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Decision Notice and Finding of No Significant Impact

Wrenco Project

Sandpoint Ranger District, Idaho Panhandle National Forest
Bonner County, Idaho

Sandpoint Ranger District
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Wrenco Loop Project
Decision Notice

I. Introduction to the Project

Overview of the Resource Area

The Wrenco Loop Project is located within Bonner County, Idaho, approximately 12 air miles west of Sandpoint, Idaho. The project area consists of National Forest lands in the headwaters of Johnson Creek approximately nine miles west of Sandpoint (see enclosed maps). The area can be reached by County Roads W93B and W97 via US Highway 2. The project area consists of approximately 1,470 acres of low elevation, National Forest land surrounded by Riley Creek Timber Company land, State of Idaho land, and private land in the Wrenco Heights subdivision, along the Wrenco Loop and Helen Thompson Roads.

Watershed drainages present within the project area are an un-named creek, Johnson Creek, and the West Fork of Johnson Creek. Johnson Creek is not considered impaired and is currently meeting beneficial uses, under the State of Idaho's 303d process (EA, pg. 111). Each discharges into the Pend Oreille River. The project area has eastern and southern aspects. Elevations range from about 2,400 feet to 3,300 feet. The project area includes all or portions of sections 19, 30, and 31, in Township 57 North, Range 3 West, Boise Meridian.

My Decision

After careful review of the environmental assessment (EA) for the Wrenco Project, the Finding of No Significant Impact (FONSI), comments from the public, and the project file, I have decided to implement **Alternative A** (**Proposed Action**) as described in the EA (please refer to the enclosed selected alternative maps). I believe Alternative A meets the purpose and need for this project, responds to public concerns, and is consistent with applicable laws, plans, and policies. See the Selected Alternative section for further details and rationale.

Purpose and Need for Action

Vegetation and watershed restoration activities were proposed in the Wrenco project area to respond to the goals and objectives of the Idaho Panhandle National Forests Forest Plan (USDA Forest Service 1997). The activities in the Wrenco Loop project area are designed to favor long-term dominance of seral species (ponderosa pine and larch), begin trending forest composition and structure with the objective of maintaining ecosystems with high ecological integrity (EA, pg. 4). These conditions would favor those wildlife species associated with drier types of forest habitat. Activities are designed to create a forest composition and structure similar to those found under low- and mixed-intensity fire regimes, thereby reducing the amount of ladder fuels and improving the ability to suppress wildfires adjacent to adjoining private lands (EA, pg. 55). There are three known sites in the project area with the potential to contribute sediment to the West Fork of Johnson Creek. Removal of these sites will reduce the long-term risk of having undesirable levels of sediment delivered to the stream channel (EA, pp. 4 and 5).

Public Involvement

In November 1995, a proposal for the Wrenco Loop project (also known as a scoping letter) was mailed to the public for comment (Project File Document [PF Doc] A-154). In June and December of 1996, update letters were mailed informing people of the status of the project (PF Doc A-86 and A-82). Because of Forest priorities, including the Douglas-fir Beetle Project, Wrenco was temporarily put on hold. An update scoping letter was sent in November 2002 when the project was modified and reinitiated (PF Doc A-79). Comments received during both phases of scoping can be found in the project file along with content analysis documentation of the comments received (PF Doc A-76 and A-113). The project was also listed on the Idaho Panhandle National Forests (IPNF) Quarterly Schedule of Proposed Activities from October 1995 through April 1999. In April 1999, the project listing was changed to "project temporarily on hold" until October of 1999 when it was listed as "deferred." The new listing started in April 2002 and has continued to be on the schedule ever since. We received 18 comments from individuals, organizations, and agencies during the November 2002 scoping phases (PF Doc A-26). In December 2002, people who commented were contacted by phone or letter to discuss the issues raised in their response to the scoping letters. Two field meetings were held with adjacent landowners to discuss concerns with the project (PF Doc A-57 and A-18).

On May 17, 2005 the Wrenco Environmental Assessment was mailed to individuals and groups who had asked to be on the mailing list or who had submitted comments on the proposal. On this same day, the Wrenco EA was posted on the IPNF's website. On May 18, 2005 a legal notice was published in the IPNF's newspaper of record, *The Spokesman-Review*, to inform the public that the Wrenco EA was complete and available for public review and comment. The legal notice stated that any decision to proceed with actions described in the EA would be subject to administrative appeal pursuant to 36 CRF 215 by any party which submitted substantive comments during the 30-day comment period. The 30-day comment period began the day after the legal notice was published and ended June 17, 2005. During the public comment period, a total of six comment letters were received, three from local landowners and three from environmental groups. The response to comments (DN, Appendix A) presents comments received during the 30-day comment period along with Forest Service's responses to substantive comments.

No significant issues were raised during scoping or during the EA 30-day comment period that would require the development of alternatives to the proposed action (Response to Comments, PF Doc. A-5).

Identification of Issues

Through public and internal scoping, we identified issues that needed to be addressed during development and analysis of alternatives (EA, pp. 11 through 14). The project interdisciplinary team used current knowledge of conditions and concerns, as well as public comments received during project development to develop a list of issues. These issues were sorted into three categories (Table 1): key issues (those within the scope of the project and of sufficient concern to drive the development of alternatives to the proposed action (EA, p. 11); analysis issues (important for their value in designing specific protective measures and for comparison of effects (EA, pp. 11 through 13); and issues eliminated from detailed analysis (those already addressed through alternative design or outside the scope of the project (EA, pp. 13 through 14). Given the scope of the project, and issues raised during scoping, there were no key issues identified to carry forward to alternative development. Potential key issues were addressed through design features (EA, pp. 18 through 28). A synopsis of how public issues and concerns were addressed is provided in the project file Document A-76.

Table 1. Issues identified during the public involvement process

Key Issues	Analysis Issues	Issues Eliminated
None	➢ Effects on Forest Composition, Structure and Landscape Pattern ➢ Effects on Fire Suppression ➢ Effects of Project Activities on Sensitive and Rare Plants ➢ Effects on Noxious Weed Populations ➢ Effects on Wildlife Habitat ➢ Effects on Soil Productivity ➢ Effects on Water Quality and Fish Habitat ➢ Effects on Air Quality ➢ Effects on Visual Quality ➢ Project Feasibility	➢ Effects to Domestic Water Supply ➢ Loss of Control During Prescribed Burning ➢ Effects of New Road Construction on Public Access

Development of alternatives was based on the existing condition of resources, issue and concerns identified by the project team and the public, and were designed in response to the purpose and need identified for the project (EA, pp. 3 through 5). A total of two alternatives were considered in detail (the No Acton Alternative and the Proposed Action).

II. The Selected Alternative

Under the selected alternative, a combination of activities will occur (see Table 2). Vegetation restoration, wildlife habitat improvement, fuel reduction, and removal of potential sediment loading to West Fork of Johnson Creek will occur in response to the purpose and need stated earlier. These activities are discussed briefly below, followed by more detailed information located further in this document.

An additional five alternatives were developed by the interdisciplinary team and considered during scoping and project development, but dismissed from further study as explained in the EA (pp. 30 through 32). These are listed below. Discussion related to why these alternatives were dismissed can be found later in this document.

- The original Proposed Action and alternatives proposed in 1995
- An alternative that would not build any new roads.
- An alternative that would use prescribed burning only.
- An alternative that would have no timber cutting, restoration only.
- An alternative that would accomplish the purpose and need without using commercial logging.

Table 2. Proposed activities by alternative

Activities	Selected Alternative A	Alternative B
Vegetation Treatments (Acres)		
Thinning	530	0
Regeneration Cutting	82	0
Total Stand Treatment Acres	612	0
Logging Systems (Acres)		
Skyline	86	0
Tractor	240	0
Tractor Winter	285	0
Road Work (Miles)		
Road Construction	3.3	0
New Road Storage	3.3	0
Existing Classified Road Decommissioning	0.8	0
Road Maintenance	5.1	0
Fuel Treatments (Acres)		
Underburn	141	0
Grapple Pile	471	0
Total Fuels Treatment	612	0

Activities That Will Occur Under the Selected Alternative

Vegetation and Fuels Treatment

As displayed in Table 2 and in the enclosed selected alternative maps, a combination of commercial harvest methods will be used on approximately 612 acres. Within Areas I (dry sites) and II (moist sites), as displayed in Table 3, thinning will take place on about 530 acres. Trees removed will generally be smaller or less dominant, species not desired for future stand composition, or diseased or dead trees not needed to meet future stand objectives. Trees removed will provide growing space for the remaining trees. Harvested areas will generally not be open enough to allow for successful establishment of desired tree species except where planted in scattered three to five-acre openings. The number of trees remaining in these areas will vary, but will generally have the appearance of being thinned. Within Area III, regeneration cutting and reforestation (planting of ponderosa pine, western larch, white pine) will occur on about 82 acres with the intent of trending these stands towards desired species such as western larch, ponderosa pine, and/or white pine.

Fuels will be treated in order to help improve the future ability to suppress wildfires, and to prepare the site for planting desired, longer-lived species of ponderosa pine, larch and white pine. To reduce the existing fuels and those created by the vegetation treatment, there will be about 471 acres of grapple piling and 141 acres of underburning. The majority of the area will be tractor yarded with a minor component of skyline yarding. Approximately 285 acres of the 525 acres of tractor yarding will be done in the winter in order to eliminate conflict between management activities and goshawk nesting in the area.

Table 3. Specific stand information for vegetation and fuel treatment under the selected alternative

Stand	Stand Acres	Area I	Area II	Area III	Fuel Treatment	Total Treatment Acres
643-04-005	58	20		4	Grapple pile	24
643-04-008	36	9			Grapple pile	9
643-04-010	220	26	151	10	Grapple pile	187
643-04-011	73	13	45		Grapple pile	58
643-04-013	31	7			Grapple pile	7
643-04-044	36	18	4	1	Grapple pile	23
643-04-045	8	1			Grapple pile	1
643-04-046	23	14	2		Grapple pile	16
643-04-047	155	58	20		Grapple pile	78
643-04-048	31	12		3	Grapple pile/underburn	15
643-04-049	110	41	2	25	Grapple pile/underburn	68
643-04-050	35		21		Grapple pile	21
643-04-051	32	28	1		Grapple pile/underburn	29
643-04-052	48	18	2	16	Grapple pile/underburn	36
643-04-053	34		1		Grapple pile	1
643-04-054	46	4	8	24	Grapple pile	36
643-04-057	23	0	3		underburn	3
Total	999					612

Aquatic Restoration and Road-related Work

To aid in accomplishing vegetation restoration activities there will be approximately 3.3 miles of road construction (see enclosed map 3 and Table 4). All new construction will become classified roads and put into storage for potential future management. All new roads will be managed as closed year round to any type of motorized vehicle (except over snow vehicles and administrative use; EA, p. 16).

Road 1023 that accesses the “D” spurs (see attached map 3) will be managed as closed on National Forest System land with a gate and/or barrier prior to road storage activities. This will deter motorized access on this road system.

To help reduce potential and existing sediment risks to the watershed, road maintenance activities will be performed to improve existing road drainage structures and surfaces on 5.1 miles of road (see enclosed map 3 and Table 5). Existing roads will be improved to meet standards suitable for use by large trucks and equipment. Drainage structures in roads that pose sediment risks will be repaired, replaced, removed, or redesigned (EA, p. 16).

Table 4. Road construction work related to the selected alternative

Road	Proposed Construction Miles	Access Management at end of Project
1023 B	0.8	Storage
1023 BA	0.6	Storage
1023 D1	0.3	Storage
1023 D2	0.1	Storage
1023 D4	0.2	Storage
1023 (from National Forest boundary in Section 30))	1.2	Storage
1023 (from end of existing 1023 to National Forest boundary)	0.14	Gated at junction of county road
TOTAL	3.3	

Table 5. Management of existing roads with the selected alternative

Road	Existing Miles	Access Management at end of Project
1023 – From the junction of county road to intersection of 1023B	0.7	Closed by earthen berm at junction of county road. Road will be recontoured along the West Fork of Johnson Creek once the road is placed in storage.
1023 – From the junction of 1023 B to junction of 1023A	0.8	Decommission
1023- From the junction of 1023A to north boundary of Section 31	0.6	Gated on 1023A at junction with county road.
1023–From the north boundary of Section 31 to the end of the existing road	1.1	Gated on 1023A at junction with county road
1023 A – From the junction of county road to 1023	1.9	Gated on 1023A at junction with county road
TOTAL	5.1	

During logging activities and during bow and firearm hunting seasons, existing gated roads in the project area will remain closed to all motorized vehicles not associated with the logging operation or Forest Service administrative use. While using these roads, the purchaser will not be allowed to use motorized vehicles to gather firewood, hunt, or transport big game animals from behind the gates.

When road reconstruction begins on Road 1023 (Riley Creek right-of-way) the road will remain closed to public motorized vehicle use with an earthen barrier and/or gate. Once activities start, this road will remain closed with a gate to public use. The gate will be closed at the end of each day's use, during periods of inactivity, on weekends, and on holidays. After completion of sale activities, this road will remain closed to public motorized use with a gate or barrier until the road could be put in storage. Storage activities will occur after post-sale activities of planting and fuel treatment have been completed.

Specific watershed improvement activities associated with the selected alternative include road decommissioning of approximately 0.8 mile of Forest Road 1023 and removal of two stream crossings and a bridge within the West Fork Johnson Creek drainage (see enclosed map 3). This road segment is currently overgrown with brush and trees. The two existing stream crossings and

bridge will be removed to eliminate their risk of causing sediment to enter the West Fork Johnson Creek. After work is completed, both ends of Forest Road 1023 will be recontoured (EA, p. 17).

Effectiveness of the Selected Alternative in Meeting the Purpose and Need

The purpose and need statements explain why we have proposed this project. When considering alternatives it is important to me that the selected alternative is one that best fulfills our purpose and need. At the same time I must weigh other important concerns such as what level of effect the alternative will have on the environment, how well it addresses public concern and whether it is consistent with applicable laws and policy. Below are our purpose and need statements, followed by my rationale for selecting Alternative A based on the purpose and need.

Restore desired forest cover, structure, pattern, and species composition across the landscape where they are outside natural or historic ranges by:

- Changing forest composition (species mix) to emphasize long-term dominance of shade-intolerant species, such as ponderosa pine, western larch, and western white pine.
- Beginning to move the forest towards a structure (size/age class distributions) that approximates those structures found under low- and mixed-intensity fire regimes.

Provide wildlife habitat diversity by:

- Beginning to move the forest towards a composition and structure that favors the long-term persistence and stability of wildlife habitat diversity associated with low- and mixed-intensity fire regimes.
- Improving habitat for specific target species such as: flammulated owls, goshawks, pileated woodpeckers, and white-tailed deer.

I believe the selected alternative will begin to change composition and structural stages and result in improved forest health and wildlife habitat. Our analysis shows that proposed thinning and improvement cutting will have an effect on species composition by reducing the amount of shade-tolerant species. However, this reduction would not be enough to cause a change in the overall cover type of the stand. The single exception is stand 643-04-049, where the cover type will change from Douglas-fir to ponderosa pine. I feel the biggest effect of thinning and improvement cutting is to increase the composition of desired species as well as increase the diameter and crowns of trees in the remaining stand, thereby prolonging the presence of these trees over time. Up to ten percent of areas I and II (53 acres) could end up as three- to five-acre openings. These small openings will be planted with ponderosa pine, white pine and western larch. The structure and composition of species in these small openings will change but will not affect the overall structure or cover type of the stand, because they are such a small portion of the overall area (EA pp. 48 through 50). However, I believe these small structure and composition changes will begin a positive trend toward a structure that approximates those found in low-and mixed-intensity fire regimes.

On an estimated 58 acres of existing Douglas-fir cover type, regeneration cutting will result in new stands with a change in structure from immature to early succession and a change in cover type to western larch and ponderosa pine. This small change in structure will begin trending the project area towards a structure (size/age class distributions) that approximates those found under low- and mixed-intensity fire regimes. One stand (643-04-454) currently has western larch as the

cover type; approximately 24 acres of this stand will be harvested using regeneration cutting and will retain its cover type (EA pp. 48 through 50).

I believe these positive trends in forest vegetation will, in turn, improve wildlife habitat by maintaining seral species, which will provide for long-term maintenance of preferred wildlife habitat. Vegetation treatments will begin moving stands from crowded, immature stands to open stands with larger, more mature trees, thereby promoting forest species and structure that provides desirable nesting and foraging habitat for a variety of wildlife species (EA pp. 81 through 94).

Create a forest structure and fuel conditions that would aid in suppression of wildfire adjacent to private land by:

- Reducing the amount of ground and ladder fuels.

Our analysis shows that vegetation and fuel treatments will help reduce flame lengths by reducing ground and ladder fuels (EA p. 55). More than 600 acres, almost half of the project area will be treated for fuels reduction. Based on our analysis, I feel confident that Alternative A provides the best possible combination of fuel treatment while reducing the amount of ground and ladder fuels. These reductions in fuels will ultimately aid in the suppression of wildfire within the project area.

Reduce potential sediment loading to streams from past road construction by:

- Decommissioning portions of Forest road 1023 along West Fork of Johnson Creek and removal of the failing bridge and two stream crossings on West Fork Johnson Creek.

Our analysis shows a benefit to the watershed reducing the average annual sediment production from an estimated 2.38 tons/year to 0.94 tons/year due to improvements made on existing roads as well as implementation of design features (EA, pp. 18 through 20 and 122 through 123). In addition, decommissioning a portion of Forest Road 1023 will further aid in sediment reduction. An estimated 170 tons of sediment are projected to be removed through the removal of the failing bridge and two stream crossings (EA, p. 123).

There were concerns about new road construction (limit new access) as well as the effects of roads on domestic water intake. Mitigation and design features that address these concerns include:

- hydro-mulching disturbed sites adjacent to perennial streams to avoid sediment leaching,
- installing culverts on the 1023D spurs when Johnson and West Fork Johnson Creeks are dry,
- sinking two oversized squash pipes along both perennial steam crossings and keeping them in place after the road is placed in storage,
- keeping existing gated roads closed to all motorized vehicles not associated with the logging operation or Forest Service administrative use, and
- when road reconstruction begins on Road 1023 (Riley Creek right-of-way), keeping the road closed to public motorized vehicle use with an earthen barrier and/or gate (EA, pp. 18 through 20).

In addition, funds from the sale of timber will allow us to repair areas of roads that cause sediment problems sooner than if we were to fund the road work with limited, appropriated funds.

For these reasons, I feel confident that Alternative A reduces the potential sediment load into Johnson Creek, reduces the effects to domestic water users, and limits public access to both existing and newly constructed roads. I believe that project implementation and planned road work associated with the timber sale will result in less sediment entering the Johnson Creek system.

Other Alternatives Considered

The Interdisciplinary (ID) Team considered a range of reasonable alternatives as required in 40 CFR 1502.12(a). A total of seven alternatives were considered, and two of those were considered in detail (EA, pp. 14 to 17, and 30 to 32). This section discusses the two alternatives considered in detail and my rationale for not selecting one, and other alternatives not considered in detail and their reasons for elimination.

Alternative B – No Action

Alternative B provides a baseline comparison of predicted environmental consequences associate with taking no action versus implementing the action alternative. Under this alternative, no action would be taken to respond to the purpose and need. There would be no tree removal, no fuels reduction, no road construction or decommissioning. Existing trends and uses would continue (EA, p. 18).

If this alternative were selected, natural processes, except influences from wildfire suppression, would continue. Stand composition of shade-tolerant species such as Douglas-fir and grand fir would continue to increase in relative abundance, with ponderosa pine and western larch decreasing over time. Stands would become more crowded with immature shade-tolerant trees which would not provide the large complex forest structure (live and dead) for many wildlife species. Mortality from insect and disease would increase, and fuels would accumulate. The area would be more susceptible to high-intensity, stand replacing fires because of the ground fuel loading and ladder fuels. In addition, sediment delivery from lack of road maintenance would continue (EA, pp. 50 through 131).

I did not select Alternative B because it would not meet the stated objectives in the purpose and need identified in Chapter 1 (EA, pp. 3-4), it would not begin a trend in the restoration of forest cover, structure, pattern, and species composition, it would not begin a trend in improving wildlife habitat diversity, and it would not reduce the amount of ground and ladder fuels. I strongly believe that it is important to accomplish our purpose and need in the Wrenco area. I believe an active approach for both terrestrial and aquatic ecosystem conditions are most consistent with governing direction and the best available science contained in the Interior Columbia Basin Ecosystem Management Project and other assessments (EA, pp. 5 and 6). The No Action alternative would not initiate a trend to bring this landscape toward desired conditions in the long-term. For these reasons I did not select Alternative B.

Alternatives Considered But Eliminated From Detail Study

An additional five alternatives were developed by the interdisciplinary team and considered during scoping and project development, but dismissed from further study as explained in the EA (pp. 30 through 32) and below.

The Original Proposed Action As Proposed in 1995

The proposed action has evolved over many years. Since the time it was originally proposed, the following conditions and concerns prompted my staff to change it. The silvicultural prescription for some areas proposed for treatment changed after recent field verification. Portions of areas originally intended for thinning have deteriorated due to increased insect and disease activity. Due to the amount of mortality, a thinning is no longer feasible and regeneration harvest is more appropriate. Other changes were based on changed vegetation conditions as ground verification revealed new information making some areas higher priority and others lower priority for treatment.

The proposed road construction to access the area changed due to public comments and concerns. Further ground verification revealed an alternate route to be more feasible and less ground-disturbing. With this change, stream crossings were eliminated, logging systems changed in some areas to be less ground-disturbing, and the type of road construction changed from temporary roads to all permanent system roads. The development of a trail system has been eliminated due to public comments and concerns. For these reasons, this alternative, with its options was eliminated from further consideration.

No New Road Construction

This alternative was considered to evaluate whether we could accomplish our purpose and need with out constructing new roads and using only existing roads. Watershed restoration would occur in the areas where known sediment sources exist. The areas that could be harvested using the existing roads (assuming acquisition of right-of-way from Riley Creek Timber Company) and conventional logging systems constituted a small portion of the project area. The remaining priority stands within the project area would be helicopter logged.

The project area lies within Forest Plan management areas 1 and 4. The intent of both these management areas is for long-term management. The lack of access into this area creates more complex problems for both fuels reduction and vegetation management now and in the future. The complexity lies in the increased demand on resources due to lack of access for slash piling, prescribed burning, planting, and precommercial thinning. Much of this work would require long walks to reach the site(s). There is a risk of not being able to accomplish future work in the area with a lack of access.

Thinning with a helicopter in young moist stands is difficult without creating damage to the residual trees. Pulling trees up through a dense crown canopy creates undue crown damage, which can have negative effects on residual tree growth. Without adequate access for fire suppression there is a decreased probability of fire suppression success due to slower response time and lack of equipment access for engines. For these reasons, this alternative was eliminated from further consideration.

Prescribed Burning Only

This alternative was considered after we received suggestions to use prescribed fire to reduce stand density without cutting trees. Using prescribed burning as the primary tool would not be effective at achieving the objectives of the purpose and need for most of the project area. Safe and controlled prescribed fires are planned in spring and fall when weather and moisture conditions help fire managers keep fire intensities and severities low. In stands where thinning is the objective, shady conditions and lack of continuous natural fuels would make burning in spring or fall difficult. Trees would not be thinned effectively with fire alone to achieve desired composition, cover, structure, and pattern. In order to get a fire to achieve the objectives of

thinning in the shady stands, hotter and drier conditions would be necessary, and this would likely result in a lethal crown fire, which could kill most of the trees.

In areas where the objective is to regenerate the stand, using fire to accomplish objectives in those stands would require igniting the stands in hot and dry conditions to produce a lethal fire that would kill enough of the trees and brush, and create the openings needed for regenerating desired species. Such conditions would cause too great a risk of consuming more than just the trees in the areas proposed for regeneration, and would risk loss of control putting adjacent private lands at a high risk.

Although other objectives of our purpose and need (reducing sediment risks) could still be accomplished without treating the forest vegetation, little would be achieved to begin moving the project area toward a forest structure and composition that emphasizes long-term dominance of shade intolerant species. This alternative would also not meet Forest Plan standards for reforestation, reduction of susceptibility to insect and disease damage, site preparation and reduction of fire intensity and spread (see EA, Chapters 1 and 3). For these reasons, this alternative was eliminated from further consideration.

No Timber Cutting, Restoration Only

This alternative would be similar to the Prescribed Burning Only alternative and for the same reasons described above, it was eliminated from further consideration.

Accomplish Purpose and Need without Using Commercial Logging

This alternative suggested accomplishing all the elements of the proposed action, including cutting trees, without selling the trees in a commercial logging operation. To carry out this alternative would mean that either the cut trees would be left on site, or the Forest Service would have to pay someone to remove the trees. To leave the trees on site would add a large amount of fuel and increase breeding areas for insect infestations. It would make planting difficult and create areas inaccessible to some wildlife where logs were left. Prescribed burning would not be possible because of the large amount of fuels left on site. If a wildfire were to start in one of these areas, suppression would be extremely difficult as well. In addition, leaving merchantable trees on site would waste usable wood fiber that could just as easily be utilized as products. A timber sale provides us with a means of accomplishing our objectives at a reduced cost, to treat fuels more effectively, and results in a benefit of timber as a by-product.

This alternative would not meet Forest Plan standards for reforestation, reduction of susceptibility to insect and disease damage, site preparation, utilization of forest products, and reduction of fire intensity and spread (see EA, Chapters 1 and 3). For these reasons, this alternative was dropped from further consideration.

III. The Selected Alternative by Specific Resource

For each resource, the following is briefly described:

A. Specific Design Features

These are incorporated into project design, timber sale contract, and other project plans to reduce negative effects to resources. Features of the Proposed Action are described in greater detail in the EA, Chapter 2 (pp. 18 through 28).

B. Consistency with Laws, Regulations And Policy

This discussion is not all-inclusive, but focuses on the areas raised as issues or comments from the public or other agencies. Further details are provided by resource in Chapter 3 of the EA.

C. Comparison

Briefly, the difference between the Selected Alternative and other alternatives considered in detail is described in terms of effects to each resource. A summary comparison is provided in Chapter 2 of the EA (pp. 33 through 36) with detailed information in Chapter 3 by resource.

Vegetation Management (including Plants and Noxious Weeds)

A. Specific Design Features Related to Vegetation Management

Fire-resistant species such as ponderosa pine and western larch will be the highest priority for protection. Removal of these species will only occur when retaining them conflicts with the goals of the project.

All vegetation treatments will have silvicultural prescriptions completed and approved by a certified silviculturist prior to implementation (Forest Plan, Appendix A, p. A-2), providing detailed guidance for vegetation management specific to each unit. Prescriptions will consider site-specific factors such as physical, site, soils, climate, habitat type, current and future vegetation composition and conditions as well as interdisciplinary objectives, NEPA decisions, other regulatory guidance, and Forest Plan goals, objectives and standards.

All regeneration areas will be regenerated with site-adapted species/seed source and resulting stands will be dominated by appropriate species (ponderosa pine, western larch, and white pine). In treated areas, site preparation for regeneration, fuel treatment, and planting will occur within five years of regeneration treatment. Site preparation and/or fuel treatment may include a combination of slashing, prescribed burning, or grapple piling depending on post-harvest conditions that meet both site preparation and hazard reduction objectives.

Any changes to the selected alternative that may occur during layout will be reviewed, and additional TES plant surveys will be conducted as necessary prior to project implementation. Newly documented occurrences will be evaluated, with specific protection measures implemented to protect population viability. Such measures could include the following;

- Dropping units from harvest activity
- Modifying unit boundaries to provide adequate buffers around documented occurrences, as determined by the project botanist and based on topography, extent of contiguous suitable habitat for documented occurrences and the type of treatment proposed

- Modifying harvest methods, fuels treatment or logging systems to protect TES plants and their habitat
- Implementing, if necessary, timber sale contract provisions to protect plants and animals (B6.24), and Settlement for Environmental Cancellation

Noxious weed treatment will be conducted according to guidelines and priorities established in the Sandpoint Weed Control Project FEIS. Methods of control may include biological, chemical, mechanical and cultural. Herbicide treatment will not exceed the maximum treatable acres established under the Sandpoint Weed Control Project FEIS adaptive strategy. A table displaying maximum treatable acres in the Johnson Creek drainage is included in the project file- weeds section.

Gravel or borrow pits to be used during road construction or reconstruction will be free of new weed invader species (as defined by the Idaho Panhandle National Forests Weed Specialist). A list of weed species considered potential new invaders is included in PF Doc. F-5.

Any priority weed species (as defined by the Idaho Panhandle National Forests Weed Specialist) identified during road maintenance will be reported to the District Weed Specialist. A list of priority weed species is included in PF Doc F-5.

Weed treatment of all haul routes and service landings will occur prior to ground-disturbing activities where feasible. If the timing of ground-disturbing activities will not allow weed treatment to occur when it will be most effective, it will occur in the next treatment season following the disturbance.

All timber sale contracts require cleaning of off-road equipment prior to entry onto National Forest lands. If operations occur in areas infested with new invaders (as defined by the Idaho Panhandle National Forests Weed Specialist), all equipment will be cleaned prior to leaving the site. All newly constructed roads, skid trails, landings, or other areas of disturbance (including maintenance on existing roads) will be seeded with a weed-free native and desired non-native seed mix and fertilized as necessary. All straw or hay used for mulching or watershed restoration activities will be certified weed-free. Road segments identified for weed treatment and proposed for obliteration will be treated prior to obliteration.

B. Consistency with Laws, Regulations and Policy Related to Vegetation

As described in the EA (pp. 51-52) implementation of activities under the selected alternative is consistent with Forest Plan standards related to vegetation management. All stands identified for regeneration harvest are on lands suitable for timber production and can be adequately restocked within five years of the final harvest (EA, p. 52). All treatments under the selected alternative are silviculturally appropriate and are within the timber and vegetation management practices outlined in the Forest Plan goals, objectives, management direction, and practices (EA p. 52).

The selected alternative is consistent with all applicable Forest Plan standards for old growth management (see Appendix C “Errata” of this document). Allocation of old growth is based on current and widely accepted science, and follows definitions from the Forest Plan, the Regional Task Force Report, and Forest Supervisor letters of direction for implementing Forest Plan old growth standards. Starting in 2001, the IPNF undertook a comprehensive review of old growth data, and did some new field reviews and stand exams to be sure the stand database is doing the best job possible of depicting current conditions on the ground. This ongoing review, monitoring and updating of old growth inventory results in some changes in old growth stand acres reported in annual monitoring reports over the years, in response to changing conditions on the ground and

new information. We have completed a validation of data used for analysis and a review of old growth stands in the Wrenco area (PF, Doc. C-11). We found the requirement that at least 10% of the forested portion of the IPNF is maintained as old growth has been exceeded (Appendix C "Errata" of this document). The Sandpoint Ranger District has also exceeded its standard of managing 19,000 acres as old growth.

Our findings have been verified through Forest Plan monitoring (PF, Doc. C-12). Because they have complementary strengths, the IPNF is using two separate, independent tools to inventory and monitor old growth at the Forestwide scale: 1) Forest Inventory and Analysis (FIA) data; and 2) IPNF stand level inventory, with old growth status recorded in TSMRS database. These two independent inventories use substantially different sample designs, and are administered and carried out by different people. FIA old growth estimates are based on a statistically sound, systematic sample of the entire National Forest, administered by the Rocky Mountain Research Station in Ogden, Utah. Our stand level inventory is based on examination of selected individual forest stands for old growth characteristics. This stand level inventory is carried out by IPNF ranger district personnel. Evaluating the stand level old growth information with the FIA old growth percentage estimates provides the most comprehensive picture of old growth amounts on the IPNF. The two independent Forest Service old growth inventories produce remarkably similar results. Based on FIA data, the current estimate of the proportion of old growth on the forested portion of the IPNF is 12.85 percent; the IPNF stand level inventory of allocated old growth is 12.1 percent of forested lands.

The stand level inventory amount is well within the 90% confidence interval of the FIA inventory (from 10.55 to 15.27 percent). From statistical perspective, at the 90% confidence level, the two numbers are not significantly different. Together, these two inventories offer compelling evidence that the IPNF is meeting Forest Plan standards for the amount of old growth to be retained.

Both the Forest Service old growth inventory methods and results are fully disclosed and available to the public. FIA design and protocols are public information and are readily available on the FIA website (http://ww.fia.fs.fed.us/). More detailed reports on methodology for estimating old growth with FIA data are available from the Northern Regional Office of the Forest Service in Missoula, Montana. The entire IPNF stand map and TSMRS database (including stand-by-stand old growth allocations) are available on the IPNF website, and are updated periodically.

The selected alternative meets Forest Plan direction, as well as National Forest Management Act (NFMA) requirements for maintaining population and species viability for rare plants and meets Forest Plan direction for noxious weeds by providing moderate control actions through project design to prevent new weed species from becoming established (EA, pp. 63-63, and 69-70).

C. Comparison of Effects to Forest Vegetation By Alternative

Alternative B (No Action) would have no direct impact on cover type. Stand composition of Douglas-fir and grand fir would continue to increase in relative abundance, with ponderosa pine and larch decreasing over time (EA, p. 50). Mortality would continue throughout the stands and would continue to "open up" root disease areas to early succession Douglas-fir (EA, p. 50). Management activities would not change from current levels and current vegetation trends would be expected to continue. Alternative B would have no direct or indirect impact to TES plants or Forest species of concern (EA, p. 62); however, there would be no improvement made to vegetation conditions.

