESPONSE: Those resources that used the GA have included the data from the GA in the project file. It is important to remember the GA is a "working document" and the data and information contained within this analysis is subject to change.

COMMENT: *Burned forests create idea-growing [sic] conditions for morel mushrooms, and provide generous revenue to mushroom pickers the spring following a fire. This activity has not been mentioned in the DEIS. Why not? 6116*

RESPONSE: The Sandpoint Ranger District to date has not experienced large numbers of people picking mushrooms for commercial purposes. For this reason and since this issue was not identified by the project team or by the public previously, it is not relevant to our analysis.

Fire

COMMENT*: The DEIS uses the BEHAVE model to estimate the rate of fire spread (DEIS p. 42). Which fuel model pertains to the Little Blacktail project? 6116*

RESPONSE: For the No Action alternative and wildfire predictions without treatment a fuel model 10 was used. To estimate the effectiveness of the treatments, after harvest and burning, a fuel model 8 was used.

COMMENT*: Will National Fire Plan monies be used to reintroduce fire into the ecosystem with prescribed fire? If so, what is the anticipated amount of money? And will this project meet the National Fire Plan objectives? 6116*

RESPONSE: As stated in Chapter I of the Little Blacktail FEIS, this project proposes fuels reduction activities and would meet some of the objectives outlined in the National Fire Plan (NFP). However, this project was not identified as a priority project to get special funding. Since this project does meet many of the criteria identified in the NFP, a portion of this money could be supplemented into the fuels program during implementation if funding becomes available. None of this money is being planned for use on this project at this time.

The money to burn the proposed harvest units will be generated from the harvest of the timber sale. Two collections can be made on the sale of the timber to accomplish this goal. They include Brush Disposal (BD) and Knutson-Vandenberg (KV) collections. The primary source of funding would be from the BD collections. This money is collected from the purchaser, in addition to the stumpage rates, for the purpose of reducing fire and fuel hazards related to logging slash. The total amount of money required to accomplish the fuels reduction on this project and the amount to be collected will be determined during the preparation of the timber sale contract. This money is paid as the harvesting is accomplished. In addition to this money, KV dollars can also be collected on sites that require site preparation for artificial regeneration.

COMMENT*: Throughout the DEIS, the Forest Service talks about stand replacing fires as if they were unnatural. This is despite the fact that the DEIS acknowledges that "stand-replacing" fires did naturally occur, before the era of fire suppression. In fact, moist forest types are dominated by stand-replacing fires. What evidence is there that refutes...that stand-replacement fire is normal for these moist forest types? Why is there so little discussion of the beneficial role of stand-replacing fire? 6116*

RESPONSE: As described in Chapter III, stand replacing fires have been a significant historical natural disturbance process throughout the assessment area. It was not the intention of the document to say that stand replacing fire is not normal. However, the purpose and need for this project, as related to fire, is 1) to restore fire as an ecological process and 2) to reduce the risk of destructive wildfire around the microwave sites at the top of Little Blacktail Mountain and the power line corridor that serves the electronic equipment. A natural stand-replacing wildfire would meet the first of these, but it would be difficult, if not impossible to protect the improvements on the top of the mountain in such a fire. Also, this project is located at fairly low elevations with private property located on several sides. The risks are too great within this project area to allow a wildfire to go unattended (an example of the effects of a stand replacement fire in this area can be found in

the project file under Historic Information). Also, according to the Forest Plan, all wildfires in this area will be suppressed. For these reasons, a detailed discussion of the benefits of allowing a wildfire to burn unabated was not deemed necessary in order for the decision maker to make a reasoned decision for this project.

COMMENT*: I do have some concerns mainly about the prescribed burn process and liability if these fires get away from you into our community forests and homes...With the majority of the acres (772) being prescribed burned, the community would definitely want some liability guarantees that if our private forests and homes are damaged, we would be adequately compensated..."Human life and property will be protected." Nicely stated but absolutely no mention of how this will be done. This is probably our PRIMARY concern... 1819*

COMMENT*:The DEIS does not analyze the possibility of prescribed fire burning out of control. 6116*

RESPONSE: Before a prescribed burn is conducted a burn plan is written and approved. This document identifies all of the variables to be encountered on a specific site and what parameters must be followed to allow for a safe and successful burn. These parameters include a range of weather conditions that must occur before the burn can be implemented. In the unlikely event of an escaped prescribed burn in the Little Blacktail project area, the government would be liable for any losses associated with the burn on private lands.

COMMENT: *Temporary risk of fire in cured logging slash and increased dead fine fuels would increase wildfire intensity - again our primary concern. 1819*

COMMENT*:Please discuss how unmerchantable material will be handled in the two action alternatives. Our concern is that commercial timber harvests which use more costly helicopters instead of roads tend to leave behind the unmerchantable material increasing the risk of wildfire. 1916*

COMMENT*: [T]he risk of crown fire may be reduced while the risk of surface fire can be increased by adding fuel to the ground. In the short term there would be an increase in surface fuel loading in order to decrease long-term fuel loading....How will this fair with local landowners, especially with the increase in urban and residential development in...Cocolalla Creek? 6116*

COMMENT*:Commercial logging operations remove large-diameter fuels that are naturally fire resistant and moist, and leave behind an increased amount of fire-prone small-diameter fuels. So how can the DEIS justify logging to reduce fuel risk? 6116*

RESPONSE: There is a time period when ground fire intensities can be increased with seasoned logging slash, as compared to a ground fire in the stands current conditions. This is a risk, but with the low to moderate predicted slash accumulations after harvest (current log utilization is very high) and the elimination of the smaller trees and other ladder fuels, this will be a fairly low risk. Some of the stands identified for treatment contain high levels of standing and downed dead trees and ladder fuels, which can easily carry a ground fire into the crowns of the larger trees. A fire of that magnitude would burn much hotter than a ground fire in the logging slash that will be generated by this project. The benefits far outweigh the risks, in the long-term, by creating stand conditions that will greatly reduce the

potential for a large stand-replacing crown fire and by making future suppression efforts more successful.

In the units scheduled for underburning the unmerchantable material will be eliminated through a combination of both slashing (either complete or partial) and burning. In the units planned to be grapple piled this material will be slashed, piled, and burned.

The focus with the prescribed treatments is to remove the smallest diameter understory trees and to leave the large diameter, fire-resistant species. While logging does remove the green bole of the tree, this is the only effective way to remove the limbs (ladder fuels) from the understory trees. As a follow-up to logging, a combination of slashing and burning will be done to eliminate the ladder fuels associated with the unmerchantable trees and brush.

Noxious Weeds

COMMENT: *The DEIS acknowledges that the current invasion of spotted knapweed (Centaurea biebersteinii), common tansy (Tanacetum vulgare), oxeye daisy (Leucanthemum vulgare) and goatweed (Hypericum perforatum)"occur in previously harvested units in the project area" and Forest Service roads 630 and 315 have heavy concentrations of noxious weeds (p. III-32). It is quite evident that any future road building and timber harvesting will increase noxious weed invasion, even into wet moist areas where several sensitive species exist.*

Monitoring the project for new weed invaders with the goal of eradicating any new invaders identified before they become established is highly unlikely since the DEIS admits that district funding and priorities is uncertain, and therefore will likely not be available for prevention and treatment. Prevention is the best medicine, which would mean limiting ground disturbing practices such as grazing, road building, and timber harvesting. Alternative A (no action alternative) is the only alternative that meets Forest Plan direction to decrease and limit noxious weed invasion. Even Alternative C, which would not build any roads, would fair [sic] better than the proposed Alternative. 6116

RESPONSE: There are no proposed ground-disturbing activities in wet or moist areas that support sensitive plant species. Weed prevention practices following riparian road obliteration (a project-related opportunity) and design criteria to reduce the risk of weed introduction and spread, and their predicted effectiveness, are described in Chapter II, "Features Designed to Prevent the Spread of Noxious Weeds."

While it is true that funding for noxious weed control and monitoring is uncertain, the level of appropriated funding for weed management in the IPNF has increased substantially since 1995. Detection and eradication of new weed invaders is the highest priority for appropriated funding, and such efforts would likely be concentrated in newly disturbed areas. This is consistent with objectives described by the Panhandle Weed Management Area, a consortium of local, county, state and federal agencies and private landowners created to share resources and information for noxious weed management. The DEIS did not state that funding "will likely not be available for prevention and treatment". In the section describing project-related opportunities in Chapter II, the DEIS stated and the FEIS continues to state that, other than pre-treatment of haul routes, treatment of existing infestations (e.g. knapweed, goatweed, common tansy and oxeye daisy) would occur only if appropriated funding were available.

Sensitive and Rare Plants

COMMENT: We are concerned about sensitive plants within the project area....Even though recommendations are listed to protect the "highly suitable habitat" that occurs in the riparian influence of Cocolalla Creek and in microsites in some proposed harvest units for moonwort, proposed activities will negatively affect this species. 6116

RESPONSE: The mitigation and protection measures described in Chapter II to protect documented sensitive plant populations and highly suitable habitat, and to protect potentially suitable habitat for water howellia, are not recommendations but are required features that must be implemented for the determination of effects to be valid.

COMMENT: *The determination that proposed activities "may impact undetected individuals of sensitive moonworts" (III-30) is a conservative one, and is based on the occasional occurrence of rare moonworts in such unlikely places as previously disturbed, immature forest habitat and roadsides that receive routine maintenance. No moonworts were identified in any areas proposed for harvest activities, and the project botanist has worked with project personnel to ensure proposed road locations avoid impacts to microsites of highly suitable habitat. The project botanist would work with layout personnel to identify and buffer microsites of highly suitable habitat from other harvest activities. Most of the project area was determined to have low potential to support rare plants (III-26 to -27 and TES report in project file).*

RESPONSE: Habitat suitability for Ute ladies'-tresses in the project area was determined to be low and water howellia was not found during surveys in the project area (see Chapter III TES Plants Affected Environment and TES plants report in the project file). . Buffering potential habitat as described in the "Features Designed to Protect TES and Rare Plants" section would avoid any effects to this species.

COMMENT: *The effects of project activities on TES plants and animals were not fully evaluated, and the proposal does not protect these rare and important species. 6104*

RESPONSE: The effects to TES plants, Forest species of concern and TES animals were fully evaluated in Chapter III (see the Environmental Consequences sections of TES Plants and Wildlife). Protection measures are described in Chapter II in the sections entitled Features Designed to Protect Wildlife Habitat and Features Designed to Protect TES and Rare Plants. Full reports are located in the project file.

Recreation

COMMENT: Trail #232: This trail is very important to many of us to be protected. I would also suggest that 100 feet of road 315F for a trailhead is not adequate. It should be longer and have adequate turnaround space for horse trailers. 1819

RESPONSE: Chapter II under Features Designed to Protect Trails discusses the design features related to Trail #232. The Final EIS deleted the 315F road location. In order to accommodate a trailhead and turnaround, an addition has been added to the design section that would use either an existing landing location or a portion of road 315D for a trailhead.

Roads

COMMENT: *If these roads {630 and 630A} are associated with the Forest Service timber sales listed on page III-6, the Final EIS needs to indicate which timber sale is associated with construction or reconstruction of roads 630 and 630A. 5200*

RESPONSE: Road 630 had 4.0 miles of brushing and 2.2 miles of blading/shaping with the Blacktail Timber Sale of 1989. Road 630A was constructed with this same timber sale. It is estimated that this road was built somewhere between 1988 and 1990. The Draft and Final EIS both contain a table located in Chapter II, which identifies those roads that will receive reconstruction (Draft EIS) now called "road work" (Final EIS) with this project.

COMMENT: *I favor public access, especially for recreational horseback riding, on existing roads and those that will have entrance blockages 1819*

RESPONSE: The proposed project does not change the current motorized and non-motorized public access on those roads that are part of the current Forest transportation plan. In other words, roads that have been managed as open will remain open. Roads that have been open but have not been part of the Forest Service road system will be decommissioned since we don't have the funding to maintain them. This only results in the loss of 0.4 mile of road segments. Please refer to Table 2 in Chapter II for a complete list of roads and their proposed management.

COMMENT: *We believe that road management is a serious issue which is not adequately addressed in this DEIS. 6104*

RESPONSE: Road access and management are discussed in Chapters II and III. The Final EIS changed the long-term road management for all newly constructed temporary roads. All newly constructed temporary roads will now be decommissioned rather than some being placed in storage. Another change made to road management in the Final EIS is that there will be 0.4 miles of unclassified road that will be decommissioned.

COMMENT: *Impact of log hauling on county roads will have a big effect on Little Blacktail road...The last .6 mile from Hahn driveway to the Little Blacktail Ranch Park sign already gets soft and rutted in wet weather with light vehicle traffic. There could be major impact with heavy truck traffic… I would recommend that the 25% receipts given to the county be earmarked for first priority to restoring our road...Want some assurances that Little Blacktail Road will be taken care of by the County...want some assurances that Little Blacktail Road will be taken care of by the County. 1819*

COMMENT: *With the increased burden of logging trucks and other heavy equipment the road {Little Blacktail} will be unbearable to those that reside in the area. It is the opinion of the residents in the area that logging should not commence until the Little Blacktail Road is fully paved… The major concern expressed by the homeowners currently living within our association is that of the toll that will be taken by Little Blacktail Road with the increased traffic caused by logging on this scale. 6266*

RESPONSE: The Final EIS has added a section under Features Common to Alternatives B and C titled Features Related to County Roads. This feature would ensure that the county

was notified when road work or log hauling commenced. It would be the county's responsibility to dust abate their maintenance portions of the roads within the project area.

Soils

COMMENT: (The last 5 paragraphs related to soils analysis on p. 8 of The Land's Council's comments appear to be taken from an appeal letter of a different project with the Little Blacktail project name inserted). *Appellants contend that the analysis of the Little Blacktail Ecosystem Restoration Project not only failed to look comprehensively at the existing condition of the proposed units, but completely ignored potassium levels, despite their apparent role in root disease…We also note that the roads, skid trails that lace the area appear not to be included in the analysis.* . 6116

RESPONSE: The Draft EIS eliminated soils from detailed analysis for the following reasons; all action alternatives would comply with Forest Plan and Regional Soil Quality Standards related to detrimentally disturbed soils, and the project would use all the recommendations of the Intermountain Forest Tree Nutrition Cooperative (IFTNC). This is described in Chapter II under Issues Eliminated from Detailed Analysis in the Draft EIS. In order to make this determination a soils analysis was performed. Some very preliminary research being done by the IFTNC is showing a possible link to potassium deficiency and the lack of tree resistance to root rot. Most of the root rot concentrations within this project area appear to be on the Revett and Burke geologic formations. The Prichard formation, which appears to have the strongest correlation of root rot to potassium deficiency, does not occur within the project area. The IFTNC made recommendations to retain the maximum possible amount of potassium on site after logging. All of the recommendations have been incorporated into the design of the project. In this respect potassium levels were thoroughly considered. In response to comments we received, Appendix F – Soils has been added to the Final EIS to further explain how soils and soil productivity were analyzed with this project.

Regarding "...roads, skid trails that lace the area appear not to be included in the analysis," the Draft EIS did take into account past logging, and roading within the proposed units. The project file contains more specific information pertaining to analysis.

COMMENT: *The analysis should disclose how many previous landslides occurred in the project area. Are the slopes steep in the project area? Are there any soils prone to mass wasting? 6116*

RESPONSE: There have not been any landslides within the Little Blacktail project area. There are steep slopes within the project area, however the majority of the proposed activities would not occur on these slopes. There are soils prone to mass wasting within the project area however no activity is planned within these areas. These soils typically correspond to steep slopes and incised draws.

COMMENT: *The DEIS completely fails to fully, or even partially analysis [sic] current soil conditions and cumulative effects of the activities proposed in each alternative....Only one single paragraph in the entire document is committed to the issue of soils and soil productivity. [T]his is found...on p. III-91. What are the...current soil conditions in the project area? What are the potassium levels? What is the compaction percent of the Blacktail Salvage Sale from years ago? Does that figure meet FSM guidelines? And will soil compaction from heavy machinery further*

compact existing conditions? What are the mitigation measures that are designed to meet these guidelines? 6116

RESPONSE: The Draft EIS discussed the impacts of project activities on soils and soil productivity in Chapter II under Issues Eliminated From Detailed Analysis and described practices that would be designed to insure soil quality standards would be met under Features Designed to Protect Soil and Site Productivity. It is stated in Chapter II that all action alternatives would comply with Forest Plan and Regional Soil Quality Standards (FSH 2509.18) related to detrimentally disturbed soils and the project would use all the recommendations of the Intermountain Forest Tree Nutrition Cooperative (IFTNC). Compliance with the Regional Soil Quality Standards requires that at least 85% of an activity area (harvest unit and landings) must be in a condition of acceptable productivity. Compliance with recommendations of IFTNC would insure the retention of the maximum possible amount of potassium on site after logging. Appendix F – Soils has been added to the Final EIS to further describe the analysis of soils.

