United States
Department of
Agriculture

Forest
Service

September 2005

Response to Comments

Received on the
Broadaxe EA
(available to the public on May 18, 2005)

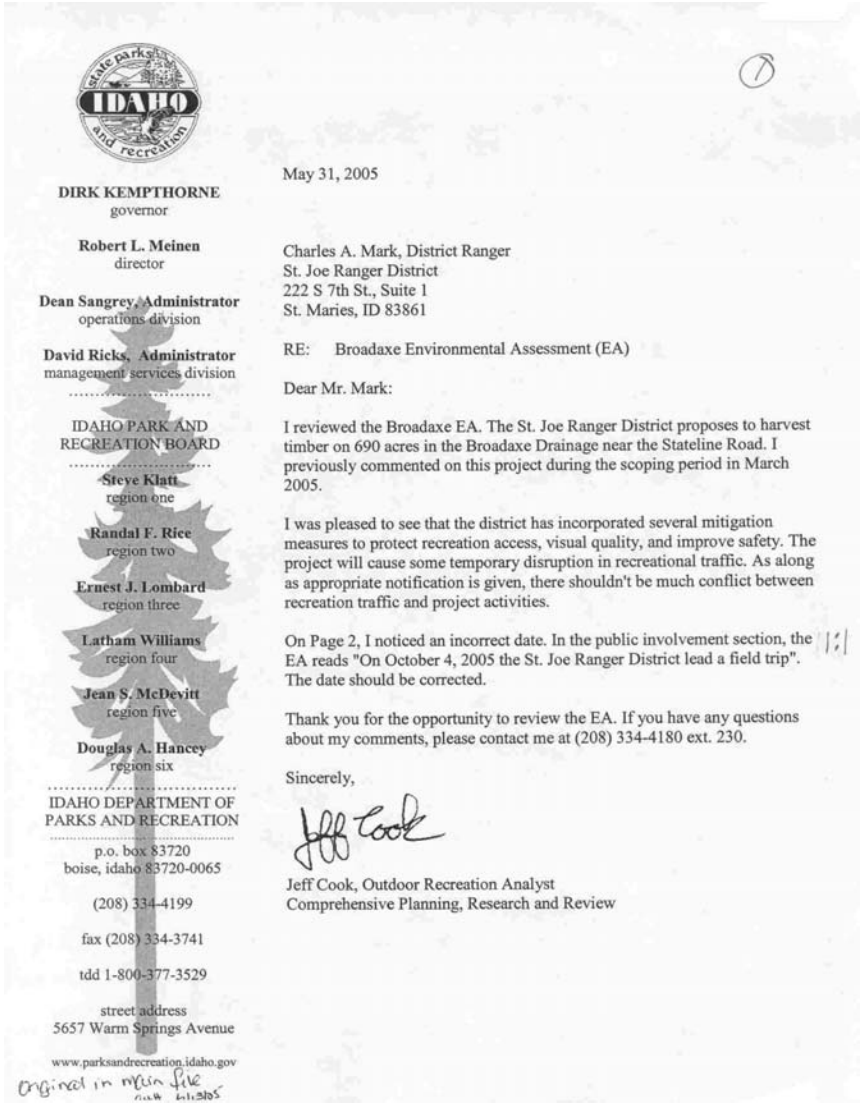
Broadaxe

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

Response to Comments

FS Response to Comments Received on the Broadaxe EA during the 30-day Comment Period

Letter #1



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p.o. box 83720
boise, idaho 83720-0065

(208) 334-4199

fax (208) 334-3741

tdd 1-800-377-3529

street address
5657 Warm Springs Avenue

www.parksandrecreation.idaho.gov

Original in Main File

May 31, 2005

Charles A. Mark, District Ranger
St. Joe Ranger District
222 S 7th St., Suite 1
St. Maries, ID 83861

RE: Broadaxe Environmental Assessment (EA)

Dear Mr. Mark:

I reviewed the Broadaxe EA. The St. Joe Ranger District proposes to harvest timber on 690 acres in the Broadaxe Drainage near the Stateline Road. I previously commented on this project during the scoping period in March 2005.

I was pleased to see that the district has incorporated several mitigation measures to protect recreation access, visual quality, and improve safety. The project will cause some temporary disruption in recreational traffic. As along as appropriate notification is given, there shouldn't be much conflict between recreation traffic and project activities.

On Page 2, I noticed an incorrect date. In the public involvement section, the EA reads "On October 4, 2005 the St. Joe Ranger District lead a field trip". The date should be corrected. 1:1

Thank you for the opportunity to review the EA. If you have any questions about my comments, please contact me at (208) 334-4180 ext. 230.

Sincerely,

Jeff Cook

Jeff Cook, Outdoor Recreation Analyst
Comprehensive Planning, Research and Review

Forest Service Response to Letter #1

1:1 – Thank you for the comments. The date of the field trip was corrected in the EA. It now reads, “On October 4, 2004 the St. Joe Ranger District led a field trip.” Thank you for finding the error.

Letter #2

ST. JOE SUPERVISORY AREA
1806 Main Street
St. Maries ID 83861
Phone (208) 245-4551
Fax (208) 245-4867

IDAHO DEPARTMENT OF LANDS

WINSTON A WIGGINS, DIRECTOR
EQUAL OPPORTUNITY EMPLOYER

(2)

June 13, 2005

RECEIVED
JUN 1 3 2005
ST. JOE RANGER DISTRICT

USDA Forest Service
St. Joe Ranger District
222 South 7th Street, Suite 1
St. Maries, ID 83861

ATTN: Charles A. Mark
District Ranger

RE: Broadaxe Environmental Assessment

Dear Mr. Mark:

2:1

These comments are consistent with those provided following the field trip you hosted to the Broadaxe vicinity in October, 2004. The forest conditions then were grave, and the outlook is for much worse unless management actions are taken to alleviate the situation.