The selected alternative will result in approximately 10 percent change in overall cover type. Structure will change on approximately 82 acres from immature to shrub/seedling/sapling stage within the regeneration cutting areas. The structure and composition of species in the small openings created (where trees have been suppressed or where insect and disease problems pose a threat to stand health) will change but will not affect the overall structure or cover type of the stand, because they are such a small portion of the overall area (EA, pp. 48 through 50). I believe these small structure and composition changes will begin a positive trend toward a structure that approximates those found in low-and mixed-intensity fire regimes. Sensitive species and Forest Species of Concern will be buffered from all management activity (EA, p. 61). Features designed to prevent the introduction of new noxious weeds and reduce the spread of weeds from proposed activities (EA, pp. 27-28) are expected to be fairly effective on roads, skid trails and landings. Proposed road closures will also help reduce the spread of weeds (EA. P. 67).

Fire and Fuels Management

A. Specific Design Features Related to Fire and Fuels Management

Prescribed burning treatments will be conducted according to established standards in FSM 5142 - Prescribed Fire Management. A site-specific burn plan will be prepared for each area to be burned. Burning will only occur when weather, fuel conditions, and available resources are at the levels specified in the prescribed burn plan (EA, p. 20).

Landing slash and excavator piles will be burned in late fall after heavy rains and during cooler temperatures when the risk of escape into adjoining stands and damage to residual timber is lessened (EA, p 21).

B Consistency with Laws, Regulations and Policy Related to Fire and Fuels Management

A goal of the Idaho Panhandle National Forests is to provide efficient fire protection and fire use to help accomplish land management objectives. The selected alternative is consistent with the Forest Plan and will treat natural and activity-generated fuels by grapple piling and prescribed underburning, reducing the risk of catastrophic wildfires and the potential for escapes onto adjacent State and private lands. These actions meet the standards for both fire suppression and fuels treatment in the Forest Plan. The actions proposed under this alternative are also consistent with the Idaho Forest Practices Act that requires the management of slash and fuels hazards from forest management practices to reduce the risk of fire (EA, p. 57).

C. Comparison of Effects to Fire and Fuels Conditions By Alternative

Alternative B (No Action) would result in a continued build-up of naturally occurring fuels, both live and dead. The ingrowth of shade-tolerant tree species would continue at the seedling/sapling/pole sizes, adding to the fuel ladder that could take fire into the crowns of the larger trees. Fire behavior is expected to have flame lengths greater than four feet. In addition, the older trees would continue to lose vigor and/or die out, contributing to the ground fuels. As has been the pattern on sites being taken over by shade-tolerant species, mixed-severity fires would continue to burn; most fires would be at low to moderate intensities and size, creating small pockets within the overall stand structure (EA, p. 56).

The selected alternative will remove fire-intolerant species and treat activity-generated fuels by grapple piling or prescribed underburning. These changes will modify the woody fuel profile resulting in fire behavior, as modeled in BEHAVE, with flame lengths of less than two feet. This

will allow for more effective fire suppression by hand crews as direct attack will be more reasonable and effective under most conditions (EA, p. 55).

Aquatic Resources

A. Specific Design Features to Reduce Effects to Aquatic Resources

New Road Construction

All roads will be designed and maintained to reduce water concentration, surface flow, ponding, and resulting safety and maintenance problems. Since all new roads will be put into storage following use, they will be designed to be self-maintaining and have low risk of failure. To meet these criteria, the following design features will be incorporated:

On the 1023, 1023B, 1023BA, 1023D road spurs: To minimize excavation and clearing work, outsloped roads with armored rolling dips will be required, except where steep road grades exist. The geology of the project area lends itself well to this type of road shape due to the rocky soils and small fill lengths. In areas where gradients are too steep for outsloped roads, insloped roads with relief culverts will be required. Cross-drains for both types of road shapes will be spaced at about 300-foot intervals or where topography is appropriate.

Hydro-mulching and Seeding - All road construction will require hydro-mulching and seeding on soil disturbance sites next to perennial stream crossings. Mulching will occur immediately after road construction is complete.

Timing Restrictions - Road maintenance activities that place drainage structures in perennial streams will take place after July 15. This is to reduce risk of effects from sediment during spring runoff and to avoid negative effects to westslope cutthroat trout redds.

To minimize erosion and sedimentation from ground-disturbing activities during road construction, culverts will be installed during no flow or during low flow situations. Culverts installed on the 1023D spurs will be done when Johnson Creek and West Fork of Johnson Creek are dry. Culverts installed along Road 1023 should be done during low-flow conditions, after July 15.

Existing Roads

Decommissioning (from the junction of Road 1023B to the junction of Road 1023A) – This road is recommended for decommissioning (see enclosed map 3) and will be recontoured in areas where required. Two log culverts and one failing bridge will be removed (PF, Doc. I-25) and the stream channel at the crossings will be restored back to natural grade. In disturbed areas, seeding, fertilizing, and placement of woody debris will follow culvert and bridge removal to help establish desired vegetation and prevent noxious weed spread.

Surface and Drainage Crossing Maintenance (from the junction of Road 1023A with the county road to the end of existing road 1023 – The main source of erosion and sediment delivery from these roads is usually from the road surface. Road maintenance activities will be completed and focus on reducing sediment production include; blading along the road prism; spot surfacing at stream crossings; installing relief culverts where ditch lengths are too long; cleaning and improving ditches; cleaning the inlet and outlets of culverts; and installing rolling dips and outlet ditches.

The Forest Service, throughout the entire project area, has evaluated road drainage crossings that pose a hazard and risk to aquatic species and their habitat from sediment delivery. Recommendations for each crossing may include replacing, redesigning or upgrading crossings as needed.

Relief and In-Channel Culverts (Road 1023 from the junction of the county road to the junction with Road 1023B) **–** Relief and in-channel culverts will be designed and installed to improve water bypass under the entire road prism of the right-of-way. Two oversized squash pipes will be sunken along both perennial stream crossings to provide for aquatic passage and reduce the risk of culvert failure. The pipes will not be removed once the road is put into storage to minimize short-term sediment increases. These pipes are designed using guidelines by the Inland Native Fish Strategy Standards to accommodate a 100-year flood. These design features and the low gradient stream channels along this section of road and gentle hillslope topography allows for safely leaving the pipes in place (EA, p. 20).

Within the wet meadow, filter fabric, rock aggregate and road surfacing will also be added to the existing road prism to reduce sediment production and delivery. The road will also be recontoured along the West Fork Johnson Creek after being placed into storage.

Sediment Reduction - Spot gravelling with approximately six inches of gravel will be required at all stream crossings, rolling dips, within the riparian habitat conservation area (RHCA), and in any perennial wet areas.

Timing Restrictions - Road maintenance activities that repair or remove drainage structures in perennial streams will take place after July 15. This is to reduce risk of effects from sediment during spring runoff and to avoid negative effects to westslope cutthroat trout redds.

Soil Water and Fish Habitat

Best Management Practices (BMPs) - All activities will be designed to protect water quality and fisheries habitat. BMPs (e.g., silt fence, ditch blocks) are the primary mechanism to meet water quality standards. The Forest Service Handbook 2509.22 (Soil and Water Conservation Handbook) outlines BMPs that meet the intent of the water quality protection elements of the Idaho Forest Practices Act.

Inland Native Fish Strategy (INFS) – There will be no commercial timber cutting within riparian habitat conservation areas (RHCAs) using the guidelines established by the Inland Native Fish Strategy (INFS). These no-cut zones include 300-foot (slope distance) protection zones for streams that have fish, 150-foot protection zones for perennial streams with no fish, and 75-foot protection zones for intermittent streams and sensitive landtypes. Ephemeral draws will have a 50-foot (slope distance) protection zone if they are either directly tied to an intermittent channel or lack large woody debris and vegetation that will prevent scouring or head cutting.

B. Consistency with Laws, Regulations and Policy Related to Aquatic Resources

Water Quality – I find the selected alternative complies with the Forest Plan, the Inland Native Fish Strategy, the Clean Water Act, the Endangered Species Act, and other regulatory requirements. By restoring seral tree species and reducing fuels, the proposed action reduces the risk of an intense, stand-replacing fire that will significantly increase runoff, erosion, and sediment delivery to streams (EA, p. 128). The selected alternative is consistent with direction in the Forest Plan to maintain high quality water to protect fish habitat, water based recreation, public water supplies, and be within state water quality standards, and with the Clean Water Act. Maintenance of ground cover through these techniques will minimize increases in water yield and

sediment delivery to area streams. Improved maintenance on existing roads, decommissioning of a portion of FS Road 1023, and storage of new roads after project completion will contribute to attainment of mandated water quality objectives. Since there will be a net reduction in sediment with implementation of this alternative, when compared to the existing condition, the requirements of the Clean Water Act and the beneficial water uses mandated by the Idaho administrative codes will be achieved (EA, p. 128).

Aquatic Habitat - Using the design features listed above, standard best management practices, and proposed INFS buffers, I find the selected alternative will be consistent with the Forest Plan and the Clean Water Act objectives of maintaining or improving water quality and soil conservation. The above criteria will reduce sediment yield from existing sources and eliminate potential point source structure failures along West Fork Johnson Creek, while minimizing effects on surface water from timber management. By implementing activities that provide for an overall improvement in water quality, the selected alternative will be consistent with Forest Plan objectives of maintaining or improving fish populations or their habitats (EA, p. 128).

The selected activities comply with the guidelines in the Soil and Water Conservation Handbook (Forest Service Manual 2509.22), which outline BMPs that meet the intent of the water quality protection elements of the Idaho Forest Practices Act (EA, Appendix A pp. 157 through 166).

C Comparison of Effects to Aquatic Conditions By Alternative

Under Alternative B (No Action) there would be no direct effects on current surface runoff or sediment yield in the project area. Existing sediment yields from hillslopes and roads would continue. The potential sediment contribution to West Fork Johnson Creek by the two log culverts and one abandoned bridge, which is failing, along Road 1023 would also remain (EA, pp. 124 and 128). No direct effects on fish habitat are expected from implementing this alternative. Indirectly, habitat conditions would continue to recover from historic disturbances (EA, pp. 124 and 125).

Under the selected alternative, predicted surface runoff is expected to decrease slightly from an average annual surface runoff of 0.65 acre-feet under existing condition to 0.62 acre-feet. This decrease is due to improvements at the crossing of Road 1023 and improved road maintenance activities along National Forest roads. Average annual sediment production is predicted to be reduced from an existing 2.38 tons/year to 0.94 tons/year due to improvements made on existing roads as well as implementation of design features (EA, pp. 122 through 123 and 18 through 20). Cumulative sediment yields under the selected alternative compared to the no action would decrease by 0.57 tons on an average annual basis. Further benefits to the watershed will occur with the decommissioning of a portion of Road 1023. An estimated 170 tons of sediment is predicted to be removed through the removal of the failing bridge and two stream crossings. Some short-term impacts to fish will likely occur during the construction of new roads and the repair of existing crossings. Using BMPs and timing restrictions will limit these impacts.

Soils

A. Specific Design Features to Reduce Effects to Soils

Tractor Yarding*:*

- Where present, existing skid trails will be used.
- All new skid trails will be designated.

- Where terrain is conducive, trails will be spaced at least 100 feet or more apart.
- Erosion control measures for skid trails could include either covering trails with slash and randomly placed logs (on contour) to increase the microtopography needed to reduce runoff, or stabilizing with waterbars, or a combination thereof.
- Excavated skid trails will be recontoured and seeded after logging is completed.

Protection of Residual Stand – To protect the residual stand in selective cutting unit, the size of logging equipment would be limited to meet the treatment objective. Skid trail width in these cutting units would not exceed 10 feet, unless otherwise agreed to by the sale administrator. Requirements to accomplish this objective may include one or more of the following: (1) limiting the size of logging equipment, (2) using rub trees, or (3) restricting the timing of logging. The use of skyline yarding where feasible protects residual trees as well.

Protection of Soils within Specific Stands - Within stands 64304047, 64304050, 64304052, and 64304054 exiting skid trails will be used along with slash mats to reduce additional impacts from harvest activities.

Skyline Yarding - The intent is to reduce the potential detrimental soil impacts of displacement and compaction. The leading end of logs will be suspended during yarding. Yarding across any designated RHCA will require full suspension.

Temporary Road Construction - An engineer or hydrologist will review locations of temporary roads longer than 300 feet prior to construction approval.

Nutrient Protection - The latest soil nutrient management recommendations from the Intermountain Forest and Tree Nutrient Cooperative (IFTNC) and Rocky Mountain Research Station (RMRS) will be applied as appropriate to each activity area where organic material is removed. This may include over-wintering of fine residue (foliage and branches) to allow potassium to leach back into the soil.

Nutrient Protection on Machine or Hand-Piled Areas - Fine residue (foliage and branches) will be left on-site over the winter to allow potassium to leach out of these materials. Piling will occur the following spring, summer or fall.

Retention of Coarse Woody Debris - Management of coarse woody debris and organic matter in regeneration units will follow Forest Service Northern Region guidelines. In units where existing coarse material is not sufficient, project activities will provide enough dispersed dead and downed coarse material to meet the guidelines.

Protection during Grapple Piling or Mechanical Harvest Activities - The harvester or grapple pile machine will operate on a slash mat.

Protection During Logging Activities - Winter tractor skidding is required on 285 acres and will operate under one of the three following conditions:

- on a 24-inch snow layer or 18 inches of settled snow
- on a combination of frozen mineral soil at least 2 inches thick with a minimum of 6 inches of snow maintained beneath the tread or wheels of operating equipment and logs dragged behind skidders
- on frozen ground to a depth of 4 inches with equipment operation restricted to skid trails or where adequate slash matting exists.

Protection of Soils in Landings - Landings located within timber stands 643-04-047, 643-04-050, 643-04-052, and 643-04-054 will be rehabilitated by subsoiling, seeding, and allowing slash to decompose on site.

Protection During Prescribed Burning Activities - Prescribed underburning and pile burning will take place only when the upper surface inch of mineral soil has a soil moisture content of 25 percent by weight or 100 percent duff moisture.

B. Consistency with Laws, Regulations and Policy Related to Soils

I find the selected alternative complies with Forest Plan standards and the Regional Soil Quality standards (FSM R1 Supplement 2500-99-1) related to detrimentally disturbed soils. Soil disturbing management practices, including system roads, comply with the Forest Plan Standard requiring >80% of an activity area to remain at an acceptable productivity potential (see Soils section of project file and EA p. 110). Site productivity will be maintained using large woody debris, following the guidelines of Graham et al. (EA, p. 111). I find that practices will comply with IFTNC guidelines to insure sufficient nutrient capital (EA, p. 111). Detrimental disturbance following the project will not exceed the recommended 15% in any individual activity area (EA, p. 107, 111).

C Comparison of Effects to Soil Conditions By Alternative

Under Alternative B, detrimental impacts from past activities would remain in five stands (643-04-013, 643-04-047, 643-04-050, 643-04-052, and 643-04-054; see EA, table 3-19, p. 107), because there would be no proposed activities (EA, p. 110). Stands currently at high risk for insect and disease mortality would not be treated, which may increase the risk of stand loss due to wildfire, severe burning, and loss of soil nutrients (EA, p. 109).

Under the selected alternative, all activity areas proposed for harvest will maintain less than 15% detrimental impact (EA, p. 107), meeting R-1 and IPNF soil productivity standards. Most potassium and large woody debris will be retained on site through design criteria (EA, pp. 24 through 28). Approximately 53 acres of landtype unit 190 will be entered. Given the topography of these 53 acres, the lack of existing or planned roads, harvesting during the dry season, and skid trail erosion control will result in fairly low surface erosion potential (EA, pp. 105 through 109).

Wildlife

A. Specific Design Features to Reduce Effects to Wildlife

Wildlife Tree Retention - Snag management objectives for the project were patterned after historical conditions for vegetative communities, recognizing that the natural density and distribution of snags vary across the landscape and that current conditions may not make it possible to instantaneously meet these objectives for some areas (e.g. long-term fire suppression that interrupted natural snag recruitment, past timber harvesting).

Snags and live tree replacements will be retained where opportunities exist in treatment units at levels recommended by recent studies and scientific literature. Snag retention objectives are consistent with recent published data that suggests that populations of cavity nesters were viable in stands of ponderosa pine and mixed conifer forests that contained about four snags per acre.

Where they exist, the following minimum amounts of snags and live tree replacements will be retained within cutting areas:

- Dry forest habitats: 4-6 snags/acre and 8 live tree replacements/acre from the largest representative trees.
- Moist forest habitats: 6-12 snags/acre and 12 live tree replacements/acre from the largest representative trees.

Selection of snags should emphasize practices that assure a diversity of snag structural classes and the highest probability for long-term retention. The high hazard snags and snags in the advanced stages of decay will not be used to meet retention objectives. Retention practices will focus on larger diameter ponderosa pine, western larch, Douglas-fir and western red cedar trees, especially veteran or relic ponderosa pine and western larch trees. Trees killed by root disease should be avoided, where possible, to meet retention objectives because of their rapid deteriorate/fall-down rate.

While retention objectives are accounted for on a treatment level scale, some snags will be represented on every 10 acres of treatment, in clusters or clumps where feasible, to promote good distribution of snags. Large diameter snags (greater than 15 inches diameter) that are felled for safety reasons will remain on site to provide for large woody debris recruitment and long-term site productivity.

Slash will be pulled back from veteran or relic ponderosa pine and western larch live trees and snags to protect them from the adverse effects of prescribed burning. Grapple piling will be considered to treat fuels on moderate slopes where residual snags will be at risk from broadcast burning.

Retention of Hardwood Trees - To maintain forest species diversity and wildlife habitat, aspen and birch trees will not be harvested for pulp. If trees of these species need to be cut for safety reasons, they will remain on site for coarse woody debris and long-term site productivity. Selected merchantable conifers in and around aspen patches will be removed to reduce competition for water, sunlight, and nutrients. This strategy will provide benefits to various wildlife species.

Goshawk Nest Site Protection - Mitigation measures will be implemented to help ensure that nest sites and post-fledgling areas are receiving minimal disturbance. A permanent no-activity buffer (>150 foot radius) will be placed around each known nest tree. In addition, a 30-acre buffer will be placed around each nest area to provide long-term nesting habitat. Treatments within the 30-acre buffer will be limited to activities that will enhance suitability of nesting habitat (e.g. thinning understory congestion while retaining overstory protective cover).

Purchasers operations and related Forest Service activities will be suspended within a ½-mile distance of active nest areas from March 15 to August 15 to 1) promote nesting success and 2) provide foraging opportunities for adults and fledgling goshawks during fledgling-dependency period. Activity restrictions will be removed after June 30 if the Forest Service determines the nest site is inactive or unsuccessful.

Grapple Piling - Leave one to three slash piles per acre unburned for small forest mammals and land birds.

Threatened, Endangered, and Sensitive Wildlife Species Management - If threatened, endangered, or sensitive species are located during project layout or implementation, management activities will be altered to include proper protection measures. Timber sale contract provision B6.24 (Protection of Animals, Plants and Cultural Resources) will be in the timber sale contract.

Management of Trails – An existing non-system all terrain vehicle (ATV) trail entering the northeastern portion of the project area extending through the middle of the project area will have slashed placed on and around the trail during grapple piling. This will discourage motorized use and help provide secure nesting habitat for the existing goshawk nest adjacent to a portion of the trail.

B. Consistency with Laws, Regulations and Policy Related to Wildlife

I find the selected alternative is consistent with the Endangered Species Act (ESA) and Forest Plan requirements regarding wildlife. Wildlife species listed under the ESA, sensitive species, and management indicator species in the IPNF were screened for their relevancy to the Wrenco Project by reviewing sighting records, Forest Timber Stand database (TSMRS) and 2004 field review notes (EA, pp. 81 through 92). The Sandpoint District wildlife biologist evaluated the selected alternative in regard to these wildlife species; findings are summarized in the table below, with further information disclosed in the EA (Chapter 3, Wildlife) and in the Biological Assessment (see Appendix B in this document). Based on the information and analyses provided, I find that the selected alternative is consistent with Forest Plan management direction, goals, objectives, standards and guidelines for the management and protection of these wildlife species and their habitat (EA, pp. 82 through 93).

C. Comparison of Effects to Wildlife Conditions By Alternative

Species	Comparison of Effects
Boreal Toad	There would be no impact to boreal toad under Alternative B (No Action) since there would be no alteration of upland habitats or breeding habitat (EA, p. 82). The selected alternative will protect wet and riparian areas and will only have minor short-term impacts to individuals (EA, p. 81).
Flammulated Owl, Pygmy Nuthatch, Fringed Myotis	Under Alternative B there would be no direct impacts. Stands would continue to decline in health and vigor and become increasingly crowded with immature trees. Ponderosa pine and western larch would continue to be replaced by shade-tolerant species; habitat for flammulated owls, pygmy nuthatch and fringed myotis would further decline. There would be a long-term shift to small-diameter snags that are not desired by cavity nesters as the stands become more crowded. There would be an increase in the potential for fires and disease (EA, p. 84). Under the selected alternative, habitat improvement will result from understory shrub development; thereby, improving foraging habitat. Conversion and maintenance of seral species will provide for long-term maintenance of preferred habitat. Over the long-term, high quality, large-diameter snags would enhance nesting habitat and improved habitat for pygmy nuthatches and fringed myotis (EA, p. 83).
Northern Goshawk	Under Alternative B stands would continue to increase in stem densities and become increasingly crowded; thereby, detracting from its attractiveness to goshawks in some areas. Stands in the project area would continue to decline in health and vigor and would become increasingly crowded with immature trees, ultimately resulting in increased risk of severe wildfire that could remove forest stands used by goshawks. (EA, p. 86). Under the selected alternative, harvested areas will trend from crowded, immature stands to open stands with larger, more mature trees. Selective harvest will promote forest species and structure that provides desirable goshawk nesting and foraging habitat. In the long term, this alternative will improve nesting habitat and will result in an increase in nesting and foraging habitat (EA, p. 85).

Species	Comparison of Effects
Black-backed Woodpecker	Under Alternative B there would not be an immediate change in snags or suitable habitat. As succession continued in the forest stands, and if management techniques were not implemented, stands would continue to decline in health and vigor, ultimately resulting in higher levels of tree mortality, fuel loads, and fire risk or disease outbreaks. Disease outbreaks or fire could result in a temporary increase in black-backed habitat (EA, p. 87). The selected alternative will result in some reduction in snag habitat in the project area over the short term; however, snag retention guidelines will provide habitat to maintain viable woodpecker populations (EA, p. 86).
Pileated Woodpecker	Under Alternative B stands in the project area would continue to decline in health and vigor and would become increasingly crowded with immature trees, ultimately resulting in increased risk of severe wildfire that could remove mature forest stands utilized by pileated woodpeckers. Alternative B would not result in an immediate change in snags or suitable habitat. However, as the stand becomes crowded with immature trees, snags would eventually shift to small diameter snags that are not suitable for pileated woodpecker nesting (EA, p. 88 through 89). Under the selected alternative, the harvest prescription as designed will provide for long-term maintenance of seral species. The implementation of the selected alternative will improve pileated woodpecker nesting habitat within the project area by increasing high quality, large-diameter snags (EA, p. 88).
Marten	Under Alternative B stands would continue to decline in health and vigor and would become increasingly crowded with immature trees, which would not provide the large complex forest structure that marten need (EA, p. 90). Under the selected alternative, downed wood will likely be reduced in those areas proposed for burning, however design features related to down wood (EA, p. 25) will help compensate for this loss. In the long term marten habitat will be improved through creation and maintenance of large-diameter, seral forest species (EA, p. 89).
White-tailed Deer Winter Range	Under Alternative B as succession continues within the forest stands, canopy cover would continue to increase and this would improve thermal cover conditions. However, as the stands decreased in health and vigor, the area would become more susceptible to fire, disease and insect out breaks, which would in turn, open canopies and decrease the value thermal cover for white-tailed deer (EA, p. 91 through 92). Under the selected alternative, most of the critical winter range will be thinned, resulting in some form of canopy reduction. However, the resulting canopy cover will still meet the criteria for suitable winter range cover conditions. As trees within the treated stands are released from competition with dense understory trees, canopy cover will recover and the stand will provide improved winter range conditions over time (EA, p. 90 – 91).
Forest Land Birds	Under Alternative B stands would continue to decline in health and vigor and would become increasingly crowded with immature trees. This trend would result in decreased vegetative diversity and, ultimately, decreased habitat for forest land birds (EA, p. 93). Short-term impacts to forestland birds under the selected alternative will occur as a result of temporary disturbance caused by underburning, tree removal and road construction. A short-term loss in the productivity of nesting birds within the project area may occur because of spring underburning. However, over the long term, this would be offset by increased vegetative diversity, thus providing more niches for a greater abundance and diversity of birds. There will be a reduction in snag densities over the short-term; however, design features for snag retention will minimize impacts. Over the long term, this alternative will result in high quality, large-diameter snags that will enhance habitat for snag dependent species (EA, p. 92).

Air Quality

A. Specific Design Features Related to Air Quality

Smoke Management - All prescribed burning will be conducted following the memorandum of agreement established between the Forest Service and the States of Idaho and Montana (August 1990, project file-Air Quality section) to comply with state and federal air quality guidelines.

Burning will only occur when weather and air conditions are favorable for smoke dispersal. No burning will be initiated during times when air quality restrictions are in place.

B. Consistency with Laws, Regulations and Policy Related to Air Quality

Burning under the selected alternative will be performed in accordance with smoke management practices, which are designed to prevent the smoke from causing a violation of the National Ambient Air Quality Standards (NAAQS). I find the selected alternative will be consistent with Forest Plan Standards and the Clean Air Act (EA, p. 136).

C. Comparison of Effects to Air Quality Conditions By Alternative

Under the No Action Alternative, the background sources of air pollution would remain the same. Impacts from the proposed prescribed burning project would not occur. However, the intensity and difficulty of suppression of future wildfire during the summer months would be increased. Emissions from a potential wildfire covering the entire project area would be higher than emissions from prescribed burning on comparable acreage (EA, p. 136).

Under the selected alternative predicted total emissions for $PM_{2.5}$, PM_{10} and TSP for the proposed action are well below 100 tons. Approximately 65.1 lbs/acre of PM10 and 55.2 lbs/acre of PM2.5 are predicted to be created during burning. The prescribed burning will be done over a period of two or more years. To limit the potential effects of inversions, the Montana/Idaho State Airshed Group will only allow burns to be conducted when good or excellent dispersion conditions are indicated (EA, pp. 134 through 136).

Visual Resource

A. Specific Design Features Related to Visual Resource

Based on the analysis (EA, p. 137 through 139) there will be negligible effects on visual resources in the Wrenco Area; therefore no specific design features were necessary.

B Consistency with Laws, Regulations and Policy Related to Visual Resource

The selected alternative meets visual quality objectives established in the Forest Plan, and is consistent with Forest Plan goals and standards for visual quality (EA, p. 139).

C. Comparison of Effects to Visual Conditions By Alternative

Since no activities would occur under Alternative B the character of a slightly altered landscape would not change. The scenic integrity would remain the same (EA, p. 139). Under the selected alternative, the uniform texture of the tree canopy may change to a somewhat mottled texture from sensitivity level 1 viewpoints.

Under the selected alternative timber harvest will not result in a discernable change in form, line, and color over most of the project area. One exception to this is the steep upper slopes of the area planned for an irregular shelterwood harvest in stand 643-04-049. The view angle into this area is more acute because it is steeper ground. The top of this area will be visible to the viewpoints after harvest. The vegetation removal here will repeat the form, line, color, and texture of the natural occurrences common to the surrounding areas by creating small openings that are irregular in shape and similar in size to the natural openings on the landscape (EA, p. 138).

Project Feasibility

A. Specific Design Features Related to Project Feasibility

There are no specific design features related to project feasibility.

B. Consistency with Laws, Regulations and Policy Related to Project Feasibility

Forestwide goals, objectives, and standards for finances are not specifically addressed in the Forest Plan (EA, p. 141). This issue is addressed indirectly in the discussion of community stability. I find the selected alternative will meet this Forest Plan objective because timber harvest will contribute to the continuing operation of local mills, directly and indirectly enhancing the local and state economy through employment and tax revenues (EA, p. 141).

C. Comparison of Effects to Project Feasibility Conditions By Alternative

Generally, the financial analysis estimates the cost to implement each alternative, and predicts how much of that cost can be offset by revenue generated under each alternative. Revenue estimates are based on several predicted factors; for example, market values, species and size of trees harvested, total volume offered for sale, and the distance timber must be hauled to reach the mill (EA, p. 140).

Since there would be no activities implemented under Alternative B, no revenue would be generated by the sale of timber (EA, p. 141). The predicted high bid for the selected alternative, is a total sale of $242,869.19. Based on this value, the selected alternative is considered viable.

IV. Synopsis of Cumulative Effects

In *Lands Council v. Powell*, the U.S. Court of Appeals for the 9th Circuit held that, under the circumstances presented in the case, proper cumulative impact analysis required some cataloguing of past projects and their effect on the current project area. Furthermore, such cataloguing should provide sufficient detail to allow for analysis of the differences between prior projects and proposed projects, which could provide the information necessary to consider alternatives that might have less impact on the environment. This EA provides information of relevant past, present and reasonably foreseeable activities that have occurred, are occurring, or are proposed to occur within each resource cumulative effects area examined in this analysis (EA, pp. 47 through 52 [Forest Vegetation], 55 through 57 [Fire/Fuels], 60 through 64 [TES plants], 66 through 70 [Noxious Weeds], 81 through 94 [Wildlife], 102 through 111 [Soils], 121 through 131 [Aquatic Resources], 134 through 136 [Air Quality], 138 and 139 [Visual Resources], and 141 [Project Feasibility]).

After the release of the Wrenco EA, the Council on Environmental Quality (CEQ), whose responsibility it is to coordinate federal environmental efforts and work closely with agencies and other White House offices in the development of environmental policies and initiatives, provided guidance to federal agencies on the consideration of past actions in cumulative effects analysis[1]. CEQ stated that "generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historic details

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

of individual past actions" (CEQ memo p. 2). Cumulative impact is defined in CEQ's NEPA regulations as the "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" (40 CFR 1508.7). CEQ has interpreted this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ, 2005, p. 2).

During the scoping process and subsequent preparation of the Wrenco EA, the Forest Service determined what information regarding past actions was useful and relevant to the analysis of cumulative effects. While CEQ found that cataloguing past actions and specific information about the direct and indirect effects of a past project's design and implementation could in some contexts be useful to predict the cumulative effects of the proposal, the regulations do not require the Forest Service to catalogue or exhaustively list and analyze all individual past actions (CEQ, 2005, p. 3).

The Wrenco EA has provided a description of known past activities and their effects. There are, however, marked difference between past and current land management practices and policies. The evolution that has occurred in land management practices is the result of science and our ongoing monitoring actions, and changing public values.

In the Idaho Panhandle National Forests (IPNF), early to mid-20th century road construction activities focused construction mainly through river valleys, riparian areas, floodplains, and adjacent hillsides. The roads efficiently provided access but decreased the land's effectiveness as wildlife habitat and constricted stream channels, while providing a new avenue for erosion and discharge of sediment into streams. Roads on national forest lands often were simply an expansion of existing trails and paths that provided access so that they would accommodate newer equipment and current land uses. In some situations, roads were developed on abandoned railroad beds. In both cases, the location and design were predetermined from the previous use and era. As time progressed, roads were "designed" and located to achieve their primary purpose, which was to provide access and haul product at a minimal cost. In the decades following World War II (1950s –'70s), the road network was rapidly expanded to support the domestic need for lumber in housing construction.

Over the last twenty years, both road design and location have evolved as necessary tools to not only provide efficient access; but also to protect the valuable watershed resources they encroached upon. Forest Service Best Management Practices (FSH 2509.22 Soil and Water Conservation Practices Handbook) currently incorporated into road construction/reconstruction activities on the IPNF include:

- Road surfacing (gravel, etc.) was incorporated to not only provide better travel conditions; but also to prevent and control erosion from the road surface.
- Road drainage controls are now being incorporated into designs that:
    - Reduce the erosive flows in ditches by providing frequent cross-drains to relieve ditch flows;
    - Avoid water movement down the road by dispersing the drainage quickly by crowning or outsloping the road surface;
    - Stabilize ditches by lining; and
    - Disperse drainage water (that often carries sediment) onto stable forested slopes before ditches discharge into waterways.
    - Allow new and existing stream crossings to safely pass extreme events (i.e. 100-year flood event).

- Special construction techniques and designs have been utilized (i.e., full- or partial-benching of roads to avoid unstable side casting of waste materials; windrowing clearing slash to prevent sediment delivery to streams from construction activities themselves as well as from erosion of road fills and treads that are not yet protected with erosion control vegetation).
- Some roads are now designed to take advantage of the non-uniformities of the slopes they cross by "rolling grades" and grade breaks to prevent the potential for accumulations of water or excessive ditchflows that have destabilized the road bed or cause surface erosion in the past.
- Designers and planners develop road networks that avoid highly erosive or unstable slopes utilizing the *land system inventory*, hydrologists, soil scientists, and geotechnical engineers.
- Road crossings are being located at more stable sites and crossing designs are now considering water quality and fish passage as primary design criteria, rather than criteria that just account for costs and traffic efficiency.
- Roads are located well away from streams and their riparian areas where ever practicable; and the number of crossing sites is being minimized. These features are in stark contrast to past road locations that sometimes resulted in chronic sources of sediments, extended exposure of streams to direct sunlight resulting in temperature elevations, and nearly permanent reductions of the replacement sources of the structural components of streams, aquatic cover, and riparian deadfall.
- In the past, when a road's utility ended, the road was simply abandoned. These abandoned roads have been a substantial water quality and slope stability issue as they have deteriorated, especially without any maintenance. Current practice is to restore key abandoned or no longer useful roads to a "hydrologically neutral" condition where its remnants are self-maintaining and are no longer disturbing slope stability or the movement of slope water, either on or below the soil surface or the natural functions and adjustments of streams, wetlands, and other water bodies.

Impacts to forest water and soil resources from logging practices and road activities have also been reduced over the past 20 years with the introduction of Best Management Practices (BMPs) and Inland Native Fish Strategy (INFS) management direction. Based on research studies, current BMPs and INFS Riparian Habitat Conservation Areas (RHCAs) can reduce sediment yields compared with historical practices (Lee et al. 1997, USDA Forest Service 1995).