COMMENT: *In the soils environmental consequences section on pp. III-91, the anticipated effects of the project on soils are discussed. However, no other current or future projects are discussed, making the DEIS soil analysis fall far short of that required by NEPA. Also, no private activities in the watershed are discussed... 6116*

RESPONSE: There are no direct or indirect effects from soils therefore any cumulative effects are not anticipated.

Vegetation

COMMENT: *There is no mention of additional Forest Service timber sales that may have taken place adjacent to the project area and within the 27,320 -acre cumulative effects analysis area. 5200*

RESPONSE: The cumulative effects analysis area for vegetation is the same as the project area (see Forest Vegetation – Environmental Consequences section). Discussion of past timber sales known to have occurred in the project area was in the DEIS and is also in the FEIS in the Forest Vegetation – Affected Environment section. In addition, figure 7 shows where past harvests have occurred.

COMMENT: *The Final EIS should indicate if any of the 229 acres that had regeneration logging in the project area from previous timber sales were replanted with DF...The Final EIS should also supply data from the TSMRS database that would indicate the number of acres, if any, of National Forest lands in the subwatershed that have been replanted with DF after 1965. 5200*

RESPONSE: The TSMRS database indicates that 23 acres were planted in 1969 with Douglas-fir and grand fir seedlings. In 1990, 4 acres were planted with a mixture of Douglas-fir and white pine. All other acres planted from 1990-1996 included a mixture of white pine and western larch. (see project file information under Vegetation-TSMRS List of Stands Planted)

COMMENT: *There are no stand numbers provided in Chapter III that indicate the stands that would become larger than 40 acres under Alt's 2 or 3. 5200*

RESPONSE: Clarification for this has been made in Chapter II. The Forest Vegetation section of the Project File also contains this information.

COMMENT: *The DEIS fails to incorporate; -how many tons/acre will be left on the ground after harvest. 6116*

RESPONSE: The DEIS and FEIS in Chapter II (Features Designed to Protect Soil) references managing coarse woody debris and organic matter based on the research guidelines contained in Graham et al., 1994. These guidelines suggest managing a variety of tons/acre based on habitat type. Prescriptions developed for project implementation will target the suggested tons/acre of large coarse woody debris to be left while meeting fuels reduction needs.

COMMENT: *There is no information supplied in Chapter III regarding the number of trees per acres that would remain in the logging units that would have regeneration logging with Alt's 2 or 3. 5200, 6116*

RESPONSE: Description of regeneration cutting is found in Chapter II (see Vegetation Treatment Definitions within the Alternatives Considered in Detail section). Within the regeneration cutting definition several silvicultural prescriptions are included which will leave varying numbers of trees. It states, "Generally, less than 30% of the trees would remain on these areas. The resulting view would be an open stand with scattered standing trees and patches of trees." **Canopy closure estimates, not tree numbers, were used in much of the analysis for the effects on other resources. The project file under Forest Vegetation contains this information.**

COMMENT: *There is no information supplied in Chapter III that indicates which stands would have regeneration logging. 5200, 6116*

RESPONSE: The information showing which stands would have regeneration harvesting is located in Chapter II, figure 3 and Appendix C. This information was also included in the DEIS.

COMMENT: *The DEIS fails to incorporate; -the dbh size limit of trees to be cut in each unit and in each harvest method.*

There is no information provided in Chapter III regarding the number of acres that have trees with a dbh>15" that would be logged by either Action Alternative. 5200

RESPONSE: The EIS does not incorporate the DBH size of trees to be cut because there is no analysis need for this information. The only place we specify a DBH size limit is in Features Designed to Protect Wildlife Habitat (Chapter II) which describes leaving felled trees >15" on the ground. The design of "leaving veteran and relic" trees means leaving the largest trees.

COMMENT: *The DEIS fails to incorporate;*

-the total amount of board feet harvested for each alternative
-the total amount of board feet harvested for each type of harvest. 6116

COMMENT:*There is no information provided in Chapter III regarding the volume per acre that would be removed from the 509 acres that are slated for regeneration logging. 5200*

COMMENT:*There is no information provided in Chapter III regarding the volume per acre that would be removed from the 722 acres that would be selectively logged. 5200*

RESPONSE: No analysis of board feet to be harvested is needed to meet the Purpose and Need for the Little Blacktail project. Board feet of timber harvested is only needed in the financial analysis. This financial analysis, located in the project files, estimates approximately 5.6 million board feet as the volume for the action alternatives.

COMMENT: *The Final EIS should include data that would indicate the number of acres of DF proposed for logging which are classified in the TSMRS database as dead, and the number of acres of DF that classified as green. If this information is unavailable or unknown, the Final EIS needs to state that this information is not available. 5200*

RESPONSE: All stands recommended for treatment contain both dead and green trees (field review by the silviculturist). The TSMRS database does not classify the whole stand as dead or green. At the time of a stand exam the data does indicate the live and dead components within the stand.

COMMENT: *Following the Black Tail Salvage Sale, the area was replanted with white pine and western larch. What is the success of survival of this planting? 6116*

RESPONSE: No planting was done following the 1992 Blacktail Salvage Sale because it was not a regeneration harvest. Western larch and white pine were planted in regeneration units following the 1989-1990 Blacktail timber sale. Survival is good and all regeneration units are stocked and doing well (for information see project file information under Vegetation-TSMRS List of Stands Planted).

COMMENT: *This sale proposes to use regeneration harvesting in "overstocked stands" (DEIS p. III-4). What do you mean by overstocked stands? and what is you [sic] methodology in quantifying an area as overstocked? 6116*

RESPONSE: This project is not using overstocked stands as a reason to propose regeneration harvesting. The paragraph you are referring to talks about converting species from "shade-tolerant, but drought- and fire-susceptible to species that require more sunlight and are more adapted to drought and fire." The next sentence reads "This would be accomplished through regeneration harvest, harvest of overstocked stands, and making use of natural tree mortality." The harvest of overstocked stands refers to proposed selective harvest. We have clarified this sentence in the FEIS.

COMMENT: *On page II-4 (Hagle 2000) is cited. In the Literature cited section of the DEIS (Hagle 2000) is not listed. The Final EIS should include the Hagle 2000 cite. 5200*

RESPONSE: The Literature Cited section has been expanded to show that the Hagle citation refers to a personal conversation between Sue Hagle, Regional Forest Pathologist, and Don Gunter, project Silviculturist. Information documenting their conversation is included in the project files.

COMMENT: *There is no information provided on pages III-1 thru 26 that indicates the proposed regeneration logging of 509 acres would not in fact be functionally equivalent to 509 acres of clearcuts. 5200*

RESPONSE: A clearcut is one type of regeneration silvicultural system. This type of system is not prescribed in the Little Blacktail proposed action or alternatives. Regeneration cutting, as defined in Chapter II, Proposed Action, consists of several types of silvicultural tools including irregular shelterwood with reserves, seed tree with reserves, and group selection. The definitions of these prescriptions are found in the Glossary. The methodology, the analysis process and the analysis of the effects of the regeneration cutting prescriptions along with the selective harvest prescriptions can be found throughout the document in the Environmental Consequences sections of the FEIS. Data used and methodology can be found in the project file. As an example, the spreadsheet of the estimated canopy closures by stand by alternative (one criteria for measuring effects) can be found in the project file under Vegetation along with the data base assumptions.

COMMENT: *If there are stands of Allocated Old Growth DF on the District, the final EIS needs to supply information from the TSMRS database regarding the amount of acres classified as Old Growth DF. 5200*

COMMENT*: Old growth was eliminated as an issue on the grounds that there was no old growth within the project area...if, as stated, there is no old growth left, then the FS is required to establish the largest, healthiest stands as potential future old growth and protect these stands for the future needs of old growth dependent species that are hanging on in the area. 6104*

COMMENT*: The DEIS does not discuss the old growth situation in terms of meeting Forest Plan standards for old growth....The DEIS does not disclose how much of the allocated old growth in the project area...meets accepted [North Idaho] criteria....The DEIS claims that logging "dry-site" old growth will improve it. Please cite the research-based scientific references that form the basis for this claim...Does the watershed meet the 5% old growth requirement as described in Appendix H of the Forest Plan? Will the project activities lead to replacement old growth? 6116*

RESPONSE: In the Forest Structure section of the Vegetation – Affected Environment section, our discussion points out that most of the stand structures in the project area are in the immature stage: "Currently, the Little Blacktail project area has a skewed distribution of stand structures, relative to the historic subbasin, with immature forest structure being the most common (table 8 and figure 8). The majority of this immature forest is nearing the mature forest structure, and there are no old growth stands." **We continue to explain in the next paragraph that since most of the species of this structure tend to be the generally shorter-lived Douglas-fir and lodgepole pine,** "much of the immature and mature forest structures will not reach old growth conditions…"

In the Conclusions section of the Vegetation – Affected Environment section, we state "A few stands have old trees that survived fires, but not in enough quantity for old growth. This does not meet the goal of five percent distribution by old growth management unit as stated in the Forest Plan."

In the Recommendations section of the Vegetation – Affected Environment section, we state "Stands that currently have potentially long-lived species such as western larch and ponderosa

pine should be thinned to retain these species. The potential exists to move these stands towards old growth structures."

In the Vegetation – Environmental Effects section, Effects Common to Alternatives B and C we state that "both alternatives would enhance the current characteristics of two dry site immature forest stands…which in time could become old growth ponderosa pine. This treatment would likely increase the acreage of future dry site old growth."

The FEIS does not propose logging in dry site old growth stands since there is no dry site old growth. However, research does support silvicultural treatments in dry site old growth stands where the structure has changed and the risk of stand replacement fire is great.

Research that supports logging in dry site old growth to improve it includes work by several scientists. In an article entitled Silvicultural Applications: Restoring Ecological Structure and Process in Ponderosa Pine Forests, Carl Fiedler (1996) of the University of Montana School of Forestry writes:

> *"Restoring ponderosa pine forests to more healthy and sustainable conditions will generally require some kind of silvicultural cutting."*

In a section entitled "Overstocked Old-Growth Stands" he writes:

> *"Work by Covington and others (1994) in the Southwest, and Arno and others (1995) in the Northwest indicates that pre-1900 stands commonly had basal area densities less than 100 square feet per acre, where as densities of many existing stands greatly exceed 100 square feet per acre."*

In addition, we have experience in accomplishing silvicultural treatments including logging to maintain dry site old growth characteristics. Projects such as the Gold Yeller project (Sandpoint District) and the Rock Bottom project (Bonners Ferry District), have accomplished successful treatments.

COMMENT: *It is indicated on page 12 of Chapter III that shorter-lived immature and mature DF will not reach old growth conditions. It is not clear if the statement on page 12 applies to just the project area, or if it applies to the entire Sandpoint Ranger District. The Final EIS should clarify if the statement applies to just the project area. 5200*

RESPONSE: The statement identified above refers to the North Zone Geographic Area which includes the Sandpoint Ranger District and the Little Blacktail project area. (see reference Zack 2000 and Rockwell 1917)

COMMENT: *How old is the Bonners Ferry old growth inventory? Who did the field surveys—was it volunteers or Forest Service personnel? Is the Bonners Ferry old growth inventory still accurate…?* (There were several more questions pertaining to Bonners Ferry old growth) *6116*

RESPONSE: The Bonners Ferry old growth inventory is not relevant to this project. We suggest you remove comments from your letters that do not pertain to the project you are commenting on.

COMMENT: *The analysis must consider and disclose the methods, and concomitant scientific uncertainty used in establishing a risk analysis of stands and Douglas-fir beetle hazard ratings.*

The analysis must disclose, and support by data, the method of projecting tree mortality. The analysis must consider that the assumption that stand overstocking is a primary risk factor for beetle outbreaks, root diseases, dwarf mistletoe, and white pine blister rust and is best addressed by logging is a conclusory statement insufficiently supported by data. The analysis must consider and disclose that the logging methods proposed may increase the risk of prolonging the beetle, root disease, dwarf mistletow [sic] and white pine blister rust outbreaks. 6116

RESPONSE: The methodology and analysis for determining expected tree mortality is found in the project file under the Vegetation section (see Mortality Under the No Action Alternative and Stand Data Spreadsheets). Methodology consisted of field observations and mortality rates established through long term permanent plot studies (Hagle 2000).

COMMENT: *Please provide information in the analysis documenting the extent of the alleged insect infestation and resultant heavy mortality, and if the current disease level is epidemic, endemic, or outside of the natural range of variation for the area. 6116*

RESPONSE: The extent of mortality caused by insect and disease is documented in the stand examinations and field notes of the silviculturist (see project file Vegetation section.) The cause for this mortality is explained in Chapter III Affected Environment and in the reference Zack 2000, especially pages 9 & 10 - Current Role of Insects and Pathogens. "With the absence of white pine, and with decreased amounts of ponderosa pine and larch, root pathogens have been transformed from thinning agents into major stand change agents in Douglas-fir and true fir stands…Bark beetles have also changed their role somewhat. Because there is more Douglas-fir relative to historical conditions, Douglas-fir bark beetles are now more important change agents than they were historically." **This is true of the Little Blacktail Project area, which is a portion of the North Zone Geographic Area Assessment.**

COMMENT: *Logging trees in insect-infested areas serves to stress the remaining trees, compact the soil, remove wildlife habitat, degrade water quality and slows the forest's recovery. The logging typically removes the largest trees and dead trees...Are any forest pathologist, entomologist, and ecologists part of the team that diagnosed this problem and made the recommendations and silvicultural prescriptions? Or were the employees all silviculturists? 6116*

RESPONSE: See the List of Preparers section following Chapter III for a list of the specialists that contributed to the planning and documentation of this project. There are no forest pathologists or entomologists on the Little Blacktail interdisciplinary team. However the silviculturist, whose responsibility it is to prescribe the vegetative treatments, has conferred with these specialists. The silviculturist along with many of the other specialists have considerable training in forest insects and disease, as well as other natural resource and ecosystem subject areas outside of their specialty. (Sometimes, our silviculturists like to think they are wildlife biologists, but in reality they are only elk hunters.)

COMMENT: *The discussion of alternatives 2 and 3 fail to disclose the direct and indirect effects of logging on "disturbances." Damage to trees during logging exacerbates root rots and other native tree pathogens as well as insect attacks. 6116*

RESPONSE: The effects of silvicultural treatments using proper logging techniques as a tool reduces the susceptibility of trees to natural damaging agents. The redistribution of light, water, nutrients and growing space improves the health of the remaining trees. Reducing

possible damage to residual stands is addressed in Chapter II, Features Common to Alternatives B and C – Features Related to Vegetation Restoration. The Estimated Effectiveness of these activities show that logging can be designed to accomplish the objectives.

Visuals

COMMENT: With only 30% of trees left and it appears reseeding naturally rather than planting saplings, the visual effect to our back yard, which is the SW corner, will last for many, many years. I would suggest that careful consideration be given to this area so that it reforests quickly and is not an eyesore--it is one of the high visibility portions of the mountain. The 5-year planting timeframe on II-10 and III-25 is far too long a timeframe from the final harvest. 1819

RESPONSE: We recognize that the view from your backyard will be different from what you see today. Immediately following site preparation, ponderosa pine, white pine and larch seedlings will be planted. These seedlings will be monitored over a period of five years. If seedling establishment does not occur during this timeframe replanting would occur.

Watershed and Fisheries

COMMENT: *What fish species are in the water bodies in the project area? Please provide the most recent sighting/monitoring data. Are these species listed under the ESA? What causes their habitat to become degraded and what is the limiting factor of their habitat? 6116*

RESPONSE: The Draft and Final EIS provide a description of fish species in the water bodies in the project area in Chapter III – Watershed and Fisheries under the section titled Fisheries Characterization. Species listed under ESA are discussed in the same section titled Threatened and Endangered Species, Bull Trout subheading. Habitat degradation and limiting factors are discussed in this same section.

COMMENT: *There is no mention on page 74 regarding recent bull trout surveys that may have been performed by Forest Service personnel in the watershed. The Final EIS needs to supply this information. 5200*

COMMENT*: It is also stated on page III-74 that no bull trout populations currently inhabit the Cocolalla Creek watershed. There is no mention on page 74 regarding recent bull trout surveys that may have been performed by Forest Service personnel in the watershed. 6116*

RESPONSE: The Draft and Final EIS identify in Chapter III – Watershed and Fisheries under the section titled Fisheries Characterization, a description of a 2 meter high dam that is a barrier to migration at all flows. Bull trout in the Lake Pend Oreille key watershed "appear to be entirely adfluvial" (PBTTAT 1998). With the dam in place, bull trout cannot access upper Cocolalla Creek. Fish identified in Cocolalla Creek watershed are listed in this same section, as cited (IDEQ 2000).

COMMENT: *The fisheries analysis on pages III-77 and 78 does not indicate if there is, or there has been a coarse bedload movement problem in Cocolalla Creek or other creeks or tributaries in the watershed. 6116*

RESPONSE: There is no information available on coarse bedload movement for the Upper Cocolalla Creek Subwatershed.

COMMENT: *There is also no mention on pages III-71 thru 82 of the State of Idaho's July 1, 1996 Bull Trout Conservation Plan...The Final EIS needs to indicate whether there has been a conservation and recovery plan for the Pend Oreille Lake Key Watershed that has been approved by a Watershed Advisory Grout and by the State of Idaho. If there is an approved conservation and recovery plan for the Key Watershed, the Final EIS needs to supply analysis regarding whether the proposed logging and road construction with Alt's 2 or 3 will meet all requirements of a conservation and recovery plan. 5200, 6116*

RESPONSE: We have expanded our discussion in Chapter III - Watershed and Fisheries under Threatened and Endangered Species in the Final EIS to include an explanation of the Governors Bull Trout Plan (State of Idaho 1996). See Appendix B – Fisheries Management Direction and Guidelines for more details.

COMMENT: *There are no figures or charts in the EIS that indicate the CFS for the peak flow month, or the flow duration period (days) at or above 75% of peak flow...The watershed analysis in the DEIS also does not contain a discussion of the estimated peak flow (cfsm) for the subwatershed...The Final EIS needs to supply accurate figures for: average annual water yield for the watershed in its natural condition; the CFS for the peak flow month; flow duration period at or above 75% of peak flow; the estimated peak flow (cfsm) for the watershed; and the ECA for the watershed. 5200*

RESPONSE: Cocolalla Creek does not have any current or historic stream gage data. Therefore, empirical equations are used to estimate different flow events. The equations require average annual precipitation and watershed area and only determine certain flow events (2 year event, 50 year event, 100 year event, etc.). These equations were used to determine flow stages that aided in sizing culverts and estimating bankfull conditions. To calculate accurate flow data for Cocolalla Creek, where the peak flow for a given month, or a certain percentage of the peak flow is needed, site-specific flow information is needed.

COMMENT: *The DEIS fails to disclose comparisons of water yield and [ECAs] by alternative, an important disclosure since elevated water yields above natural are strongly implicated in watershed and fish habitat degradation. 6116*

COMMENT*: There are no figures or charts in the watershed analysis section of the DEIS regarding the Equivalent Clearcut Acres (ECA) for the watershed. 5200*

COMMENT*: There are no figures or charts displayed in the DEIS regarding the average annual water yield for the watershed in its natural condition. 5200*

RESPONSE: Due to public comment, the FEIS will show water yield comparisons between the no action alternative and the action alternatives. The no-action alternative yields a 4.6% increase over background (background assumes no past harvest acres). For both action alternatives, percent water yield increased to 4.8%, or 0.2% above the existing condition. This is not a measurable change to Cocolalla Creek, which can fully adjust to this natural range of flow increases.

COMMENT: *The Final EIS needs to indicate if there are any streams or creeks adjacent to the project area that are classified as NPF or FAR. 5200*

RESPONSE: Streams described as either properly functioning (PFC), functioning at risk (FAR) or not properly functioning (NPF) is one of several methods used to classify the current condition of stream channels. The DEIS and FEIS applied the Rosgen classification system as described in Chapter III Watershed/Fisheries subsection Stream Channel Characterization. This characterization was used to describe the current condition of streams or creeks adjacent to the project area, since it is a more quantitative method in determining stream channel characteristics.

COMMENT: *What streams in the area are WQLS? Please include in the NEPA document a description of the current state of the streams in the project area including a discussion of if the streams and fisheries are meeting all Forest Plan standards...What is the restoration plan for these streams? How will the timber sale help achieve the restoration? 6116*

RESPONSE: The Draft and Final EIS provide a detailed description of streams within the project area that are classified as 303(d) listed streams and their current rating in Chapter III Watershed/Fisheries. A TMDL implementation plan will be developed outside of this EIS. Aquatic restoration activities within the project area are described in the Draft and Final EIS in Chapter II under Project-Related Opportunities.

COMMENT: *How much sediment is estimated to enter the water bodies from the sale and what is the estimated increase in water yield? How was this calculated? 6116*

COMMENT*: The second concern is that of damage to the watershed...This homeowners association needs assurance that logging on the slopes of Little Blacktail Mountain will not contaminate our only source of water. 6266*

RESPONSE: The Draft and Final EIS list design features that were specifically developed to address any risk of sediment delivery from harvest activities. Chapter III Watershed/Fisheries of the Draft and Final EIS disclose the amount of sediment that could result from road building. These figures were developed using the WEPP model. Proposed harvest units are not located within INFS buffers or on landtypes that are prone to surface and mass erosion so there is very low potential for sediment delivery resulting from logging. The Final EIS includes a discussion of water yield and why it was not used as a way to measure effects.

The vegetation restoration part of the project (logging and associated access routes) would adhere to stringent Forest Service management requirements, Forest Service's soil and Water Conservation Practices, and the State's Best Management Practices (BMPs) designed to prevent the creation of substantial sediment sources (Appendix A).

COMMENT: *On page III-76 it is stated that the watershed is more heavily timbered presently compared to the turn of the century. It is not clear as to whether this statement about the watershed is describing the 27,320 acre Upper Cocolalla Creek subwatershed described on page III-72...The Final EIS needs to clarify the statement on page III-76 regarding the specific watershed that is more heavily timbered at this time. There are references to the Cocolalla Creek watershed, pages III-73, 74, and 77. The size of this watershed is not listed on any of the 3 pages. 5200*

RESPONSE: All references in the DEIS to the Cocolalla Creek watershed should have referred to the Upper Cocolalla Creek Subwatershed. The Final EIS has made this distinction. The analysis area for the watershed and fisheries sections is the Upper Cocolalla Creek Subwatershed.

COMMENT: *The Final EIS needs to supply expert agency comments and accurate scientific analysis regarding the finding of no negative cumulative impacts and effects, page III-81 from the proposed logging and road building in spite of the significant sediment problem that currently exists due to past logging and road building in the project area. 5200, 6116*

RESPONSE: The existing sediment problem in the watershed is due to existing roads. There is no evidence that past logging produced the existing sediment problem. The Final EIS includes a subsection titled Features Related to Temporary Roads in Chapter II that describes the design features incorporated into all new road construction. These design features are put in place to avoid the problems of the past. Their effectiveness is based on research and monitoring. Due to comments received and further fieldwork we have changed the way we are managing temporary roads from the Draft to the Final. To further avoid long-term risk of sediment from new roads constructed, all temporary roads would be decommissioned after use.

COMMENT: *The DEIS did not supply data regarding the tons per year that were estimated to be produced from Forest roads within the watershed. The Final EIS should include analysis that would indicate whether the figure of 350 tons per year from Forest roads in the watershed was considered when considering cumulative effects analysis on pages III-79 and 80 of the DEIS...the Final EIS should include analysis of the estimated sediment reduction in tons that will be required from the project area. 5200*

RESPONSE: The Draft and Final EIS reference table 16 in Chapter III Watershed and Fisheries under Direct and Indirect Effects that show the amount of sediment from existing roads and the amount of sediment reduction through road improvements.

COMMENT: *While activities in this project should clearly improve water quality, there is no crosswalk between water restoration activities and Idaho's TMDL for Cocolalla Creek. To help create this crosswalk, the EIS should discuss the FS and BLM Protocol for Addressing Clean Water Act Section 303(d) Listed Waters...The EIS should explain the purpose and intent of the 303(d) protocal, what it calls for land managers to do, and how the 303(d) protocol will be applied....The reader does not know if the TMDL contains implementation measures and thus, if a WQRP is needed or not....A WQRP contains six common elements, which should be explained in the EIS. 1916*

RESPONSE: A TMDL Implementation Plan has not yet been developed by the State of Idaho for the Cocolalla Creek Watershed. The Forest Service is committed to participate in the development and implementation of this plan. Until it is developed, the Forest Service is developing restoration strategies for consideration in the implementation plan; several of those restoration elements are incorporated in this project. Moreover, Forest Service policy is to not contribute to the pollutant that caused a segment to be listed.

COMMENT: *There are significant water quality and fisheries issues relating to the proposed logging and road building in the analysis area. 5200*

RESPONSE: Our analysis does not show significant water quality and fisheries issues related to proposed logging and road building (see Chapter III, Watershed and Fisheries). We have specifically designed our proposal with mitigation to avoid creating such issues.

COMMENT: *The Final EIS must cite each section of the CWA and each part of 40 CFR relating to the CWA and water quality, and the protection and propagation of fish, shellfish, and wildlife that allows for the continued degradation of a water body such as Cocolalla Creek. 5200*

COMMENT*: If all Alternatives are consistent with the requirements of the CWA, the DEIS on page III-81 should have cited from the CWA the specific section with specific language that allows for sediment delivery to have negative effects on fisheries and fisheries habitat. 5200*

RESPONSE: The Draft and Final EIS state all relevant information required under the Clean Water Act in Chapter III Watershed/Fisheries under Consistency with the Forest Plan and Other Regulations and references that it is consistent with the act.

COMMENT: *On page III-78 there is a discussion of changes in water yield...This discussion does not indicate whether the WATSED model was used during the analysis of water yields and the effects from the logging that would occur under either action alternative...Our letter of Nov 27, 1998 raised a number of issues relating to the accuracy of the WATSED model, including sediment modeling and routing. These issues were not discussed or addressed in the DEIS...If the WATSED model was used as part of the watershed analysis, the Final EIS must indicate the date of the most recent calibration and verification of the model, and also indicate which watershed(s) within or adjacent to the project area was used for the calibration and verification...The watershed analysis in the DEIS does not contain any discussion of the WATSED model, or the degree of scientific accuracy of the sediment routing portion of the model...If either the WATBAL or WATSED model were used as part of the watershed analysis for previous timber sales within and adjacent to the project area, there should have been accurate scientific analysis and expert agency comments in the DEIS as to why there are significant sediment problems in the project area in spite of the use of either model...If the WATSED model was used as part of the sediment routing analysis in the DEIS, the Final EIS must include analysis and data that would show the model contains a high level of scientific accuracy regarding sediment routing...If WATSED wasn't used to model sediment production or routing, the Final EIS must indicate what model was used to accurately predict the quantity of sediment that has been produced and will be produced from the hillslopes where there currently are regeneration units and where new regeneration units would be placed...The Final EIS needs to indicate if the WATSED model was used to obtain the water yield and cfs flow information. 5200*

RESPONSE: The WATSED model was not used for this analysis based on the small size and scale of this project. The WEPP model was used to determine road-induced sediment and the Equivalent Clearcut Acreage formula was used to determine water yield increases. The DEIS references rationale contained in the project file on why water yield was not an issue indicator. The Final EIS now provides that rationale.

COMMENT: *The Final EIS needs to indicate if the WEPP model has been calibrated for the climate, soil, and topography of the project area and the watershed, and the date of the most recent calibration of the WEPP model. 5200*

RESPONSE: The WEPP model contains built-in local climatological and soils data. The data used for this model was generated from Priest River Experimental Forest long-term meteorological station and the soils information was based on the Idaho Panhandle Land Systems Inventory.

COMMENT: *Please include the numbers that WATBAL calculates for each alternative in the NEPA document. 6116*

RESPONSE: WATBAL is a model developed for a different forest and does not apply to the Idaho Panhandle National Forest.

COMMENT: *The Final EIS should indicate whether r-o-s events have occurred within or adjacent to the project area in the last 15 years and the results to the watershed from the events. If information regarding past r-o-s events is unavailable or incomplete, the Final EIS should indicate the lack of information regarding previous r-o-s events... 5200, 6116*

COMMENT*: The Final EIS needs to supply information regarding the results of surveys that have been completed in Cocolalla Creek regarding the presence or absence of coarse bedload movement...The Final EIS should also indicate if there have been r-o-s events in the watershed or in the project area that have resulted in significant movements of coarse bedload in one or more stream channels. 5200, 6116*

RESPONSE: Rain-on-snow events are a natural process under which stream channels are developed. Portions of the Upper Cocolalla Creek subwatershed are particularly susceptible to rain-on-snow events. In northern Idaho, the snowpack within the 3,000 to 4,500-foot elevation range is most susceptible to these events. Information is unavailable on when rain-on-snow events have occurred within the Upper Cocolalla Creek subwatershed, or if there were changes in bedload movement resulting from the event.

COMMENT: *The last five paragraphs of p. 5 in the Lands Council's letter are comments about specific sentences related to sediment that are located in the Little Blacktail DEIS, pages 4-14, 4-21, 4-22, 4-28 and table 4.4. 6116*

RESPONSE: None of these sentences, page numbers or table 4.4 exists in the Little Blacktail DEIS. We suggest you remove paragraphs in your letters that are not relevant to the project you are commenting on.

Wildlife

COMMENT*: The DEIS neglects to provide the kind of detailed analysis NEPA requires for neotropical migrant birds. 6116*

RESPONSE: The discussion regarding Forest landbirds (Wildlife – Affected Environment section), which includes neotropical migrant birds, follows a strategy endorsed by the Idaho Bird Conservation Plan (Idaho Partners in Flight 2000). Idaho Partners in Flight is a coalition of government agencies, conservation groups, academic institutions and private citizens dedicated to conserving bird communities. Their focus is on restoring healthy ecosystems that will maintain productive and complete bird communities…a shared goal of the Little Blacktail project.

COMMENT: *We are concerned about indicator, sensitive, threatened and endangered species within the project area. Which species are present or have potential habitat in the watershed? Please clearly explain how they will be protected. 6116*

RESPONSE: Table 14 in the Wildlife – Affected Environment section of Chapter III displays which Management Indicator Species are analyzed for this project and why. Discussions about species presence and potential habitat are also located in this section. Protection measures are discussed in Chapter II in the section entitled "Features Designed to Protect Wildlife Habitat."

COMMENT: *We request the analysis disclose snag density before and (predicted) after the sale, and the subsequent effect this will have on snag-dependent species. Have snag habitat and snag-dependent species been monitored in this area? Are there any white-headed woopeckers* [sic] *in the project area? 6116*

COMMENT*:The DEIS does not disclose the amount of snag, cavity nesting, and large down wood habitat components in the project area. The proposed logging would exacerbate any deficiencies and lead to longer delays in the development of such habitat components. This would adversely affect populations of...species which depend upon these habitat components. 6116*

RESPONSE: The analysis of snags is commensurate with the importance of the impact and the risk associated with the project (CEQ 1502.15). The document describes the condition of snag habitat associated with the project and analyzes the effects of alternatives on snag populations (see Chapter III, Wildlife section). It directs mitigation to provide number of snags and distribution that supports viable populations of cavity nesters (Bull et al. 1997, UCRB Draft EIS 1997, and R1 Snag Management Protocol 2000) and meets Forest Plan standards. The document also predicts that more than the minimum number of snags prescribed would be left because higher hazard snags and snags in the advanced stages of decay would not be used to meet retention objectives (see Features Designed to Protect Wildlife Habitat, Chapter II). Consequently, it is unnecessary and probably impractical to determine site-specific snag densities across the project area.

There are no known observations of white-headed woodpeckers in the project area.

COMMENT: *At A-1 the DEIS suggests that extended rotations of 150-250 years would ensure maintenance of snags, but since the Forest Plan doesn't use those extended rotations, what are you talking about anyway? 6116*

RESPONSE: A-1 is an appendix listing of Best Management Practices. There is no such wording or discussion about extended rotations in this document. We ask that you remove comments from your letters that do not pertain to the project you are commenting on.

COMMENT: *The removal of dead and dying trees by this restoration sale would potentially have negative effects on the many species dependent on snags and down woody debris for food, nesting and protection....Those that would be left standing from the regeneration harvest as snags would be more vulnerable to wind, causing them to fall sooner than snags surrounded by live trees. The DEIS reports that snag habitat is in decline for species associated with large snag[s] as a result of vegetation succession (timber harvesting most likely) and natural fire (or suppression of fire) events. Is it due to harvesting large dbh sized trees that are on the verge of becoming prime*

snags? Would these trees be infected by disease or insects and are removed before their extractive "timber value" is lost? 6116

RESPONSE: As stated in the Vegetation and Wildlife sections of Chapter III, the fires that swept through the Little Blacktail area in the early 1900s were lethal and stand-replacing. They burned with such high severity that most of the dominant tree canopy was killed, thereby, converting the sites to the early stages of succession. Because most snags do not persist long after a lethal fire, large snags are generally absent from today's landscape.