In 1972, Section 208 of the Clean Water Act Amendments established the regulatory framework for non-point source pollution control thorough use of BMPs. BMPs are defined in Idaho as a practice or combination of practices determined to be the most effective and practicable means of preventing or reducing the amount of pollution generated by non-point sources (IDAPA 20.02.01). BMP monitoring is annually conducted by the forest to validate the implementation and effectiveness of BMPs associated with land management activities. Monitoring results are used to adapt future management actions where improvements in meeting water quality objectives are indicated. Forest monitoring of BMPs indicates that in most cases they continue to function as expected and are meeting their intent (IPNF 2002, 2003).

At the time the IPNF Forest Plan was written (1987), the emphasis was on developing a commodity production strategy while minimizing impacts to watersheds and aquatic resources, including fish. The strategy for watershed management was constructed in the forest plan as a "maintenance" objective. In some situations, thresholds, or "minimum impact" standards defined the criteria for maintenance. To ensure that watersheds and aquatic resources were maintained

during forest management activities, BMPs were applied. Despite the existing forest plan standards and BMPs, the condition of fish habitat on the forest was declining, primarily due to timber harvest and road building activities (IPNF 1992).

In 1995, the forest plan was amended to include INFS management direction (USDA Forest Service 1995). The implementation of INFS gave greater protection to aquatic resources, especially riparian-dependent systems. The management direction provided by the INFS amendment is designed to protect and maintain the structure and function of riparian and aquatic systems. INFS contains goals for healthy, functioning watersheds, riparian areas, and associated fish habitats; Riparian Management Objectives (RMOs), and performance-based standards and guidelines for land management activities (i.e., timber, roads, grazing, recreation, minerals, fire/fuels, lands, riparian area management, watershed restoration, fisheries and wildlife restoration). Instead of allowing some "acceptable" level of effects on riparian and aquatic systems, INFS aims to protect aquatic resources from detrimental effects. INFS gives riparian-dependent resources priority over other resources in the Riparian Habitat Conservation Areas (RHCAs), so that while RHCAs are not "lock out" zones, activities that occur in them must either benefit riparian and aquatic resources or at least "not slow the rate of recovery below the near natural rate of recovery if no additional human caused disturbance was placed on the system" (USDA Forest Service 1995). Incorporation of the INFS management direction into the forest plan has led to improvement in the condition of aquatic resources by offering greater protections to the critical riparian areas. In addition, INFS allows for and encourages watershed restoration. Restoration has occurred over the years across the IPNF. Over 1,300 miles of roads have been decommissioned on the IPNF from 1991-2003 (IPNF 2003).

Harvest methods and removal of timber products from the national forest has changed substantially over time. The earliest harvest methods involved what is commonly called "high grading" which means the biggest, most valuable trees were harvested and other trees were left on site. Harvest methods in the late 1950s, 1960s, and 1970s focused primarily on financial objectives of providing low cost wood products. Harvest often occurred in the highest volume, easily accessible stands and often within riparian areas and adjacent to streams. Most harvest prescriptions were designed to produce healthy young stands with shorter rotation ages.

Modern timber harvest prescriptions and design emphasize desired conditions of the forest after the harvest. This usually results in the retention of various amounts of trees in a post-harvest stand, addressing objectives that may include wildlife habitat, watershed conditions, hazardous fuels, visual quality, soil productivity, forest health and others. On sites determined suitable for timber production, timber harvest may also produce timber products on a regulated basis while compatible with these other resource objectives and values. Some examples where timber production and resource objectives can be achieved simultaneously are:

- Reducing tree densities to decrease bark beetle hazard, thereby prolonging the development of the forest and maintaining tree cover;
- Managing tree canopies to limit fire spread from the forest floor to the tree crowns;
- Developing flamulated owl habitat in ponderosa pine forest through removal of smaller stems crowding larger trees, thereby providing more room to grow for the remaining trees, and open stand conditions favored by the owl;
- Designing harvest patterns across the landscape to facilitate wildlife movement, such as providing corridors and preserving travel routes for ungulates. Also, using harvest prescriptions and landscape patterns as part of a wildfire hazard reduction strategy;

- Increasing the amount of native western white pine, western larch and ponderosa pine, which generally are insect and disease resistant and are long-lived, as well as increasing western red cedar in valley bottoms, where it historically was more abundant than today;
- Using variable retention harvests to meet visual management objectives.

Other elements of modern harvest prescriptions that address specific resource objectives include retention of snags for cavity nesters, retention of down wood for soil nutrition and wildlife habitat, maintaining sediment filtering vegetation near riparian areas, and maintaining vegetation diversity through hardwood retention and protection of rare plants.

Increased environmental awareness has also lead to improvements in logging systems that we use to remove trees from the forest. Early harvests emphasized cheap, labor intensive logging methods, such as railroad, horse, short distance jammer systems, and tractor logging. Logging systems were selected primarily by the least expensive method to transport the trees from the forest to the mill. This sometimes involved harvesting on steep slopes, creating excessive soil disturbance and increasing the risk of erosion. Streams were sometimes used as a method to transport logs from the harvest site, causing impacts to the aquatic system and adjacent riparian habitat. Road systems were sometimes dense (10 mi/sq. mi.) to facilitate rapid and inexpensive removals, in some cases compromising water quality.

Today's logging systems recognize and reduce the threat of environment harm in a number of ways. Tractor logging generally occurs on slopes 35% or less, and is limited to designated locations, reducing soil impacts. Skyline and other cable yarding systems are used on steeper slopes, which greatly reduce the amount of soil disturbance. Increasingly, helicopter logging is used, which extends yarding distances and thereby reduces road densities. A suite of best management practices and forest plan standards and guidelines aid in the development of the least impactive design possible. Monitoring during and after the sale is completed provides a valuable feedback loop that quickly identifies and corrects variances should they occur.

The IPNF ceased regeneration harvest of allocated old growth stands a number of years ago. Presently, our focus is on maintaining the old growth stands and allocating additional stands for future old growth as they mature. On drier sites, restoration of old growth may include various mixes of prescribed fire, and thinning to restore historic more open old growth stand structures and reduce risk of stand replacing fire. Planting of shade-intolerant, fire-adapted species may also be done if these are in short supply. On these dry sites, our objective is to restore and sustain the old growth by retaining the large old trees, preserving the old growth characteristics, and restoring historic old growth structures and processes (IPNF 2003).

For the above stated reasons, changes in road construction/reconstruction and maintenance practices; implementation of INFS management direction and watershed BMPs; and changes in harvest practices and objectives, we believe that an individual analysis of past projects cannot be clearly compared to analysis of the proposed actions. However, the incremental effects of proposed action when added to the effects of the past, present, and reasonably foreseeable actions is displayed and provides a complete assessment of cumulative effects.

V. Monitoring

The selected alternative is consistent with specific monitoring requirements identified by the Forest Plan (Forest Plan, Chapter IV). Monitoring specific to this project includes:

1. Monitoring of Noxious Weeds: Pretreatment of roads and equipment as proposed will be documented on sale inspection reports. The effectiveness of seeding disturbed areas will be evaluated upon completion of the activity (by the sale administrator and district botanist). Treated areas will be surveyed and monitored according to treatment priorities established in the Sandpoint Noxious Weed Control Project FEIS (EA, p. 29).

2. Monitoring of Threatened, Endangered, and Sensitive Plants: Monitoring of sensitive plant populations where the proposed activity was modified by buffering to avoid adverse effects will be conducted (by the district botanist) to validate the effectiveness of mitigation measures during and following the activity (EA, p. 29).

3. Monitoring of Forest Vegetation: All regeneration-cutting units will be monitored for regeneration success the first, third, and fifth year following planting, if necessary (EA, p. 29).

4. Monitoring of Best Management Practices (BMPs): BMPs will be incorporated into many different phases of the project. The District hydrologist will review the planned design of all road maintenance to assure compliance with BMPs. The engineer representative and the hydrologist will monitor all newly constructed, reconstructed and reconditioned roads to endure they are built or restored to specifications. A sale administrator will visit each active cutting unit at a frequency necessary to ensure compliance with BMPs and the timber sale contract. Minor contract modifications will be agreed upon and enacted, when necessary, to better meet objectives and standards on the ground (EA, p. 29).

5. Monitoring of Air Quality: Air quality is monitored by the North Idaho and Montana Airshed Groups during the fall and spring burning seasons and yearlong by the Idaho Department of Environmental Quality.

6. Monitoring of Visuals: The project will be reviewed by the District visual resource specialist before, during and after cutting operations are complete to assess whether visual quality objectives were met.

VI. Findings and Consistency with Other Laws, Regulations and Policy

The Wrenco Environmental Assessment and Decision Notice were prepared following the guidelines of the National Environmental Policy Act.

The analysis for the Wrenco project followed the guidelines of NEPA as provided by the Council on Environmental Quality (CEQ). Alternatives were developed based on existing conditions, Forest Plan goals and objectives, and public concerns and recommendations. A total of two alternatives including a no-action alternative as required by NEPA were considered in detail (EA, pp. 14 through 18, “Alternatives Considered in Detail”). During alternative development, an additional five alternatives were briefly considered but eliminated from further study (EA, pp. 30 through 32). The range of reasonable alternatives is appropriate given the scoping comments, scope of the proposal, and the purpose and need for action (EA, pp. 6, 7, 11 through 14).

The selected alternative is consistent with National Forest Management Act (NFMA) and IPNF Forest Plan (Forest Plan-1987)

The selected alternative is consistent with the NFMA and the Idaho Panhandle National Forests Forest Plan (EA, Chapter 3). This proposal does not require any Forest Plan amendments. According to 36 CFR 219.12 (Federal Register, Vol. 70, No. 3, January 5, 2005 page 1059) a final determination of suitability for timber production is made through project decisions. Based on Forest Plan management area allocations and site specific review (PF, Doc. C-1) all areas proposed for timber harvest are considered suitable for timber production.

<u>16 USC 1604(g)(3)(E) National Forest System Land and Resource Management Plans</u>

(i) Timber harvest is not expected to result in irreversible damage to soil, slope, or watershed conditions (EA, pp. 102 through 111, 121 through 131).

(ii) Openings will be restocked within five years after harvest based on past monitoring (PF, Doc. C-7).

(iii) The proposed harvests will not seriously or adversely affect water conditions or fish habitat (EA, pp 121 through 131).

(iv) The proposed harvesting system is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber (Purpose and Need for Action, EA pp. 1 through 5).

<u>16 USC 1604(g)(3)(F) National Forest System Land and Resource Management Plans</u>

(i) Regeneration harvests are proposed for stands in which mortality is either high or expected to be high in the near future, and where species that are not desired are occupying the growing space. Regenerated stands will be planted with seral species (ponderosa pine, western larch, white pine) to promote stand structures and species composition that reduce susceptibility to insect and disease. This is consistent with Forest Plan direction.

(ii) An interdisciplinary team reviewed and assessed the project. Their findings are reported in the Wrenco EA.

(iii) Vegetation removal would repeat the form, line, color, and texture of the natural occurrences common to the surrounding area. as much as possible (EA, pp. 138).

(iv) Maximum size limits for areas to be regeneration cut in one harvest operation will not exceed 40 acres (see Wrenco Errata).

(v) The proposed harvests will be carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and aesthetic resources, and the regeneration of the timber resource (EA, Chapter 3, and Finding of No Significant Impact).

The Forest Plan (1987)

On June 2, 2005, the Forest Supervisor for the Idaho Panhandle National Forests signed a decision notice and finding of no significant impact that amended the Forest Plan to modify or remove objectives, standards, and monitoring requirements pertaining to fry emergence success (IPNF 2005). The amendment was implemented because the fry emergence objectives, standards and monitoring requirements that were in the IPNF Forest Plan did not contribute as well as Inland Native Fish Strategy (INFS) objectives, standards, guidelines, and monitoring direction towards meeting the goals of providing sufficient habitat in support of maintaining diverse and viable populations of fish species across the forest. In addition, because of the limited application

of the fry emergence models and their unreliability and the inability to determine fry emergence success in the field due to high variability affected by multiple natural and human-caused factors, the Forest Service was not able to state with any degree of certainty whether measures of fry emergence success were accurate or precise.

General management direction for the Idaho Panhandle National Forests is found in the Forest Plan, which provides Forest-wide goals and objectives (Forest Plan, Chapter II). The standards and guidelines for the Forest Plan (Forest Plan, Chapter II) apply throughout the Resource Area. I have evaluated features of the selected alternative against Forest Plan goals and objectives, as well as the resource standards for consistency with the Forest Plan. All management activities included in the selected alternative are in full compliance with and generally exceed Forest Plan goals, objectives and standards, including the Inland Native Fish Strategy amendment to the Forest Plan. For additional discussion of consistency with the Forest Plan, please refer to the discussions under each resource or concern in Section III of this Decision Notice and in Chapter 3 of the EA.

This project will have no effect on, or may impact individuals or habitat but is not likely to contribute to a trend towards federal listing or cause a loss of viability to management indicator species (EA, pp. 63, 94, 127 and 128). The analysis for potential effects on wildlife species is based on the premise that by maintaining, or not impacting, sufficient habitat there would be no effect on populations or viability at the project level. In other words, with no impact on suitability (or no suitable habitat to impact) there is no impact on populations. I find the selected alternative complies the standards and guidelines established in the Idaho Panhandle National Forests Forest Plan.

The selected alternative is consistent with the Endangered Species Act

Section 7 of the ESA directs federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat. I find the selected alternative is consistent with the Endangered Species Act (EA, pp. 64, 93-94, and 131). The selected alternative will have no effect on grizzly bear, gray wolf, canada lynx, woodland caribou, bald eagle (EA, pg. 93 BA [Appendix B]), bull trout (EA, pg. 116 and 117, and BA [Appendix B]), water howellia, or Spalding's catchfly (EA, page 61, and BA [Appendix B]).

The selected alternative is consistent with Executive Order 12962 (June 7, 1995)

I find the selected alternative will maintain habitat and thus will not affect the fishery potential, which in turn will not reduce the potential for recreational fishing opportunities.

The selected alternative is consistent with Executive Order 13112 (February 1999)

This executive order directs federal agencies to "…prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause…" I find the selected alternative will meet the intent stated in Executive Order #13112 for moderate control, through the implementation of design features (EA, pp. 27 through 28), and project monitoring (EA, pg. 29). All weed treatments will be done in accordance with the Sandpoint Weed Control Project FEIS.

The selected alternative is consistent with the Clean Water and the Clean Air Act.

I find the selected alternative will maintain the chemical, physical, and biological integrity of the streams in the project area, in adherence with 33 U.S.C. §1251 (EA, p. 128).

The IPNF is a party to the North Idaho Smoke Management Memorandum of Agreement, which established procedures regulating the amount of smoke produced from prescribed fire. The North Idaho group currently uses the services and procedures of the Montana State Airshed Group. This unit monitors meteorological data, air quality data, and planned prescribed burning and makes a decision daily on whether burning restrictions are needed the following day (EA, p 133). Based on past prescribed burning, experience, I find activities of the selected alternative can be successfully implemented in accordance with the Clean Air Act (EA, p. 21).

The selected alternative is consistent with the National Historic Preservation Act.

Surveys to locate heritage resources within the Wrenco Area have been completed (EA, p. 2-24). All known heritage resource sites will be protected as directed by the Forest Plan (PF Doc. HR-1). Any future discovery of heritage resource sites or caves will be inventoried and protected if found to be of cultural significance (EA, p. 2-25). A decision would then be made to avoid, protect or mitigate effects to these sites in accordance with the National Historic Preservation Act (EA, p. 2-25). I find the selected alternative complies with the National Historic Preservation Act.

The selected alternative is consistent with the Environmental Justice Executive Order

Executive Order 12898, issued in 1994, ordered federal agencies to identify and address the issue of environmental justice; i.e. adverse human health and environmental effects that disproportionately impact minority and low-income populations. Based on the composition of the affected communities and the cultural and economic factors, I find the selected alternative will have no adverse effects to human health and safety or environmental effects to minority, low-income, or any other segments of the population. Please refer to the project files, “Environmental Justice.”

VII. Finding of No Significant Impact (FONSI)

After thorough consideration of the EA, Appendices, and the comments received, I have determined that the selected alternative will not significantly affect the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27). I have determined that these actions are not a major federal action, individually or cumulatively. The actions proposed in the selected alternative – Alternative A, both short and long term are not significant. Thus, an environmental impact statement is not necessary. I based my finding on the following:

Context

The setting of this proposal is in a localized area, with implications only for the local landscape, drainage and stands in the analysis area. My consideration of the proposed action is based on its impact on the ecosystem, local communities, county, and the affected resource level. It does not have a large or lasting effect on society as a whole, the nation, or the state.

I find that there are no significant beneficial or adverse impacts on the physical, biological, or social portions of the human environment, and therefore an environmental impact statement will not be prepared. The selected alternative is consistent with, the management direction, standards, and guidelines outline in the Forest Plan for the Idaho Panhandle National Forests. For more details and specific references to pages in the EA, please refer to Section 3 of this Decision Notice.

Intensity

Impacts may be both beneficial and adverse. A significant effect may exist even if, on balance, effects are believed to be beneficial. Effects associated with the selected alternative are discussed in Chapters 2 and 3 of the EA. There will be no significant impacts to any resource under the selected alternative (EA Chapter 3). The impacts are within the range of those identified in the Forest Plan. Activities will result in some temporary and low impact effects. Consistent with the Forest Plan, the selected alternative will promote stand structures and species mix which reduce susceptibility to insects and diseases and trend the project area to greater composition of desired species while prolonging the presence of these trees over time (EA, p. 52). No significant increase in surface runoff or sedimentation in the analysis area streams is expected, and state water quality guidelines will be met (EA, p. 127-128). Implementation of Inland Native Fish Strategy standards and guidelines will protect stream courses from sedimentation (EA, pp. 21, 22, and 128). Implementation of the selected alternative will begin a positive trend toward meeting the purpose and need. It is my determination that the selected alternative will have no significant effects on public health and safety or on any resource attributes of the project area.

Unique characteristics of the geographic area, such as proximity to historic or cultural resources, parklands, prime farms, wetlands, wild and scenic rivers or ecologically critical areas. The selected alternative will have no significant effect on unique resource characteristics. Surveys to locate heritage resources within the Wrenco project area have been completed. There are no known resource sites within the project area. Any discovery of heritage resource sites or caves, would be inventoried and protected if found to be of cultural significance. A decision would be made to avoid, protect, or mitigate effects to these sites in accordance with the National Historic Preservation Act of 1966 (EA, p. 26).

The degree to which the effects on the quality of the human environment are likely to be highly controversial. As used in the Council on Environmental Quality's guidelines for implementing NEPA, the term "controversial" refers to whether substantial dispute exists as to the <u>size, nature, or effect of the major federal action</u> rather than to the existence of opposition to a use. Scoping was completed to identify areas of potential controversy (EA, p. 11 to 13, and 30 to 32). These issues were used in development of design features and for analysis of effects. Past monitoring has determined that actual effects of similar projects are consistent with estimated effects of the proposed activities. There is a wide professional and scientific agreement on the scope and effects of these actions on the various resources, as cited in the discussion of the effects to resources (EA, Chapter 3). Based on the findings of the analyses, the effects of the activities in the Wrenco area on the quality of human environment are not highly controversial.

The degree to which the possible effects on the environment are highly uncertain or involve unique or unknown risks. The planned actions are similar to actions implemented in other areas on National Forest System, state, county, and private lands. Effects will be similar to those of past actions. The analysis considered the effects of past actions as a frame of reference in conjunction with scientifically accepted analytical techniques, available information, and best professional judgment to estimate effects of the proposal (EA, pp 47 through 52 [Forest Vegetation], 55 through 57 [Fire/Fuels], 60 through 64 [TES plants], 66 through 70 [Noxious Weeds], 81 through 94 [Wildlife], 102 through 111 [Soils], 121 through 131 [Aquatic Resources], 134 through 136 [Air Quality], 138 and 139 [Visual Resources], and 141 [Project Feasibility]). It is my conclusion that there are no unique or unusual characteristics of the area which have not been previously encountered that would constitute an unknown risk upon the human environment.

The degree to which the action may establish a precedent for future actions with significant effects or presents a decision in principle about future consideration. The selected alternative is not setting a precedent for future actions with significant effects nor does it represent a decision in principle about a future consideration. Management practices are consistent with the Forest Plan and with the capabilities of the land (EA, pp 47 through 52 [Forest Vegetation], 55 through 57 [Fire/Fuels], 60 through 64 [TES plants], 66 through 70 [Noxious Weeds], 81 through 94 [Wildlife], 102 through 111 [Soils], 121 through 131 [Aquatic Resources], 134 through 136 [Air Quality], 138 and 139 [Visual Resources], and 141 [Project Feasibility].

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. The combined effects of past, other present, and reasonably foreseeable actions are discussed in the Environmental Assessment; there is no indication of significant adverse cumulative effects to the environment (EA, Chapters 2 and 3).

The degree to which the action my adversely affect districts, sites, highways, structures or objects listed in or eligible for listing in the National register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. There are no features in the area that are listed or are being considered for listing on the National Register of Historic Places. All cultural resources would be protected (EA, p. 26). The potential for impacts to undiscovered sites is addressed by compliance with Forest Plan standards and guidelines, and through the use of standard timber sale contract provisions.

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act. It was determined that the proposed action will have no effect on threatened, endangered or candidate wildlife, fish, or plant species. The proposed action may affect sensitive wildlife, fish, or plant individuals that may occur in the area, but would not likely trend toward federal listing or result in a loss of viability (EA, p. 64, 93-94, and 131). A biological assessment has been completed and can be found in Appendix B of this Decision Notice.

Whether the action threatens a violation of Federal, State, or local law, or requirements imposed for the protection of the environment. The proposal meets federal, state and local laws for air and water quality, streamside management, riparian areas, cultural resources, and threatened and endangered species, and meets National Environmental Policy Act disclosure requirements as described in this Decision Notice and the Environmental Assessment (EA, Chapter 3, by resource).

VIII. Document and Project Files

This Decision Notice summarizes analyses that have led to this point in the process. More reports and analyses documentation that have been referenced or developed during the course of this project and are part of the project files. All project files for the Wrenco Project are available for review by the public. To review the files, please contact the Team Leader, Nancy Kertis at Sandpoint Ranger District Office (208) 265-6616.

IX. Appeal Rights and Implementation

This decision is subject to appeal pursuant to 36 CFR 215.11. A written appeal must be submitted within 45 days following the publication date of the legal notice of this decision in the *Spokesman-Review* (Spokane, Washington) newspaper. It is the responsibility of the appellant to ensure their appeal is received in a timely manner. The publication of the date of the legal notice of the decision in the newspaper of record is the exclusive means for calculating the time to file

an appeal. Appellants should not rely on date or timeframe information provided by any other source.

Appeals must be submitted to:

USDA Forest Service, Northern Region ATTN: Appeal Deciding Officer P.O. Box 7669 Missoula, MT 59807	or	USDA Forest Service, Northern Region ATTN: Appeal Deciding Officer 200 East Broadway Missoula, MT 59802

(Office hours are from 7:30 a.m. to 4:00 p.m. Monday through Friday, except holidays)

Electronic appeal must be submitted to: appeals-northern-regional-office@fs.fed.us

In electronic appeals, the subject line should contain the name of the project being appealed. An automated response will confirm your electronic appeal has been received. Electronic appeals must be submitted in MS Word, Word Perfect, or Rich Text Format (RTF). It is the appellant's responsibility to provide sufficient written evidence and rationale to show why my decision should be reversed. The appeal must be filled with the Appeal Deciding Officer in writing.

At a minimum, an appeal must meet the content requirements of 36 CFR 215.14 and include the following information:

- ✓ Appellant's name and address, with a telephone number if available;
- ✓ Signature or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal);
- ✓ When multiple names are listed on an appeal, identification of the lead appellant and verification of the identity of the lead appellant upon request;
- ✓ The name of the project for which the decision was made, the name and title of the Responsible Official, and the date of the decision;
- ✓ The regulation under which the appeal is being filed, when there is an option to appeal under either 36 CFR 215 or 36 CFR 251, Subpart C;
- ✓ Any specific change(s) in the decision that the appellant seeks and their rationale for those changes;
- ✓ Any portion(s) of the decision with which the appellant disagrees, and their explanation for the disagreement;
- ✓ Why the Appellant believes the Responsible Official's decision failed to consider the substantive comments; and
- ✓ How the appellant believes the decision specifically violates law, regulation, or policy.

An appeal will be dismissed if the preceding information is not included in the Notice of Appeal. If no appeal is received, implementation of this decision may occur five business days from the close of the 45-day appeal-filing period. If an appeal is received on this project there may be informal resolution meetings and/or conference calls between the Responsible Official and the appellant. These discussions would take place within 15 days after the closing date for filing an appeal. All such meetings are open to the public. If you are interested in attending any informal resolution discussions, please contact the Responsible Official or monitor the following website for postings about current appeals in the Northern Region of the Forest Service:

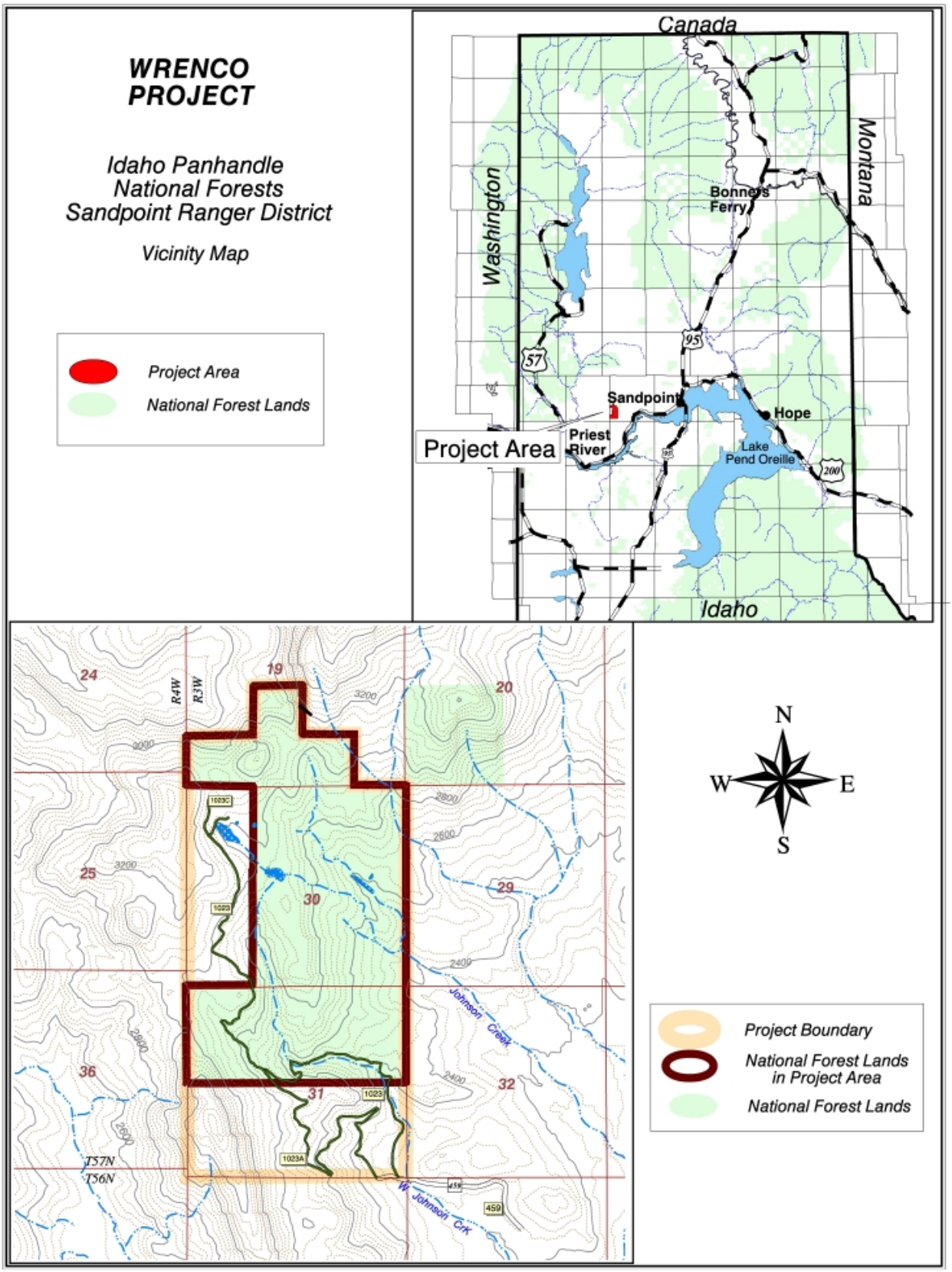
http://www.fs.fed.us/r1/projects/appeal_index.shtml.

I am the Responsible Official for this decision. For more information regarding this project, please contact Nancy Kertis, Team Leader at the Sandpoint Ranger District, (208) 265-6616 or District Ecosystem Staff Officer Jim Barrett at (208) 265-6627.

10/4/05

RICHARD P. KRAMER
District Ranger

DATE


WRENCO PROJECT
Idaho Panhandle National Forests Sandpoint Ranger District
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Project Area
National Forest Lands
Canada
Washington
Montana
Idaho
Bonners Ferry
Sandpoint
Hope
Priest River
Lake Pend Oreille
Project Area
57
95
200
24
19
20
25
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29
36
31
32
R4W
R3W
T57N
T56N
Johnson Creek
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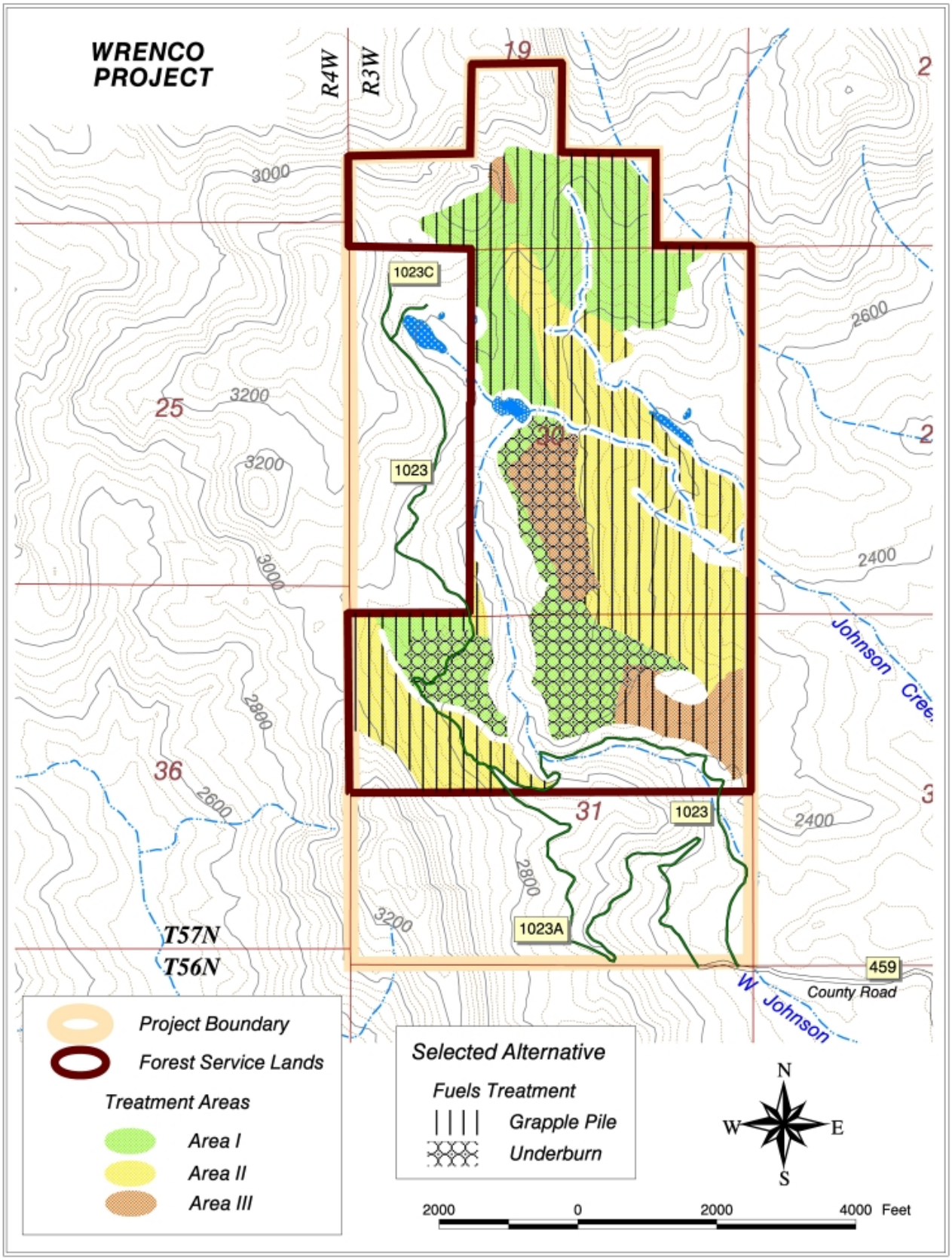
Project Boundary
National Forest Lands in Project Area
National Forest Lands

Map 1


WRENCO PROJECT
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3000
Johnson Cree
2800
36
2600
31
1023
3
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2800
3200
1023A
T57N
T56N
459
County Road
W Johnson
Project Boundary
Forest Service Lands
Treatment Areas
Area I
Area II
Area III
Selected Alternative
Fuels Treatment
Grapple Pile
Underburn
N
W
E
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2000
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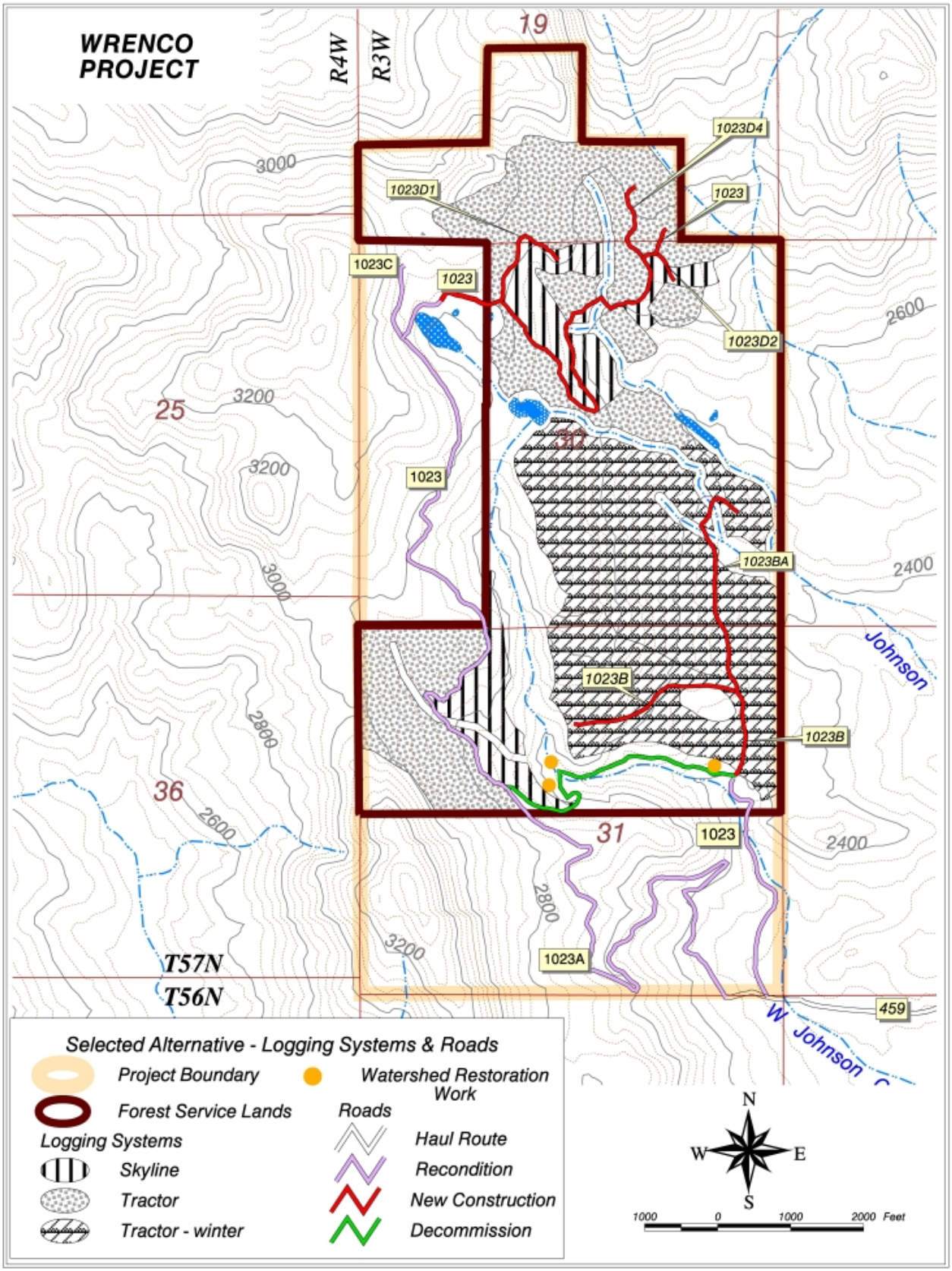
2000
4000 Feet

Map 2


WRENCO PROJECT
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30
3200
1023
1023BA
2400
3000
Johnson
1023B
2800
1023B
36
2600
31
1023
2400
2800
3200
1023A
T57N
T56N
459
W Johnson C
Selected Alternative - Logging Systems & Roads
Project Boundary
Watershed Restoration Work
Forest Service Lands
Roads
Logging Systems
Haul Route
Skyline
Recondition
Tractor
New Construction
Tractor - winter
Decommission
N
W
E
S
1000
0
1000
2000 Feet

Map 3

Appendix A - Response to Comments

This appendix responds to comments received from the public during the 30-day pre-decisional Environmental Assessment (EA) comment period. The district received five letters during the pre-decisional comment period and one letter after the comment period.

List of Respondents to the EA

The following individuals and groups submitted comments on the Wrenco EA. The number next to each name corresponds to the identification number in parenthesis adjacent to each comment.

1. Jeff Juel – The Ecology Center and on behalf of: Selkirk Conservation Alliance, Kootenai Environmental Alliance, The Lands Council, [Project File, Document A-10]
2. Csilla Kreidler, [Project File, Document A-8]
3. Gordon and Marian Spradlin, [Project File, Document A-6]
4. Mike Mihelich – Kootenai Environmental Alliance and on behalf of the Selkirk Conservation Alliance, The Lands Council, and The Ecology Center, [Project File, Document A-9]
5. William Lukens, [Project File, Document A-7]
6. Jonathan Oppenheimer – Idaho Conservation League [Project File, Document A-11]

Response to Comments

Comments are displayed in italics and organized by Subject in alphabetical order. All responses are in bold type. Responses to comments from these letters are included with other comments below.

Access

COMMENT (2): Prohibiting motor vehicle use on any newly constructed road (page 14) does not eliminate the potential effects of the increased use of OHV use. Saying that locked gates and earthen berms are highly effective methods of reducing vehicle use, ignores the very nature of off-highway vehicles (four wheelers, dirt bikes), which have no problem going around locked gates And over dirt berms. These vehicles cause considerable erosion and could raise the forest fire danger significantly. The Forest Service obviously does not have the resources to enforce the restriction. For these reasons I do not find acceptable the elimination of this issue from further analysis.

COMMENT (6): Forest Service needs to describe how they will effectively monitor and control the use of ORVs in the project area. The Forest Service should include funding and numbers of personnel available for these duties.

RESPONSE: As stated on page 16 of the EA under Road Construction and Storage "All new construction would … put into storage for potential future management …All new roads would be managed as closed year round to any type of motorized vehicle (except over snow vehicles and administrative use). The Road Definitions box on this same page explains storage and describes the types of road closure methods to accomplish this i.e. guard rail barrier, gate, earthen berm, or a short section of full recontour. The most effective closure method that will prevent ORV use in the project area will be used. If ORV use becomes a problem the Forest Service will improve/repair closure method to make the closure is working properly and effectively.

Air Quality

COMMENT (2): On page 21 of the EA we can read: "The measured ambient concentration of particulate matter have decreased significantly in the town of Sandpoint in the past decade…"This statement is

misleading. In the past the PM 10 (particular matter less than 10micron-which mostly reflects the amount of dust in the air) was measured. This decreased, indeed. The particulate matter less then 2.5 micron (PM2.5), which comes mainly from wood smoke, has been monitored only for 3-4 years. If you live in the area, you know, that the air quality is very often poor in the spring and fall due to logging related burning.

RESPONSE: There are airshed Groups assembled in North Idaho and Montana that work cooperatively to "minimize or prevent" accumulation of smoke in Idaho and Montana to such degree as necessary to meet State and federal ambient air quality standards when prescribed burning is necessary as part of accepted forest practices, such as fuels reduction, regeneration site preparation and wildlife improvement (MOA 1990). The Sandpoint Ranger District is a member of this group and adheres to the group's restriction procedures. As monitoring units, the airshed groups may reduce burning, stop burning in specific areas, or cease burning entirely when meteorological or existing air quality conditions so warrant. Forest management burning is regulated during the months of March through November (North Idaho Cooperative Smoke Management Plan).

On those days when the air quality is poor due to smoke from burning, the Missoula monitoring unit would restrict burning for all members of the airshed group, which would include this project.

$PM_{2.5}$ Data						
Site	**Year**	**Annual Geometric Mean (μg/m^3)**	**24-Hour Minimum (μg/m^3)**	**24-Hour Maximum (μg/m^3)**	**24-Hour 2nd High (μg/m^3)**	**99th Percentile (μg/m^3)**
Bonner County Site #0001	1998	11.5	5.4	28.8	21.9	28.8
	1999	8.27	2.8	35.5	32.0	32
	2000	8.51	2.9	44.8	36.6	36.6
	2001	7.77	2.8	24.5	21.4	24.5

On page 133 of the EA Table 3-26 shows the primary national standard for ambient air quality, included is the standard for PM2.5. The table above displays PM2.5 data for Bonner County site #0001. As you can see the PM2.5 annual mean has been decreasing since 1998 and is below the national standard of 15(μg/m^3).

Alternatives

COMMENT (6): Further we are concerned that the Environmental Assessment only considered the proposed action and a no action alternative. This falls short of a meaningful analysis under the National Environmental Policy Act

It is entirely unclear how the Wrenco Loop EA passes muster with NEPA as a result of the consideration of only the Proposed Action. Additional alternatives that meet the purpose and need must be considered in order to effectively consider the environmental effects of the project and any potential alternatives to the proposed action

RESPONSE: FSH 1909.15, Chapter 14, requires "based on the results of scoping and the determination of issues to be analyzed in detail, develop and consider all reasonable alternatives to the proposed action. As established in case law interpreting the National Environmental Policy Act, the phrase 'all reasonable alternatives' has not been interpreted to require that an infinite or unreasonable number of alternatives be analyzed..."

The EA considered a range of reasonable alternatives – seven total. The proposed action and no action were carried through the analysis process; five other alternatives were considered but not given detailed study. These alternatives considered but not given detailed study are described in the EA on pages 30 through 32.

COMMENT (6): We strongly suggest that additional watershed improvement projects be a considered in a revised EA, which considers a range of alternatives to the Proposed Action

RESPONSE: Forest Service aquatics resource personnel have walked the streams within the project area as well as all exiting and proposed new road construction. There are no other watershed improvement opportunities on National Forest System lands other than the three proposed on page 17. You strongly suggest additional watershed improvement work be performed yet neglect to include where you think this work should be accomplished.

Cumulative Effects

COMMENT (1): The discussion about past and ongoing activities is far too cursory for understanding cumulative effects. We believe that in order to properly assess cumulative effects, as per the Ninth Circuit's Lands Council v. Powell decision, the FS must not only quantify the acres and point to locations of past and ongoing actions, but the FS must also state the goals of the projects and if those goals were met, indicate if any assumptions underlying those projects' "purpose and need" statements were correct, and disclose significant monitoring information related to potentially similar impacts from the Wrenco Loop proposal.

RESPONSE: In the U.S. Court of Appeals for the 9th Circuit opinion of *Lands Council v. Powell*, the court made explicit that proper cumulative impact analysis requires some cataloguing of past projects and their effect on the current project area. Furthermore, such cataloguing must be done in sufficient detail to allow for analysis of the differences between prior projects and ongoing projects, which could provide the information necessary to consider alternatives that might have less impact on the environment. Within this EA we have provided information of relevant past, present and reasonably foreseeable projects/activities that have occurred, are occurring, or are expected to occur within each of the resource cumulative effects areas examined in this analysis (EA pg. 50–51, 56–57, 62-63, 67-69, 82, 84-94, 109-110, 125-128, 136, and 139).

Subsequent to the release of this EA, the Council on Environmental Quality (CEQ), whose responsibility it is to coordinate federal environmental efforts and work closely with agencies and other White House offices in the development of environmental policies and initiatives, provided guidance to federal agencies on the consideration of past actions in cumulative effects analysis (CEQ memo June 2005). CEQ state that "generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historic details of individual past actions (CEQ memo pg. 2). Cumulative impacts are defined in CEQ's NEPA regulations as the "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" (40 CFR 1508.7). CEQ has interpreted this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ memo pg. 2).

The cumulative effects analysis includes past logging activities on National Forest System lands in 1947, 1953, 1958, and 1965. These sales were completed prior to NEPA. There is no record of project goals, assumptions underlying the project nor purpose and need. These timber sales were primarily salvage sales with the intent of removing the large diameter trees that survived the 1926 fire. With this "purpose and need" in mind we can only assume that the goals or intent of the salvage operation were met given the lack of large structure in the project area. Much of the Design Features are based on Forest Plan monitoring and have helped shape the design of the proposed action thereby limiting potential impacts.

COMMENT (1): The EA does not clearly indicate if the results of past logging activities have in any way led to the current proposal's stated purpose and need.

RESPONSE: The EA has provided a detailed description of known past activities and their effects; however, the additional analysis suggested does not further aide an assessment of whether one form

or another of the proposed activity would assist in meeting the project's purpose and need for action with minimal environmental harm.

COMMENT (4): On page 39 of the EA there is a listing of reasonably foreseeable actions. Included in this list is a description of 320 acres of logging on Riley Creek lands in the Johnson Creek drainage. There is no data given for the estimated volume per acre that would be logged off the 320 acres.

RESPONSE: Riley Creek gave this information to the Forest Service in February 2005, at this time they did not have a volume estimate of removal other than a volume per acre that they planned to leave (4 mbf/acre). Since that time, Riley Creek has logged the 320 acres with a volume estimate removal of 800 mbf.

COMMENT (4): The list on page 39 also shows 317 acres of logging on State of Idaho forestlands by the Idaho Department of Lands. The description shows there would be clearcutting, seed tree cuts, shelterwood cuts, and commercial thinning, along with 2 miles of new road construction and 5 miles of road reconstruction. The volume listed to be logged, 3.5 mbf, likely is incorrect due to the number of acres to be logged and the significant amount of regeneration logging that will occur. The correct volume figure appears to be at least 3.5 MMBF. The information on page 39 implies that the Smith Creek area is included within the Wrenco cumulative effects analysis area.

RESPONSE: Thank you for pointing out the volume discrepancy. The volume estimate on page 39 should read 3.5 mmbf; this error will be included in the Errata sheet attached to the Decision. As you noted, Smith Creek is not included in the Wrenco cumulative effects analysis area for any of the resources. This entry will be removed from the Foreseeable Future Actions list in the Wrenco errata.

COMMENT (4): On page 105 of the EA it is mentioned Alternative A would result in approximately 3.5 miles of road construction. It appears there would be at least 3.3 miles of new road construction. The new roads would be retained for future timber sales in the project area. However, in the cumulative effects discussion of past, present and reasonably foreseeable logging activities, page 109 of the EA, it is stated there are no reasonably foreseeable logging activities on National Forest lands. The cumulative effects discussions on pages 125 through 128 also do not discuss future Forest Service timber sales in the project area.

The DN needs to supply expert agency comments regarding the need for the 3.5 miles of new road construction if there are no foreseeable timber sales planned within the project area.

RESPONSE: The difference between the 3.5 miles of road construction as stated on page 105 of the EA and the references throughout the document of 3.3 miles is that of rounding the miles of road. As stated on page 16 under Road Construction and Storage, all new road construction would become classified roads and after use for the project would be put into storage for *potential* [emphasis added] future management. The Reasonably Foreseeable Actions list on page 39 does not list any Forest Service activities other than Noxious Weed Treatment because that is all that we know we will do right now. This project proposes thinning on about 530 acres. The next planned entry into this area would not be for another 15-20 years. Foreseeable future actions need to have a "proposed action" or a relative probability of occurrence in order to be considered foreseeable. We did not list a future entry into this area due to the uncertainty as to when the next entry would occur and exactly what the proposal would be in the future.

COMMENT (5): Given the current cumulative effects on all the lands involved, can the resources, biotic and abiotic, absorb these total affects now or should the project be phased or delayed

RESPONSE: Cumulative impact is defined in CEQ's NEPA regulations as the "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" (40 CFR 1508.7). CEQ has interpreted this regulation as referring only to the cumulative impact of the direct and indirect effects of the proposed action and its alternatives when added to the aggregate effects of past, present, and reasonably foreseeable future actions (CEQ memo pg. 2). The EA has provided information by

resource of relevant past, present and reasonably foreseeable activities that have occurred, are occurring, or are expected to occur within each of the resource cumulative effects analysis areas (EA pg. 50–51, 56–57, 62-63, 67-69, 82, 84-94, 109-110, 125-128, 136, and 139). The resource analyses show no indication that this project should be phased or delayed given the predicted cumulative effects.

COMMENT (6): We request the environmental analysis detail all other projects (private, State, and National Forest) in the project area that would lead to cumulative effects as required by NEPA. The analysis should contain maps documenting past logging activities and existing roads, including regeneration level, cover status, and opening size. The FS should assess the anticipated vs. realized impacts of post projects (either beneficial or negative). The FS needs to disclose whether other logging projects in the area could be proposed in the future.

RESPONSE: The EA does display a detailed list of all past activities and events, ongoing actions, and reasonably foreseeable actions on page 38 and 39. Each resource section in the EA evaluated the cumulative effects of those specific activities that could potentially be additive in their effects to the resource in question. Not all past, present and reasonably foreseeable activities were deemed to have cumulative effects to every resource. Each resource analysis section discusses which of the activities listed on the above-mentioned pages are likely to affect that resource. As far as we know, all logging projects in the area have been disclosed in the reasonably foreseeable section of this chart on page 39.

Economics

COMMENT (1): The FS can in no way claim, at this point in time, that it will have in the future all the needed money to maintain all the roads in project area watersheds, so building new roads makes no sense

RESPONSE: As stated in the EA in Table 2-1 on page 17 and on page 18 all new road construction would be put into storage following use. The storage definition is included in the text box on page 16 and states "storage – a method of retaining a permanent road for future use but removing features to eliminate hydrologic risks … also includes some type of closure method such as with a guard rail barrier … full recontour". Using storage as a tool there will be no need for "maintaining all the roads in the project area watersheds". As for other roads within the watershed, the Forest Service does not have jurisdiction over county or private roads. We can make recommendations; however; there is no certainty that they will be carried out.

COMMENT (6): We are concerned with the proposal to construct 3.3 (or 3.53 according to table 3-18) miles of new permanent road, in an area that suffers from excessive road densities. Instead, the project should seek to decommission as many roads as possible. The current backlog of road maintenance across the National Forest System exceeds $9 billion. Further, the Idaho Panhandle National Forests represents one the most heavily roaded forests in the nation. As such, we strongly encourage you to reconsider the proposal to construct 3.3 miles of new road in the project area

We are concerned that the project proposes 3.3 (or 3.53 according to table 3-18) miles of new permanent road construction. The Idaho Panhandle National Forest represents one of the most heavily roaded forests within the entire National Forest System. The Forest Service has a $10 billion backlog of needed maintenance to their 400,000+ mile road network. As such, it is inappropriate to construct new roads.

RESPONSE: The project plans to decommission 0.8 mile of road 1023 from the junction of 1023A to the north boundary of section 31. Please see previous response regarding road maintenance.

Fisheries

COMMENT (1): The EA lacks disclosures on Riparian Management Objectives for project area streams, and consistency of the project with INFISH

RESPONSE: On page 21, the EA discusses the use of the appropriate INFS Riparian Habitat Conservation Areas (RHCAs) under *Features Designed to Protect Soil, Water and Fish Habitat*. On

page 123 of the EA and page 11 of the Wrenco Biological Assessment (Decision Notice/FONSI - Appendix B), it is stated that per INFS standards and guidelines, no riparian harvest is proposed and that the appropriate buffers would be implemented. In addition, Appendix B of the EA discusses the implementation and effectiveness of all applicable INFS standards and guidelines.

Riparian Management Objectives (RMOs) are described in the INFS document (USDA 1995), which was cited in the EA. Information regarding the existing condition of the streams within the project area, including information on RMOs (e.g. large woody debris, pool frequency), is discussed on pages 118-119 of the EA and on page 11 of the BA. The goal of INFS is to trend the RMOs in a positive direction. Therefore, although there is not an RMO for sediment, the proposed action would eliminate three sediment sources and decommission Road 1023 within the RHCA of West Fork Johnson Creek, which would result in a long-term sediment reduction and consequently an improving trend in fish habitat conditions (Wrenco EA pp. 124, Wrenco BA pp. 11).

COMMENT (1): The EA's discussion about population viability for fish is inadequate. Nothing on minimum viable populations, and population trend in project area waters is unknown

RESPONSE: On page 130, the EA discusses species viability with respect to the distribution and abundance of westslope cutthroat throughout the Forest and the rationale for why the proposed action would not affect their viability. Species viability for bull trout was not discussed because, as stated on page 116-117 of the EA and page 12 of the BA (Appendix B of Decision Notice/FONSI), the project would have no effect on bull trout and therefore viability will not be affected.

As discussed throughout the Aquatic Resources section of the EA, in general, the Johnson Creek watershed does not possess the habitat characteristics and attributes necessary to support a large population of native fish species. This is mainly due to the presence of migration barriers in the lower portion of the watershed, habitat degradation and the presence of non-native species.

As stated in the EA on page 117, fisheries surveys within the Johnson Creek drainage were presence/absence surveys, so no population densities or trends could be established. However, as discussed in the summary on page 124 of the EA, although no minimum viable populations or population trends were established within the project area, in the long term, the proposed activities would improve fish habitat by the elimination of three sediment sources and the decommissioning of Road 1023 within the RHCA of West Fork Johnson Creek.

COMMENT (1): The EA fails to demonstrate compliance with the Forest Plan fry emergence standards and other related Forest Plan requirements. The IPNF's decision to implement the fry emergence Forest Plan amendment is still under review, thus the Forest Plan as before the amendment is still in effect

RESPONSE: On pages 123-124 and 129-130, the EA discusses the 1987 Forest Plan fry emergence standards and discloses why a number for fry emergence cannot be accurately determined. Therefore effects of the project on fry emergence is determined by analyzing the effects on sediment, water yield and other parameters that potentially affect salmonid spawning, and by addressing the effects to beneficial uses, which includes salmonid spawning in all occupied streams in Idaho. Since the release of the Wrenco EA, the Forest Plan Fry Emergence Amendment Decision Notice and Finding of No Significant Impact have been released. Pursuant to CFR 217.10(a), the amendment became effective on June 11, 2005, seven calendar days following publication of the legal notice of the decision in the newspaper of record. Therefore, the Fry Emergence Standard has been removed from the Forest Plan. The following language will be included in the Decision Notice for the Wrenco Project:

On June 2, 2005, the Forest Supervisor for the Idaho Panhandle National Forests signed a Decision Notice and Finding of No Significant Impact that amended the Forest Plan to modify or remove objectives, standards, and monitoring requirements pertaining to fry emergence success (IPNF 2005). The amendment was implemented because the fry emergence objectives, standards and monitoring requirements that were in the IPNF Forest Plan did not contribute as well as INFS

objectives, standards, guidelines, and monitoring direction towards meeting the goals of providing sufficient habitat in support of maintaining diverse and viable populations of fish species across the forest. In addition, because of the limited application of the fry emergence models and their unreliability, and the inability to determine fry emergence success in the field due to high variability affected by multiple natural and human-caused factors, the Forest Service was not able to state with any degree of certainty whether measures of fry emergence success were accurate or precise.

COMMENT (4): The fisheries discussions on page 115 of the EA mentions hydrological surveys that were conducted in 2002 and electrofishing surveys that were conducted in 1998 and 2002. The discussion of Westslope cutthroat trout (wct) on page 117 does not mention Johnson Creek, and the fish habitat discussion on page 118 does not mention wct. If there were any sections of Johnson Creek that contained flowing water that were not surveyed in the fall on 1998, page 118 of EA, this information should be included in the DN.

The DN should include high quality information regarding the presence or absence of any populations of wct in the portions of Johnson Creek that are located on NFS lands in the project area. There should also be information listing any water body in the project area and/or cumulative effects analysis area that is classified as either Not Properly Functioning or Functioning at Risk

RESPONSE: As mentioned in the comment, hydrological surveys were conducted in Johnson Creek in 2002. However, due to the limited availability of fish habitat within the portion of Johnson Creek on National Forest lands, as discussed below, electrofishing surveys were not conducted in this creek.

Although there has been documented use of Johnson Creek by westslope cutthroat, habitat is limited in the portions of the creek within the project area. This is primarily due to the small basin area, which limits the stream size and depth of flow in the main stem of Johnson Creek, particularly on National Forest lands within the project area. The majority of fish habitat in Johnson Creek occurs on private land between the Pend Oreille River confluence and the National Forest boundary. A small portion of Johnson Creek on National Forest may have the potential to support westslope cutthroat, but their presence there has not been documented. Based on additional field reconnaissance since the distribution of the Wrenco EA, there would be no planned activities within the area of Johnson Creek on National Forest lands that have the potential to support westslope cutthroat trout. Project activities would take place further upstream in the Johnson Creek drainage, but due to the implementation of INFS and BMPs, the effects on the portion of Johnson Creek in question would be immeasurable or inconsequential and therefore would fall within the determination of effects for westslope cutthroat trout stated in the Wrenco EA (pp. 127 – 128, 131) as "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".

The designation of whether a water body is "Properly Functioning", "Functioning at Risk" or "Not Properly Functioning" is made at the 6th code HUC and is based on a variety of factors such as landtype sensitivity, road densities, equivalent clearcut areas, etc. However, the Johnson Creek watershed was not large enough to be classified independently and was included in the Pend Oreille River at the 5th code HUC, which is classified as "Not Properly Functioning". The Pend Oreille River 5th code HUC is comprised almost entirely of non-Federal land (approximately 98 percent), so the "Not Properly Functioning" classification is based on the condition of state and private land, which is outside of the jurisdiction of the Forest Service

COMMENT (4): On pages 123, 124, 127, 129 and 130 of the EA the issue of fry emergence is discussed. The Fry Emergence amendment to the IPNF Forest Plan would remove standards and monitoring requirements the currently apply regarding fry emergence. INFISH standards and guidelines would apply to the Wrenco project instead of fry emergence requirements. The DN needs to supply expert agency comments with high quality information that would indicate whether any INFISH validation monitoring has been performed in the Wrenco cumulative effects analysis area

RESPONSE: INFS monitoring is done to determine the effects of INFS on Forest Service and Bureau of Land Management lands where the strategy applies. Because of this, one of the monitoring criteria is that the 6th code HUC must have greater than 50 percent land ownership by the Forest Service and Bureau of Land Management. The Johnson Creek watershed does not meet this criteria. However, INFS monitoring is done across the landscape to answer questions of whether or not the strategy was implemented as planned (Implementation Monitoring) and whether or not it was effective (Effectiveness Monitoring). Whether or not INFS monitoring has been conducted in the Johnson Creek drainage is immaterial because, 1) INFS will be applied as there has been no change in the science that supports the use of INFS as a way to protect the structure and function of riparian and aquatic ecosystems and 2) INFS effectiveness monitoring is being done at the appropriate scale (USDA Forest Service. 2003. Idaho Panhandle National Forests Forest Plan Monitoring and Evaluation Report. Coeur d'Alene, ID).

COMMENT (6): It is unclear from the EA, whether activity is proposed within any INFISH Buffers, or just whether only logging is precluded in riparian INFISH buffers. Further, in Appendix A, the EA states that no commercial logging will occur in RHCAs. If non-commercial logging will occur in RHCAs, it must be disclosed

RESPONSE: No logging, commercial or non-commercial, would take place within the RHCAs. Activities within RHCAs would be limited to the construction, and subsequent storage, of stream crossings associated with new road construction, the repair of existing stream crossings, the removal of three existing sediment sources (2 culverts and 1 bridge) and the decommissioning of Road 1023 that is within the RHCA of West Fork Johnson Creek. All of the above activities would follow all applicable INFS standards and guidelines, as well as applicable BMPs (Wrenco EA pp. 21-22, 123, Appendix A and Appendix B of the EA, and Wrenco BA pp. 11 – Appendix B of this Decision Notice and FONSI).

COMMENT (6): It should be noted in the EA whether the affected streams and water bodies are listed on the 303(d) list as not meeting beneficial uses. Even if INFISH buffers are applied, additional conservation measures may be warranted and should be incorporated into the final decision

RESPONSE: On page 111 and 118, the EA discusses that the State of Idaho has not conducted a beneficial use evaluation for the Johnson Creek drainage (IDEQ 2002). In addition, per the more recent Draft Integrated (303(d)/305(b)) Report (IDEQ 2003), the Johnson Creek drainage continues to be on the list of streams not assessed. On the above listed pages, the EA states that streams without beneficial use designations are determined by the existing and presumed uses of the streams. Therefore, cold water biota, secondary recreation, domestic water supply, wildlife habitats and aesthetics are considered the beneficial uses for the Johnson Creek drainage.

Despite its absence from the 303(d) list, the project design, along with the implementation of the applicable INFS Standards and Guidelines, and BMPs (Wrenco EA pp. 21-22, 123, 128; Wrenco BA [Appendix B of Decision Notice/FONSI] pp. 11) are intended to maintain or enhance the ability of the Johnson Creek drainage to meet its potential beneficial uses by reducing long term sediment production into West Fork Johnson Creek through the removal of 3 existing sediment sources, the decommissioning of Road 1023 within the RHCA of West Fork Johnson Creek and by limiting activities within the RHCAs to what is described in the previous response, thereby allowing for a passive upward trend in the RHCA habitat conditions (Wrenco EA pp. 124, [Appendix B of Decision Notice/FONSI] pp. 11).

COMMENT (6): It is unclear how the proposed action complies with the NFMA requirement to maintain and improve habitat for Management Indicator Species (related to Bull Trout and Westslope Cutthroat Trout)

RESPONSE: On page 130, the EA discusses species viability with respect to the distribution and abundance of westslope cutthroat throughout the Forest and the rationale for why the proposed action would not affect their viability. Species viability for bull trout was not discussed because, as

stated on page 116-117 of the EA, the project would have no effect on bull trout and therefore viability of the species will not be affected.

On page 21, the EA discusses the use of the appropriate INFS Riparian Habitat Conservation Areas (RHCAs) under Features Designed to Protect Soil, Water and Fish Habitat. On page 123 of the EA and page 11 of the BA (Appendix B of Decision Notice/FONSI), it is stated that per INFS standards and guidelines, no riparian harvest is proposed and that the appropriate buffers would be implemented. In addition, Appendix B of the EA discusses the implementation and effectiveness of all applicable INFS standards and guidelines.

As stated on page 124 of the EA and page 11 of the BA (Appendix B of Decision Notice/FONSI), the proposed action would improve fish habitat by the elimination of three sediment sources and the decommissioning of Road 1023 within the RHCA of West Fork Johnson Creek.

Fire and Fuels

COMMENT (2): Commercial logging reduces the "overstory" tree canopy which moderates the "microclimate" of the forest floor. This reduction of the tree canopy exposes the forest floor to increased sun and wind, causing increased surface temperatures and decreased relative humidity. This in turn causes surface fuels to be hotter and drier, resulting in faster rates of fire spread, greater flame lengths and fireline intensities, and more eratic shifts in the speed and direction of fires.

COMMENT (6): The proposed action should be evaluated in terms of its effects on post-logging fire behavior. Removal of trees will allow more radiation to reach the ground, which raises soil temperatures and aridity levels of fuels. The Forest Service needs to describe the historic, present, and post-treatment fuel load and flammability within the project area and adjacent landscapes. Further, slash accumulations could provide for further infestation of Ips Beetles, or compound threats to remaining trees

RESPONSE: The Selected Alternative proposes the removal of forest canopy, which reduces the moderating effect of canopy (sheltering) on wind speed, so surface winds (winds beneath the canopy that effect surface fuels) would increase. Scott and Reinhardt (2001, pg. 31-32) have addressed this subject. They state:

> ***"The increased fuel-level wind speed coupled with increased insulation, also leads to lower dead fuel moisture in treated stands during summer. These two factors tend to exacerbate surface fire behavior. However, properly executed treatments also tend to reduce the crown fire potential. Crown fire mitigation treatments often represent a tradeoff – the decrease in crown fire potential comes at the expense of increased surface fire spread rate and intensity. The greatly increased spread rate and intensity of crown fires makes this tradeoff reasonable."***

Page 54 and 56 of the EA addresses the historic, present and post-treatment conditions of the project area as well as historic weather and fuel conditions.

The project area does not have an Ips beetle infestation or problem. The Selected Alternative will leave ponderosa pine and remove lodgepole pine. With utilization requirements in the timber sale contract and slash treatments we do not expect to create an Ips beetle problem in the project area.

Forest Vegetation

COMMENT (1): Why not propose a diameter cap on the "thin from below" and make it that "prescription" true in more than name only

RESPONSE: As described on page 14 of the Wrenco EA, in some areas a thinning from below would be prescribed "to remove trees that are poor form-class, insect and disease attacked trees and undesired tree species. The remaining trees would be the largest, best form-class trees available, retention of ponderosa pine and western larch would be favored over other species."

To accomplish the intent of this prescription generally the trees with smaller diameters relative to the desired retention trees would be removed. This is not always the case and trees of various diameters will be removed to allow the healthiest trees and the most desired trees to be retained. Tree diameters are only one of the many factors considered when determining which trees to retain and which trees to remove and some times diameter is not the most important factor. Each situation for cutting or leaving trees should use all the relevant factors for consideration to fulfill the intent of the prescription. Examples of this could be: (1) trees to be removed may be Douglas-fir trees attacked by root disease that may be the largest trees but they will die in a short time and we would favor to retain a western larch, white pine or ponderosa pine which are not attacked or are resistant to attack. Or (2) we may desire to remove a potentially shorter lived Douglas-fir or grand fir tree that is of equal diameter to a healthy ponderosa pine. The fir trees are competing for light, nutrients and growing spaces which are needed by the ponderosa pine. All trees may be of significant diameter. In conclusion, a diameter cap does not fulfill the needs of the prescription.