Trees that have succumbed and are vulnerable to root disease would not be the focus for snag retention because of their short lifespan as snags. Future salvage opportunities may take some trees left as snag replacements, but only if we continue to meet snag management objectives (see Future Salvage Opportunities criteria listed in Chapter II). The most vulnerable live tree replacements that die because of insect and disease would be those next to open roads (i.e. firewood cutting).

Federal Agency Letters

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 1200 Sixth Avenue
Seaftle, Washington 981 01

Reply To

Attn Of: ECO-088

[Date Stamped, SEP 18 2001]

Ranotta McNair, Forest Supervisor
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, ID 83 815

Dear Ms. McNair:

We have reviewed the draft environmental impact statement (EIS) for the **Little Blacktail Ecosystem Restoration Project** in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA). Section 309, independent of NEPA, specifically directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions and the document's adequacy in meeting NEPA requirements. For further explanation of our EIS review responsibility, please refer to *EPA's Section 309 Review: The Clean Air Act and NEPA* that was attached to our December 10, 1999 scoping letter.

We believe this EIS is generally well written and adequately discloses the environmental impacts. However, we have found some inadequacies that should be addressed in the final EIS. Therefore, we have rated the draft EIS, EC-2, Environmental Concerns - insufficient information. Briefly, the final EIS needs to provide rationale as to why Alternative B is the preferred alterative since Alternative C appears to meet the purpose and need equally well and with less environmental impacts. The EIS did not provide sufficient rationale as to why some alternatives were eliminated from detailed study. It appears some of objectives in the purpose and need are relying on KV funding which is an uncertain source of funding. The EIS should explain the likelihood of these objectives being met. Finally, the EIS needs to explain how these activities tie in with the TNML (Total Maximum Daily Load) for Cocolalla Creek. Detailed comments are attached.

Enclosed is an explanation of the EPA rating system. Our rating and a summary of our comments will be published in the Federal Register.

99-033-AFS
CEO # 010099

We thank you for the opportunity to review and offer comments on this project. If you have questions, please contact me at (206) 553-6911 or Andy Smith at (206) 553-1750.

Sincerely,

Judith Leckrone Lee, Manager
Geographic Implementation Unit

99-033-AFS
CEQ # 0 10099

US Environmental Protection Agency (EPA) Detailed Comments on The Draft EIS for the Little Blacktail Ecosystem Restoration Project

Impacts from the Preferred Alternative

While the lead agency need not identify a preferred alternative in the draft EIS if one has not been determined, the draft EIS is unclear as to whether there is a preferred alternative. The abstract identifies Alternative B as the preferred alternative but no where else in the draft EIS is Alternative B identified as the preferred alternative. If Alternative B is indeed the preferred alternative, then it should have been clearly stated in the body of the EIS and not just in the abstract. The final EIS should clearly identify the preferred (40 CFR 1502.14(e); Forty Questions No. 4(b)), while the ROD should identify the environmentally preferable alternative (40 CFR 1505.2 (b); Forty Questions No. 6(a)). Supporting rationale should be provided for selecting the preferred and environmentally preferable alternatives.

Assuming that Alternative B is the preferred alternative, the draft EIS did not provide the rationale for selecting it as the preferred alternative. This rationale is important since Alternative C appears to have less environmental impact than Alternative B while still meeting the purpose and need. The most significant environmental differences and similarities between Alternatives B and C are the following:

- New road construction and drainage improvements would reduce the rate of sediment delivery to waterways by a greater amount under Alternative C than under Alternative B tons/year to 3.1 tons/year under Alternative C versus 3.7 tons/year under Alternative B.)

- Alternative C would provide for slightly less risk of noxious weed spread than Alternative B, because no new roads would be constructed.

- The environmental impact is likely to be greater under Alternative B than Alternative C because Alternative B would use skyline systems on more acres (523 acres) and helicopters on less acres (216 acres) to remove timber as compared to Alternative C (146 acres and 753 acres, respectively). Subsequently, there should be less impact from Alternative C.

- The Draft EIS indicates on page III- 1 8 that, "the difference in logging systems between the two alternatives would have no effect on forest structure and composition."

- The Draft EIS states on page 111-45 that "both alternatives B and C would be very effective at reducing ladder fuels, flame lengths, and fire intensities, which would effectively reduce the potential for crown fires within the treated areas."

Based on these differences and similarities and without any rationale, it is difficult to understand why Alternative B is the **preferred** alternative.

Alternatives Considered But Eliminated-Chapter II, Pgs II-27 to II-28

The draft EIS states that the alternatives to "Rehabilitate the Ecosystem Without a Commercial Logging Operation" and "No Harvest Restoration Only" described on page 11-28 were dismissed from further consideration because they were "found to not meet the intent of the purpose and need." Without further elaboration, these alternatives appear to satisfy some of the project objectives. While the EIS does not clearly state this was the reason, it is not appropriate to disregard alternatives merely because they do not offer a complete solution to the problem *(NRDC v. Morton,* 458 F.2d 827 (D.C. Cir. 1972)). From our understanding about the current conditions on the landscapes and project objectives, we believe that these two alternatives do meet the purpose and need, albeit perhaps not as completely or quickly as the two action alternatives.

The EIS does not explain how no logging or non-commercial logging precludes the Forest Service from addressing the sediment risks on Cocolalla Creek, one of the objectives in the purpose and need statement. New road construction and drainage improvements can be done independent of logging. If these improvements rely on funding generated by commercial logging, then that should be made clear in the EIS. However, we believe that is not reason enough not to evaluate a non-commercial or no harvest alternative as this is an administrative barrier and not a technical barrier. The Forest Service should still consider carrying these alternatives forward as this would offer an interesting comparison of passive versus active approaches to ecosystem restoration and their resulting impacts to the environment. In the end, fiscal realities may force the Forest Service to select an active approach in the ROD but at least it will be clearly understood why.

The EIS describes current conditions where high tree density can lead either directly to stand-replacing fires or to increased tree mortality from insect and disease, higher fuel loading, and then a stand-replacing fire. Since, the first alternative does not preclude logging as a tool, the EIS needs to explain why noncommercial thinning could not be done or would not be better for the environment before rejecting this alternative.

However, clearly the No Harvest, if not also the non-commercial alternative, would leave the forest susceptible to stand-replacing fires. The question then is would such a fire be within historical range of variability (HRV) leaving a desirable mosaic pattern or would it be outside HRV setting too much of the landscape back to early seral conditions. If such a fire would be within HRV, the EIS should explain how a stand-replacing fire compares to a clearcut in achieving environmental objectives. If outside HRV, can environmental objectives be met by only thinning forests leaving dense mosaic patches? So rather than creating early seral conditions through preemptive clearcuts, instead allow these patches to remain with the possibility of them being lost due to natural or prescribed fire at a later time.

These two alternatives may address health and productivity of terrestrial and aquatic habitats in a more passive fashion and over a longer period of time than the active restoration alternatives B and C. We recognize a significant difference between these alternatives and alternatives B and C is the economic loss of wood fiber. While this is significant, the purpose and need of this project is to address ecosystem needs and not the need for wood fiber. The EIS is silent on this important aspect which can be considered when selecting the alternative in the Record of Decision but should not be used to preclude alternative to meet the purpose and need.

Note that the objective in the purpose and need statement to reduce the risk of destructive wildfire around the microwave sites and the powerline corridor appears to be an opportunity project. That is, this objective to protect private property presents itself as a good opportunity while in the area addressing the other purpose and need objectives, mainly to improve the health and productivity of terrestrial and aquatic habitats. This is a separate need which appears independent to the ecosystem improvement needs of this project. The noncommercial or no logging alternatives should not preclude consideration of logging around the structures in order to protect them.

Project-related Opportunities-Chapter II, Pgs. II-25 to II-2 7

The discussion of project-related opportunities and post-sale projects is a little confusing because it is noncommittal; projects would or may only be implemented if funding exists from the timber sale. This appears to be K-V funding source. Please explain K-V funding process. The EIS needs to clarify which objectives of the purpose and need is relying on available postsale funding and which objectives will certainly be met with the timber harvesting. The need, timing, priority, and likelihood of the project-related opportunities should be provided in the final EIS.

Water Quality

The draft EIS properly discloses that Cocolalla Creek is listed as impaired under Section 303(d) of the Clean Water Act, discusses the causes for the impairment, and that a TMDL is in place. The draft EIS states that there will be no direct or indirect effects on water quality because of the distance of harvest units to stream channels. In addition, improvements to roads and culverts under Alternatives B and C should reduce sediment delivery to streams.

However, the EIS can be improved by discussing the TMDL and how these activities fit in with the TNML. While activities in this project should clearly improve water quality, there is no crosswalk between water restoration activities and Idaho's TNML for Cocolalla Creek. To help create this crosswalk, the EIS should discuss the *Forest Service and Bureau of Land Management Protocol for Addressing Clean Water Act Section 303(d) Listed Waters.* This important policy provides a consistent approach for addressing Clean Water Act responsibilities on Forest Service (and BLM) administered lands. Application of the protocol provides assurance that federal management activities in watersheds with 303(d)-listed water bodies will proactively and collaboratively contribute to the restoration of water quality and support Idaho's development and implementation of TMDLS. The EIS should explain the purpose and intent of the *303(d) Protocol,* what it calls for land managers to do, and how the *303(d) Protocol* will be applied.

One purpose of the *303(d) Protocol* is to support the state of Idaho's development of TMDLs through early development of Water Quality Restoration Plans (WQRPs). While Idaho is already ahead in that a TMDL has been developed for Cocolalla Creek, a WQRP may still be in order. This is because the TMDL may have only allocated to each of the sources the pollutant loadings that need to be reduced to meet water quality standards but may not have specified how. The reader does not know if the TMDL contains implementation measures and thus, if a WQRP is needed or not.

A WQRP includes six common elements, which should be explained in the EIS:

1. Condition assessment and problem description
2. Goals and objectives
3. Management actions to achieve objectives
4. Implementation schedule
5. Monitoring/evaluation plan
6. Public participation plan

OtherIGeneral Comments

A more detailed organization (with consistent section headings and a numbering or outline convention) would also assist the reader in finding information of interest quickly and help the entire document flow a little better; in its present form without a numbering or outline convention, subsections don't always flow well from one another often requiring the reader to stop and wonder why the next section is contained in the document or reread the previous section, or both.

A section should be added describing the public involvement and agency coordination activities that have taken place during the planning of the proposed action and their results. Presently the draft EIS simply states that public involvement took place and that the result of these activities exists in project files. These results should be summarized in the draft EIS. No. coordination with the regulatory and resource agencies is reported to have taken place.

An index should be included in the final EIS.

The use of some terminology is confusing. Throughout the draft EIS the 'proposed action' is referring to the project description and the preferred alternative. The phrase 'objective' is used to refer to the purpose and needs for the proposed project.

The analysis of cumulative effects in the draft EIS is confusing. Cumulative effects are mentioned and somewhat addressed in Chapter I and throughout Chapter III. It is suggested that cumulative effects be addressed in a single subsection and not be spread throughout the consequences section. To spread out the analysis of cumulative effects diminish the analysis and discussion, potentially leading to inappropriate conclusions. The analysis of cumulative effects also appears to be weak. No spatial boundaries or time frames for the analysis are provided. The identification of past actions appears to be limited to timber harvest and road construction. We did not see a description of present actions.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
500 NE Multnomah Street, Suite 356
Portland, Oregon 97232-2036

IN REPLY REFER TO:

September 21, 2001

ER 01/702

Ms. Ranotta McNair, Forest Supervisor
Idaho Panhandle National Forests
3815 Schreiber Way
Coeur d'Alene, Idaho 83815

Dear Ms. McNair:

The Department of the Interior reviewed the Draft Environmental Impact Statement (DEIS) for the Little Blacktail Ecosystem Restoration Project, Idaho Panhandle National Forests, Bonner County, Idaho. The Department does not have any comments to offer.

We appreciated the opportunity to comment.

Sincerely,

Preston A. Sleeger
Regional Environmental Officer

List of Agencies, Organizations and Persons Who Are Sent This FEIS

Name/Organization list for LITTLE BLACKTAIL

Organization	Last Name	First Name
ALLIANCE FOR THE WILD ROCKIES	WOOD	MIKE
AMERICAN WILDLANDS	DAVITT	KIM
	KMON	DEBORAH
BONNER COUNTY ROAD AND BRIDGE DEPT		
CROWN PACIFIC	BRADETICH	DOUG
DEFENDERS OF WILDLIFE	CARLTON	KATHERINE
ENVIRONMENTAL PROTECTION AGENCY		EIS REVIEW COORDINATOR
EVERGREEN HELICOPTERS	BACHMAN	BILL
FOREST CONSERVATION COUNCIL		
FRIENDS OF THE CLEARWATER	MACFARLANE	GARY
FRIENDS OF THE POND	PAULSON	STEVE
IDAHO CONSERVATION LEAGUE	PONOZZO	KRISTI
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY	RILEY	DIANE
IDAHO DEPT FISH AND GAME	TOURTLOTTE	GREG
IDAHO SPORTING CONGRESS	MITCHELL	RON
KOOTENAI ENVIRONMENTAL ALLIANCE	MIHELICH	MIKE
LITTLE BLACKTAIL HOMEOWNERS ASSOC.	GRANT	WARREN
MONO. ACQUIS. SERVICES	COLORADO STATE UNIVERSITY LIBRARIES	
NATIONAL FOREST PROTECTION ALLIANCE	TALBERTH	JOHN
NORTHERN LIGHTS	WOLEVER	MIKE
NORTHWEST MACHINE	WEATHERLY	DICK
OFFICE OF CIVIL RIGHTS	POLICY AND PLANNING DIVISION	USDA
OFFICE OF ENVIRONMENTAL AFFAIRS	DEPARTMENT OF INTERIOR	
STIMSON LUMBER CO.	WELLING	MIKE
THE ECOLOGY CENTER	JUEL	JEFF
THE LANDS COUNCIL	ATTEMANN	REIN
TROUT UNLIMITED	DUNNAGAN	BOB
UPPER COLUMBIA RIVER OF SIERRA CLUB	OSBORNE	JOHN
US DEPT OF INTERIOR	SLEEGER	PRESTON
US EPA OFFICE OF FEDERAL ACTIVITIES		EIS FILING SECTION
USDA FOREST SERVICE	ECOSYSTEM MANAGEMENT COORDINATOR	
USDA NATL AGRIGULTURAL LIBRARY		HEAD ACQ & SERIALS BRANCH
	DAUM	R.
	DONNERBERG, LLC	
	HAHN	TESS AND ROLF
	JOHNSON	BARBARA AND JAMES
	LARGEN	WILLIAM & ANNA

Organization	Last Name	First Name
	LEONARD	LORI AND KURT
	LOFTUS	DALE
	MARRON	PAT AND VICKIE
	OKERMAN	ARTHUR & PATRICIA
	PAGE	DIANE
	PAVIA	JERRY
	POE	LEWIS
	READ	LARRY
	STONE	ROBERT & JANICE
	THURMAN	JACK
	WEILL	STEVE
	WIGREN	LANNY & CAROL
	WOOD	JAMES

Appendix J - List of Preparers

Little Blacktail Project Interdisciplinary Team Members:

Name	Title	Area of Expertise
Pat Cooley	Forester	Fire/Fuels & Air Quality Analysis
Shanda Dekome	Fish Biologist	Fisheries Analysis
Larry Elliot	Civil Engineer	Roads Analysis
Don Gunter	Silviculturist	Forest Health and Productivity
Anna E. Hammet	Botanist	TES and Rare Plants, Noxious Weeds
Nancy Kertis	Forester	ID Team Leader &Document Editor Visuals Resource Assistant
Dave Roberts	Wildlife Biologist	Wildlife Analysis
Tom Sandberg	Archaeologist	Heritage and Cultural Resources
Chris Savage	Hydrologist	Water Resources Analysis
Deb Scribner	Database Coordinator	Database Info & GIS Mapping

Support Team Members – The following individuals provided technical or other support to the analysis:

Name	Title	Area of Support
Dave Dillon	Forester	Visuals Resource
Brett Lyndaker	Biological Technician	Wildlife Technical Support
Bill McPherson	Engineer	Roads Analysis
Jerry Niehoff	Soil Scientist	Soils Analysis
Gary Harris	Hydrologic Technician	Water Resources Analysis
Judy York	Writer-Editor	Document Review and Compilation

Appendix K - Literature Cited

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Appendix L - Glossary

A

Air Pollutant – Any substance in air that could, if in high enough concentration, harm humans, animals, vegetation, or material. Air pollutants may include almost any natural or artificial matter capable of being airborne, in the form of solid particles, liquid droplets, gases, or a combination of these.