COMMENT (1): It makes little sense to "change cover type to western larch and ponderosa pine" (p. 49) without doing the requisite analysis to determine if it would actually work, and for what resources

RESPONSE: Forest Plan Monitoring from 1992-2003 shows that 64,763 acres were planted to western larch, ponderosa pine, and white pine in regeneration harvest units. This is one technique of changing cover types. Changing cover types to western larch, white pine and ponderosa pine has been done for many years on vegetation restoration projects on the Sandpoint Ranger District through both regeneration cutting and selective cutting. (See project file for pictorial examples : Gold Yeller photos and Johnson Creek regeneration cutting photo). The proposed treatments are well proven to be effective. The direct and indirect effects of these activities on the various resources are documented in the Environmental Consequences sections of Wrenco Project EA . An example of this can be found on (pages 80 thru 92) of the document which describe the effects of the proposed action on wildlife.

COMMENT (1): The EA states that the effect of the logging will be to increase diameters of trees and create a more "desired" tree species composition, but this discussion fails to integrate and consider the loss in productivity due to repeated soil impacts and the reduction of wildlife habitat components due to the reduction of "undesirable" trees, such as "those with poor form class, insect attacks and disease, and undesired tree species."

RESPONSE: The Wrenco project area for vegetation analysis is 1007 acres and only 612 acres are proposed for treatment. The untreated stands along with the treated areas will continue to have some trees of poor form class, insect and disease attacked trees and some undesirable tree species. As described on page 15 (Vegetation treatments) not all dead, diseased and trees of poor form will be removed from proposed cutting unit. Those "not desired for future stand composition…or needed to meet future stand objectives." At present, most of the area proposed for treatment is in the immature/medium forest structure with little diversity (see page 48 of Wrenco EA). The proposed treatments will change some structures from immature to seedling/sapling, which will add vegetative diversity to the project area. On pages 22 through 26 of the EA (Features Designed to Protect Wildlife Habitat and Features designed to Protect Soil and Site Productivity) these features designed into the project will protect the needs of the wildlife and soil resources.

Hydrology

COMMENT (1): The precision, or amount of error, in the estimates derived from modeling used are not disclosed. They are estimates, based upon sampling that inherently has some amount of error…However, the EA failed to present any "confidence intervals, standard deviations or standard errors in association with its conclusions" regarding estimates derived from the wildlife and water models used, the amount of activity area detrimental soil disturbance, and other numbers and statistics displayed. Since the EA does

not provide the public or decision maker with sufficient information on the accuracy of its estimates and model results, the information is not scientifically valid nor reliable

RESPONSE: **The primary purposes of the watershed response models and methods in this analysis were to provide the watershed professionals with additional "tools" to support professionally derived interpretations. The models are not the final or only source of those" interpretations", interpretations are supported by the field observations and experience on similar landscapes.**

According to documentation provided by the author of the WEPP model, "At best, any predicted runoff or erosion value, by any model, will be within only plus or minus 50 percent of the true value (Elliot 2000)". The value of the model estimate is related to the relative differences and magnitudes between alternatives. Since the USFS is managing broad landscapes with mostly diffuse sediment sources, using absolute values would not be realistic. In any case, the WEPP methodology is supported with extensive validation and comparisons in a published report[2] prepared by the project leader for the landscape versions of the model (Elliot 2004). .

The bases for the detrimental soils methodologies are documented in an unpublished report by Jerry Niehoff, Forest Soil Scientist, "Soil NEPA Analysis Process and Source of Soil Disturbance Model Coefficients," October 2002. Validation findings are reported in the Forest's annual Forest Plan Monitoring and Evaluation reports, "Item K-1: Prescriptions and Effects on Land Productivity" available on the IPNF website at http://www.fs.fed.us/ipnf/eco/manage/forestplan/index.html#fpmon.

COMMENT (1): The EA fails to link the current and cumulative soil disturbance across the project area watersheds to the impacts on water quantity and quality

RESPONSE: Pages 100-110 in the EA provides an effects analyses, including cumulative effects related to soil disturbances from roads, vegetation treatments, and site preparation with respect to *soil productivity* issues identified in the EA. The cumulative scope for soil productivity is generally defined at the scale of the *activity areas* in the vicinity of the project.

Pages 115-128 provides the results of the effects analyses including cumulative effects related to the water resource mainly from roads, slope and soil disturbances, stream crossings, and vegetation treatments with respect to the water quality and water resource issues. Soil productivity, per se, is not necessarily a driving issue related to the cumulative effects responses of the two streams in the project area or to the Pend Oreille River. However, some of the soils variables (such as compaction and soil displacement on roads) are related, in which case they are linked, primarily through WEPP, to the water effects analyses.

COMMENT (2): Creating more roads that will be forgotten as soon as logging is finished, increases the risk of potential sediment sources

RESPONSE: Certainly the potential exists for the development of excess sediment when roads are left in place with no plans for sediment control.

However, the actions proposed in this project require that new roads be returned to essentially a hydrologically neutral condition following the project by putting them in a "storage" status3. In

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[2] Elliot, W.J.; Foltz, M. 2001. Validation of the FS WEPP Interfaces for Forest Roads and Disturbances. ASAE paper number 01-8009, presented at the 2001 ASAE Annual International Meeting sponsored by American Society of Agricultural Engineers, Sacramento Convention Center, Sacramento, California, USA, July 30--August 1, 2001. ASAE--2001: An Engineering Odyssey. Technical Session 21: Forest soil erosion and water quality. St. Joseph, MI: ASAE. 16 p.

[3] **Storage** – A method of retaining a permanent road for future use but removing features to eliminate hydrologic risks. Includes, recontour of unstable fill slopes, cutslope stabilization, ripping the road tread, installation of no-maintenance cross ditches, and revegetation. 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. (from page 16 of the EA)

addition, the intent is to oversize any stream crossing structures that will remain in place during the storage period.

The proposed action requires that new roads cannot be simply "forgotten," but rather they must be maintained or treated to avoid the risk of creating sediment sources.

COMMENT (4): If the Wrenco project is implemented and additional logging occurs on private and State lands in the cumulative effects analysis area, there likely would be impacts to one or more water bodies in the project area. The DN needs to include expert agency comments that describe the water quality monitoring equipment that would be used to ensure the proposed Wrenco logging and road building activities would be in compliance with all applicable Idaho WQS, including 58.01.02.050.02a and 02b, and 58.01.02.051.01

RESPONSE: The Forest has implementation monitoring protocols in place to assure and demonstrate its compliance with Idaho rules regarding water quality and forest practices (i.e. Best Management Practices and INFISH amendment).

COMMENT (4): The EA at page 113 indicates the WEPP model was used for this project, including water yield analysis. It was stated on page 113 that stream flow, gauging records for Johnson Creek or its tributaries are not available. It is indicated on page 113 that WEPP estimates the average annual runoff. The WEPP discussion on page 113 mentions the Disturbed WEPP module and it is indicated this module was used to predict sediment yield and delivery from hillslopes.

On page 121 it was stated the WEPP model does not estimate peak flows. The WEPP discussions in the EA indicate the model is not designed to calculate fine and coarse bedload movement, or stream bank erosion. The model also cannot analyze water yields or peak flows that result from rain-on-snow events, or 100-year storm events.

The "WEPP: Road Technical Documentation, Draft Version", December 1999 contains the following statements on page 12. "Any predicted runoff or erosion value- by any model- will be, at best, within plus or minus 50 percent of the true value. Erosion rates are highly variable, and the models predict only a single value. Replicated research has shown that observed erosion values vary widely for identical plots, and for the same plot from year to year (Elliot and others 1994; Elliot and others 1995; Tysdal and others 1999)."

The WEPP discussions in the EA do not address this statement. The DN needs to supply high quality information with expert agency comments that will either confirm the accuracy of the statement cited, or supply accurate scientific information that will show why the statement is factually incorrect

RESPONSE: The use of the tools (i.e., WEPP) and the interpretations of the results of those tools are supported by the reports and documentation from the authors.

The high variability of erosion rates indicated in the WEPP documentation is consistent with the wide range of variability of many watershed processes observed in the field. This natural variability is an important factor that the watershed professional takes into account when using the various analysis tools to make informed conclusions in the EA.

The quotes you derived from the EA are correct, there are recognized limitations with the WEPP model and that is why the professional hydrologist must use a wide array of tools in their analysis. The most "confusing" portion of the comment above is that water yield is predicted using WEPP. The water runoff discussion in the EA should have been prefaced with the word "surface"; this has been recognized in the Errata. The WEPP model focuses on the surface runoff because that is the only runoff agent that directly affects surface erosion, which is the primary focus of the WEPP model.

Just as WEPP does not predict total increases in water yield, it also does not predict effects from possible rain-on-snow events, nor does the model claim to be able to route sediment through channels.

It is important to understand that the WEPP model is just one of several tools used by the project hydrologist. The hydrologist's professional opinion is buttressed by field observations, experience and finally the model outputs. In summary, the conclusions in the EA are based on effective and adequate science.

COMMENT (4): On page 18 of the Technical Documentation the following statement is found regarding validation. "There has been no direct validation of the WEPP: Road program, and little data have been collected on the amount of sediment that enters a stream that was detached from a road and transported across a forested buffer".

The WEPP discussions in the EA do not address this issue of direct validation. The DN needs to include high quality information with expert agency comments regarding the validation of the WEPP Road program that has been completed in the Wrenco cumulative effects analysis area.

The DN also needs to provide high quality information with expert agency comments regarding the WEPP Disturbed module as it applies to the statements made on pages 12 and 18 of the 1999 WEPP Technical Documentation

RESPONSE: There is more than adequate documentation available for WEPP. Elliot and Foltz (2001) used a mix of references to develop a validation database for the WEPP model.

COMMENT (4): Additional information regarding the WEPP based erosion model is found on the USDA Forest Service Rocky Mountain Research Station Forest Sciences Laboratory – Moscow Idaho website. Moscow FSL publication no 2003n concerns a Thesis paper "Accuracy assessment of WEPP – based erosion models on three small, harvested and burned forest watersheds", Covert, S.A. 2003…The DN needs to provide high quality information that describes the version of the WEPP model that was used for this project

RESPONSE: **The EA and its supporting documents have identified the sources that are available to access documentation concerning WEPP. WEPP is considered good science and it is well documented in this EA.**

COMMENT (4): The WEPP discussions in Chapter 3 do not explain how the WEPP model was used to calculate water yields as a result of the logging in 2004 on Riley Creek lands. The WEPP discussions also do not explain how the WEPP model calculated the expected water yields as a result of the logging of an additional 320 acres on Riley Creek lands together with the 317 acres of predominately regeneration logging that will be performed by the IDL. NEPA at 40 CFR 1500.1(b) requires accurate scientific analysis, and 40 CFR 1502.24 requires scientific accuracy by agencies in the discussions in NEPA documents. The WEPP model discussions associated with the cumulative effects analysis of activities on private and State lands do not indicate the NEPA requirements of 1500.1(b) or 1502.24 have been met in the EA

RESPONSE: The cumulative effects area includes the entire drainages of Johnson Creek and the West Fork Johnson Creek to their confluence with the Pend Oreille River. The treatment area for Wrenco encompasses almost 10 percent of the area of the two basins. The discussion on page 127 of the EA explains how timber harvesting on Idaho State Lands and Private Industrial Lands were considered in the cumulative effects analysis. Surface runoff is expected to decrease by an average annual amount of 0.03 acre-feet, a very small fraction of the estimated annual basin surface runoff of 5,000 acre-feet. Sediment delivery to area streams is also expected to decrease below existing levels throughout the project area in part due to the watershed restoration work planned. Other maintenance activities on existing roads in the project area would also minimize the sediment delivery to streams. Finally, fuel reduction in the area would reduce the potential of intense fire in the future. All of these activities would result in a net reduction of sediment over time.

COMMENT (4): The following statement is made on page 113. "Reduction in canopy cover can increase water yield and increase peak stream flows, particularly in areas subject to rain-on-snow events (areas

typically over 4,000 feet)." Previous Forest Service documents have indicated r-o-s zones are typically from between 3,000 and 4,500 feet. These documents include the West Gold FEIS at page III-109.

The DN should include information that will describe the number of acres of the Wrenco project area that are located in a r-o-s zone that is between 3,000 feet and 4,500 feet. There should also be high quality information in the DN that will indicate whether the Forest Service has any historical records or data of r-o-s events on NFS lands in the cumulative effects analysis area after 1960. If there is historical data regarding one or more events, the field inspection reports or other reports relating to the event(s) should be included in the project files

RESPONSE: The statements "areas typically over 4,000 feet" are in error and will be corrected in the errata for the EA. The typical "sensitive snow zone" on the Forest is on the order of 3,000 to 4,500 feet.

In fact, the entire area is subject to the maritime weather patterns that bring warm moist air masses into the area resulting in mid-winter rainfall. The watersheds, streams, and aquatic biota evolved under those conditions. However, the majority of the project (approximately 60 percent of the watersheds in the area) is *below* 3,000 feet. Therefore, the snowpack in the project area is rarely substantial enough depths to contribute to extremes in stream peak flows. These extreme stream peak flow events are the concern with so-called rain-on-snow events.

Historic records documenting each rain-on-snow (ROS) event in the project area are not available. Still, it is recognized that ROS events do occur with some regularity in the project area. It is imperative to understand that such processes have occurred in the area for thousands of years and will continue to occur.

COMMENT (4): The DN should also include information that will indicate whether the Sandpoint Ranger District aquatics/watershed reference papers include the following paper by R.D. Harr, Forest Sciences Laboratory, Pacific Northwest Forest and Range Experiment Station. "Some characteristics and consequences of snowmelt during rainfall in western Oregon. J. Hydrology., 53:277-304, Harr, R.D., 1981

RESPONSE: The Forest and its specialists have access to the paper referred to in this comment; and to several more current reports, including Harr, that further address the rain-on-snow issues consequences. It is not appropriate for the DN to provide a general list of documents that may or may not be specific to this analysis.

COMMENT (6): We are concerned that sediment delivery to streams may be higher than the predicted and estimated amounts

RESPONSE: Sediment delivery and loading and its consequences were identified as an issue and it was a key element in the analyses that support the conclusions in the EA. Appropriate analysis tools (i.e., WEPP) were combined with field inventories, monitoring, experience, and local knowledge to support the professionally-based conclusions in the EA.

The expected sediment response estimates are consistent with science and the professional experience of the specialists that made the assessments.

Insects and Disease

COMMENT (1): Since the FS doesn't cite research that proves otherwise in the EA, we can only conclude that "forest health" discussions are unscientific and biased toward logging as a "solution." Please consider the large body of research that indicates logging, roads, and other human caused disturbance <u>promote</u> the spread of tree diseases and insect infestation.

RESPONSE: On page 41 of the EA a Characterization of the Coniferous Vegetation is given starting with the Columbia River Basin then the Northern Region Overview next the Pend Oreille Subbasin Geographic Assessment and then the Wrenco project area. Each one of these analysis documents the changes in species from "forests dominated by western white pine, western larch and ponderosa pine

to forests dominated by shade tolerant grand fir, hemlock and Douglas-fir. These later species are less adapted to fire, drought and natural climatic variability than the species they replaced. The results are more insect and disease activity and higher fire risk." One of the Purpose and Needs of the Wrenco project is to (EA, p. 3) "Restore desired Forest cover, and species composition across the landscape where they are outside natural or historic ranges by: Changing forest composition (species mix) to emphasize long-term dominance of shade intolerant species, such as ponderosa pine western larch, and western white pine". This change in species composition is to be done through regeneration cutting followed by planting of the desired species and selective cutting by thinning to favor retention of these species. Logging, preparing the sites for planting through burning or slash piling and planting will provide the tools to accomplish this and reduce the amount of insect and disease activities. These tools have been used for decades and through careful implementation are proven to be effective.

COMMENT (1):. For example, multiple studies have shown that annosus root disease (Heterobasidion annosum, formerly named Fomes annosus), a fungal root pathogen that is often fatal or damaging for pine, fir, and hemlock in western forests, has increased in western forests as a result of logging (Smith 1989). And researchers have noted that the incidence of annosus root disease in true fir and ponderosa pine stands increased with the number of logging entries (Goheen and Goheen 1989). Large stumps served as infection foci for the stands, although significant mortality was not obvious until 10 to 15 years after logging (Id.).

RESPONSE: When considering annosus root disease, it is important to distinguish among the three species now known to constitute the former *Heterobasidion annosum* (Niemela and Korhonen 1998). These species have differing abilities to cause disease in western conifers. *H. annosum* is a pathogen of *Pinus* spp. and has not been documented to occur in northern Idaho. *H. abietinum* is a pathogen of Abies spp. and, in northern Idaho, Douglas-fir. *H. parviporum* is a pathogen of *Picea abies* and may not occur in North America. This may account for reports such as Kliejunas (1986) in which annosus-infected fir stumps were found not to result in infection of planted pines.

There is reasonably good evidence that *H. annosum* will not only establish long-term infections in large pine stumps (at least 17"), but will cause significant subsequent mortality in residual and regenerated pines. However, this pathogen is not known in north Idaho and we have looked for it consistently for at least 20 years. The nearest known *H. annosum* is in western Montana, on the Flathead Indian Reservation near Hot Springs. It occurs on very dry habitat types, mostly ponderosa pine habitat types, and possibly the very driest Douglas-fir (pinegrass). This may account for the apparent absence of this pathogen in the Idaho Panhandle, Clearwater and Nez Perce National Forests.

Most studies using permanent plots, rather than retrospective surveys, have shown that harvests that leave (or result in regeneration of) susceptible hosts neither increase nor decrease survival of residuals. Others have been inconclusive, showing increased mortality in about half of the locations while growth also increased. Although infected stumps do act as inoculum sources for subsequent stands on a site, so do root systems of trees killed by root disease. This is likely the reason there is no clear response to stump creation. However, in nearly all published reports, there was clearly no benefit to the residuals except where species composition was shifted toward root disease resistant or tolerant species. In other words, cutting trees, whether partial or clearcut harvests, may not hurt but it almost certainly won't help the disease situation without species conversion.

The retrospective study reported in Goheen and Goheen (1989) concludes that stands with multiple logging entries had more evidence of annosus root disease in grand fir than stands with a single entry. This conclusion is generally accepted but it should be noted that, as a retrospective study, it is possible, even probable that repeated harvest entries were in response to higher initial mortality rates due to root disease. Therefore, it is not possible to determine whether the harvests were the cause, or the result, of elevated levels of root disease.

Also, in a more recent publication, Filip and others (1992) reported high levels (89%) of true fir stump infection in shelterwood and seedtree harvest units but considered this due to pre-existing root infections. (Present before harvest.) They also reported that up to 9 years after harvest, only .2% of regenerated trees had died of annosus root disease, despite the high inoculum levels in stumps. At 15-19 years, the mortality rates from annosus root disease were even lower (>.001%). Lockman (1993) found that tree infection rates in several sites on the Nez Perce NF in northern Idaho were low in both clearcut and paired uncut units. Although stump infection rates were higher in clearcut units, the rate of associated tree infection was not different between cut and uncut units. Based on our current knowledge of annosus root disease in Douglas-fir and true fir stands, infection of cut stump surfaces by spores probably has little or no influence upon disease development in residual trees or regeneration. However, infected stumps are very likely to play a role in perpetuation of the fungus and development of disease as trees reach maturity.

COMMENT (1):. The proportion of western hemlock trees infected by annosus root disease increased after precommercial thinning, due to infection of stumps and logging equipment wounds (Edmonds et al. 1989, Chavez, et al. 1980).

Armillaria, a primary, aggressive root pathogen of pines, true firs, and Douglas-fir in western interior forests, spreads into healthy stands from the stumps and roots of cut trees (Wargo and Shaw 1985). The fungus colonizes stumps and roots of cut trees, then spreads to adjacent healthy trees. Roots of large trees in particular can support the fungus for many years because they are moist and large enough for the fungus to survive, and disease centers can expand to several hectares in size, with greater than 25% of the trees affected in a stand (id.). Roth et al. (1980) also noted that Armillaria was present in stumps of old-growth ponderosa pine logged up to 35 years earlier, with the oldest stumps having the highest rate of infection.

RESPONSE: These references to the very unique *Armillaria* infection centers in ponderosa pine in the (much studied) Glenwood area of Washington are not appropriate in assessing the behavior of Armillaria ostoyae in north Idaho. However, that *Armillaria* spp will utilize stumps for long term food sources and spread from stumps to live trees is accepted as fact.

***Armillaria ostoyae, Heterobasidion abietinum* and *Phellinus weirii* (now, more appropriately *Inonotus heinrichii*) are all considered to be capable of maintaining significant biomass for long periods in large stumps. *Armillaria ostoyae* is known to be capable of developing very large, presumably very old, clones that survive from one generation to the next on a site (Dettman and van der Kamp 2001a and b). Whether a stand is uncut, clearcut, partially cut or burned these fungi will survive in root systems of dead trees and eventually spread to whatever live hosts are available.**

The relative "vigor" of Douglas-fir does not affect the likelihood of mortality caused by A. ostoyae (Rosso and Hansen 1998). In the case of *I. heinrichii*, the more vigorous Douglas-fir may be more likely to be killed because their larger root systems contact more inoculum, sooner (Bloomberg and Reynolds 1985). However, some conifer species are significantly resistant to both *Armillaria ostoya*e and the non-cedar form *P. weirii* (*I. heinrichii*). Western larch (Robinson and Morrison 2001), ponderosa pine, western white pine, western redcedar and lodgepole pine are all resistant to A. ostoyae after the age of about 20-30 years (Filip and Schmitt 1990, Hagle and others 2003, Morrison 1981). These species are also tolerant or resistant to the non-cedar form of P. weirii (Filip and Schmitt 1990, Hadfield 1995, Hagle and others 2003, Nelson and Sturrock 1993). They are also resistant to fir-type annosus root disease (Hagle and others 2003).

COMMENT (1):. Filip (1979) observed that mortality of saplings was significantly correlated to the number of Douglas-fir stumps infected with Armillaria mellea and laminated root rot (Phellinus weirii). McDonald, et al. (1987) concluded the pathogenic fungus Armillaria had a threefold higher occurrence on disturbed plots compared to pristine plots at high productivity sites in the Northern Rockies. Those authors also reviewed past studies on Armillaria, noting a clear link between management and the severity of Armillaria-caused disease.

Morrison and Mallett (1996) observed that infection and mortality from the root disease Armillaria ostoyae was several times higher in forest stands with logging disturbance than in undisturbed stands, and that adjacent residual trees as well as new regeneration became infected when their roots came into contact with roots from infected stumps.

RESPONSE: Please refer to McDonald, G.I., Martin, N. e. and A. E. Harvey. 1987. *Armillaria* in the northern rockies: Pathogenicity and host susceptibility on pristine and disturbed sites. USDA Forest Service Intermountain Research Station. Res. Note INT-371. 5 p.

These authors state: The incidence of pathogenicity was high (59 percent) on disturbed plots in the ABGR, THPL and TSHE series and incidence of pathogenicity was low (18 percent) on undisturbed plots in the ABGR, THPL and TSHE series; incidence of pathogenicity was high (65 percent) on undisturbed plots in the PSME and ABLA series and the incidence of pathogenicity was low (25 percent) on disturbed plots in the PSMA and ABLA series. Upshot is the authors have concluded that disturbance can either increase or decrease "pathogenicity" of Armillaria, depending on the habitat type. In reality, the combination of relatively few plots and failure to account for differences in tree species (potential host) composition makes these results hard to credit. The primary author has stated regarding this study "Since a limited number of plots were included in this study, these results must be considered as preliminary." (G.I. McDonald; Relationships among site quality, stand structure, and *Armillaria* root rot in Douglas-fir forests.) Since Byler and others (1990) and Morrison and others 2000, and Cruikshank and others 2001 found dry sites to have the least incidence of mortality from *Armillaria* root disease, it is likely Dr. McDonald is correct in considering his 1987 results preliminary.

COMMENT (1):. Precommercial thinning and soil disturbance led to an increased risk of infection and mortality by black-stain root disease (Leptographium wageneri) in Douglas-fir, with the majority of infection centers being close to roads and skid trails (Hansen et al. 1988). Also another Black-stain root disease (Verticicladiella wagenerii) occurred at a greater frequency in Douglas-fir trees close to roads than in trees located 25 m or more from roads (Hansen 1978). Witcosky et al. (1986) also noted that precommercially thinned stands attracted a greater number of black-stain root disease insect vectors.

RESPONSE: Blackstain root disease is rare in north Idaho and does not play a significant role in forests in north Idaho so these reports have no bearing on this project.

COMMENT (1):. Complex interactions involve mechanical damage from logging, infestation by root diseases, and attacks by insects. Aho et al. (1987) saw that mechanical wounding of grand fir and white fir by logging equipment activated dormant decay fungi, including the Indian paint fungus (Echinodontium tinctorium).

Trees stressed by logging, and therefore more susceptible to root diseases are, in turn, more susceptible to attack by insects. Goheen and Hansen (1993) reviewed the association between pathogenic fungi and bark beetles in coniferous forests, noting that root disease fungi predispose some conifer species to bark beetle attack and/or help maintain endemic populations of bark beetles.

Goheen and Hansen (1993) observed that live trees infected with Laminated root rot (Phellinus weirii) have a greater likelihood of attack by Douglas-fir beetles (Dendroctonus pseudotsugae). Also, Douglas-fir trees weakened by Black-stain root disease (Leptographium wageneri var. pseudotsugae) are attacked and killed by a variety of bark beetle species, including the Douglas-fir bark beetle (D. pseudotsugae) and the Douglas-fir engraver (Scolytus unispinosis) (id.).

The root disease Leptographium wageneri var. ponderosum predisposes ponderosa pine to several bark beetle species, including the mountain pine beetle (D. ponderosae) and the western pine beetle (D. brevicomis) (Goheen and Hansen 1993).

A variety of root diseases, including black-stain, Armillaria, and brown cubical butt rot (Phaeolus schweinitzii), predispose lodgepole pine to attack by mountain pine beetles in the interior west. The

diseases are also believed to provide stressed host trees that help maintain endemic populations of mountain pine beetle or trigger population increases at the start of an outbreak (Goheen and Hansen 1993).

Grand and white fir trees in interior mixed-conifer forests have been found to have a high likelihood of attack by the fir engraver (Scolytus ventralis) when they are infected by root diseases, such as laminated root rot, Armillaria, and annosus (Goheen and Hansen 1993).

More western pine beetles (Dendroctonus breviformis) and mountain pine beetles (D. ponderosae) were captured on trees infected by black-stain root disease (Ceratocystis wageneri) than on uninfected trees (Goheen et al. 1985). The two species of beetle were more frequently attracted to wounds on trees that were also diseased than to uninfected trees. They also noted that the red turpentine beetle (Dendroctonus valens) attacked trees at wounds, with attack rates seven-to-eight times higher on trees infected with black-stain root disease than uninfected trees. Spondylis upiformis attacked only wounded trees, not unwounded trees (Id.).

RESPONSE: Any natural stresses (such as competition, drought, wind or snow damage, fire) or man caused stresses placed on trees may make them more susceptible to insect attack. The affects of silvicultural treatments using proper logging techniques as a tool can reduce the susceptibility of trees to natural damaging agents. By reducing the competition between trees, the redistribution of light, water, nutrients and growing space improves the health of remaining trees. In Chapter 2 of the EA, "Features Designed to Protect Vegetation, Soils, and Site Productivity" a description of measures that may be implemented for the Protection of Residual Stand is described. The Estimated Effectiveness of these activities is High and shows that logging can be designed to accomplish the desired objectives.

COMMENT (1):. 4 On pages 49 and 50 of the EA the discussion of Douglas-fir (DF) and old growth lists a USDA Forest Service unpublished report, and Rockwell 1917. The DN needs to include high quality information that will indicate whether the USDA Forest Service Region One has published a Report or paper that contains more current scientific analysis than the 1917 paper

RESPONSE: In addition to Rockwell 1917, the reports (published) by Haig and others (1941), Watt (1960) and Davis (1942) summarizing results from, among other sources, long-term permanent plots in Idaho leave little doubt of the generally short-lived nature of inland Douglas-fir, especially on grand fir, cedar and hemlock habitat types. These publications are based on excellent data. Additionally, the particular susceptibility of Douglas-fir to the major root diseases and significance of root diseases in limiting the lifespan of this tree species has been corroborated in numerous later studies (Hagle and Shaw 1991, Byler and others 1992, Nelson and Sturrock 1993, Goheen and Hansen 1994, Peet and others 1996, Robinson and Morrison 2001, Omdal and others 2004). Douglas-fir can be more enduring on drier, Douglas-fir, habitats. The root pathogens are not as ubiquitous on the drier habitats (as indicated in several publications such as Byler and others 1992, several by Morrison and others 2000 and 2001 and Cruikshank and others 1997).

Miscellaneous

COMMENT (2): If Alternative A is chosen, in the "desired landscape change" conceptual picture the first step, the logging operation, is the only sure action that will take place. After that the project will quite likely be abandoned due to the lack of funding. There is no guarantee that the Forest Service is going to follow up with any of the other proposed activities

RESPONSE: Activities that will be accomplished through the timber sale contract are timber harvest and hauling, fuel treatment, tree planting and monitoring, and some watershed restoration work. The remaining watershed restoration work and noxious weed monitoring will be achieved through appropriated dollars. In past years on the Sandpoint Ranger District we have been very successful in accomplishing these types of projects.

Given the proposed harvest prescriptions there would not be any planned harvest activity within the project area for 15 – 20 years after harvest is complete. The exception to this would be in the event of large scale salvage needs in the project area.

NEPA

COMMENT (1): The EA does adopt the programmatic decision for future "vegetative management" (see bottom of page 30) in justifying the decision to not consider a no new roads alternative, so we ask, where's the analysis of that Decision?.

RESPONSE: Project file document B-3 gives the rationale for not considering further detailed study on the No New Road Construction Alternative.

COMMENT (1): The rationale and analysis of this proposal must look at the forest as an ecosystem with interrelationships coequal to timber production. Please use the ecosystem management approach to assess fungal and insect organisms as capable of operating in a self-regulatory manner and exist as beneficial organisms within the project area. Some species of trees, native insects, and disease organisms are often described by the FS as "invasive" or somehow bad for the ecosystem. Such contentions that conditions are somehow "unnatural" runs counter to more enlightened thinking on such matters. For example, Harvey et al., 1994 state:

> *Although usually viewed as pests at the tree and stand scale, insects and disease organisms perform functions on a broader scale.*
>
> *…Pests are a part of even the healthiest eastside ecosystems. Pest roles—such as the removal of poorly adapted individuals, accelerated decomposition, and reduced stand density—may be critical to rapid ecosystem adjustment*

…In some areas of the eastside and Blue Mountain forests, at least, the ecosystem has been altered, setting the stage for high pest activity (Gast and others, 1991). This increased activity does not mean that the ecosystem is broken or dying; rather, it is demonstrating functionality, as programmed during its developmental (evolutionary) history

RESPONSE: We have no illusions about removing fungal and insect organisms from the ecosystem. We recognize these organisms are part of a healthy ecosystem; however, forest compositions have changed due to exotic diseases (such as blister rust) and fire suppression. Overall, these changes in forest composition mean that our forests are less diverse and productive than historically, and are at higher risk from insects, pathogens, and ultimately from severe fires. Zack 2000 (page 24 through 26) has a pertinent discussion in the section called Implications of Changes and Trends. This project trends towards historic ranges of species composition, which would trend toward historic ranges of fungal and insect organisms within these ecosystems.

COMMENT (1): The IPNF has admitted that the use of database habitat information, is suspect: "Habitat modeling based on the timber stand database has its limitations: the data are, on average, 15 years old; canopy closure estimates are inaccurate; and data do not exist for the abundance or distribution of snags or down woody material…" (U.S. Forest Service, 2000c). The EA does not indicate the degree of accuracy of the databases discussed in the EA and relied on for these analyses, as compared to the one subject to that observation

RESPONSE: The EA states in numerous locations (EA, pp. 40, 45, 58, 82, 84, 89, 96, and 101) that the Timber Stand Management Record System (TSMRS) was used in conjunction with 2004 field review notes as well as historic information and aerial photography. We feel the EA clearly discloses that information used was not "on average 15 years old" due the extensive 2004 field reviews accomplished (PF Doc. C-1).

COMMENT (6): The EA states that plant surveys and the biological assessment will be prepared after the decision notice is issued

RESPONSE: We do not know where this statement came from. The EA clearly states on page 58 "A prefield review of existing vegetation information identified areas of potentially suitable habitat for TES plants; these area were surveyed in 1991, 1994, 1995, and 2002." The plant surveys have been completed and the biological assessment is included in an Appendix C in the Decision Notice and FONSI.

Noxious Weeds

COMMENT (1): The FS has no idea how the productivity of the land been affected in the project area and forestwide due to noxious weed infestations, nor how that situation is expected to change

RESPONSE: The effects of noxious weed invasions on forest resource values in the District (e.g. recreation, wildlife habitat and rare plants) was addressed in the Sandpoint Noxious Weed Control Project FEIS (USDA Forest Service 1998c), which was referenced in the Wrenco EA on pages 27, 63, 64 and 65.

COMMENT (1): Please include in your analysis the possible effects of noxious weed introduction on Sensitive plant populations and other components of biodiversity. Please include in the analysis the results of monitoring of noxious weed infestation from past management actions in the Forest

RESPONSE: The measurement criterion for the effects of the project on noxious weeds, as stated on page 12, is the relative amount of canopy removal and ground or understory vegetation disturbance. Because the only documented sensitive plant population on National Forest lands in the project area would be buffered from all project activities, it is unlikely that noxious weeds would affect the population.

COMMENT (2): As it is mentioned in the EA (Page 64), "The overall Idaho Panhandle Forest strategy is to contain weeds in currently infested areas and to prevent the spread of weeds to susceptible but generally uninfested areas." Alternative A does not meet these criteria. As it is stated in the EA (page 66), disturbed soil and dry, sunny environment is jut the perfect environment for spotted knapwed to take over

RESPONSE: The Wrenco project area is not considered to be "generally uninfested", since populations of knapweed and goatweed occur in off-road infestations and are considered to be naturalized in the project area (see page 68). On page 69, the EA states that "Forest Plan direction is to 'provide moderate control actions to prevent new weed species from becoming established.'"

COMMENT (2): The statement on page 34: "…the project is expected to have little effect on the existing weeds…" is a serious understatement and not consistent with the rest of the assessment

RESPONSE: The wording table on page 34 has been corrected in the enclosed errata to accurately reflect the following determination that was made on page 69: "Given the current level of off-road weed infestation of naturalized weed species in the project area, and the potential for weeds to infest National Forest lands from surrounding private lands in the project area, Alternative A would be expected to have little *net* cumulative effect (emphasis added) on the existing weeds in the project area over the long term.

COMMENT (6): The Forest Service needs to address how the project will affect noxious weed importation and establishment and coordinate efforts with the local Cooperative Weed Management Authority. We are concerned that the proposed action will not minimize, and will in fact exacerbate the spread and establishment of noxious weeds through the logging units. The tires and undercarriages of all vehicles need to be washed with high-pressure hoses in an appropriate area before moving on site. Monitoring weeds and finding adequate funds for weed treatments should be required and guaranteed

RESPONSE: The effects of the project on noxious weed introduction and spread were analyzed on pages 66-70. The risk of spread of weeds from project activities is discussed on those pages. The requirement to clean all off-road equipment prior to entry into the National Forest is one of many features designed to prevent the spread of weeds, as listed on pages 27-28 of the EA. On page 69,

noxious weed treatment in the project area is listed as a reasonable foreseeable activity. While continued treatment is not assured, the project area was identified as a high priority for treatment in the Sandpoint Noxious Weed Project FEIS (USDA Forest Service 1998c), as stated on page 66. Because of the discovery of a new non-native weed species (dotted St. Johnswort), follow-up treatments to ensure eradication of this species are expected, as noted on page 65. It is also noted on pages 65-66 that cooperative weed management with other landowners in the project area is important and has been identified as an opportunity.

Old Growth

COMMENT (1): The EA does not disclose the effects caused by the human use of the forest adjacent to these roads, including firewood cutting, on resources such as old growth, amounts of current and recruitment large woody debris for soil renewal and wildlife habitat, and on wildlife species needing standing snags

RESPONSE: The project is located on an isolated tract of National Forest System lands. Roads directly adjacent to the project area are owned by Riley Creek Lumber Company. This road system is gated and not open to the general public. Only Riley Creek personnel use this road system for administrative use. The Wrenco Project has no Old Growth Stands (see page 45 of the EA and Appendix C of the Decision Notice/FONSI).

COMMENT (1): (Pfister et al., 2000, pp. 11, 15 emphasis added). Please disclose the best information from IPNF monitoring that proves the areas to be "treated" will retain characteristics meeting Regional or Forest Plan old growth criteria, or how they will at some specified time in the future

RESPONSE: The Wrenco Project has no Old Growth Stands (see page 45 of the EA and Appendix C "Errata" of the Decision Notice and FONSI).

COMMENT (1): The EA provides no information on the precision, or amount of error, in the estimates of old growth, based on its inventory, neither in the project area old growth management unit nor forestwide.

RESPONSE: The 2004 Forest Plan Monitoring Report Draft Old Growth Chapter (Project File Document C-12) contains details on accuracy of estimates of old growth across the entire IPNF, and across individual Ranger Districts.

The IPNF is using a multi-scale approach to monitoring old growth, based on two separate, independent tools. These are:

1) **Forest Inventory and Analysis (FIA) data used to calculate IPNF Forest-wide and mid-scale old growth percentages.**

2) **IPNF stand-level map displays all stands allocated for old growth management, with old growth management allocation recorded in the TSMRS database.**

1) Old Growth Percentages From FIA Data

FIA inventory design is based on the standardized national FIA grid of inventory plots that covers all forested portions of the United States. The sample plots are located randomly within the systematic grid of cells. The FIA design provides a statistically sound representative sample designed to provide unbiased estimates of forest conditions at large and medium scales. Because FIA data comes from a statistical sample rather than a 100% census, we describe attributes calculated from this data as estimates and the accuracy of these estimates can be computed and reported as confidence limits. The IPNF used a 90% confidence interval for old growth estimates. That means that if a different set of randomize sample points was collected 100 different times, the estimates of old growth amounts would be within this interval 90% of the time. This indicates that there is a 90% probability that the true amount of old growth is within this confidence interval. There is a 5% probability that the true

amount of old growth is less then the lower confidence limit. And, there is an equal 5% probability that the true amount o old growth is greater than the upper confidence limit.

Below are the 2004 FIA data estimates of old growth and the confidence limits of those estimates for the entire IPNF.

	90% Confidence Interval Lower Bound	Point Estimate	90% Confidence Interval Upper Bound	# of Subplots
Total IPNF	10.55%	12.85%	15.27	1588

2) IPNF Stand-Level Map of Old Growth

The IPNF 1987 Forest Plan, Standard 10b. states: "Maintain at least 10% of the forested portion to the IPNF as old growth." The IPNF stand-level map of old growth identifies those stands allocated for old growth management to meet this Forest Plan standard, and allows us to display those stands to the public. We keep track of these stands in the TSMRS database. This forest-wide stand map also provides a useful starting point at the project scale when we are considering any management activity, and need to take a more detailed look at old growth allocations within the project area.

One way to monitor compliance with our Forest Plan is by tallying up the acres of stands allocated for old growth management, and comparing this total to the Forest Plan standard. This stand-level map is not a sample of stands, but is simply a tally or census of all stands allocated for old growth management. Because this is a census rather than a sample, it is not appropriate to call the total stand acres an estimate, and it is not possible to calculate any confidence limits or statistical error estimates. However, comparing results of two different ways of monitoring an item (like old growth) does provide an indication of the reliability of those methods. We can compare total acres of allocated old growth stands recorded in TSMRS to the FIA old growth estimates that have a known accuracy. When we compare results of these two independent tools at the forest-wide and district-wide scales, we find that they produce remarkably similar results, and that the total percent of allocated old growth stand acres on the IPNF are within the 90% confidence limits of FIA estimates of old growth.

At the Forest-wide scale, the FIA estimate of the proportion of old growth and number of allocated acres of old growth stands both exceed the Forest Plan 10% standard:

- **Using FIA data, the current estimate of the proportion of old growth on the forested lands of the IPNF is 12.85%. The 90% confidence intervals of this estimate are 10.55% to 15.27%.**
- **The IPNF stand-level total of mapped acres allocated and maintained for old growth equals 12.1% of forested lands. This stand-level percentage is well within the 90% confidence interval of the FIA inventory.**

Information on how stands were allocated to old growth is contained in the latest IPNF Forest Plan Monitoring Report. The IPNF does not do timber harvest that removes allocated old growth. We ceased regeneration harvest of allocated old growth stands a number of years ago. However, old growth distribution will never be entirely static because forests are living, changing natural communities. Disturbances such as fire, insects, pathogens, and weather events may reduce the amount of old growth in some areas. Meanwhile, other stands will grow and age into old growth status. The IPNF has approximately 6,500 individual allocated old growth stands distributed across 2.5 million acres of National Forest. It is not practical to visit every old growth stand every year. To keep our old growth stand map as up-to-date as possible, we not only do periodic forest-wide reviews

and updates, but we also take a closer look whenever any management activity is being considered that could possibly impact old growth.

Before making any management decisions within project areas, we closely review all old growth allocations within the project area, as well as review all potential treatment stands, and look for previously unidentified stands that may now meet old growth criteria. The objectives of this review are to be sure we have the best old growth allocation and landscape arrangement possible within that project area, and to be sure we're not inadvertently, negatively impacting old growth. Project-scale review often results in changes in old growth status for a few individual stands. We sometimes find that some previous old growth stands no longer meet criteria because of insect and disease or weather mortality. However, because other stands have grown into old growth status, or because we also find previously un-inventoried old growth, this project-scale review commonly results in a net increase in old growth in the project area.

FIA data is not used to estimate amounts of old growth at the project or Old Growth Management Unit (OGMU) scale. Those spatial scales are too small to have adequate numbers of FIA plots for meaningful estimates or confidence intervals. However, within the project area, all potential old growth stands were reviewed validated, and none were found. This stand-by-stand validation is a census rather than a sample. The OGMU and project scale old growth validation process is documented in project record under Forest Vegetation and contains field exam sheets.

Because the project-scale validation is not a sample, but a review of all old growth stands, it is not appropriate to call it an estimate, and there are no error estimates or confidence intervals to be reported. We have simply identified those stands within the project area boundaries that meet old growth definitions. However, we have disclosed (above) the accuracy of the estimates of old growth derived from FIA data, for the entire IPNF.

COMMENT (1): What is the definition, or minimum criteria used for designating old growth in the old growth management unit? The EA does not say if the "allocated" old growth includes all the important habitat characteristics needed by old-growth wildlife species. Also, block size of old-growth habitat, between-block forest integrity, and spatial juxtaposition are some important considerations ignored by the EA

RESPONSE: The definitions of old growth developed by the Regional Old Growth Task Force were used for designation of Old Growth, documented in: *Green, and others 1992 (errata corrected 02/05).* (See literature reference or project file: *Old Growth Types of the Northern Region)*.

See Appendix C of the Decision Notice and FONSI and the Draft 2004 Forest Plan Monitoring Report (project file document C-12) referenced in the Appendix C "Errata" of the Decision Notice and FONSI explain the definition of allocated old growth and the characteristics used in old growth determination.

An inventory of old growth was completed on the Sandpoint Ranger District in 1993 as directed by then Forest Supervisor Bill Morden. Sandpoint Ranger District worked with the Audubon Society, represented by Liz Sedler, in delineation and selection of old growth stands (see project file *Old Growth Review for Wrenco Assessment)*. This inventory and selection process incorporated block size, linkage, integrity, and position on the landscape (See project file *May 7, 1991 Letter, Forest Plan Explanation: Implementing Old Growth Standards)*. All Old Growth on the Sandpoint Ranger District was selected and is managed for Old Growth retention.

COMMENT (1): The EA doesn't demonstrate consistency with many of the Forest Plan's old-growth standards.

RESPONSE: Appendix C "Errata" of the Decision Notice and FONSI addresses the compliance and consistency of all old-growth standards with Forest Plan direction.

COMMENT (1): As recent court decisions and a report by the Lands Council (Picken, 2005) reveal, the IPNF's old-growth inventory inaccurately inflates the actual amount of old growth existing on the Forest

RESPONSE: The old growth inventory for the IPNF is accurate. Please see the vegetation portion of the project file which includes IPNF Draft 2004 Forest Plan Old Growth Monitoring report (PF Doc. C-12) and a response to Picken 2005 titled "Review of Old Growth Assessments for the Idaho Panhandle National Forests by Arthur C. Zack, Ph.D" August 17, 2005 (PF Doc C-16). The Review of Old Growth Assessments for the IPNF reveals that the Piken 2005 report is inaccurate and the IPNF has an accurate inventory. Appendix C of the Decision Notice and FONSI gives further explanation of IPNF's old growth inventory.

COMMENT (4): The old growth analysis on page 45 of the EA includes a discussion of stand 643-04-044. It was stated for this stand was reviewed in 2004 and that it was found to have only two large old trees per acre.

The IPNF's 2003 Stands database had information regarding this stand that showed there were 29 trees per acres. The exam year was given as 1991 and the update was listed as 2-12-98.

There should be information in the DN that would explain the difference between the 1991 exam that found 29 trees per acre and the 2004 exam that found only 2 large old trees per acre. The date of the most recent update to the TSMRS database used for this project should be disclosed in the DN.

RESPONSE: In reviewing the 1991 exam data, we do not find that this exam indicated 29 trees per acre of large old trees. It is our assumption that you may have made a mistake in reviewing this stand data. The 2004 old growth exam was done to review this stand to see if it would meet old growth criteria. It does not.

COMMENT (4): On pages 49 and 50 of the EA the discussion of Douglas-fir (DF) and old growth lists a USDA Forest Service unpublished report, and Rockwell 1917. The DN needs to include high quality information that will indicate whether the USDA Forest Service Region One has published a Report or paper that contains more current scientific analysis than the 1917 paper

RESPONSE: In addition to Rockwell 1917, the reports (published) by Haig and others (1941), Watt (1960) and Davis (1942) summarizing results from, among other sources, long-term permanent plots in Idaho leave little doubt of the generally short-lived nature of inland Douglas-fir, especially on grand fir, cedar and hemlock habitat types. These publications are based on excellent data. Additionally, the particular susceptibility of Douglas fir to the major root diseases and significance of root diseases in limiting the lifespan of this tree species has been corroborated in numerous later studies (Hagle and Shaw 1991, Byler and others 1992, Nelson and Sturrock 1993, Goheen and Hansen 1994, Peet and others 1996, Robinson and Morrison 2001, Omdal and others 2004). Douglas-fir can be more enduring on drier, Douglas-fir, habitats. The root pathogens are not as ubiquitous on the drier habitats (as indicated in several publications such as Byler and others 1992, several by Morrison and others 2000 and 2001 and Cruikshank and others 1997).

Roads Analysis

COMMENT (1): We object to the roads analysis that only focuses on the "project area." The EA omits discussion of the results of the Roads Analysis Process, keeping the public uninformed as to the watershed restoration needs of the area. Roads often have devastating impacts on water quality and fish habitat by increasing landslides, erosion, and siltation of streams… The FS ought to take a holistic view of the situation and at least define the priorities, even if they're not on national forest land

RESPONSE: The project area includes National Forest lands along with some private industrial lands. The roads analysis looked at the National Forest System roads within the project area (this is an isolated parcel of National Forest there are no other National Forest System roads outside the project area). The results of the Road Analysis Process can be found in project file document B-1. The watershed restoration needs in the area are identified in the Wrenco EA (page 17). There is

opportunity to perform road maintenance on portions of Riley Creek roads that are used for log hauling. Any road maintenance performed on these roads would help divert water, reduce sediment, and assist in contributing to less sediment reaching West Johnson Creek. The road work has been identified; however, it was not factored into our analysis due to the uncertainty of it being accomplished.

COMMENT (6): Instead, we recommend that this project decommission and obliterate all high-risk and redundant roads within and adjacent to the area as determined by the Roads Analysis. Culverts of obliterated roads should be removed and restored to reduce the effects these have on sedimentation, water quality, and soil productivity.

RESPONSE: The roads analysis identified one road for decommissioning (EA, p. 17). There were no other roads that were "high-risk and redundant" identified by the Roads Analysis.

Soils

COMMENT (1): The EA states that the effect of the logging will be to increase diameters of trees and create a more "desired" tree species composition, but this discussion fails to integrate and consider the loss in productivity due to repeated soil impacts and the reduction of wildlife habitat components due to the reduction of "undesirable" trees, such as "those with poor form class, insect attacks and disease, and undesired tree species."

RESPONSE: The proposed action is designed to respond positively to the decline in forest health expressed in the existing conditions. The proposed action will increase the number of stands dominated by tree species that are more tolerant of insects, disease, and fire. The proposed action incorporates Design Criteria and Mitigation Measures that promote the retention of soil nutrients and wildlife habitat on site while limiting compaction (Chapter 2, pp.22-26).

COMMENT (1): The EA proposes subsoiling to decompact soils, cites some sources for support, but fails to cite any scientific articles that question its efficacy…Soil mixing is well documented in agricultural soils research to be quite harmful to productivity. The absence of accounting for soil mixing in the factors contributing to detrimental soil damage renders the proposal inadequate to protect soil and land productivity required by NFMA. It may also result in increased disturbance causing an increase in weed infestation. This is not disclosed or mitigated. Without knowing the depth of compaction how can the necessary depth of ripping or subsoiling be adjusted, or would deep compaction simply be covered over by superficial treatment? We urge you to at least drop the proposed logging in stands that will have detrimental disturbance over 15% without mitigation (Table 3-16).

RESPONSE: Two areas are proposed to be either subsoiled or scarified as part of the recontouring and decompaction efforts: Forest road 1023 and landings located in timber stands 64304047, 64304050, 64304052, and 64304054. Roads (especially old system roads such as Forest Road 1023) generally contain an increased level of both natural and/or introduced rocks and gravels at or near the surface so that mixing at this point is of little concern since the original topsoil has already been altered. However, the intent is to improve the hydrologic function of the road and to decompact soils to initiate recovery. One way to effectively close this road is by recontouring a certain distance of road (generally on either end) and cover it with woody debris and organic matter to introduce organic material for long-term soil productivity and boulders to effectively discourage motorized travel.

The proposed landings located in stands outlined above would be rehabilitated through subsoiling or scarification, followed by seeding, and allowing slash to decompose on site. Since these stands will likely be visited again in the future, the mitigation measures are mainly directed at the hydrologic function of the site with the intent to reduce potential runoff and erosion.

Subsoiling skid trails, temporary roads, and landings after each entry can reduce the opportunity for cumulative detrimental soil conditions. Proven to increase the survival and growth of seedlings,

subsoiling begins the process of restoring areas of previous compaction, when followed by vegetation establishment (http://fsweb.sdtdc.wo.fs.fed.us/programs/fm/fy04/ Subsoiling/subsoilingmain.shtml). Decompaction efforts can result in soil profile mixing depending on inherent rock content and operator skill. Nevertheless, site productivity losses due to localized soil mixing needs to be weighed against the benefits of enhancing infiltration and improving seedbed establishment conditions and growth (Dykstra and Curran 2000). While ripping and subsoiling alone may in some cases only provide temporary improvements, it is the incorporation and re-introduction of organic material that will likely accelerate the restoration of a sites hydrologic and ecologic function (Luce 1997).

Preventive seeding for both Forest Road 1023 and landings is proposed to reduce the risk of weed infestation (see Ch. 2 –pp. 27-29 and Ch. 3 – pp. 64-66). Under foreseeable actions, monitoring of noxious weeds will be followed by treatment if the need arises (Ch. 3 – p.69).

You are correct about your statement of the importance of knowing the depth of compaction. Decompaction depths are therefore kept site specific and will be adjusted depending on the impacts in each area after logging activities are completed. Current monitoring and "lessons learned" of past and present decompaction efforts on the IPNF is also expected to provide additional insights and improvements for future projects.

COMMENT (1): The field review of soil during winter (p. 96) makes all the "field verification" (Id.) suspect

RESPONSE: The soils field review for the project was completed in the fall (September and October) under dry conditions (see project file). Proposed logging acreages were changed in January in one 7 acre stand (643-04-013) and legacy soil impacts were evaluated since the mild winter (no snow) allowed for access. Stumps were found with little to no evidence to how the timber was removed, which suggested the possibility of past horse logging in the winter. This is consistent with the other stands in the northern portion of the project area where past impacts (besides stumps) were pretty much non-existent. Based on the above observations, existing soil conditions appear to have recovered or are not impacted by previous activities.

COMMENT (1): We are concerned that project activities will accelerate soil erosion, increase soil compaction, and degrade soil productivity. Prescribed fires and mechanical treatments may adversely affect soil productivity

RESPONSE: Of the nine land types in the project area, seven were rated as exhibiting low surface erosion potential and two (Map units 109 and 190) were rated as moderate (pp.99-100). Unit 109 will not be disturbed by logging activities. Unit 190 is described as mid- to high-elevation rock outcrop and talus with shallow soils. Given the topography of these 53 acres, the lack of existing or planned roads, harvesting during the dry season, and skid trail erosion control measures would result in fairly low surface erosion potential.

Additional features to prevent or reduce soil compaction (use of existing skid trails, slash mats, etc.) are BMP mitigation standards that have a proven, qualified and quantifiable track record that, when applied, will address and alleviate these concerns. These features can be found on pp.24-26.

COMMENT (1): The EA cites no monitoring or scientific studies to validate the effectiveness of the proposed mitigation for soils. (EA at 24-26.)

RESPONSE: Each mitigation described on pp. 24-26 contains at least one or several reference sources (monitoring and scientific papers) regarding the estimated effectiveness of the designed practices to minimize detrimental impacts on soils. IPNF monitoring reports can be viewed at:

http://www.fs.fed.us/ipnf/eco/manage/forestplan/index.html - fpmon

COMMENT (1): The EA fails to link the current and cumulative soil disturbance across the project area watersheds to the impacts on water quantity and quality

RESPONSE: Chapter 3 sections on Forest Vegetation, Soils, and Watershed present quantitative documentation of past activities, current conditions, and cumulative effects in the project area. The Chapter 3 Watershed section (pp. 111-131) gives detailed information on water quality and quantity.

COMMENT (1): In other words, when an Activity Area reaches 15% detrimentally impacted soils via compaction, tree growth outside the skid trail, or beyond the 15% compacted area, is affected. This is ignored in the Regional Policy and the EA

RESPONSE: The Soils Report (p. 107) discloses that project activities would not exceed 15% detrimental impacts, as defined by the Regional guidance.

COMMENT (1): For a study done on the Kootenai NF and the adjacent Flathead NF in Montana, soil scientists measured soil bulk densities, macropore porosities, and infiltration rates using paired observations of disturbed vs. undisturbed soils…There is simply no way that the FS has enough soil bulk density and other compaction monitoring data collected at the adequate soil depths and in enough sites to be able to assure that the use of heavy machinery, as prescribed by the Wrenco project, will not significantly or permanently impair the productivity of the soil.

RESPONSE: Information related to physical soil characteristics have been and are currently collected on the IPNF (Niehoff 2002) and R1 for many years. Those collecting the information have also observed the changes in the soil material and have applied this information to many other field reviews, which helps to provide qualitative data to many different land management activities. A lot of information is also gathered from research during observation of different activities. The body of literature related to impacts associated to land management activities is extensive and provides an excellent background for discussion about machinery impacts.

COMMENT (1): The EA also fails to cite monitoring results showing the FS has been able to correctly implement the coarse woody debris guidelines on the IPNF. The FS must evaluate the adequacy of such required mitigation measures

RESPONSE: Monitoring results are cited in Chapter 2 – p. 25. Coarse woody debris related monitoring results can also be viewed at http://www.fs.fed.us/ipnf/eco/manage/forestplan/index.html - fpmon

COMMENT (4): The soils discussions on pages 96 and 97 of the EA mention field reviews of timber stands in the project area. Field reviews of certain stands are also mentioned on pages 100 and 101. The DN should provide information that will indicate whether any timber stands proposed for logging were not visited and inspected by the Forest Soil Scientist

RESPONSE: Table A-1 outlines all the stands that were visited by the forest soil scientist during the field evaluation of the Wrenco Loop Project. Those that were not visited had no previous entry documented in the TSMRS database. Furthermore, extensive personal communication between D. Dillon and J. Heisel eliminated the need for further monitoring by the soil scientist based on their exhaustive field observations and verifications that these stands were undisturbed. Results were summarized on in Chapter 3 - pp. 101, 102, 107. Additional monitoring notes are available in the project file.

Table A-1: Summary of timber stand evaluations performed by forest soil scientist.

Unit	Activity Area (acres)	Existing Detrimental Impacts (%)*	Visited by Forest Soil Scientist
64304005	24	0	x
64304008	9	0	
64304010	187	0	x

Unit	Activity Area (acres)	Existing Detrimental Impacts (%)*	Visited by Forest Soil Scientist
64304011	58	0	x
64304013†	7	4	*
64304044	23	0	x
64304045	1	0	
64304046	16	0	
64304047	78	8	x
64304048	15	0	
64304049	68	0	x
64304050	21	8	x
64304051	29	0	x
64304052	36	2	x
64304053	0	0	
64304054	36	4	x
64304057	3	0	

***visited by Dave Dillon in February of 2005.**

COMMENT (1): The precision, or amount of error, in the estimates derived from modeling used are not disclosed. They are estimates, based upon sampling that inherently has some amount of error…However, the EA failed to present any "confidence intervals, standard deviations or standard errors in association with its conclusions" regarding estimates derived from the wildlife and water models used, the amount of activity area detrimental soil disturbance, and other numbers and statistics displayed. Since the EA does not provide the public or decision maker with sufficient information on the accuracy of its estimates and model results, the information is not scientifically valid nor reliable.

RESPONSE: Methods and assumptions for soil related modeling and data collection are discussed in the EA on pp.96-97 and in the referenced document by Niehoff (2002), which also outlines the data from which the Soil Disturbance or Spreadsheet Model model's coefficients were derived. This model is an analysis tool that considers soil response relationships as a result of forest practices. The estimated responses are combined with locally collected data and analysis to determine the findings of probable effects. They serve as a starting point to provide information that, when combined with its limitations, experience, judgment, and on the ground observations, integrate all those sources to make the appropriate findings and conclusions.

It is beyond the scope of project analysis to provide data that has the caliber and validity of scientific research. While soil productivity standards currently in effect define soil compaction in quantitative terms, many other forms of soil damage (displacement, puddling etc.) are qualitative. Quantitative measurements of density, porosity, and strength make sampling complex, time consuming, and expensive. The techniques used, such as the onsite assessment method for detrimental soil disturbance (Niehoff 2002), are qualitative and employ professional judgment with the intent to provide the best data available to protect the soil resource long-term. Impacts of soils disturbances are not absolute and are affected by soil type, local climatic and vegetation conditions, and other compensation factors.

Threatened, Endangered and Sensitive Plants

COMMENT (1): The EA does not cite any evidence that its proposal to buffer moonwort populations would actually be effective in protecting the plants, and allowing them to maintain or expand

RESPONSE: On page 27 of the EA, the effectiveness of buffering the one documented moonwort population (which consists of a single known individual) was estimated to be high, and it was stated that other timber sale projects had successfully used this method of protecting rare plant populations and the surrounding suitable habitat. Thus, the moonwort population could expand to occupy adjacent suitable habitat. Beyond the riparian area in which the moonwort population occurs, potential to support the species is low, as stated on page 58 and again on page 61. It is unlikely that moonwort populations would expand into habitat with low potential to support them. The determination that the proposed action may impact undetected individual moonworts is a conservative one, and is based on the diminutive habit of the plants, the often sporadic appearance of aboveground stems, and their occasional occurrence in unlikely habitats (see page 61).

COMMENT (1): The precision, or amount of error, in the estimates derived from modeling used are not disclosed. They are estimates, based upon sampling that inherently has some amount of error…However, the EA failed to present any "confidence intervals, standard deviations or standard errors in association with its conclusions" regarding estimates derived from the wildlife and water models used, the amount of activity area detrimental soil disturbance, and other numbers and statistics displayed. Since the EA does not provide the public or decision maker with sufficient information on the accuracy of its estimates and model results, the information is not scientifically valid nor reliable

RESPONSE: The rare plants report in the project file states that "Queries of the Timber Stand Management Record System (TSMRS) were used to provide a 'coarse filter' assessment of suitable rare plant habitat in the watershed. Field surveys of suitable habitat identified by TSMRS often reveal the extent of suitable habitat to be far less than that predicted by the queries. Conversely, specialized habitats and microsites of suitable habitat are usually underrepresented in coarse filter queries." As stated on page 58 (Methodology), National Wetlands Inventory maps, aerial photographs and topographical maps were also used to identify potentially suitable rare plant habitat.

Field surveys were conducted in the project area over a period of several years. Typically, while surveys focus on areas identified as highly suitable habitat by the TSMRS queries, botanists search for rare plants somewhat intuitively. They often cover broad areas of mostly unsuitable habitat, but search for and intensively survey microsites of suitable habitat that may not have shown up in the queries. Field surveys are often referred to as the "fine filter" approach that complements the "coarse filter" approach of the queries.

Results of the surveys, including a map of survey routes, are part of the project file, as stated on page 59. The environmental consequences analysis was based largely on field survey results, as stated on page 60.

COMMENT (1): The FS has failed to tier the viability analyses for Sensitive species that would be impacted by the Wrenco project to a landscape analysis of Sensitive species viability that would allow for some assurances to the public that species viability is currently being insured in spite of continued habitat destruction and/or alteration

RESPONSE: There is a discussion of a viability assessment conducted in 1998 for rare plants, including western goblin and green bug-on-a-stick moss, on page 64 of the EA. The information is derived from the IPNF 1998 Forest Plan Monitoring Report, which is referenced as USDA Forest Service 1998b, pp. 112-116. In 2005, a conservation assessment for rare moonworts in the IPNF was completed; the Forest is in the process of preparing a conservation strategy for these species. This information has been incorporated into the errata sheet under Consistency with Forest Plan and Other Laws and Regulations on pages 63-64.

COMMENT (1): Please include in your analysis the possible effects of noxious weed introduction on Sensitive plant populations and other components of biodiversity. Please include in the analysis the results of monitoring of noxious weed infestation from past management actions in the Forest

RESPONSE: The measurement criterion for the effects of the project on noxious weeds, as stated on page 12, is the relative amount of canopy removal and ground or understory vegetation disturbance. Because the only documented sensitive plant population on National Forest lands in the project area would be buffered from all project activities, it is unlikely that noxious weeds would affect the population.

The inadequacy of past weed prevention and control practices in the project area is acknowledged on pages 65 and 69 of the EA. All timber sale projects on the district since the mid-1990s have included weed prevention and treatment features designed to reduce the risk of weed spread from project activities. As stated on page 28, these "mitigation measures are accepted weed prevention practices developed by public land management agencies and university cooperative extension offices and promoted by weed management organizations across the nation (e.g. Sheley et al. 1997, Drlik et al. 1998, USDA Forest Service 2001a)." The question is not whether these practices work - studies have shown that they do - but whether the practices are properly implemented. Weed mitigation practices associated with the logging operations would be monitored by the sale administrator to ensure proper implementation (EA, p. 29).

Visual Quality

COMMENT (2): The evidence of the timber harvesting on private lands adjacent to the project area in section 30 is a good indicator of the expected appearance of the project area after Alternative A activities.

RESPONSE: As stated in the EA on page 138 the proposed cutting prescriptions call for a mix of thinning and regeneration harvests. This would result in a significant amount of tree crowns being left in the project. This is a very different type of cutting than what was done within section 30. The cutting on private land within this section in no way reflects what is planned for the Wrenco project. It is expected that the only discernable change from the proposed cutting would be in stand 643-04-049. The view angle into this area is more acute because it is steeper ground. The top of this area would be visible to the viewpoints after harvest. The vegetation removal here would repeat the form, line, color, and texture of the natural occurrences common to the surrounding areas.

Wildlife

COMMENT (1): How will the big, old legacy snags be protected since they'd be seen as a safety hazard as per OSHA

The EA does not adequately consider that snags may be cut down for safety reasons during logging operations (due to OSHA regulations. The EA fails to disclose how much snag loss would be expected because of safety concerns and also skyline corridors and other methods of log removal—the loss could be more significant that disclosed, because the EA doesn't provide any idea the degree of snag loss due to these concerns

RESPONSE: Regarding wildlife tree retention practices, the EA gives special emphasis to the protection of the occasional old legacy or relic trees and snags. EA states on page 22 that retention practices would focus on large diameter trees, especially the relic ponderosa pine and western larch. It also prescribes pulling slash back from these trees or snags to protect them from the adverse effects of prescribed burning. Grapple piling of slash on moderate slopes is recommended to lessen possible losses from burning *(EA, pp. 22)*.

The EA acknowledges the loss of some snags from logging operations *(EA pp. 83, 86, and 88)*. However, designed features are called for to minimize this loss. Prescribed underburning would recruit new snags by fire-killing some residual green trees to help compensate for this loss *(EA, pp.*

***22-23)*. It would be extremely difficult to predict how much snag loss is anticipated, especially when the natural density and distribution varies across the landscape. While current conditions may not meet these objectives due to existing stand structure (relatively young, healthy stands with low occurrence of quality snags), long-term management objectives are intended to manage snag habitat to exceed Forest Plan guidelines.**

COMMENT (1): The EA states that the effect of the logging will be to increase diameters of trees and create a more "desired" tree species composition, but this discussion fails to integrate and consider the loss in productivity due to repeated soil impacts and the reduction of wildlife habitat components due to the reduction of "undesirable" trees, such as "those with poor form class, insect attacks and disease, and undesired tree species."

RESPONSE: EA utilizes Soil and Conservation practices that protect soil at higher levels than do existing Idaho Forest practices rules and regulations *(EA pp. 24-26)*. Features designed to protect soils and site productivity would be implemented to ensure that activities are consistent with Forest and Regional guidelines *(EA pp. 105)*. Over the long-term, implementation is expected to enhance wildlife habitat components by initiating higher quality, large-diameter snags and trending habitat conditions to more suitable conditions for most of the species analyzed *(EA pp. 83, 85, 88 and 89)*. It is not the intent of this project to eradicate, but reduce the amount of "undesirable trees." The actual cover type would not change for most of the stands. In many stands with a high composition of Douglas-fir, root disease would probably kill susceptible species *(EA pp. 48-50)*.

COMMENT (1): The EA makes no sense in claiming that there's no habitat for Townsend's big-eared bat, fisher, and wolverine. Are you saying they never occurred here, or that land disturbance has extirpated them?

RESPONSE: The EA does not claim that these species never occurred. However, the landscape has undergone considerable transformations in recent times. The project area lies on a small tract of National Forest System lands amongst a landscape that has been heavily altered and developed. It is impractical to manage for wide-ranging species (i.e. fisher and wolverine) on a small, isolated tract that is much smaller than their effective home range sizes, not withstanding an area of sufficient size and quality where individuals can interact to support local populations *(PF Doc G-1)*. Townsend's big-eared bats rely on abandoned mines and building for hibernation, maternity and roosting habitat. None of these features are within the area of potential effect *(PF Doc G-1.)*

COMMENT (1): The precision, or amount of error, in the estimates derived from modeling used are not disclosed. They are estimates, based upon sampling that inherently has some amount of error…However, the EA failed to present any "confidence intervals, standard deviations or standard errors in association with its conclusions" regarding estimates derived from the wildlife and water models used, the amount of activity area detrimental soil disturbance, and other numbers and statistics displayed. Since the EA does not provide the public or decision maker with sufficient information on the accuracy of its estimates and model results, the information is not scientifically valid nor reliable

RESPONSE: For the wildlife analysis, no specific numeric models were used. Habitat suitability analysis is based on predicting the effects of proposed actions on important habitat parameters that are supported in literature. The analysis comes from literature where the statistical parameters and details are disclosed. The literature cited section provides the references for this analysis.