Air quality – The composition of air with respect to quantities of pollution therein; used most frequently in connection with "standards" of maximum acceptable pollutant concentrations.

Alternative – In an EIS, one of a number of possible options for responding to the purpose and need for action.

Amenity – Resource use, object, feature, quality, or experience that is pleasing to the mind or senses; typically refers to values for which monetary values are not or cannot be established, such as scenic or wilderness values.

Aquatic – Pertaining to water.

Aspect – The direction the slope of a hillside or landform faces (for example, a slope with a southern aspect faces south).

Assessment – The collection, integration, examination, and evaluation of information and values.

Attainment area – A geographic area that is in compliance with the National Ambient Air Quality Standards. An area considered to have air quality as good as or better than the national ambient air quality standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for others.

B

Basin (river) – (1) In general, the area of land that drains water, sediment, and dissolved materials to a common point along a stream channel. River basins are composed of large river systems.

Bedload – Sediment moving on or near a streambed.

Beneficial uses – Any of the various uses which may be made of water including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics. The beneficial use depends on actual use, the ability of the water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner. The use of water for the purpose of wastewater dilution or as a receiving water for a waste treatment facility effluent is not considered a beneficial use.

Best Management Practices (BMPs) – Practices designed to prevent or reduce water pollution.

Biological Diversity (biodiversity) – The variety and variability among living organisms and the ecological complexes in which they occur.

Board foot (bf) – A unit of wood 12" x 12" x 1".

Broad scale – A large, regional area, such as a river basin and typically a multi-state area.

C

Canopy – In a forest, the branches from the uppermost layer of trees; on rangeland, the vertical projection downward of the aerial portion of vegetation.

Canopy closure – The amount of ground surface shaded by tree canopies as seen from above. Used to describe how open or dense a stand of trees is, often expressed in 10 percent increments.

Carbon monoxide – A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion; primarily emitted by motor vehicles and other mobile sources. Carbon monoxide is a criteria air pollutant that interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects.

Channel (stream) – The deepest part of a stream or riverbed through which the main current of water flows.

Classified Road – Road wholly or partially within or next to National Forest lands determined to be needed for long-term motor vehicle access.

Clearcutting – A regeneration harvest method that removes all merchantable trees in a single cutting except for wildlife trees or snags. A "clearcut" is an area from which all merchantable trees have been cut.

Climate – The composite or generally prevailing weather conditions of a region throughout the year, averaged over a series of years.

Coarse woody debris (soils) - Pieces of woody material derived from tree limbs, boles, and roots in various stages of decay, generally having a diameter of at least three inches and a length greater than three feet.

Commodity – Commercial article that can be bought, sold, and transported, such as mining, agricultural, timber, or other forest products.

Compaction – Making soil hard and dense, decreasing its ability to support vegetation because the soil can hold less water and air and because roots have trouble penetrating the soil.

Competition – An interaction that occurs when two or more individual make demands of the same resources that are in short supply.

Composition (species) – The mix of different species that make up a plant or animal community, and their relative abundance.

Connectivity – The arrangement of habitats that allows organisms and ecological processes to move across the landscape; patches of similar habitats are either close together or linked by corridors of appropriate vegetation. The opposite of fragmentation.

Corridor (landscape) – Landscape elements that connect similar patches of habitat through an area with different characteristics. For example, streamside vegetation may create a corridor of willows and hardwoods between meadows or through a forest.

Cover – (1) Trees, shrubs, rocks, or other landscape features that allow an animal to partly or fully conceal itself. (2) The area of ground covered by plants of one or more species.

Cover type – A vegetation classification depicting a genus, species, group of species, or life form of tree, shrub, grass, or sedge. The present vegetation of an area.

Crown – The part of a tree containing live foliage; treetops.

Crown fire – A forest fire that burns in the crowns of trees.

Cumulative effects – Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individuality minor but collectively significant actions taking place over a period of time. In this EIS, potential cumulative effects include those that were assessed for all ownerships, including lands administered by other federal lands and non-federal lands, especially regarding terrestrial and aquatic species.

D

Data – Facts used in an analysis.

Debris (organic) – Logs, trees, limbs, branches, leaves, bark, etc., that accumulate, often in streams or riparian areas.

Decay (decomposition) – The breakdown of organic matter, usually as a result of bacterial or fungal actions.

Decommission (roads) – Activities that result in the stabilization and restoration of unneeded roads to a more natural state.

Degradation – (1) General lowering of the earth's surface by erosion or moving of materials from one place to another. (2) Reduction in value or quality.

Degrade (habitats) – Measurably change a feature at a defined scale in a way that: further reduces habitat quality, where existing conditions meet or are worse than the objective; reduces habitat quality, where existing conditions are better than the objective.

Density (stand) – The number of trees growing in a given area, usually expressed in terms of trees per acre.

Detrimental Soil Disturbance – The effects of compaction, displacement, rutting, severe burning, surface erosion, loss of surface organic matter, and soil mass movement.

Direct effects – Impacts on the environment that are caused by the action and occur at the same time and place.

Displacement (soils) – The removal and horizontal movement of soil from one place to another, usually by mechanical forces such as dozer blades, repeated vehicular traffic, or the yarding of logs.

Disturbance – Refers to events that alter the structure, composition, or function of terrestrial or aquatic habitats. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and diseases. Human-caused disturbances include, among others, actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species.

Dominant – A group of plants that by their collective size, mass, or number exert a primary influence on other ecosystem components.

Downed wood – A tree or part of a tree that is dead and laying on the ground.

Duff – The partially decomposed organic material of the forest floor that lies beneath freshly fallen leaves, needles, twigs, stems, bark, and fruit.

E

Emission – A release of air contaminants into the outdoor atmosphere.

Endangered species – A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.

Environment – The combination of external physical, biological, social, and cultural conditions affecting the growth and development of organisms and the nature of an individual or community.

Erosion – The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities; can be accelerated or intensified by human activities that reduce the stability of slopes or soils.

Even-aged stands – Stands of trees of approximately the same age. Silviculture methods that generate even-aged stands include clearcutting, shelterwood, and seed tree.

Exotic – A plant or animal species introduced from a distant place; not native to the area.

F

Fines (sediment) – Sediment particles smaller than 0.2 inch. Excessive fines can trap newly hatched fish and decrease the amount of water percolating through spawning gravels. High fine sediment loads slow plant growth and reduce available food, oxygen, and light.

Fire regime – The characteristics of fire in a given ecosystem, such as the frequency, predictability, intensity, and seasonality of fire.

Floodplain – The portion of a river valley or level lowland next to streams which is covered with water when the river or stream overflows its banks at flood stage.

Forage – Vegetation (both woody and non-woody) eaten by animals, especially grazing and browsing animals.

Forbs – Broad-leafed plants; includes plants that commonly are called weeds or wildflowers.

Forest health – The condition in which forest ecosystems sustain their complexity, diversity, resiliency, and productivity to provide for specified human needs and values. It is a useful way to communicate about the current condition of the forest especially with regard to resiliency, a part of forest health that describes the ability of the ecosystem to respond to disturbances. Forest health and resiliency can be described, in part, by species composition, density, and structure.

Forest plan (Forest Land and Resource Management Plan) – A document that guides natural resource management and establishes standards and guidelines for a national forest; required by the National Forest Management Act.

Fragmentation (habitat) – The break-up of a large land area (such as a forest) into smaller patches isolated by area converted to a different land type. The opposite of connectivity.

Fry – A recently hatched fish, after the yolk sac has been absorbed.

Fuel (fire) – Dry, dead parts of trees, shrubs, and other vegetation that can burn readily.

Fuel ladder – Vegetative structures or conditions such as low-growing tree branches, shrubs, and other vegetation that can burn readily.

Fuel load – The dry weight of combustible materials per unit area; usually expressed as tons per acre.

Full Obliteration (roads) - Includes removal of all stream crossings and full recontour of the entire road prism, introduction of woody debris, and revegetation as needed. These roads would be removed from the transportation system.

G

Game Species – Wild animals that people hunt or fish for food or recreation according to prescribed seasons and limits.

Gradient – A rate of vertical elevation change per unit of horizontal distance; also called slope.

Ground fire – A fire that burns the organic material in the soil layer and the decayed material or peat below the ground surface.

Group Selection – A method of regenerating uneven-aged stands in which trees are removed and new age classes are established, in small groups.

H

Habitat – A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

Habitat type – A group of plant communities having similar habitat relationships.

Harvest – (1) Felling and removal of trees from the forest; (2) removal of game animals or fish from a population, typically by hunting or fishing.

Headwaters – Beginning of a watershed; unbranched tributaries of a stream.

Historical Range of Variability (HRV) – The natural fluctuation of ecological and physical processes and functions that would have occurred during a specified period of time. In this EIS, refers to the range of conditions that are likely to have occurred prior to settlement of the project area by Euroamericans (approximately the mid 1800s), which would have varied within certain limits over time. HRV is discussed in this document only as a reference point, to establish a baseline set of conditions for which sufficient scientific or historical information is available to enable comparison to current conditions.

Homogeneous – Regular, similar; uniform throughout.

Hydrologic – Refers to the properties, distribution, and effects of water. "Hydrology" refers to the broad science of the waters of the earth-their occurrence, circulation, distribution, and physical properties, and their reaction with the environment.

Hydrologic unit code (HUC) – A hierarchical coding system developed by the U.S. Geological Survey to identify geographic boundaries of watersheds of various sizes.

I

Implement – To carry out.

Improvement Cutting – The removal of less desirable trees of any species in a stand of poles or larger trees, primarily to improve composition and quality.

Indicator species – A species that is presumed to be sensitive to habitat changes; population changes of indicator species are believed to best indicate the effects of land management activities.

Indirect effects – Impacts on the environment that are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.

INFS – Interim Inland Native Fish Strategy for the Intermountain, Northern, and Pacific Northwest Regions (Forest Service)

Intermittent stream – A stream that flows only at certain times of the year when it receives water from other streams or from surface sources such as melting snow.

Invasion (plant) – The movement of a plant species into a new area outside its former range.

Irregular Shelterwood With Reserves – A shelterwood prescription cut with irregular spacing leaving individual trees and groups of trees (see Shelterwood With Reserves).

Irretrievable commitment – A term that applies to losses of production or commitment of renewable natural resources. For example, while an area is used as a ski area, some or all of the timber production there is "irretrievably" lost. If the ski area closes, timber production could

resume; therefore, the loss of timber production during the time the area is devoted to skiing is irretrievable but not irreversible, because it is possible for timber production to resume if the area is no longer used as a ski area.

Irreversible commitment – A term that applies to non-renewable resources, such as minerals and archaeological sites. Losses of these resources cannot be reversed. Irreversible effects can also refer to effects of actions on resources that can be renewed only after a very long period of time, such as the loss of soil productivity.

Issue – A matter of controversy, dispute, or general concern over resource management activities or land uses. To be considered a "significant" environmental impact statement issue, it mist be well defined, relevant to the proposed action, and within the ability of the agency to address through alternative management strategies.

L

Landscape - All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land which the eye can comprehend in a single view, including all its natural characteristics.

Large snag – A standing dead tree with a diameter at breast height of at least 21 inches.

Large woody debris – Pieces of wood that are of a large enough size to affect stream channel morphology.

Lethal (stand-replacing) fires – In forests, fires in which less than 20 percent of the basal area or less than 10 percent of the canopy cover remains; in rangelands, fires in which most of the shrub overstory or encroaching trees are killed.

Long term – Generally refers to a period longer than 10 years. The length of time is dependent upon the resource in question..

M

Maintain – (1) To continue. (2) For this document, the term is intended to convey the idea of keeping ecosystem functions, processes, and/or components (such as soil, air water, vegetation) in such a condition that the ecosystem's ability to accomplish current and future management objectives is not weakened. Management activities may be compatible with ecosystem maintenance if actions are designed to maintain or improve current ecosystem condition.

Management direction – A statement of goals and objectives, management prescriptions, and associated standards and guidelines for attaining them.

Mass Movement, mass wasting (erosion) – Large land slump, where a mass of rock or soil slips in one unit down from a cliff or slope.

Merchantable timber – timber that can be bought or sold.

Minimize – Apply best available technology, management practices, and scientific knowledge to reduce the magnitude, extent, and/or duration of impacts.

Mitigation – Measures designed to counteract environmental impacts or to make impacts less severe.

Monitoring – A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring allows detection of undesirable and desirable changes so that management actions can be modified or designed to achieve desired goals and objectives while avoiding adverse effects to ecosystems.

Morphology – Form and structure.

Multiple-use management – The management philosophy articulated by the Multiple Use-Sustained Yield Act of 1960. This law provides that the renewable resources of the national forests are to be managed in the combination that best meets the needs of the American people. It further stipulates that the Forest Service is to make judicious use of the land for some or all of these resources and related services over areas large enough to ensure that sufficient latitude exists to subsequently adjust management in conformity with changing needs and conditions.

N

National Ambient Air Quality Standards (NAAQSs) – Standards set by the Federal Environmental Protection Agency for the maximum levels of air pollutants that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

National Environmental Policy Act (NEPA) – An act of Congress passed in 1969 declaring a national policy to encourage productive and enjoyable harmony between people and the environment, to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of people, and to enrich the understanding of the ecological systems and natural resources important to the nation, among other purposes.

National Forest Management Act (NFMA) – A law passed in 1976 requiring the preparation of Forest Service regional guides and forest plans and the preparation of regulations to guide that development.

Native – (1) one born or reared in a particular place. (2) something original or indigenous to a particular locality.

Native species – Species that normally live and thrive in a particular ecosystem.

Natural resources – Water, soil, wild plants and animals, air, minerals, nutrients, and other resources produced by the earth's natural processes.

No-action alternative – The most likely condition expected to exist in the future is current management direction were to recreation, fur, food, or subsistence.

Nonlethal fire – In forests, fires in which more than 70 percent of the basal area or more than 90 percent of the canopy cover survives; in rangelands, fires in which more than 90 percent of the vegetative cover survives (implies that fire is occurring in an herbaceous-dominated community).

Non-point source pollution – Pollution whose source is not specific in location; the sources of the pollutant discharge are dispersed, not well defined or constant. Examples include sediments from logging activities and runoff form agricultural chemicals.

Noxious weed – A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic a carrier or host of serious insects or disease; or non-native, new, or not common to the United States. According to the Federal Noxious Weed Act (PL 93-639), a noxious weed is one that causes disease or has other adverse effects adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.

O

Old Growth Forest – These forests are distinguished by old trees and related structural attributes. They encompass the later stages of stand development that typically differ from earlier stages in characteristics such as tree age, size, number of large trees per acre and basal area. Attributes such as decadence, dead trees, the number of canopy layers and canopy gaps are also important, but are more difficult to describe because of high variability.

Overstory – The upper canopy layer.

P

Particulates – Solid particles or liquid droplets suspended or carried in the air.

Patch – An area of uniform vegetation that differs from what surrounds it in structure and composition. Examples might include a patch of forest surrounded by a cut-over area or a patch of dense young forest surrounded by a patch of open old forest.

Pattern – The spatial arrangement of landscape elements (patches, corridors, matrix) that determines the function of a landscape as an ecological system.

PM_{10} – Particulate matter that measures 10 micrometers in diameter or less, a size considered small enough to invade the alveolar regions of the lung. PM_{10} is one of the six pollutants for which there is a national ambient air quality standard.

Pool – Portion of a stream where the current is slow, often with deeper water than surrounding areas and with a smooth surface texture. Often occur above and below riffles and generally are formed around stream bends or obstructions such as logs, root wads, or boulders. Pools provide important feeding and resting areas for fish.

Preferred alternative – The alternative identified in a Draft Environmental Impact Statement which has been initially selected by the agency as the most acceptable resolution to the problems identified in the purpose and need.

Prescribed fire – Intentional use of fire under specified conditions to achieve specific management objectives.

Prescription – A management pathway to achieve a desired objective(s).

Productivity – (1) *Soil productivity:* the capacity of a soil to produce plant growth, due to the soil's chemical, physical, and biological properties (such as depth, temperature, water-holding capacity, and mineral, nutrient, and organic matter content).

Project area – In this EIS, refers to Forest Service lands to which decisions in the Record of Decision will apply.

Proper Functioning Condition (PFC) – Riparian and wetland areas achieve Proper Functioning Condition when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows. This thereby reduces erosion and improves water quality; filters sediment, captures bedload, and aids floodplain development; improves floodwater retention and groundwater recharge; develops root masses that stabilize streambanks against cutting action; develops diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and supports greater biodiversity. The functioning condition of riparian and wetland areas is a result of the interaction among geology, soil, water, and vegetation.