COMMENT (1): What is meant by a "local viable population" of marten (EA at 78)?

RESPONSE: Local viable population supposes that there is sufficient habitat to support enough individuals to contribute to a local population.

COMMENT (1): The EA dismisses project and cumulative effects on upland habitat for boreal toads, and on habitat that otherwise provides connectivity to reproductive sites (see Maxell, 2000). This does not make sense, since such small populations that are likely to persist are especially susceptible to the further fragmentation effects, and vulnerable to extirpation due to isolation of smaller populations

RESPONSE: On the contrary, the EA recognizes upland habitat as part of boreal toad use patterns and acknowledges some short-term impacts. It also states boreal toads use a variety of upland areas, and the predicted change in vegetative structure should have no long-term effects or adverse consequences (EA pp. 81-82). Consequently, the effectiveness of upland habitat should recover following a temporary disturbance, retaining its connectivity with possible breeding sites.

COMMENT (1): Logging, roadbuilding and other disturbance associated with the project and other cumulative impacts would affect goshawk nesting, post-fledging family habitat, alternative nesting, foraging, competitors, prey and potential habitat, including areas far from cutting units. Research in the Kaibab National Forest found that goshawk populations decreased dramatically after partial logging, even when large buffers around nests were provided (Crocker-Bedford, 1990).

RESPONSE: Crocker-Bedford (1990) is cited in Reynolds et al. (1992), a more recent and comprehensive publication examining the conservation of goshawks, in which the EA relies on for its management recommendations. Goshawk nest site protection measures are designed to maintain the productivity of existing nesting territories. Logging operations and related Forest Service activities would be suspended within ½ mile distance of active nest site during nesting season to promote nesting success and provide foraging opportunities for adults and fledglings during fledgling dependency period (EA pp. 23). In literature cited section (Reynolds et al. 1992) states the thinning from below or thinning unwanted understory trees is a preferred treatment for maintaining stand structure within nest area.

COMMENT (1): Reynolds et al. (1992) suggest that it is essential to viability of goshawks that 20-50% of old growth within their nesting areas be maintained, yet nothing in the EA seems to recognize that (see also Suring et al. 1993. Graham, et al. 1999, USDA Forest Service 2000b, Iverson et al. 1996, and Suring et al. 1993 are more examples of northern goshawk conservation strategies the FS might adopt for this Forest, if emphasis was more appropriately placed on species conservation and insuring viability rather than justification for resource extraction

RESPONSE: No stands are considered old growth within the Wrenco project area (EA pp. 45). Some stands that are prescribed for thinning have the potential for trending toward larger-diameter, longer-lived trees, thus, reaching old growth structure in the future. Some treatment areas would trend from crowded, immature stands to open stands with larger, more mature trees. This trend would ultimately be beneficial to goshawks by producing larger trees and increasing the desirability of foraging areas by removing congestion of dense understory vegetation (EA pp. 85). Accordingly, species conservation is addressed through the "extraction" and management of vegetation.

COMMENT (1): The issue of fragmentation should have been more thoroughly considered with respect to goshawks. Other edge-adapted species may compete with the goshawk and displace the goshawk if adequate amounts of forest interior habitat is not provided. Crocker-Bedford (1990) recommends that a foraging area of >5000 acres of dense forest, in which no logging is permitted, be designated for goshawks, with additional areas of 2500-5000 acres of more marginal habitat designated beyond this 5,000 acre foraging area

RESPONSE: Landscape fragmentation is a pre-existing condition for the area. The Wrenco project area is situated on a small tract of National Forest System lands surrounded by a landscape that has been altered and developed. This tract is only about 1,500 acres, which is far less than the 5,000 acres quoted in this comment. Consequently, adequate foraging habitat is directly dependent upon the condition of habitat on other ownerships that are beyond the administrative control of the Forest Service.

COMMENT (1): The EA failed to disclose and analyze the uncertain and precarious population status of the fisher, as described in Witmer, et al., 1998…

The proposed project would adversely impact fishers and their habitat. Habitat elements for natal and maternal dens are found in large diameter logs or snags. "Salvage or thinning operations that remove

dead or decayed trees or coarse woody debris on the ground will reduce the availability of forest structures used by fishers and lynx" (Bull et al., 2001). Such key habitat components would be reduced in stands intensively managed for timber…The extensive logging, snag removal and other activities associated with the project would negatively affect fisher habitat. Movement, denning, resting areas, genetic diversity, and other aspects of fisher life cycles and fisher survival could be impacted by the project; the FS does not fully consider these elements of the project or adequately mitigate their impacts. A finding of no significant impact is not warranted.

RESPONSE: See previously answered comment regarding relevancy of fisher and/or fisher habitat.

COMMENT (1): Lofroth (1997) in a study in British Columbia, found that wolverines use habitats as diverse as tundra and old-growth forest. Wolverines are also known to use mid- to low-elevation Douglas-fir forests in the winter (USDA Forest Service, 1993). Please explain why this scientific information should be discounted for the purposes of the Wrenco project

RESPONSE: Given that the project area occurs on a small, isolated parcel of National Forest System lands surrounded by areas that have been altered and developed, it is unlikely that wolverine use the area, other than a possible transitory nature (PF Doc G-1). A study of wolverines in Central Idaho (Copeland 1996) found that the average home range for males averaged 587 sq. miles and female home ranges averaged 148 sq. miles. The project area represents only 0.4 percent and 1.5 percent of these respective home ranges, which is inconsequential, especially when the project area does not represent key habitats (natal and maternal den sites at higher elevation cirque basins and remote/undeveloped landscapes).

*COMMENT (1): Ruggerio, et al. (1998) and Bull and Blumton, 1999, indicate that vertical and horizontal diversity provided by snags and large down woody debris are important habitat characteristics for the pine marten, another old-growth wildlife species. The kind of treatments proposed for the Wrenco project would reduce the availability of prey species for the marten***.**

RESPONSE: True statement. Ruggerio et al. (1998) also states that marten are closely associated with late- successional stands of mesic conifers, especially those with complex physical structure near the ground. All but one stand within the Wrenco project area are characterized as immature. As the EA states on page 45, about 25% of the stands within the project are described as moderately warm and dry. Given these conditions, the existing habitat conditions would be considered marginal for marten. Nevertheless, the management of coarse woody debris would follow Forest Service Northern Region guidelines (EA pp. 25). Also, large diameter snags that are felled for safety reasons would remain on site to provide for large woody debris recruitment (EA pp. 22). Prescribed under-burning would take place only when the upper surface inch of mineral soil has moisture content of 25 percent by weight or 100 percent duff moisture (EA pp. 26). This practice would be effective in retaining large down woody debris. The result of treatments would trend habitat toward more favorable conditions for marten by encouraging the development of older, more complex forest structure (EA pp. 89). In addition, we are leaving one to three unburned slash piles for small forest mammals and birds that would support prey availability for martens (EA pp. 23).

COMMENT (1): The IPNF continues to ignore the fact that Bull et al., 1997 essentially nullify the IPNF's snag habitat retention and management strategies. The high density of snags and defective trees within old-growth (Green et al. 1992) would likely be substantially eliminated with the planned logging…

RESPONSE: Bull et al. (1997) states that published data suggests that populations of cavity nesters were viable in stands of ponderosa pine and mixed-conifer forests that contained about four snags per acre and a large component of old growth. Regarding snag retention strategies, this project meets and exceeds these recommendations and the IPNF's Forest Plan guidelines for snag management (EA pp. 22). As stated previously, there are no stands within the project area that are characterized as old growth, and the result of most treatments would trend forest stands toward an older age class.

COMMENT (1): The degree to which pileated woodpeckers prefer larger trees/snags for nesting is not recognized by the EA… The EA also ignores many structural habitat components necessary for the pileated woodpecker

RESPONSE: Page 78 of the EA states that pileated woodpeckers prefer forests with tall, large-diameter dead and defective trees for nesting. The EA goes on to state that nesting habitat for pileated woodpeckers are most commonly found in forest stands with live or dead trees greater than 18 inches in diameter with moderate canopy cover. The EA also discusses the change in structural components that have resulted from past fire, logging, and insect and disease. Implementation would improve the structural habitat components for pileated woodpeckers by increasing the high quality, large diameter trees and snags for the longer-term.

COMMENT (1): The preferred very large diameter of nesting trees for the pileated woodpecker recognized by USDA Forest Service, 1990 (and ignored by the snag retention strategy in the EA) is notable. McClelland and McClelland, 1999 found similar results in their study in northwest Montana, with the average nest tree being 73 cm. (almost 29") dbh The Northern Region Snag Management Protocol, which lacks peer-review and validation from post-implementation monitoring. Harris (1999) and ICBEMP DSEIS Appendix 12 also present scientific information that contrasts greatly with the EA on this topic

RESPONSE: See the first, thirteenth, and fourteenth comment in this section for a response to this question.

COMMENT (1): For the proposal to be consistent with the Forest Plan, enough habitat for viable populations of old-growth dependent wildlife species is needed over the landscape

RESPONSE: The pileated woodpecker and Northern goshawk were selected as a MIS because of their need for older forest habitat and subsequent large dead trees and down woody material. The Forest Plan (1987) directs that approximately 10 percent of the Forest will be mantained in old growth as needed to provide for viable populations of old-growth MIS. Since there are no stands that meet the old growth criteria within the project area, proposed actions would not likely indicate a local or regional change in old growth associated wildlife species.

COMMENT (1): The flammulated, boreal owl and the great gray owl are species of concern that are sensitive to logging and other management activities

RESPONSE: The flammuated owl is addressed in the EA (pp. 74-75, 82-84). The boreal owl inhabits higher elevation spruce-fir forests, which are outside and beyond the Wrenco project area. Regarding the great gray owl, The National Forest Management Act of 1976 (NFMA) directs Forests to select management indicator species (MIS) for emphasis in planning, and which are monitored in order to assess the effects of management activities on their populations and populations of other species with similar habitat needs which they may represent (FSM 2620.5). The goshawk is one of these species. As discussed in the EA on pages 76-77and 84-87, this species represents the effects of management activities on great gray owls because they are found in coniferous forests, forage in relatively open stand conditions, and are known to nest in abandoned goshawk nests (Clark et al. 1989)

COMMENT (1): Since the Wrenco EA provides inadequate analysis regarding the size and quality of habitat blocks needed by the pileated woodpecker, the analysis completely fails to disclose the quantitative or qualitative significance of cumulative effects due to past logging in the area

RESPONSE: The EA on pp. 88 discloses what was used for a cumulative effects analysis area and the rationale for its use. It goes on to say that since the 1930s the project area landscape has become dominated by 80 to 90 year old trees. Consequently, there is only a small amount of mature forest and few large diameter snags in the project area…inferring marginal habitat for pileated woodpeckers. It is likely that past timber harvest activities removed some of the dead and dying component, affecting the availability of snags today (EA pp. 78).

COMMENT (1): The EA also fails to adequately disclose the cumulative impacts of the ever-increasing motorized recreational use on wildlife species

RESPONSE: Motorized access was not used as an indicator for species analyzed because it is not considered a significant issue. The Council of Environment Quality (40 CFR 1502.1 and 1502.2) directs agencies to discuss impacts in proportion to their significance and focus analysis on significant issues to reduce paperwork and the accumulation of extraneous background data. There was a concern from members of the public that building new forest roads would lead to private land trespass and increased off-road use. This issue was eliminated from further discussion because design features would address this concern; including gating or berming newly constructed roads (EA pp. 14). Design features related to roads and access can be found on pages 16 and 18 of the EA.

COMMENT (1): A big problem with the FS's analyses for old-growth Sensitive and Management Indicator Species (MIS) is that the connection between the areas designated for old-growth management and old-growth species, i.e. how these acres contribute to old-growth species' viability, is glossed over

RESPONSE: See response to the eighth, thirteenth, and fifteenth comment in this section for a response to this question.

COMMENT (1): The FS has failed to tier the viability analyses for Sensitive species that would be impacted by the Wrenco project to a landscape analysis of Sensitive species viability that would allow for some assurances to the public that species viability is currently being insured in spite of continued habitat destruction and/or alteration

RESPONSE: A broad-scale landscape viability analysis is beyond the scope of this site-specific project analysis. As stated previously, the Wrenco project area is a small inclusion removed from large, contiguous blocks of National Forest System lands. Due to its size and disconnection, the Wrenco project area's contribution to species viability is inconsequential and irrelevant.

COMMENT (3): We do not think snowmobiles should be allowed in the area at any time. They would disturb the wildlife, especially the deer and moose.

We didn't find much about moose in the assessment. We know they are in the area…Their presence and needs should be addressed.

5 The area is small. The Moose few in number. Up to five…Suggest that if you keep snowmobile option you monitor it carefully

RESPONSE: The National Forest Management Act of 1976 (NFMA) directs Forests to select management indicator species (MIS) for emphasis in planning, and which are monitored in order to assess the effects of management activities on their populations and populations of other species with similar habitat needs which they may represent (FSM 2620.5). Like white-tailed deer, moose are associated with a mixture of seral stages of vegetation. Since moose share similar habitat needs with white-tailed deer, the discussion and analysis in the EA for MIS white-tailed deer would represent the needs of moose (EA pp. 79 and 90-92).

COMMENT (4): The DN should describe any errors noted in the wildlife data found in TSMRS database during the wildlife analysis for this project

RESPONSE: The TSMRS database is only a foundation or stating point for the analysis. Field notes and data tables that updated information in the TSMRS database can be found in the project file document C-1.

COMMENT (6): The Forest Service should review the impacts of this project relative to guidelines in the Management Recommendations for the Northern Goshawk in the Southwestern United States (Reynolds et al. 1992). The Forest Service needs to survey any existing and alternate nest sites, home ranges, and calculate Vegetation Structural Stages (VSS) that encompass the project area. We appreciate that the

Forest Service will leave a 30-acre buffer around active nests, and encourage you to include previously existing but unoccupied nest sites

RESPONSE: The EA, in a large part, reviewed possible impacts of project relative to guidelines in the Management Recommendations for the Northern Goshawk in the Southwestern United States (EA pp. 76-77, 84-86). Survey information can be found in the PF Doc G-12 and G-13.

Appendix B – Biological Assessments for Threatened and Endangered Plants, Wildlife and Fish

File Code: 2670 **Date: September 6, 2005**

Subject: Biological Assessment, Threatened and Endangered Plants, Wildlife and Fish for the Wrenco Environmental Assessment

To: Richard Kramer, Sandpoint 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 purposed action(s). The purpose of this biological assessment is to evaluate the potential effects of the Wrenco project.

Selected Alternative

The USDA Forest Service proposes activities on National Forest lands in the Sandpoint Ranger District. Maps showing the location of proposed treatment units are included in the Wrenco Decision Notice and FONSI.

The project is designed to improve the health and productivity of terrestrial and aquatic habitats by restoring forest vegetation and reducing sediment risks. A commercial timber sale would be used to harvest and remove merchantable trees from approximately 612 acres of National Forest System lands. Stands would be thinned to remove poor-form class and diseased trees and improve crown development and growth of desired trees that are not considered merchantable. Slash would be eliminated by grapple piling and burning, and prescribed burning. Prescribed burning would also occur in forested areas (underburn) to reduce additional trees of species susceptible to fire (grand fir, Douglas-fir, and western hemlock). Specific treatments are as follows:

Area I (Dry Sites - Approximately 270 Acres)

Vegetation Treatment – Treatment of vegetation within Area I would occur on about 270 acres. The vegetation prescription would consist of thinning from below to retain an overall 40 to 65 percent crown closure. Trees removed would include those with poor form-class, insect attacks and disease, and undesired tree species. The remaining trees would be the largest, best form-class trees available; retention of ponderosa pine and western larch would be favored over other species.

Up to ten percent of the area could result in three- to five- acre openings where trees have been suppressed and consequently will not grow after thinning, or in areas where root rot, insects, or other disease problems pose a threat to stand health.

Reforestation - Ponderosa pine and western larch would be planted in openings created by cutting. White pine may also be planted where habitat is appropriate.

Area II (Moist Sites - Approximately 260 Acres)

Vegetation Treatment – Treatment of vegetation within Area II would occur on about 260 acres. The vegetation prescription would consist of thinning from below to achieve an overall 50 to 70 percent crown closure. Trees removed would include those with poor form class, insect attacks and disease, and undesired tree species. The remaining trees would be the largest, best form-class trees available favoring retention of white pine, western larch, and ponderosa pine. There would be scattered areas of leave-trees where no treatment would occur.

Up to ten percent of the area could result in three- to five-acre openings where trees have been suppressed and will not release from thinning, or in areas where root rot, insects, or other disease problems pose a threat to stand health.

Reforestation - White pine, western larch, and ponderosa pine would be planted in openings created by cutting and/or burning. Species planted will be based on the habitat types and microsite conditions present within each opening.

Area III – (Regeneration Cutting and Reforestation – Approximately 82 Acres)

Vegetation Treatment – Treatment of vegetation within Area III would occur on about 82 acres. Regeneration cutting would occur in stands where there is high mortality, risk of high mortality, undesirable species composition, or where trees will not grow due to insufficient crowns. Many of these are stands where there is significant tree mortality occurring. Following cutting, these stands would be underburned or grapple piled and reforested with desired potentially longer-lived species.

Reforestation - White pine, western larch, and ponderosa pine would be planted in openings created by cutting and/or burning. Species planted will be based on the habitat types and microsite conditions present within each opening.

Fuels Treatment in Area I, II, and III

Fuels would be treated in order to help improve the ability to suppress wildfires and to prepare the site for planting desired, longer-lived species of ponderosa pine, larch and white pine. To reduce the existing fuels and those created by the vegetation treatment, there would be about 471 acres of grapple piling and 141 acres of underburning.

Logging Systems

Vegetation harvest systems would include about 86 acres of skyline yarding, 240 acres of tractor yarding, and 285 acres of winter tractor.

Road Construction and Storage

To accomplish vegetation restoration activities there would be approximately 3.3 miles of road construction. All new construction would become classified roads and after use for the project, and put into storage for potential future management. All new roads would be managed as closed year round to any type of motorized vehicle (except over snow vehicles and administrative use).

Road Work to Improve Aquatic Habitat

To help reduce potential and existing sediment risks to the watershed, road maintenance activities would be performed to improve existing road drainage structures and surfaces on 5.1 miles of road. Existing roads would be improved to meet standards suitable for use by large trucks and equipment. Drainage structures in roads that pose sediment risks would be repaired, replaced, removed, or redesigned

Watershed Improvements

Specific watershed improvement activities associated with the proposed action include road decommissioning of approximately 0.8 mile of Forest Road 1023 and removal of three stream crossings within the West Fork Johnson Creek drainage. This road segment is currently overgrown with brush and trees. The three existing stream crossings would be removed to eliminate their future risk of causing sediment to enter the West Fork Johnson Creek.

Best Management Practices and Riparian Habitat Conservation Areas

The conditions of this Biological Assessment must be met to preserve the determinations stated in this document unless otherwise agreed and documented by the appropriate personnel. They include Best Management Practices, which will be adhered to (see Chapter 2 and Appendix A in the EA).

In this project, Standard Widths Defining Riparian Habitat Conservation Areas (RHCAs) as outlined in the Inland Native Fish Strategy (USDA Forest Service 1995) will be applied. No commercial harvest will take place in riparian areas. Ground-disturbing activities within the RHCA are limited to those that are expected to benefit fish resources and watershed health (e.g., road maintenance activities, culvert removals and upgrades, and site prep for burning followed by planting of long lived tree species).

Biological Assessment for Threatened and Endangered Plants

Listed Plant Species

No federally listed endangered plant species are suspected to occur in the IPNF (USDI 2005). Two plant species listed as threatened are suspected to occur in the IPNF.

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 Forest Service 1994), there are currently 110 known occurrences of the species; most occurrences are in Montana and Washington, with only one known occurrence in Idaho. An 1892 sighting approximately 20 miles southwest of the Decision Area has not been relocated (Shelly and Moseley 1988).

Water howellia is an annual aquatic species restricted to small pothole ponds or the quiet water of abandoned river oxbows. Pond characteristics include a firm, consolidated substrate of clay and organic materials. 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 Forest Service 1994).

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 sub basin ecosystem over the past decade, but have not located any occurrences of the species.

Spalding's catchfly (*Silene spaldingii*) – a member of the plant family Caryophyllaceae, occurs in dry grassland habitats and grassland inclusions in ponderosa pine and Douglas-fir forest (USDI 2001a). 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 that would negatively impact the species' pollinators (Lichthardt 1997). Wildfire and prescribed fire may also be detrimental to individuals, 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.

Prefield Review

Potentially suitable habitat for **water howellia** was identified in the project area. Small, shallow ponds that could support the species occur in wetlands that would be buffered from all project activities. The potential

is considered to be marginal, since the National Wetlands Inventory has classified ponds in the project area as having unconsolidated bottoms.

Based on evaluation of SILC and aerial photographs of the project area, the area was determined to have low to moderate potential to support Spalding's catchfly.

Field Survey Results

Field surveys of the decision area were conducted in 1991, 1994, 1995 and 2002. No threatened species were identified during the surveys. The decision area was determined to have low potential to support **Spalding's catchfly**, due to a lack of well-developed grasslands and to shallow, rocky soils. While no occurrences of **water howellia** were found during the surveys, marginally suitable habitat does occur in the project area, in shallow ponds surrounded by wetlands. The wetlands would be protected by site-specific buffers from all project activities

Analysis of Effects

Analysis of the potential effects on the two threatened plant species and/or suitable habitat from project implementation was conducted using results of rare plant surveys, current distribution and condition of the species in habitats similar to those found in the proposed treatment sites, current knowledge of the ecology of the species, and professional judgment.

Water howellia (*Howellia aquatilis*): Following the field surveys, habitat suitability for water howellia was determined to be marginal. This was primarily due to a lack of characteristics typical of suitable habitat for this species such as bottom substrate of firm, consolidated clay and organic sediments. Marginally suitable habitat for this species would be protected from project activities by site-specific buffers. Therefore, no direct, indirect or cumulative effects would be expected to occur.

Spalding's catchfly (*Silene spaldingii*): As previously stated, no suitable grassland or dry pine savannah habitat meeting the habitat requirements of this species occurs in the project area. Therefore, no direct, indirect or cumulative effects to Spalding's catchfly would occur.

Determination of Effects on Listed Plants

Based on the above considerations, implementation of preferred alternative would have **no effect** on water howellia or Spalding's catchfly or their habitats.

Prepared by:

/s/ Anna E. Hammet Date: 09/14/2005

ANNA E. HAMMET
Botanist

Biological Assessment for Threatened and Endangered Wildlife

Listed Wildlife Species

The U.S. Fish and Wildlife Service provided the Idaho Panhandle National Forests with a list of threatened and endangered species that may be present within the evaluation area (FWS Reference #1-9-05-SP-0154). These species include the grizzly bear (*Ursus arctos horribilis*), woodland caribou *(Ranqifer tarandus caribou),* gray wolf *(Canis lupus),* bald eagle *(Haliaeetus leucocephalus),* and Canada lynx *(Lynx canadensis).*

Prefield Review

Listed species were screened for their applicability or relevancy to the project. Relevancy is determined if there is evidence of species or habitat present within the affected area, and whether any such species or habitat could potentially be affected by the proposed action. These determinations are based on scientific literature, wildlife databases, professional judgment, in-field habitat evaluation and habitat suitability models. Review of this list, combined with known species distribution and habitat availability, indicates that there are no threatened or endangered species likely to be affected by the proposed action.

Analysis of Effects

Table B-1 lists threatened or endangered wildlife species known or suspected to occur on the Forest, their status within the analysis area and the determination of effects.

Table B-1

Threatened or Endangered Wildlife Species Occurring on the Idaho Panhandle National Forest

Species	Species or Habitat Presumed Presence	Determination of Effects
Bald Eagle (*Haliaeetus leucocephalus*)	No known nests or winter roosts within the project area. Winter visitors and yearlong residents of northern Idaho.	No Effect
Northern Gray Wolf (*Canis lupus*)	No wolf activity documented within the project area.	No Effect
Grizzly Bear (Ursus arctos horribilis)	No evidence of recent use of the project area. The project is outside the grizzly bear recovery zones and documented reoccurring use areas.	No Effect
Woodland Caribou (*Rangifer tarandus caribou*)	A single caribou documented in the area in 1991 (a random and extremely rare event). The project area is outside the recognized caribou habitat.	No Effect
Canada Lynx (*Lynx Canadensis*)	No suitable habitat present. No sightings have been reported. The project lies outside established Lynx Analysis Units.	No Effect

Determination of Effects

Bald Eagle

Historically, bald eagles were present over the majority of the continent (Weber 1996). Bald eagle populations experienced their greatest downward trend in the 1950's through the 1970s as a result of a decrease in fecundity due to negative effects of the pesticide, DDT. Since the banning of DDT in 1973, bald eagle populations have rebounded.

Bald eagles are associated with riparian or lacustrine areas for foraging and nesting (Harmata 1989). They generally nest and roost in large trees or snags with open crowns in areas that are relatively free of disturbance. Nesting territories are most often near open water with a prey base of fish and waterfowl. Bald eagles also utilize upland areas to feed on small mammals and carrion. Nests are typically within one mile of permanent water (Anthony and Isaacs 1989). Perch and roost sites are also important habitat components for bald eagles. Preferred perch sites include live trees and snags that provide good visibility and are near nest sites or foraging areas (Caton 1992).

Bald eagles are winter visitors and yearlong residents of northern Idaho. They are attracted to the area's large lakes, rivers, and accompanying food supply. The Wrenco Loop project area is approximately two miles northwest of the Pend Oreille River. Bald eagles are known to roost and nest within the Pend Oreille River area (Crenshaw 1987); however, there are no known nests or winter roosts within the project area. The project area does not have permanent sources of open water that would attract foraging and nesting eagles; however, transient bald eagles may roost in or around the project area. Therefore, the proposed action will have **no effect** on bald eagles.

Gray Wolf

Gray wolves once occurred throughout most of North America. They were common in northern Idaho prior to their elimination in the 1930's (Wisdom et al. 2000). Wolf mortality associated with human/wolf interactions is one of the primary limiting factors in the recovery of wolf populations.

Wolves utilize a variety of habitats, including sagebrush steppe, grasslands, coniferous and mixed forests, and alpine areas. They are highly social animals, requiring large areas to roam and feed. Wolf pack size typically ranges from two to16 wolves (Weaver 1989). The primary prey species for wolves are large ungulates such as elk, deer and moose.

Gray wolf populations have been recovering in areas of their former range as a result of reintroduction efforts and natural recovery (Bangs et al. 1998). Over the past few years, there has been wolf activity northwest on the Priest Lake Ranger District. No wolf activity has been documented in or around the project area. The small size of the project area together with human development in the surrounding area likely precludes wolf use other than what may occur incidentally. The proposed action is determined to have **no effect** on gray wolves.

Grizzly Bear

Grizzly bears historically inhabited western North America from central Mexico to the Arctic Ocean. Due to habitat loss and extirpation, grizzlies currently occupy less than 2 percent of their historic range (USDI 1993). Grizzly bears and their habitat were once distributed throughout northern Idaho (Wisdom et al. 2000).

Grizzly bears require large, contiguous areas that are remote with limited human activity. Grizzly bear habitat is generally a mixture of vegetation communities interspersed across the landscape. Habitat selection by grizzly bears is typically influenced by the abundance and quality of food; gender-specific

orientation to different nutrients; reproductive status of females and concerns about the security of dependent young; presence and identity of other bears; and presence of humans and prior contact with humans (Wisdom et al. 2000). Grizzly bears are opportunistic omnivores, with common food sources being grasses, sedges, fruits, nuts, rodents, insects, carrion and young or disabled elk and deer. They typically choose low elevation riparian areas and wet meadows during the spring and retreat to higher elevation meadows, ridges, and open brush fields during the summer and fall. During the late season, habitat types with abundant fruit and berry production become increasingly important. Grizzly bears den in alpine areas that receive large amounts of snow.

As a result of being listed as a threatened species under the Endangered Species Act in 1975, a recovery effort has been underway. In northern Idaho, there are currently small grizzly bear populations that exist in the Selkirk Recovery Zone and in the Cabinet-Yaak Recovery Zone. Grizzly bears are not known to occur in or around the project area. The project area lies outside of any recovery zone and outside of the grizzly bear occupied habitat. The proposed action would have **no effect** on grizzly bears.

Woodland Caribou

Historic caribou distribution occurred throughout the northeastern, north central and northwestern United States. In northern Idaho, their historic range expanded south to the Salmon River (Wisdom et al. 2000). Due to habitat loss and fragmentation and excessive mortality from illegal hunting and predation, caribou populations have been declining. By the 1960's, the only remaining population of woodland caribou in the United States was isolated to the Selkirk Mountains (USDI 1994).

Woodland caribou habitat is typically mature or old-growth forest, above 4,000 ft. in elevation. Fall and winter habitat is mature to old-growth cedar-hemlock and spruce-fir stands with over 70 percent canopy cover and high lichen densities, while summer range is relatively flat terrain with abundant understory vegetation (USDI 1994).

The woodland caribou was federally listed as an endangered species in 1984. Since that time, a recovery effort in the Selkirk Mountains has been underway. The project area is outside areas designated for recovery of the caribou. In the fall of 1991, a single woodland caribou was shot in the Wrenco Loop area. The individual was well outside the recognized caribou habitat and recovery area in the Selkirk Mountains. The presence of a woodland caribou in the Wrenco area would be a random and extremely rare event and not typical of traditional caribou movements and habitat use. Consequently, the proposed action would have **no effect** on woodland caribou.

Canada Lynx

Historical accounts indicate that lynx were once distributed throughout northern Idaho and Bonner County (McKelvey et al. 2000; Wisdom et al. 2000). Most observations of lynx have occurred at 4,000 ft. elevation or higher (McKlevey et al. 2000) and, therefore, it is unlikely that the Wrenco Loop project area was occupied by lynx because the elevation within the project area ranges from 2,400 to 3,300 ft.

Canada lynx are a low-density species with home ranges from 4 to 95 square miles, depending on prey abundance (Butts 1992). They primarily occupy high elevation, mesic coniferous forests with cold snowy winters. They are typically associated with Douglas-fir, western spruce/fir and fir/hemlock vegetation types. Lynx require a mosaic of habitat conditions with denning habitat existing primarily in mature and old growth conifer stands at high elevations with northerly aspects. Their primary prey, snowshoe hares, is most abundant in young conifer stands in a dense seedling/sapling and pole condition with stands of more than 3000 stems per acre to provide thermal and security cover (Butts 1992). Although lynx travel along ridgelines and riparian areas, they generally avoid forest openings greater than 300 feet wide until seedlings and saplings have become well established (Butts 1992).

Canada lynx are not known to occupy the Wrenco Loop project area and the project area is not designated lynx habitat. Lynx are typically found at elevations higher than 4,000 ft and in areas with snowshoe hare populations. The elevation of the project area is well below 4,000 ft and is located outside of Lynx Analysis Units as outlined in the Conservation Agreement between the US Fish and Wildlife Service and the US Forest Service (2000). Given these factors, it is determined that the proposed action will have **no effect** on Canada lynx.

Conservation Measures to Reduce or Avoid Adverse Effects

None

Prepared By:		**Reviewed By:**	
/s/ Stacy Pease	Date: 10/6/2004	/s/ Dave Roberts	Date: 9/14/05
Wildlife Biologist		North Zone Staff Wildlife Biologist	

Biological Assessment for Threatened and Endangered Fish

Listed Species

On March 4, 2005, the U.S. Fish and Wildlife Service provided the Idaho Panhandle National Forests with a listing of threatened and endangered species that may be present within the evaluation area (FWS 1-9-05-SP-0154). These species include the Kootenai River white sturgeon (*Acipenser transmontanus*) and bull trout (*Salvelinus confluentus*). Kootenai River white sturgeon are found only in the main channel of the Kootenai River, outside of the direct, indirect and cumulative effects areas for this project. There will be no further discussion on white sturgeon due to the lack of suitable habitat in the analysis area.

Prefield Review

The analysis of fish habitat and populations includes the status of current regulatory issues, habitat requirements for particular species, and potential effects of the proposed action on the aquatic environment. Data were reviewed, in the form of reports, existing NEPA documents, historical records, aerial photographs, published scientific literature, memoranda, field reviews and other sources such as personal communication with technical resource specialists on the IPNF. Electrofishing data from West Fork Johnson Creek were reviewed. Additional reviewed information included stream channel types, cross-sectional profiles, woody debris composition and stream temperatures on Johnson Creek and West Fork Johnson Creek.

Analysis of Effects

Species	Habitat Present	Habitat Absent	Species Present	Species Absent
Endangered				
Kootenai River white sturgeon *Acipenser transmontanus*		X		X
Threatened				
Bull trout *Salvelinus confluentus*	X			X

Further explanations for above table:

- Kootenai River white sturgeon are found only in the main channel of the Kootenai River, outside of the cumulative effects areas for this project.
- Bull trout are currently not known to inhabit the Johnson Creek or West Fork Johnson Creek watersheds.

Bull Trout (Threatened)

Historically, bull trout may have used the lower portion of the Johnson Creek drainage, however, their presence has not been documented. A local resident reported catching several small bull trout in a beaver

pond outside of the project area in 1992/1993. This individual indicated that brook trout dominate the system and that no bull trout have been caught since. These fish may have been misidentified or may have been the last remnants of a historic bull trout population having been out-competed by brook trout. There have been no other documented occurrences of bull trout within the Johnson Creek drainage within the past twenty years. Electrofishing surveys in 2002 only found brook trout, westslope cutthroat trout, and a sculpin species.

A review of survey records, habitat evaluations and electrofishing surveys indicates that there is a very low potential for bull trout to currently occupy the Johnson Creek drainage for two key reasons. They are: 1) the presence of non-native species (brook trout) which compete for available habitat and interbreed with bull trout, and 2) habitat degradation, such as sedimentation and migration barriers, that have been caused by road building on private and National Forest lands, along with development and logging on private lands, particularly in the lower portion of the drainage outside of the project area.

Johnson Creek and its tributaries were not included in the recently finalized designated critical habitat for bull trout established by the U.S. Fish and Wildlife Service. In addition, Johnson Creek was ranked as a Low Priority subwatershed for restoration by the Lake Pend Oreille Key Watershed Problem Assessment (Panhandle Bull Trout Technical Advisory Team 1998) because of a lack of records indicating historic or current use of the system by bull trout and the presence of manmade migration barriers near the mouth of Johnson Creek from road and railroad crossings.

Important fish habitat parameters that are often affected by management activities include water temperature, large woody debris frequency, bank stability, undercut bank, width to depth ratio, pool quality and frequency, and sediment.

Inland Native Fish Strategy (INFS) guidelines would be applied to protect aquatic resources. Research studies and monitoring results conducted on the Idaho Panhandle National Forests verify that when buffer strips are incorporated into timber sales, sediment delivery to stream channels is not measurable or is negligible (USDA Forest Service 2000, 1999, 1998, 1997; Belt et. al. 1992; Reid and Hilton 1998).

There will be no expected changes to water temperature, large woody debris frequency, bank stability, undercut banks, width to depth ratios, or pool quality and frequency, since there would be no harvest related activities within the RHCAs as defined by INFS buffers.

Some short-term, localized increases in turbidity would likely occur during installation of proposed and repair of existing road crossings; however, by using BMPs and timing restrictions, these impacts would be minimized. The loss of, or other impacts to, macroinvertebrates and other aquatic insects may occur. Generally, macroinvertebrate species adapted to highly variable stream environments are better able to tolerate change than those in more stable lake and pond environments (Mackie 2001). Impacts on species abundance and diversity resulting from catastrophic substrate loss or degradation are well documented. Macroinvertebrate community response studies (Resh et al. 1988) have shown that recolonization within a few years generally results, though responses can vary within an individual species. Direct impacts on fish would likely be minimal in that they would be able to avoid the physical aspects of construction. An overall reduction in sediment delivery of 0.57 tons per year is expected due to road improvements

Three sites on the West Fork Johnson Creek (two log culverts and an old bridge) would be removed under this alternative. These existing stream structures appear to be contributing sediment to the West Fork Johnson Creek and have the potential to contribute large amounts of sediment in the event of a catastrophic failure (project file - aquatics). These observations were qualitative in nature and were made during fisheries surveys. Using BMPs and timing restrictions during removal and replacement, sediment discharge from those locations would be minimal. Removal of the aforementioned culverts and bridge would likely increase short-term sediment production but reduce or remove sediment production from these

areas over the long term. An estimated reduction in sediment risk of 170 tons of would be removed through the removal of the failing bridge and two stream crossings.

Determination of Effects on Species

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

Bull trout: Bull trout are not found in the vicinity of the project area and therefore this project would have **no effect** on bull trout.

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Appendix C (Errata) - Forest Plan Standards for Old Growth

10a. A definition for old growth is being developed by a Regional task Force and will be used by the forest when completed. As an interim guideline, stands classified as old growth should meet the definition given by Thomas (1979).

Forest plan standard 10a incorporates the definitions of old growth developed by the Regional Old Growth Task Force, documented in: *Green, and others. 1992 (errata corrected 02/05). Old Growth Forest Types of the Northern Region. USDA, Forest Service, Northern Region*.

10b. Maintain at least 10 percent of the forested portion of the Idaho Panhandle National Forests as old growth.

The 1987 Idaho Panhandle National Forest (IPNF), Forest Plan, Standard 10b. calls for maintaining "10% of the forested portion of the IPNF as old growth". The Forest Plan identified 2,310,000 forested acres on the IPNF. Therefore, the Forest Plan Standard requires maintaining 231,000 acres of old growth on the Forest.

The IPNF is using a multi-scale approach to monitoring old growth, based on two separate, independent tools. These are:

3) Forest Inventory and Analysis (FIA) data used to calculate IPNF Forest-wide and mid-scale old growth percentages. (FIA old growth results for the IPNF are available for the first time this year.)

4) IPNF stand map displaying all stands allocated for old growth management, with old growth allocation recorded in the TSMRS database.

1) Old Growth Estimates from FIA Data

The National Forest Inventory and Analysis (FIA) program provides a congressionally mandated, statistically-based, continuous inventory of the forest resources of the United States. Since 1930 the FIA program has been administered through the Research and Development branch of the Forest Service, which makes it administratively independent from the National Forest System. The people who administer the FIA inventory on the IPNF are employees of the Interior West Forest Inventory and Analysis work unit, headquartered at the USFS Rocky Mountain Research Station in Ogden, Utah.

FIA inventory design is based on the standardized national FIA grid of inventory plots that covers all forested portions of the United States (all ownerships). FIA protocols specify sample plot location within this systematic grid. Both sample plot location and data collection standards are strictly controlled by FIA protocols. The sample design and data collection methods are scientifically designed, publicly disclosed, and repeatable. Data collection protocols are publicly available on the internet (http://www.fia.fs.fed.us/). There are also stringent quality control standards and procedures, carried out by FIA personnel of the Rocky Mountain Research Station. All of this is designed to assure that there is no bias in sample design, plot location, trees selected for measurement, or the measurements themselves.

FIA does not provide a 100% annual census of very tree on every acre in a national forest. With approximately 2,500,000 acres on the IPNF alone, and hundreds to thousands of trees per acre,

that would not be possible. Rather, the FIA design provides a statistically sound representative sample designed to provide unbiased estimates of forest conditions at large and medium scales. This inventory design is appropriate for making estimates of old growth percentages at the scale of a national forest, or large areas of forest land. (More detail on the statistical foundation of using FIA data to assess old growth on national forests is found in: *Application of Forest Inventory and Analysis (FIA) Data to Estimate the Amount of Old Growth Forest and Snag Density in the Northern Region of the National Forest System by Raymond L. Czaplewski, Ph.D. November 5, 2004* [available from Northern Region, US Forest Service]).

Because FIA data comes from a statistical sample rather than a 100% census, we describe attributes calculated from this data as estimates and the accuracy of these estimates can be computed and reported as confidence limits. The IPNF is using a 90% confidence interval for old growth estimates. That means that if a different set of randomize sample points was collected 100 different times, the estimates of old growth amounts would be within this interval 90% of the time. This indicates that if we measured every acre there is a 90% probability that the proportion of old growth for this entire population would be within this confidence interval. There is a 5% probability that the proportion of old growth would be less then the lower confidence limit. There is an equal 5% probability that the proportion of old growth would be greater than the upper confidence limit.

Using FIA data to assess the percent of old growth allows us to base our monitoring on an unbiased, statistically sound, independently designed and implemented representative sample of forest conditions on the Idaho Panhandle National Forest (IPNF). This inventory is reasonably current because FIA plots on the IPNF were installed during 2000 to 2004. To remain current, FIA re-measures 10% of its plots every year. As these re-measured plots accumulate, we will periodically update our FIA old growth report. Current FIA old growth estimates are presented at this time. Updated reports of old growth on the IPNF, as estimated from FIA plots, will be available in subsequent years.

FIA plot data is tested against the old growth minimum criteria in Table 1 of *Green and others (2005)*. The old growth minimum criteria are the number of trees per acre that exceed old growth minimum ages and diameters, and a minimum forest density measured as basal area per acre. The values are specific by Habitat Type and Forest Type combinations. Plots that meet old growth minimum criteria are classified as old growth. Data analysis is automated in the Forest Service, Northern Region, "FIA Summary Database".

Based on FIA data, the estimated percent of old growth on the forested lands of the IPNF is 12.85%. The 90% confidence intervals of this estimate are 10.55% to 15.27%. Given these values, we conclude that the IPNF is meeting Forest Plan Standard 10b. that calls for maintaining "10% of the forested portion of the IPNF as old growth".

FIA old growth percentages by Ranger District also provide evidence that our old growth is well distributed across the IPNF. Note that as the sample size becomes larger, the confidence intervals are tighter. Estimates for the IPNF as a whole provide the tightest confidence intervals. Results are as follows:

Table C-1. FIA Current Estimated Percent Old Growth By Ranger District

Ranger District	90% Confidence Interval Lower Bound	Point Estimate	90% Confidence Interval Upper Bound	# of Subplots
Wallace	5.9%	11.4%	17.6%	236
Avery	10.9%	16.6%	22.8%	340
Fernan	2.5%	6.3%	10.8%	224
St. Maries	0.8%	5.0%	10.5%	120
Sandpoint	5.3%	10.8%	17.2%	188
Bonners Ferry	12.9%	19.2%	25.8%	264
Priest Lake	7.2%	13.7%	20.9%	216
Total IPNF	**10.55%**	**12.85%**	**15.27**	**1588**

2) IPNF Stand-Level Map of Old Growth

This is the first year we've had FIA old growth data available for the entire Forest. In past years we've reported forest-wide old growth results by tallying up the acres of stands allocated for old growth management, and comparing this total to the Forest Plan 10% standard. We continue to do that this year, and will also compare it to the FIA old growth estimates, which have a known statistical accuracy. This comparison should provide an additional measure of the reliability of old growth monitoring results.

The IPNF stand-level old growth map represents a census of those stands allocated for old growth to meet Forest Plan standards. The stand-level old growth allocation allows us to distribute old growth across the Ranger Districts and landscape in ways that makes ecological sense at the landscape scale, and serves as a basis for project planning. This forest-wide stand map also provides a useful starting point when we are considering any management activity, and need to take a more detailed look at old growth allocations within a potential project area. The stand map also allows us to display to the public that adequate amounts of old growth are allocated and distributed across the landscape.

The IPNF stand-level old growth allocation represents a different approach to monitoring old growth than the FIA sample, and was designed and implemented independently from the FIA inventory. Forest stand information is gathered by Ranger District personnel. Allocation of old growth stands is usually based on a field examination. Most old growth stands are examined with a formal systematic grid of stand exam plots that counts and measures trees on these plots. A smaller proportion of stands were allocated to old growth based on notes and measurements from of walk-thru, field verification surveys by foresters and forestry technicians knowledgeable about old growth definitions. Less than 1.5% of old growth stands were allocated from photo inventory, and all of those will be field verified before any forest management projects are carried out in those watersheds.

Ranger district stand-level old growth allocation utilizes the latest stand inventory data to assess how well stands meet the old growth definitions in the IPNF Forest Plan, as specified in *Green,*

and others (2005). The old growth definitions in *Green and others (2005)* are in two parts. First, there are tables of "Old Growth Type Characteristics". These tables include both "minimum criteria" (minimum age, tree diameter, number of old large trees, and basal area) and "associated characteristics" (ranges of numbers or proportions of broken topped trees, snags, canopy layers, diameter distributions, broken tops, and large down wood). Pages 11 and 12 of *Green and others (2005)* explain that: "The minimum criteria are used to determine if a stand is potentially old growth. Where these values are clearly exceeded, a stand will usually be old growth. The associated structural characteristics may be useful in decision making in marginal cases, or in comparing relative values when making old growth evaluations." *Green and others (2005)* also warns that: "A stand should not be accepted or rejected as old growth simply on the basis of associated characteristics." The associated characteristics are <u>not</u> part of the base old growth definition. Speaking of the minimum criteria, *Green and others (2005)* further says: "Because of the great variation in old growth stand structures, no set of numbers can be relied upon to correctly classify every stand. . . . Do not accept or reject a stand as old growth based on the numbers alone; use the numbers as a guide." Second, on pages 11 and 12, *Green and others (2005)* provides guidance for incorporation of landscape ecology considerations, and a full range of resource values (including human values) in the selection of stands to be managed as old growth. Professional consideration of a wide and complex variety of factors is necessary to make old growth allocations at the stand scale.

When making old growth allocation decisions for individual stands in individual landscapes, ranger district personnel use the *Green, and others (2005)* tables of "Old Growth Type Characteristics", but also incorporate the variety of other old growth resource values and landscape design criteria, as explained in pages 11 to 12 of *Green and others (2005)*. Taking these other considerations into account is fully consistent with Forest Plan standard 10c., which states: "Areas will be selected as old-growth management stands based on a combination of wildlife, cost efficiency, and other resource values (interdisciplinary process)."

In response to old growth concerns, from 1990 through 1993 the IPNF did a forest-wide inventory of old growth resources, and worked with local public Forest Watch groups to allocate and map old growth. This is the original source of the IPNF stand-level old growth allocation and map. Since that time, we have continued to update our old growth stand allocation and map as the forest has changed by natural events, and as new information has became available.

Starting in 2001 the Idaho Panhandle National Forest began a comprehensive review of old growth data, and did some new field reviews and exams, to incorporate changes in conditions on the ground. This ongoing review, monitoring and updating of the old growth stand allocation and map results in some changes in old growth stand acres reported in annual Monitoring Reports over the years, in response to changing conditions on the ground and better information. These changes are evidence that we are working to keep the stand-level allocation current as conditions change on the ground. Each year's Monitoring Report contains the most current old growth stand information available. The stand information below was extracted from our database in March 2005, and represents the approximate situation at the end of 2004. Evaluating this stand-level old growth allocation information together with the FIA old growth estimates provides the most comprehensive picture of old growth amounts on the IPNF.

The IPNF does <u>not</u> do timber harvest that removes allocated old growth. We ceased regeneration harvest of allocated old growth stands a number of years ago. However, old growth distribution will never be entirely static because forests are living, changing natural communities. Disturbances such as fire, insects, pathogens, and weather events may reduce the amount of old growth in some areas. Meanwhile, other stands will grow and age into old growth status. The IPNF has approximately 600,000 acres of mature forest (generally dominated by trees 100+ years

old), substantial amounts of which have the potential to grow into old growth in the next few decades. We will continue to update our old growth stand data in response to changing conditions on the ground, and as we obtain new information. The priority for our updating efforts will be those watersheds where we are considering management activities.

The IPNF has approximately 6,500 individual old growth stands distributed across 2.5 million acres of National Forest. It is not practical to visit every old growth stand every year. Because natural changes are going on continually (this includes both disturbances that remove old growth, and other stands maturing into old growth), information about some allocated stands may be outdated at any given time. However, to ensure that all management actions are designed based upon current old growth conditions, we take a closer look at old growth allocations within a project area whenever any management activity is being considered that could possibly impact old growth. And to ensure that we're meeting Forest Plan old growth standards forest-wide, we use FIA estimates to monitor the amount of old growth across the forest and at other large scales.

This forest-wide stand map provides us with stand-level information that is useful starting point at the project scale when we are considering any management activity. Before making any management decisions that could possibly impact old growth, we take a detailed look at old growth allocations for that project area. We closely review and verify all old growth allocations within the project area, as well as review all potential treatment stands, and look for previously unidentified stands that may now meet old growth criteria. The objectives of this review are to be sure we have the best old growth allocation and landscape arrangement possible within that project area, and to be sure we're not inadvertently, negatively impacting old growth. Where appropriate, project design may also include identification of potential future old growth in the area. Project-scale review often results in changes in old growth status for a few individual stands. We sometimes find that some previous old growth stands no longer meet criteria because of insect and disease or weather mortality. However, because other stands have grown into old growth status, or because we also find previously un-inventoried old growth, this project-scale review commonly results in a net increase in old growth in the project area.

We record old growth allocations in the Forest Service Northern Region, Timber Stand Management Record System (TSMRS) database, because there are database fields and codes designed for recording stand old growth status. TSMRS is a very large Forest Service database used across the Northern Region. Any database is simply an electronic box with pre-defined fields to store specific information items. It is not possible to make meaningful sweeping general statements about the reliability of a large, widely used database. The completeness and reliability of any specific data field in any database depends upon the local effort devoted to gathering and maintaining that specific information. In the last few years the IPNF has spent over $320,000 in District-wide reviews and updating of old growth stand information in TSMRS. In addition, for all potential management projects, TSMRS old growth information is subject to additional project area review and validation (as explained above) prior to any management action on the ground. This assures that we don't, inadvertently, take any management action that negatively impacts old growth, and that all our project plans are based on the current old growth status for that project area. The old growth information currently in the Idaho Panhandle National Forest portion of the TSMRS Database has been substantially reviewed a since 2001, with updates made as appropriate. Much of this updating has taken place within the last 2 years. That updating continues as the forest changes and new information becomes available.

The TSMRS database contains codes indicating individual stand old growth status. The actual stand data that's the basis of the old growth determination is found in stand exam data stored in the FVEG database, and other information and field notes in the individual stand folders. This information is updated when new exams are done.

Our database allows us to track old growth in several categories, depending upon how it was identified in the inventory and how it is currently allocated. We separate our old growth into the "allocated" old growth stands that are specifically identified and "retained" to meet the 231,000-acre forest plan standard, and "additional" old growth that serves old growth ecological functions, even though it is not formally allocated.

"Existing Old Growth" (TSMRS Special Uses code 9) meets (and often exceeds) *Green and others (2005)* old growth minimum criteria at the stand level. "Ancient Cedar" (Special Uses code 2) is also part of our existing allocated old growth, but we track it separately because we want to take special note and care of these unique stands. "Ancient Cedar" stands contain trees over 5 feet in diameter, with ages over 500 years old; they far exceed minimum old growth criteria.

"Potential Old Growth" (Special Uses code 11) meets, or comes close to meeting a number of old growth minimum criteria, but is lacking somewhat in some criteria. However, if it is listed as "allocated", it does contribute to old growth functions at some scale. The most common situation is that the "potential old growth" has more than enough large trees to meet old growth criteria, but some of the trees are not quite old enough. However, these are usually the largest and oldest trees we have in a given area, and with a little more time can be expected to meet the age criteria as well. Some "potential old growth" is included in our old growth allocation because it is close to meeting the minimum criteria, is the best that we have available in an area, and contributes to distribution of old growth characteristics across the landscape. Other allocated "potential old growth" stands are small patches that contribute to the integrity of a larger block of old growth, or serve as part of a corridor or as stepping stones, linking two larger old growth blocks. Larger old growth patches are generally more valuable as wildlife habitat, and linkages across the landscape are important. Allocated potential old growth contributes to the functional integrity of old growth at the landscape scale, and is managed as part of our old growth allocation. This is consistent with the direction in *Green and others (2005)* about the importance of using landscape ecology considerations, as well as individual stand attributes, in selecting land to be allocated as old growth.

Old growth can be monitored by tallying up acres of stands allocated and mapped as old growth. Totals from the IPNF stand-level map are presented in Table C-2. Forest Plan Standard 10b. calls for maintaining 231,000 acres of old growth (10% of our forested acres). We have identified and allocated 278,552 acres of forest stands (12.1% of IPNF forested acres) to be retained as old growth. Old growth status in 98.5% of these stands has been field verified. Clearly, the IPNF has allocated enough acres of old growth stands to meet and exceed Forest Plan Standard 10b. for the amount of old growth to be retained. We also have an additional 7,444 acres (0.3% of forested acres) of previously field examined, unallocated old growth stands, which provides old growth habitat for wildlife and serves other ecological functions.

Table C-2. Acres of Old Growth Stands By River Sub-Basin

Sub-Basin (River)	Allocated Ancient Cedar *(code 2)*	Allocated Field Verified Old Growth *(code 9)*	Allocated Photo Inventory Old Growth *(code 10)*	Allocated Potential Old Growth *(code 11)*	Total Allocated Old Growth *(codes 2, 9, 10, 11)*	Additional Field Verified Old Growth *(code 12)*	Total All Old Growth *(codes 2, 9, 10, 11, 12)*
St. Joe	1,945	58,920	971	13,160	**74,996**	7,444	**82,440**
Coeur d'Alene	208	56,216		8,836	**65,260**		**65,260**
Pend Oreille	63	19,265	55	5,208	**24,591**		**24,591**
Kootenai	516	59,737	254	5,346	**65,853**		**65,853**
Priest	1,880	40,866	2,833	2,273	**47,852**		**47,852**
Forest Total	**4,612**	**235,004**	**4,113**	**34,823**	**278,552**	**7,444**	**285,996**

If we just count the field-identified stands that correspond to the minimum criteria in Table 1 of *Green and others (2005)*, (codes 2, 9, & 12 above), regardless of allocation status, the IPNF shows 247,060 acres, which equals 10.7% of IPNF forested acres. This also meets and exceeds Forest Plan Standard 10b. for the amount of old growth to be retained, and does so without counting any of our "Allocated Potential Old Growth".

Summary -- Comparison of Two Tools for Monitoring Old Growth

As explained above, the IPNF is using a multi-scale approach to monitoring old growth, based on two separate, independent tools. These are:

1) Forest Inventory and Analysis (FIA) data used to calculate IPNF Forest-wide and mid-scale old growth percentages.

2) IPNF stand map displaying all stands allocated for old growth management, with old growth allocation recorded in the TSMRS database.

These two independent tools use significantly different designs, and are administered and carried out by different people. FIA old growth estimates are based on a statistically sound, representative sample of the entire National Forest, administered by the Rocky Mountain Research Station in Ogden, Utah. This sample is designed to provide unbiased estimates of forest conditions at medium and large scales. Total acres from the IPNF old growth stand-level map are a census of stands allocated for old growth management, based upon examination of selected individual forest stands for old growth characteristics. The stand inventory is carried out by IPNF Ranger District personnel. The stand-level map is a fine-scale tool that allows us to allocate old growth stands across the Ranger Districts and landscape in a way that serves as a basis for project planning.

As displayed above, the two independent Forest Service old growth monitoring tools produce remarkably similar results at the forest scale:

- **Based on FIA data, the current estimate of the proportion of old growth on the forested portion of the IPNF is 12.85%. The 90% confidence intervals of this estimate are 10.55% to 15.27%.**
- **The IPNF total acres of mapped stands allocated and maintained for old growth is 12.1% of forested lands.**

The percent of forested acres of stands allocated for old growth is well within the 90% confidence interval of the FIA inventory. From statistical perspective, at the 90% confidence level, the two numbers are not significantly different. Together, these two monitoring tools offer compelling evidence that the IPNF is meeting Forest Plan standards for the amount of old growth to be retained.

10c. Select and maintain at least five percent of the forested portion of those old growth units that have five percent or more of existing old growth.

10d. Existing old growth stands may be harvested when there is more than 5% in an old growth unit, and the Forest Total is more than 10%.

The Wrenco Loop project area is in old growth management unit (OGMU) 22. Allocated old growth in this OGMU includes 454 acres, which is 7.7 percent of the 5,890 acres of federal lands within OGMU 22. This meets the minimum five percent standard.

Since there is no old growth in the Wrenco Loop project area, neither the 5% minimum nor the 10% Forestwide standard would be affected by either of the alternatives (see map of OGMU #22 in Vegetation Project File).

10e. Old growth stand should reflect approximately the same habitat types series distribution as found on the Idaho Panhandle National Forests.

The following table displays habitat type series distribution for old growth compared to all our forested acres.

Table C-3. Old Growth Habitat Type Series Distribution

Habitat Type Series	% IPNF Acres by Inventoried Habitat Type Series	Allocated Old Growth Acres by Habitat Type Series	% of Allocated Old Growth Acres by Habitat Type Series
Ponderosa Pine	< 0.1%	0	0.0%
Douglas Fir	6.8%	7,997	2.9%
Grand Fir	14.6%	14,648	5.3%
Western Red Cedar	15.9%	50,863	18.3%
Western Hemlock	37.7%	110,646	39.7%
Subalpine Fir	15.2%	52,081	18.7%

Habitat Type Series	% IPNF Acres by Inventoried Habitat Type Series	Allocated Old Growth Acres by Habitat Type Series	% of Allocated Old Growth Acres by Habitat Type Series
Mountain Hemlock	9.7%	41,911	15.0%
Lodgepole Pine	< 0.1%	0	0.0%

As displayed above, old growth on the IPNF does reflect approximately the habitat type series distribution of the forest. On 79% of the land the amount of old growth is proportional to, or more than proportional to the distribution of that habitat type series. Old growth distribution is less than proportional to habitat type series distribution only in the Douglas-fir and grand fir series, which occupy the driest 21% of the land. The dry habitat type group (all of the Douglas-fir and the dry end of the grand fir series) occupies approximately 10% of IPNF land. The moist end of the grand fir series (which is still drier than the rest of the forest) covers another 11 % of IPNF land, and is often found at lower elevations and southerly aspects, and is subject to significant moisture stress during drought years.

The low proportion of old growth in these two dry habitat type series is a function of the combined effects of the huge 1910 fire and other big early 20th century fires, subsequent suppression of most low and mixed severity fires, early 20th century timber cutting, root diseases, and bark beetles. Much of the old growth inventoried on these two habitat type series is currently dominated by Douglas-fir or grand fir, which are at risk from bark beetles and root diseases. Where the moister, non-riparian grand fir habitat types are adjacent to dry sites, fires, root diseases, and bark beetles that strike the dry sites have a high probability of carrying over into adjacent Douglas-fir / grand fir stands. During drought years, grand fir growing on upland grand fir habitat types is at risk from *Scolytus* bark beetles. Active management will be necessary to restore more resilient tree species, and increase the proportion of old growth on our dry habitat types and adjacent grand fir habitat types.

The natural processes that maintained old growth on dry sites were very different than on moister sites. Historically, most of these dry forest habitat types were subject to frequent low-severity underburns and mixed severity fires that thinned out smaller trees and favored large trees of the most fire-resistant species (ponderosa pine and western larch). Frequent low-severity fires reduced the total number of smaller trees (thus limiting moisture demands that caused tree stress on these dry sites), and reduced dead woody fuels and live ladder fuel accumulations (thus reducing the risk of stand replacing crown fires). These low and mixed-severity fires were the keystone natural process that maintained dry site old growth forest structures.

Now, on dry habitat types, approximately 70 years of effective fire suppression has allowed in-growth of dense stands of smaller trees and accumulation of high woody fuel loads. Lack of fire has favored Douglas-fir and grand fir over ponderosa pine and larch. The large number of trees in these denser stands creates higher moisture demands than in the historic, fire-maintained open stands. This higher moisture demand stresses the old growth trees during drought years, and predisposes stands to bark beetle outbreaks. During drought years this can result in unusually high levels of mortality amongst old trees in these unnaturally dense stands. Dense Douglas-fir and grand fir are also more susceptible to root diseases and bark beetles than historic forest structures. Compared to the historic forest, dense Douglas-fir / grand fir stands on dry sites have a lower probability of surviving long enough to become old growth. Those dry site fir stands that do get old enough are less likely to be as resilient as the historic old growth structures. In addition, during fires the dense small trees in the understory serve as fuel ladders that carry flames into the upper canopy of large old trees. This new situation creates an unnaturally high

risk of stand replacing crown fire, which will kill old trees that historically were able to survive surface fires. Decades of fire suppression on dry sites has transformed stand structures in a way that threatens the continued existence of old growth on these dry sites, and reduces the chances of current younger stands surviving long enough to become old growth.

On these dry sites, hands-off management of existing overly dense mature and immature fir-dominated stands is not likely to increase the amount of future old growth. Active restoration by mimicking of historic disturbance processes may be necessary to meet Forest Plan standard for maintaining old growth on dry habitat types. In those places where we find dry site old growth stands with unnatural in-growth of dense smaller trees (particularly firs), we may consider restoration opportunities. Restoration may include various mixes of prescribed fire, thinning, and planting of historic shade-intolerant, fire-adapted tree species. The existing large old trees will be retained. In existing old growth, the driving objectives will be maintenance of old growth characteristics, and restoration of historic old growth structures and processes. In mature and immature stands where old growth and fire-adapted species are lacking, restoration activities may be necessary to create forests that are more likely to survive long enough to become old growth.

10f. One or more old-growth stands per old growth unit should be 300 acres or larger. Preferences should be given to a contiguous stand; however, the stand may be subdivided into stands of 100 acres or larger if the stands are within one mile. The remaining old growth management stands should be at least 25 acres in size. Preferred size is 80 plus acres.

Since there is no old growth in the Wrenco Loop project area, the size of old growth stands within the OGMU would not be affected by either of the alternatives.

10g. Roads should be planned to avoid old growth management stands to maintain unit size criteria.

Since there is no old growth in the project area, road construction would not affect the old growth acres.

10h. A long-term objective should be to minimize or exclude domestic grazing within old growth stands.

Activities proposed do not include domestic grazing allotments. There are currently no grazing allotments in the area. It is unlikely that grazing would occur in the project area. This standard would be met by both alternatives.

10i. Goals for lands to be managed as old growth within those lands suitable for timber production are identified in the management area prescriptions.

Forest Plan Standard 10i. presents "goals for lands to be managed as old-growth" within some of the timber production Management Areas. Only the four Management Areas have specific Forest Plan old growth goals. The table below displays both those goals by management area, and what we have currently allocated for old growth. Current old growth allocations meet and far exceed these Forest Plan goals.

Table C-4. Acres of Allocated Old Growth Compared to Management Area Goal

Management Area	Management Area goal: "Maintain approximately *xxxxx* acres"	Allocated Old Growth acres
1	25,000	97,453
2	6,000	21,644
3	400	1,880
4	4,000	13,485

No stands of allocated old growth are proposed for harvest. All standards would be met by both alternatives in the Wrenco analysis area.

Appendix D - Wrenco Environmental Assessment Errata

This errata shows corrections to the Wrenco Environmental Assessment in the table below. For each page noted, the error or section where correction appears is shown first and the correction is shown in bold.

EA Page Number	Correction
3	*Error! Reference source not found* should read: **Overview of Scientific Findings from Broad Scale to Site Specific**
9	*Final Rule – Administration of the Forest Development Transportation System* last sentence in paragraph should read: **See Chapter 2, Roads and Access Management for more information**
15	The Vegetation Treatment Definition Box should have included after the description for regeneration and selective cutting: **(See project file – Vegetation for regeneration cutting example)** **(See project file – Vegetation for selective cutting example)**
15	Discussion under Area III should include the following: **"None of these openings created would exceed 40 acres in size."**
16	*Road Construction and Storage* second to last sentence should read: **(see road definitions on p. 16)**
19	Under *Timing Restrictions*, last sentence: **Delete the September 1 date**
24	*Features Designed to Protect Soil and Site Productivity* should read: **Features Designed to Protect Vegetation, Soil and Site Productivity**
24	Add to list of Design Features: **Protection of Residual Stand – To protect the residual stand in selective cutting unit, the size of logging equipment would be limited to meet the treatment objective. Skid trail width in these cutting units would not exceed 10 feet, unless otherwise agreed to by the sale administrator. Requirements to accomplish this objective may include one or more of the following: (1) limiting the size of logging equipment, (2) using rub trees, or (3) restricting the timing of logging. The use of skyline yarding where feasible protects residual trees as well**.
29	Under section titled *Best Management Practice* the last sentence in the first paragraph should read: **"The engineer representative and the hydrologist would monitor all newly constructed, reconstructed and reconditioned roads to endure they are built or restored to specifications.**"
34	For the issue *Noxious Weeds under Alternative A* it should read: **"…the project is expected to have little net cumulative effect on the existing weeds in the project area …**"

EA Page Number	Correction
36	Under *Water Quality and Fish Habitat, Alternative A and B*: **"surface" should precede the word runoff**
39	In table 3-1, under the *Reasonably Foreseeable Actions* section the row for Idaho Dept. of Lands Sec 16, 17 Smith Creek activities: **The row should be deleted.**
63-64	Discussion under section titled *Consistency with Forest Plan and Other Laws and Regulations* should have the following added: **In 2005, a conservation assessment for rare moonworts in the IPNF was completed; the Forest is in the process of preparing a conservation strategy for these species**.
103	Under *Direct effects*, second paragraph delete the following sentence: **"Those that are temporary (i.e. only needed for the project) and are planned for decommissioning have detrimental effects initially but rehabilitation efforts (subsoiling and/or recontouring) initiate a long-term recovery process."**
105	Sentence under *Road Issues* should read: **"Alternative A proposed approximately 3.3 miles of road construction that would be used to move personnel, logs …"**
113 and 121	Section titled *Water Yield* rain-on-snow elevations should be changed to: **(3,000 to 4,500 feet)**.
113	Section titled *Water Yield*, second to last paragraph should read: **"This model estimates the average annual surface runoff, which is an appropriate indicator of the change in water yield.**"
115	Third paragraph under Fisheries reads: "*Rainbow trout have been identified in West Fork Johnson Creek slightly downstream from the analysis area. Anecdotal evidence (project file – aquatics) suggests that historically bull trout may have been present in the vicinity of the analysis area*". It should read: **Historically, bull trout may have used the lower portion of the Johnson Creek drainage, however, their presence has not been documented**.
116	"*Historical records indicate that bull trout may have inhabited at least the lower portions of the Johnson Creek drainage (project file - aquatics)*" should read: **Historically, bull trout may have used the lower portion of the Johnson Creek drainage; however, their presence has not been documented**.
119-120	Section titled *Water Yield Modeled for the Project Area:* **"surface" should precede the word runoff**
120	Table 3-21 and 3-22, column *Runoff (ac-ft)* should read: **Surface Runoff (ac-ft)**
121	*Alternative A – Proposed Action Water Yield* **"surface" should precede the word runoff**
127-129	Throughout the text in these pages: **"surface" should precede the word runoff**

EA Page Number	Correction
Appendix C	**Entire appendix has been revised and is included in the Decision as Appendix C – Old Growth "Errata"**

Appendix E - Literature Cited

The literature cited here is everything that is cited in the Decision Notice and Appendices. More extensive literature can be found in the Wrenco Environmental Assessment.

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