Proposed action – A proposal by a federal agency to authorize, recommend, or implement an action.

Q

Qualitative – Traits or characteristics that relate to quality and can't be measured with numbers.

Quantitative – Traits or characteristics that can be measured with numbers.

R

Record of Decision (ROD) – An official document in which a deciding official states the alternative that will be implemented from a prepared Final EIS.

Recovery – (1) Return of an ecosystem to a specified condition after a disturbance; (2) return of a previously threatened or endangered species to a condition of population viability.

Recruitment Old Growth – Stands that do not yet have the characteristics of old growth but are being managed to develop those characteristics over time.

Redd – Spawning nest made by salmon or steelhead in the gravel bed of a river.

Reforestation – Treatments or activities that help to regenerate stands of trees after disturbances such as harvest or wildfire. Typically, reforestation activities include preparing soil, controlling pests, and planting seeds or seedlings.

Regeneration – The process of establishing new plant seedlings, whether by natural means or artificial measures (planting).

Regeneration Cutting - For this EIS**,** this technique involves removing most of the trees for the purpose of providing growing space for planted or natural seedlings. Both live and dead trees would be retained in an irregular spacing to provide wildlife habitat, maintain visual quality,

provide shelter for seedlings, provide a seed source for natural regeneration, and provide woody debris for long-term site productivity. Generally, less than 30% of the trees would remain on these areas. The resulting view would be an open stand with scattered standing trees and patches of trees. Most of these trees would remain on site for a considerable time after seedlings have established. The size of open areas would range from approximately 2 acres to several hundred acres. Logging slash and other debris would be treated, where necessary, to reduce the fire hazard and to prepare the sites for reforestation. Prescribed fire or mechanical methods would be used. Most of the areas would be reforested with western larch, ponderosa pine and/or white pine. Silvicultural prescriptions may include irregular shelterwood with reserves, seed tree with reserves, and group selection.

Resilient, resilience, resiliency – (1) The ability of a system to respond to disturbances. Resiliency is one of the properties that enable the system to persist in many different states or successional stages. (2) In human communities, refers to the ability of a community to respond to externally induced changes such as larger economic or social forces.

Restoration – Holistic actions taken to modify an ecosystem to achieve desired, healthy, and functioning conditions and processes. Generally refers to the process of enabling the system to resume acting or continue to act following disturbance as if the disturbances were absent. Restoration management activities can be either active (such as control of noxious weeds, thinning of over-dense stands of trees, or redistributing roads) or more passive (more restrictive, hands-off management direction that is primarily conservation oriented).

Revegetation – Establishing or re-establishing desirable plants on areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation).

Riffle – Relatively shallow section of a stream or river with rapid current and a surface broken by gravel, rubble, or boulders.

Riparian area – Area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation.

Road Work - Includes, as needed, installation of rolling dips, installation of relief culverts, rolling the road grade for increased drainage, armoring of culvert catch basins and outlets, and adding gravel surfacing, replacing existing stream crossings, cut and fill slope stabilization, and removal of encroaching road fills.

S

Salvage – Harvest of trees that are dead, dying, or deteriorating due to fire, wind, insect, or other damage, or disease.

Sanitation Salvage – The removal of dead, damaged or susceptible trees to prevent the spread of pests or pathogens, and for the purpose of recovering economic value that would otherwise be lost.

Scale – (1) The level of resolution under consideration (for example, broad scale or fine scale); (2) the ratio of length on a map to true length.

Scoping – The early stages of preparation of an environmental impact statement, used to solicit public opinion, receive comments and suggestions, and determine the issues to be considered in the development and analysis of a range of alternatives. Scoping may involve public meetings, telephone conversations, mailings, letters, or other contacts.

Sediment – Solid materials, both mineral and organic, in suspension or transported by water, gravity, ice, or air; may be moved and deposited away from their original position and eventually will settle to the bottom.

Seed trees – Mature trees left standing after timber harvest to provide seeds to regenerate the new stand; a harvest prescription.

Seed Tree With Reserves – Harvest where some or all of the shelter trees are retained after regeneration has become established to attain goals other than regeneration.

Selective cutting – For this EIS, this technique would remove trees in areas where there is the opportunity to maintain or enhance the health, growth, or wind firmness of desired existing trees. Trees removed would generally be smaller or less dominant trees in the stand, species not desired for future stand composition, or diseased or dead trees that are not needed to meet future stand objectives. Trees removed would provide growing space for the remaining trees. These stands would generally not be open enough to allow for successful establishment of desired tree species except where planted in small openings throughout the stand. The number of trees remaining in these areas would vary, but stands would generally have the appearance of being thinned. Fuel hazards may be reduced by use of fire or mechanical methods where appropriate. Silvicultural prescriptions may include treatments such as thinning, shelterwood preparatory cuttings, improvement cutting and sanitation salvage cutting.

Sensitive species – Species identified by a Forest Service regional forester for which population viability is a concern either (a) because of significant current or predicted downward trends in population numbers or density, or (b) because of significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Seral – Refers to the stages that plant communities go through during succession. Development stages have characteristic structure and plant species composition. Early seral refers to plants that are present soon after a disturbance or at the beginning of a new successional process (such as seedling or sapling growth stages in a forest); mid seral in a forest would refer to pole or medium sawtimber growth stages; late or old seral refers to plants present during a later stage of plant community succession (such as mature and old forest stages).

Shade-tolerant – Species of plants that can develop and grow in the shade of other plants. Generally these are fire-intolerant species.

Shelterwood – Prescription that cuts most trees in a stand, leaving those needed to create sufficient shade to produce a new age class in a moderated microenvironment.

Shelterwood Preparatory Cutting – A shelterwood prescription designed to enhance conditions for seed production.

Shelterwood With Reserves – Prescription where some or all of the shelter trees in a shelterwood harvest unit are retained after regeneration has become established to attain goals other than regeneration.

Short-term – Generally refers to a period of 10 years or less.

Silviculture – The practice of manipulating the establishment, composition, structure, growth, and rate of succession of forests to accomplishment specific objectives.

Site – A specific location of an activity or project, such as a campground, a lake, or a stand of trees to be harvested.

Snag – A standing dead tree, usually larger than five feet tall and six inches in diameter at breast height. Snags are important as habitat for a variety of wildlife species and their prey.

Soil – The earth material that has been so modified and acted upon by physical, chemical, and biological agents that it will support rooted plants.

Soil disturbance – In this EIS, used to describe effects of the alternatives on soil productivity.

Spatial – Related to or having the nature of space.

Spawning habitat – Areas used by adult fish for laying and fertilizing eggs.

Species – A population or series of populations of organisms that can interbreed freely with each other but not with members of other species.

Specified Road – Road that is designed with specific features by Forest Service engineers and included in the timber sale contract.

Stand – A group of trees in a specific area that are sufficiently alike in composition, age, arrangement, and condition so as to be distinguishable from the forest in adjoining areas.

Stand composition – The vegetative species that make up the stand.

Stand density – Refers to the number of trees growing in a given area, usually expressed in trees per acre.

Stand-replacing fire – See lethal fire.

Stand structure – The mix and distribution of tree sizes, layers, and ages in a forest. Some stands are all one size (single-story), some are two-story, and some are a mix of trees of different ages and sizes (multi-story).

Step down – In this EIS, refers to the process of applying broad scale science findings and land use decisions to site-specific areas using a hierarchical approach of understanding current resource conditions, risks, and opportunities.

Storage (roads) - Includes removal and recontour of all stream crossings and, as needed, recontour of unstable fill slopes, cutslope stabilization, ripping the road tread, installation of no-maintenance cross ditches, and revegetation. Storage also includes some kind of road closure method such as with a guard rail barrier, gate, an earthen berm, or a short section of full recontour. These roads would remain as classified roads on the transportation system.

Structure – The size and arrangement, both vertically and horizontally, of vegetation.

Structural stage – A stage of development of a vegetation community that is classified on the dominant processes of growth, development competition, and mortality.

Subbasin – A drainage area of approximately 800,000 to 1,000,000 acres, equivalent to a 4th-field hydrologic unit code (HUC). Hierarchically, subwatersheds (6th-field HUC), which in turn are contained within a subbasin (5th-field HUC), which in turn are contained within a subbasin (4th-field HUC). This concept is shown graphically in Figure 2-1.

Substrate – The soil or underlying rock on which an organism is growing or to which it is attached.

Subwatershed – A drainage area of approximately 20,000 acres, equivalent to a 6th-field Hydrologic Unit Code (HUC). Hierarchically, subwatersheds (6th-field HUC) are contained within watershed (5th-field HUC), which in turn contained within a subbasin (4th-field HUC). This concept is shown graphically in Chapter 2.

Succession – A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as seral stages.

Surface fire – A fire that burns surface litter, dead woody fuels, other loose debris on the forest floor, and some small vegetation, without significant movement into the overstory, usually with a flame less than a few feet high.

Sustainability – (1) Meeting the needs of the present without compromising the abilities of future generations to meet their needs; emphasizing and maintaining the underlying ecological processes that ensure long-term productivity of goods, services, and values without impairing productivity of the land. (2) In relation to snags, it refers to the continuous production of snags over the long-term.

T

Temporary roads - Include those roads not intended to be necessary for long-term management.

Terrestrial – Pertaining to the land.

Thermal cover – Cover used by animals to protect them against weather.

Thinning – An operation to remove stems from a forest for the purpose of reducing fuel, maintaining stand vigor, regulating stand density/composition, or for other resource benefits.

Threatened species – Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future through-out all or a significant portion of their range.

Topography – Physical features of the ground surface such as hills, plains, mountains, steepness of slope, and other features.

Tribe – Term used to designate any Indian tribe, band, nation, or other organized group or community (including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act) which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

U

Unclassified Road – Road on National Forest land that is not managed in the forest transporation system.

Underburn – A burn by a surface fire that can consume ground vegetation and ladder fuels.

Understory – Plants that grow beneath the canopy of other plants. Usually refers to grasses, forbs, and low shrubs under a tree or shrub canopy.

Uneven-aged silvicultural systems – Method of forest management in which trees of different species in a given stand are maintained at many ages and sizes to permit continuous natural regeneration. Selective cutting is one example of an uneven-aged management method.

Ungulates – Hoofed, plant-eating mammals such as elk, deer, and cattle.

V

Viability – In general, viability means the ability of a population of a plant or animal species to persist for some specified time into the future. For planning purposes, a *viable population* is one that has the estimated numbers and distribution of reproductive individuals to ensure that its continued existence will be well distributed in the planning area.

Viable population – A population that is regarded as having the estimated numbers and distribution of reproductive individuals to ensure that its continued existence is well distributed in the project area.

Visual resources – The visible physical features of a landscape.

W

Water Quality Limited – A Clean Water Act classified for waters where application of best management practices or technology-based controls are not sufficient to achieve designated water quality standards.

Watershed – (1) The region draining into a river, river system, or body of water. (2) In this EIS, a watershed also refers specifically to a drainage area of approximately 50,000 to 100,000 acres, which is equivalent to a 5th-field Hydrologic Unit Code (HUC). Hierarchically, subwatersheds (6th-field HUC) are contained within a watershed (5ht-field HUC), which in turn is contained within a subbasin (4th-field HUC). This concept is shown graphically in Figure 2-1.

Weed – A plant considered undesirable, unattractive, or troublesome, usually introduced and growing without intentional cultivation.

Wetland – In general, an area soaked by surface or groundwater frequently enough to support vegetation that requires saturated soil conditions for growth and reproduction; generally includes swamps, marshes, springs, seeps, bogs, wet meadows, mudflats, natural ponds, and other similar areas.

Wildfire – A human or naturally caused fire that does not meet land management objectives.

Woody – Composed of wood or woody fibers.

Appendix M – Color Maps

For ease of production and collation, only the color maps are located in this appendix. Figures 1, 2, 8, 14, 15, 16, and 17 are located in the main document.

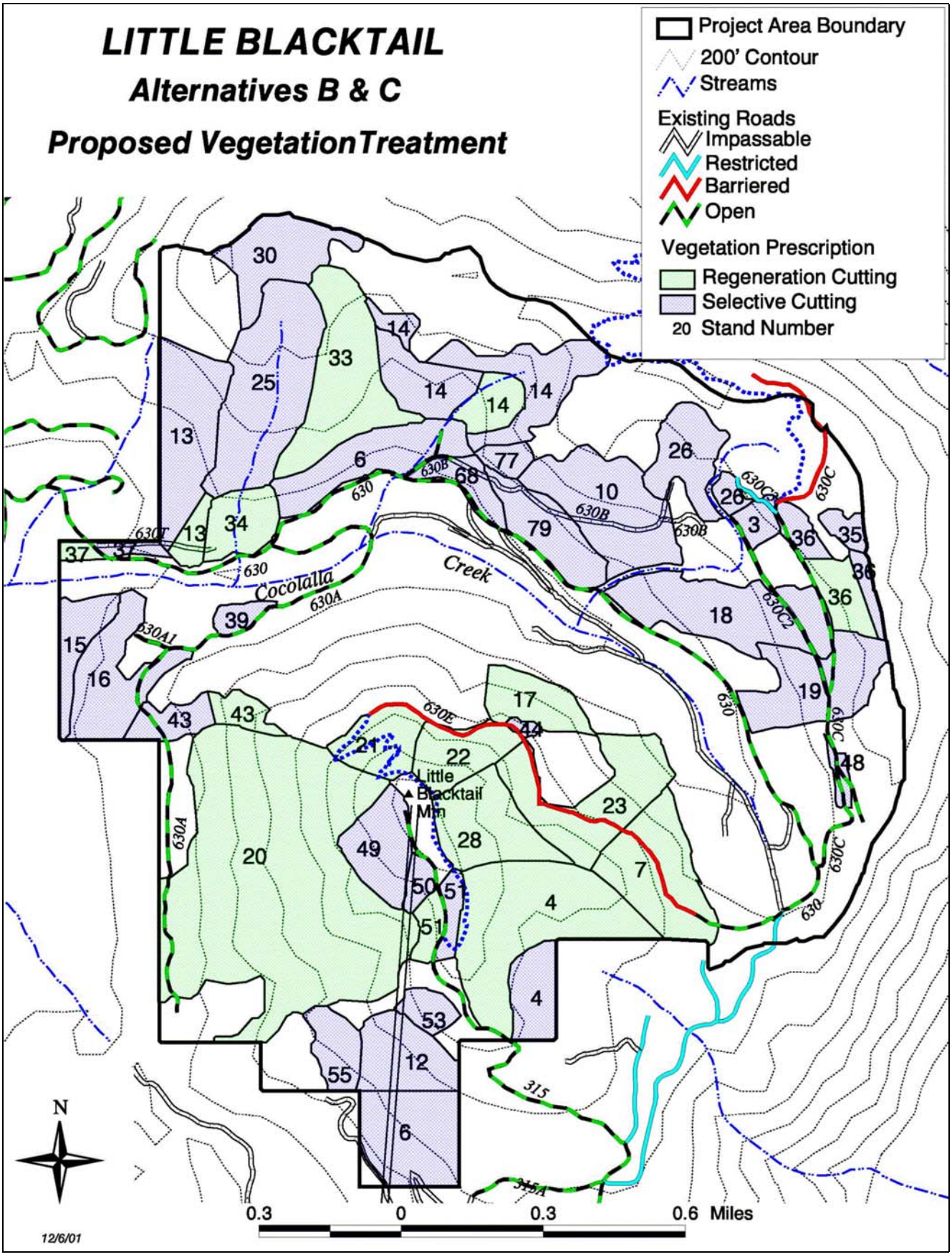

Figure 3. Proposed Vegetation Treatment for Alternatives B and C.

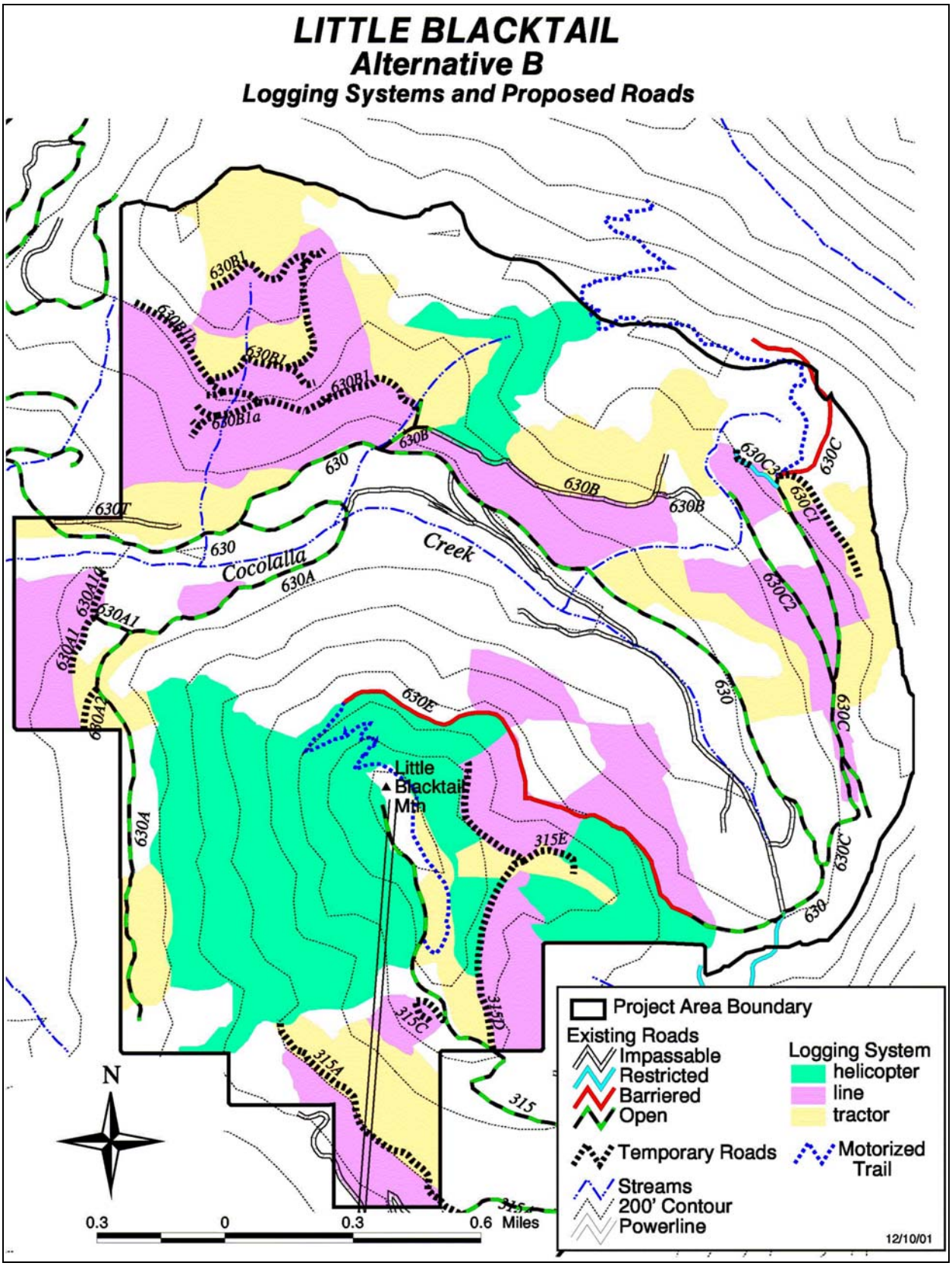

Figure 4. Proposed road construction and logging systems in Alternative B.

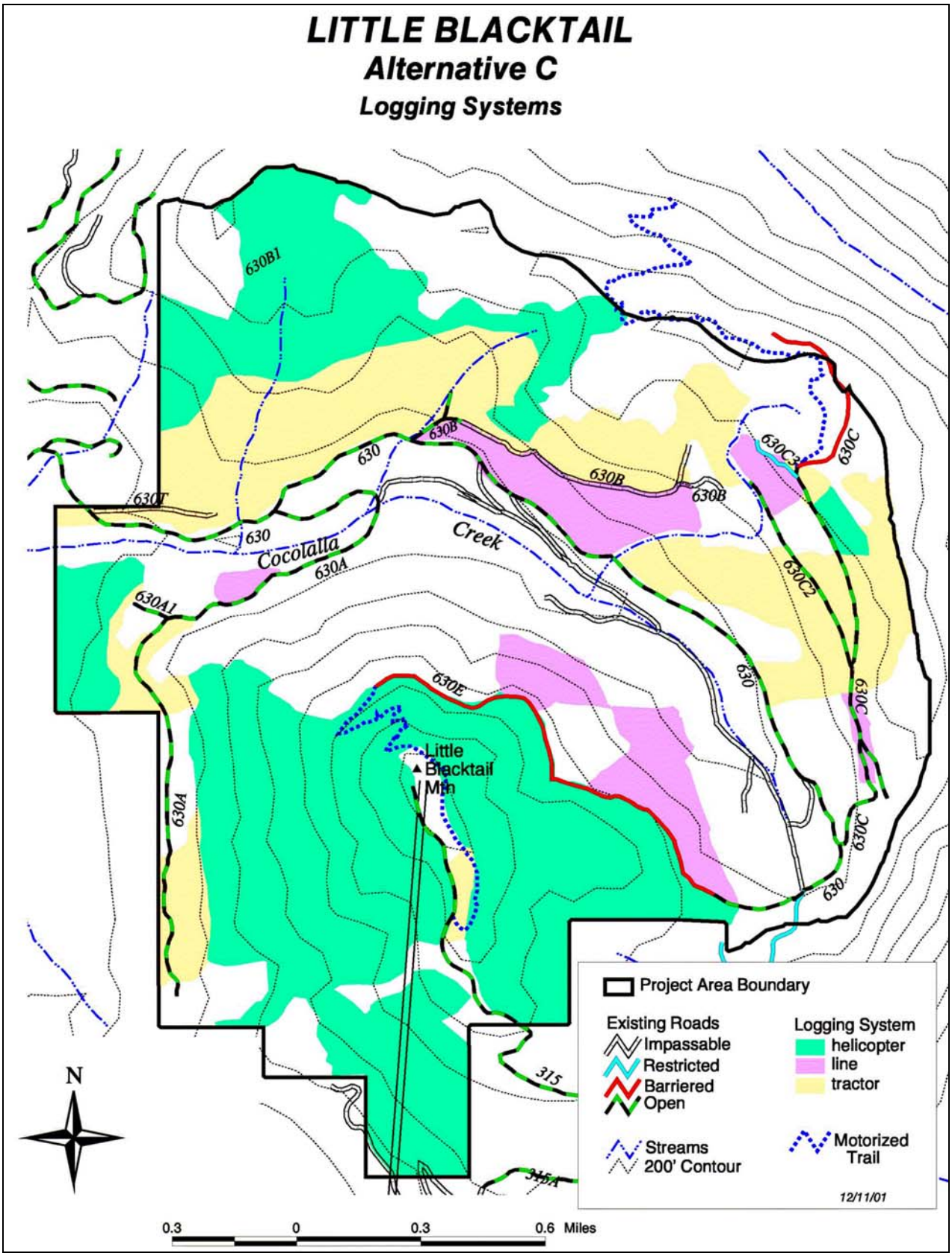

Figure 5. Proposed logging systems in Alternative C.

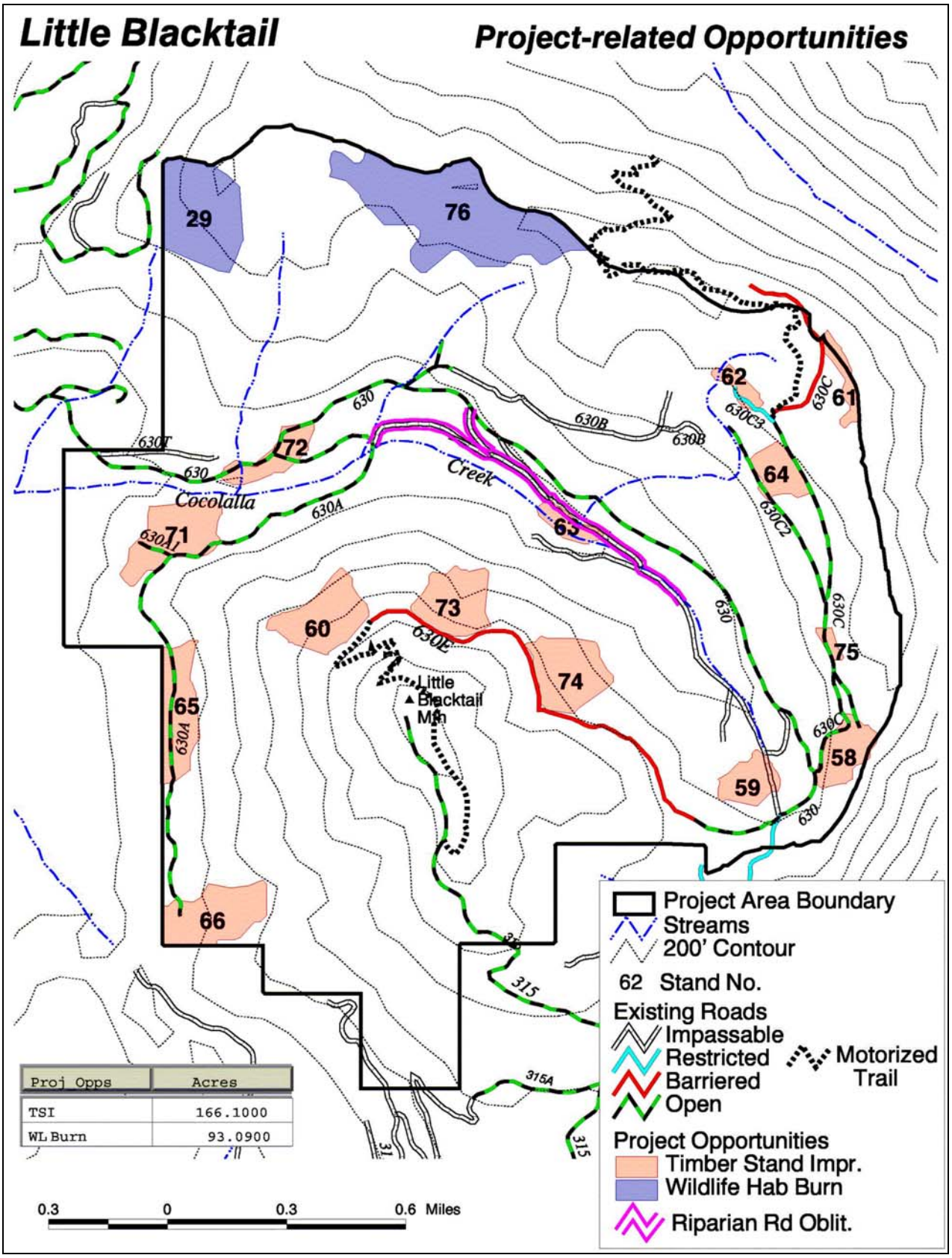

Figure 6. Map of Project-related Opportunities.

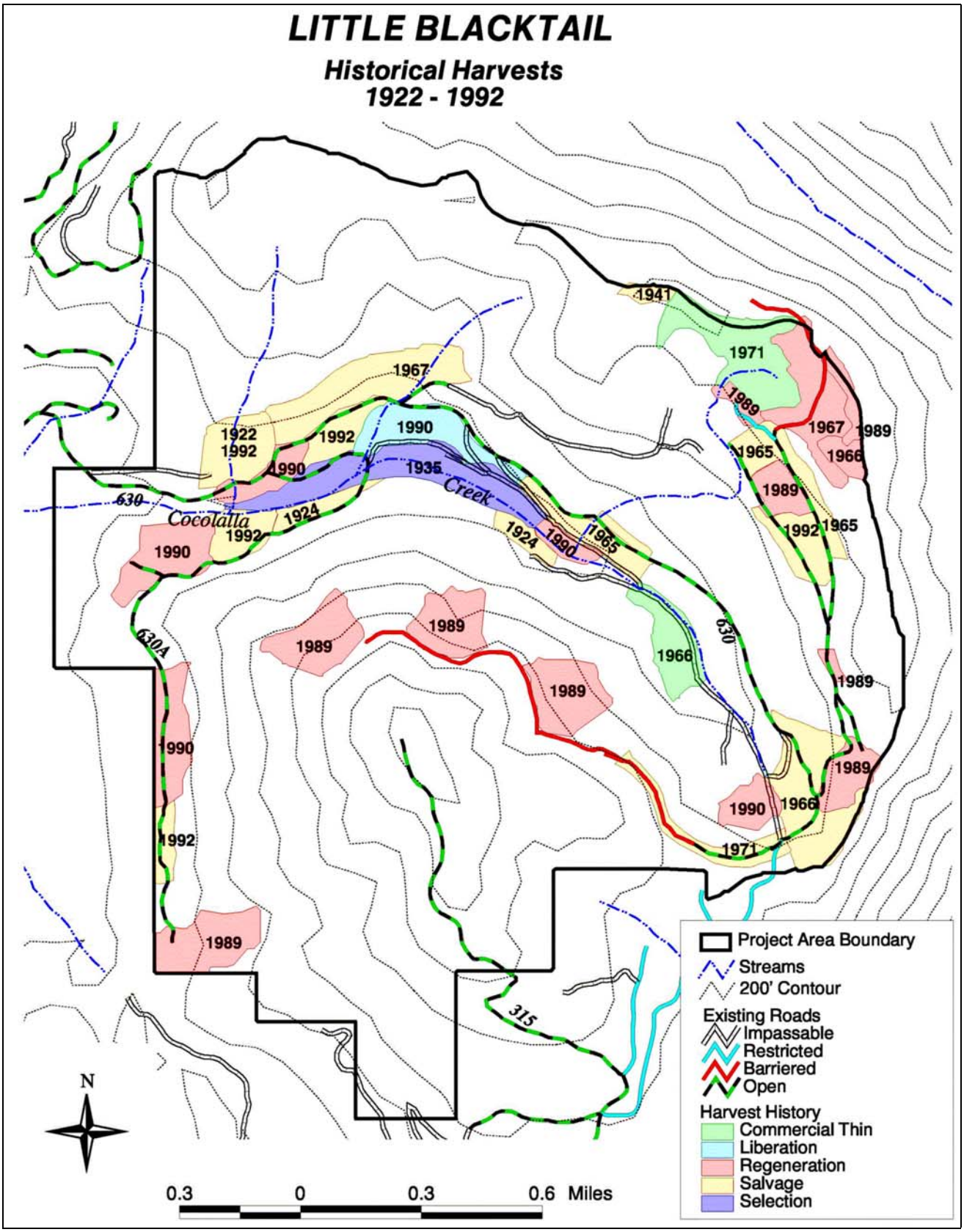

Figure 7. Past National Forest timber sales in the Little Blacktail Project Area. (Figure 8 is located in Chapter III)

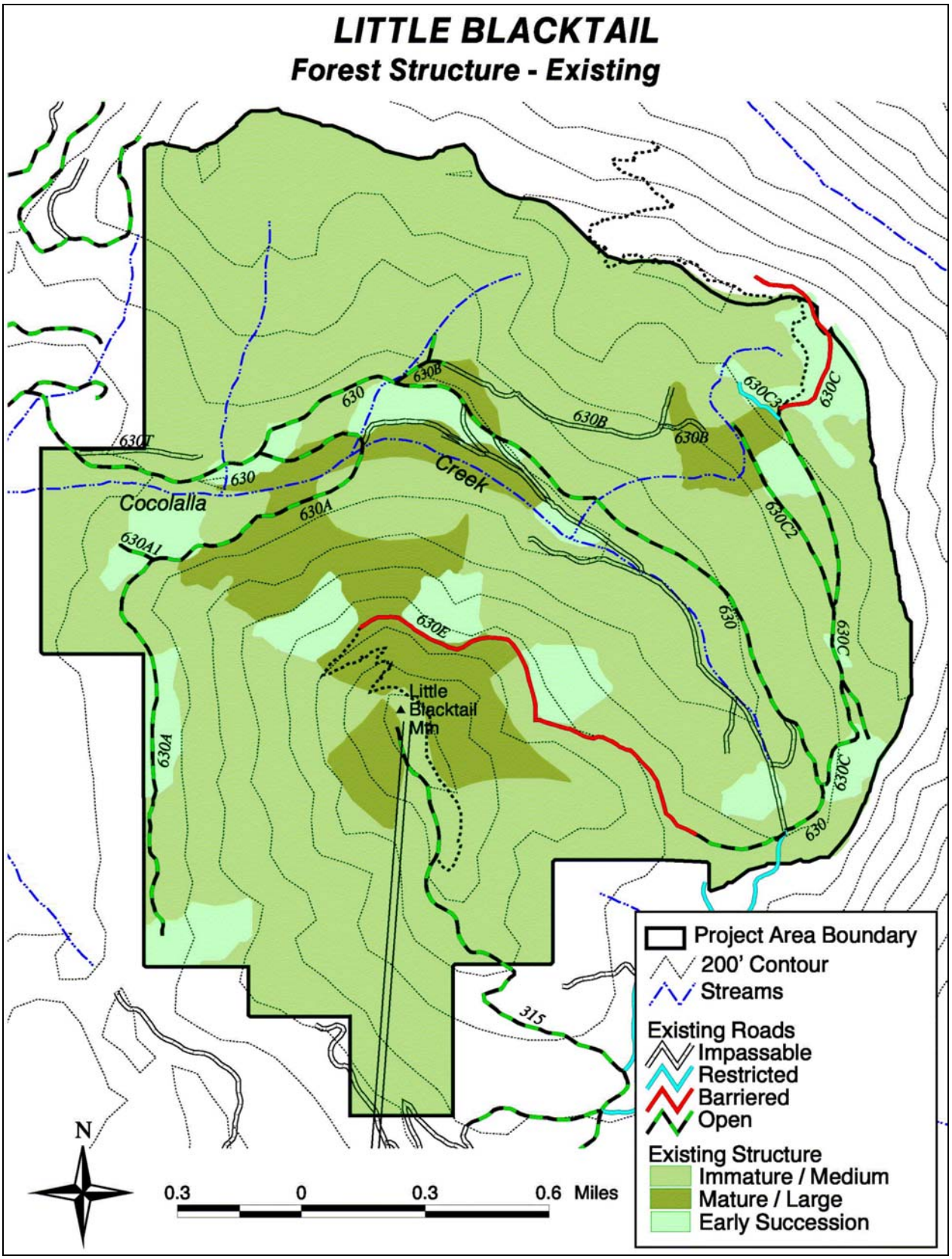

Figure 9. Existing forest structure in the project area.

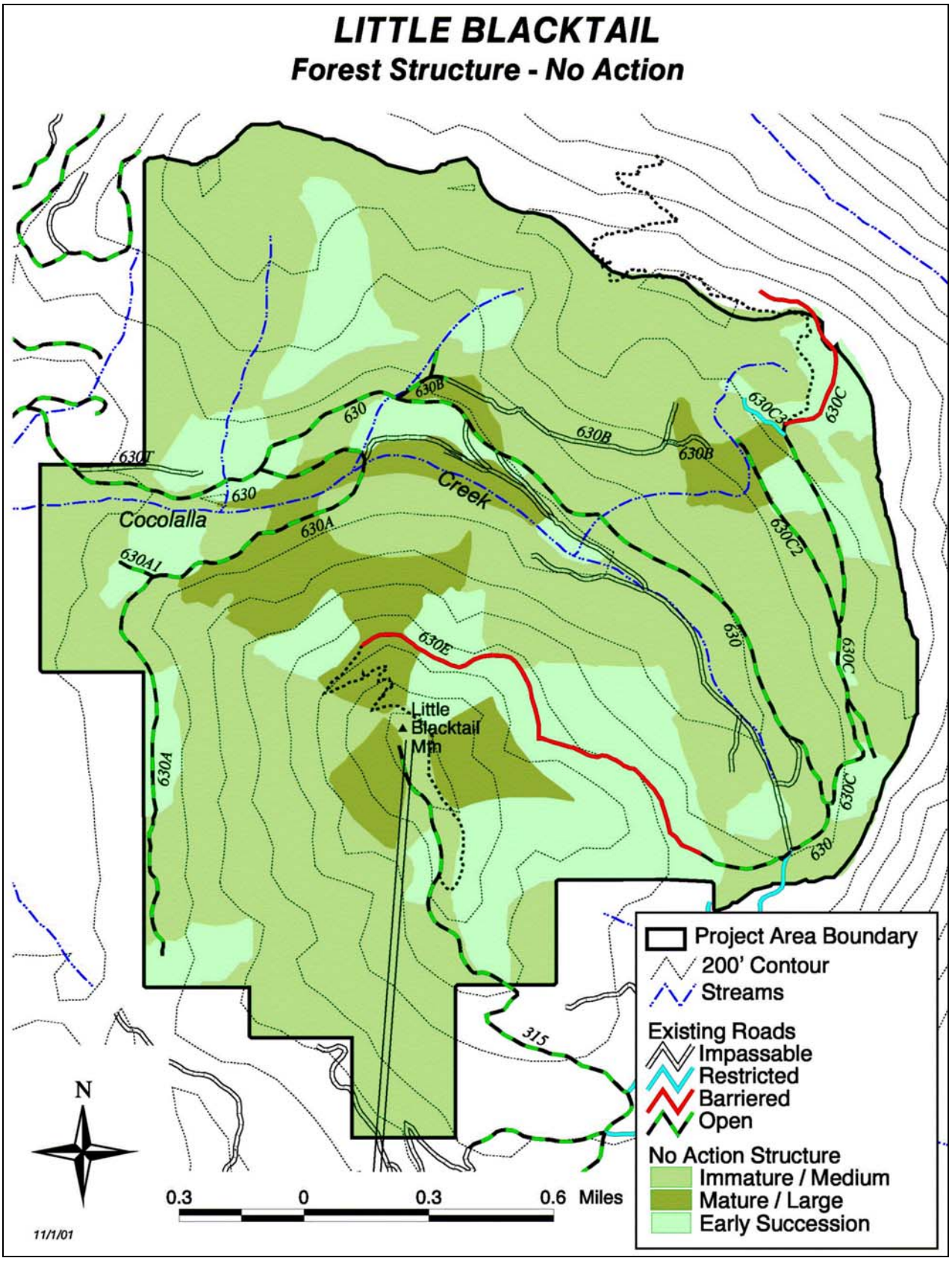

Figure 10. Resulting forest structure from Alternative A (no action).

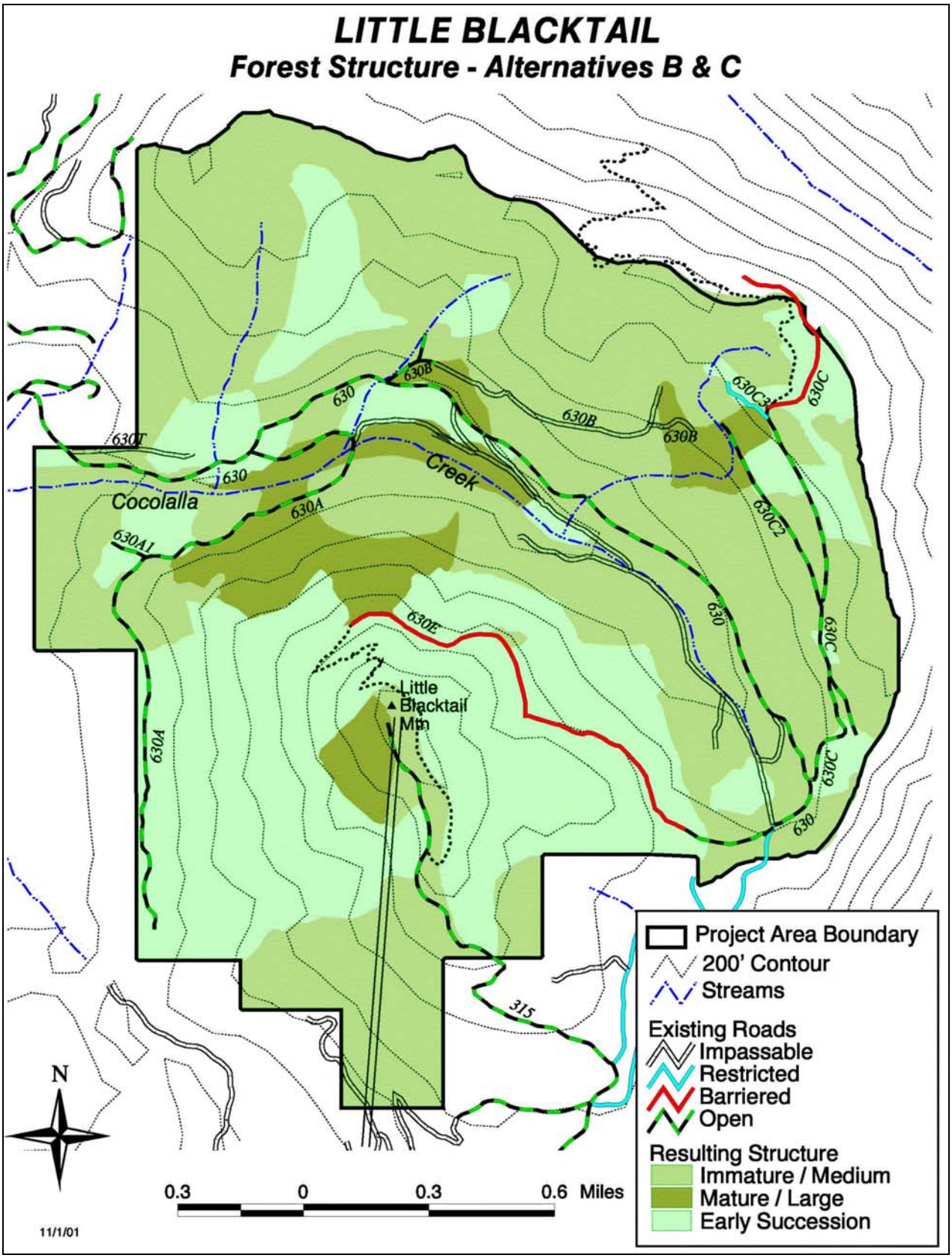

Figure 11. Resulting structure from Alternatives B and C.

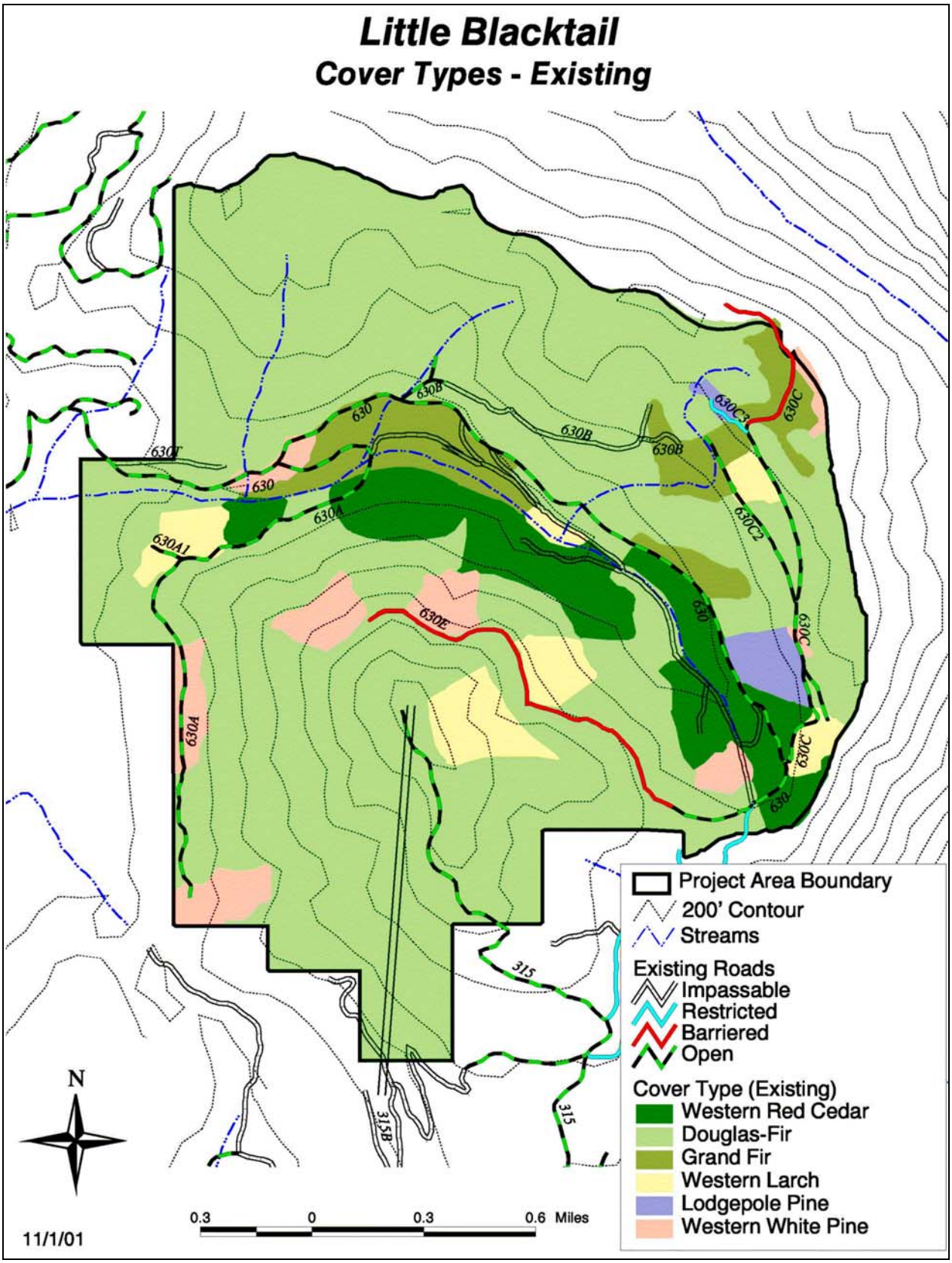

Figure 12. Existing cover types in the project area.

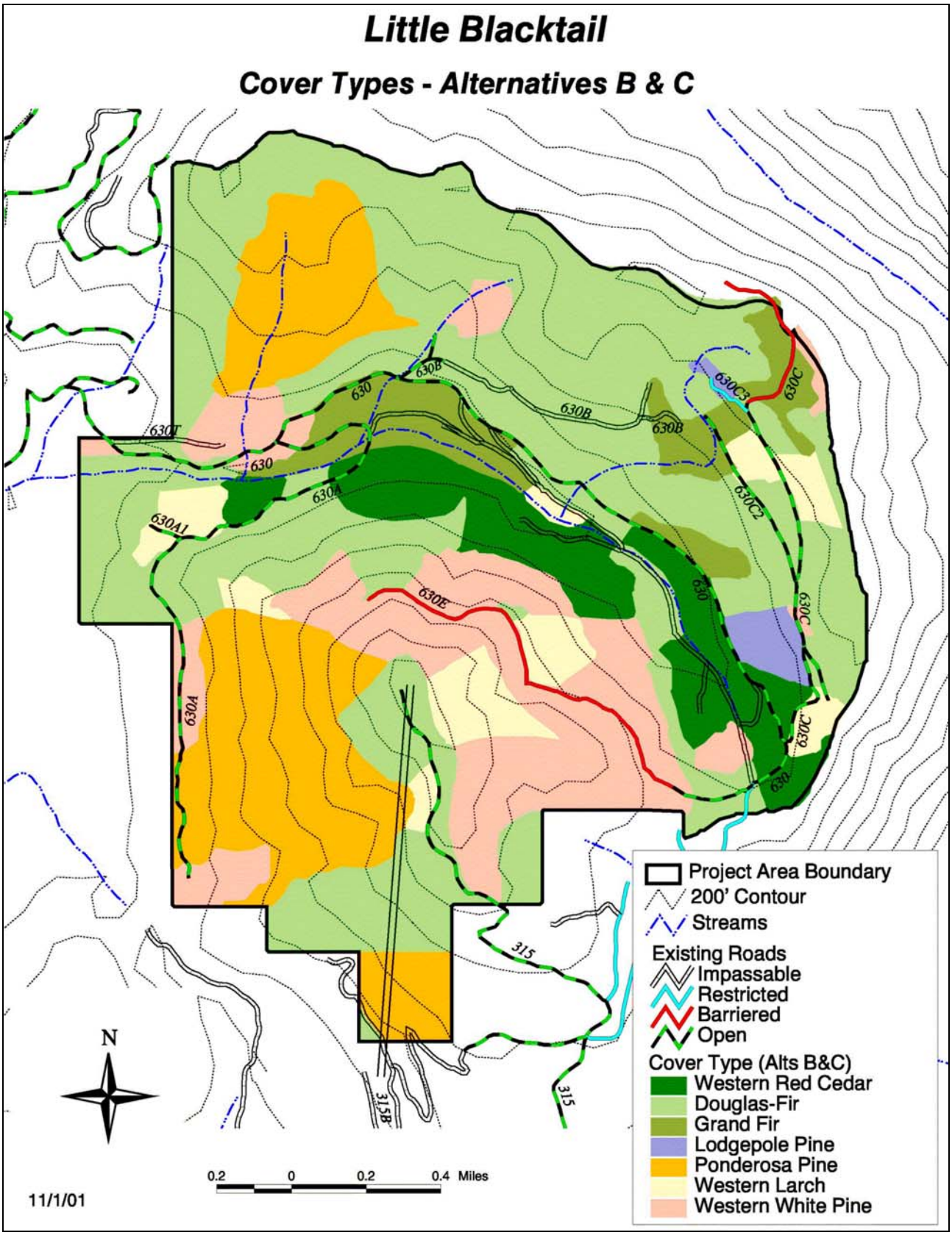

Figure 13. Resulting cover types from Alternatives B and C.