In particular, the mountain pine beetle has caused a lot of mortality among the lodgepole pine component of the forest stand, and the remaining lodgepole pine are under attack and most will certainly die. The potential for catastrophic wildfire is building accordingly, with serious implications for the St. Joe watershed as well as for watersheds over the divide (state line) in Montana. The situation brings to mind some of the catastrophic wildfires that have occurred over the past several years in the western states where huge wild land areas have burned along with intermix homes, other structures, and even loss of life. It could happen here.

The aftermath of such a wildfire will most probably be severe. The absence of vegetation on mountain slopes and riparian zones, coupled with hydrophobic soil conditions created by the fire, will probably lead to very high peak runoff flows and heavy erosion. Damage to the tributary streams and the major rivers will likely be severe, with destabilized channels and banks and degraded fish habitat from silt and cobble rock sediments. There may be social and economic impacts as well, if commercial resource activities on private and state lands downstream need to be

Forest Service Response to Letter #2

2:1 – Thank you for the comments.

Letter #2 continued

reduced or curtailed while the watersheds are in the healing process. This is an outcome that hopefully can be avoided. While it is not possible, or even desirable, to remove wildfire from the ecosystem, it is possible to take management steps that can significantly moderate wildfire events and make them tolerable.

Your proposed silvicultural treatments are sound to remove the dead, dying, and other trees to relieve crowded conditions and thereby promote a healthy forest. Where appropriate, prescribed fire can be used to additionally reduce fuel loading. Where suitable mature trees exist, and we saw some excellent western larch, they can be left to provide seed for natural regeneration. Other desirable tree species such as white pine can be planted. One of your goals is to adjust the species composition of the stand toward the more fire resistant species.

It will be very much to the benefit of the St. Joe and the eastern watersheds, the wildlife, the fish, and the society if you are able to implement your plans immediately. The Department of Lands is in solid support in this matter, and will help in any way possible.

Sincerely,

Dean W Johnson

Dean W. Johnson
Area Supervisor – St. Joe

DWJ/sa

Pc: Roger Jansson – Operations Chief, North

Letter #3

RECEIVED

JUN 0[illegible] 2005

ST. JOE RANGER DISTRICT

3

I've received your Broadaxe EA and have analyzed the issues and concerns. I have spent twenty plus years in the Broadaxe, Quartz area logging, hunting and fishing. I'll start with the main problem. You should have clear cut all of the lodge pole over ten years ago instead of screwing around. 3:1

There should be no restrictions on the logging. Timber harvest should be approved 365 days a year on all of the Broadaxe, Quartz and State Line areas. And you should lean heavily towards clear cuts in lodge pole areas. There should be temporary roads wherever needed to get the timber out quickly and efficiently. Burn the whole area.

Plant larch, spruce and white pine. There should be visual monitoring every 6 months. Don't waste any money on mitigation. Don't waste money and time on Gold Creek temperature sediment nutrients and habitat. Let Gold Creek heal naturally. Don't waste time and money on soil productivity. Don't worry about wildlife fragmentation. Spray herbicide on all roads and temporary roads before deconstruction. Screw worrying about the primitive recreational experience that people will have on the State Line Road. The State Line Road will have to be made safe to log off of. If you do no maintenance on the State Line Road after the project is done, the road will go back to primitive. Don't waste time or money on visual qualities.

The logging plan has a few questionable ideas. In unit 9 if you are proposing to totally suspend logs or Trees, you should have an individual experienced in high lead yarding evaluate the 5 acres to see if it is physically possible to do total suspension. You should also be able to have corridors 100' apart. Cutting stumps to meet visual and scenic quality is a waste of time and money. Angling trails and corridors for VSQ is a poor way to log. (i.e.) waste of time and money. You should also put more small timber sales up and don't waste time and money on the big timber sales that get appealed.

Sincerely

Wade A. Parkin
290 Ahrs Loop
St Maries Id
83861
(208) 245-1213 (208) 582-1275

Forest Service Response to Letter #3

3:1 - Thank you for the comments.

Letter #4

(4)

Chuck Mark, District Ranger
St. Joe Ranger District
222 S. 7th St., Suite 1
St. Maries, ID 83861

June 15, 2005

RE: Idaho Conservation League Comments on the Broadaxe Environmental Assessment

Dear Chuck:

Thank you for allowing for the Idaho Conservation League (ICL) to comment on the Broadaxe Environmental Assessment Project. For thirty years, ICL has worked to protect and restore the air, water, wildlands, and wildlife of Idaho through citizen action, public education, and professional advocacy. For more information (or to become a member!), go to www.wildidaho.org. As Idaho's largest state-based conservation organization we represent over 3,300 members, many of whom have a deep personal interest in ensuring that logging practices are consistent with multiple-use goals of protecting our air, water, wildlands, and wildlife.

It is important that logging only be allowed in ecologically appropriate areas where resource damage can be kept to a minimum. Potential issues of concern include: openings greater than 40 acres, Bull Trout, water quality, steep slopes, Lynx, Fisher, Marten, Goshawk, and impacts to visual corridors.

We are also concerned that the Environmental Assessment failed to consider alternatives to the proposed action, to include a biological assessment, or to provide for improvement to fish and wildlife habitat in the project area.

In the event that the project is adopted, we would like to see any salvage activity linked with restoration activities to reduce sediment, decommission roads, and renovate culverts to allow for fish passage throughout the watershed. Please send our organization copies of subsequent NEPA documents, and feel free to contact me if you have any questions about these comments.

Sincerely,

/s/Jonathan Oppenheimer

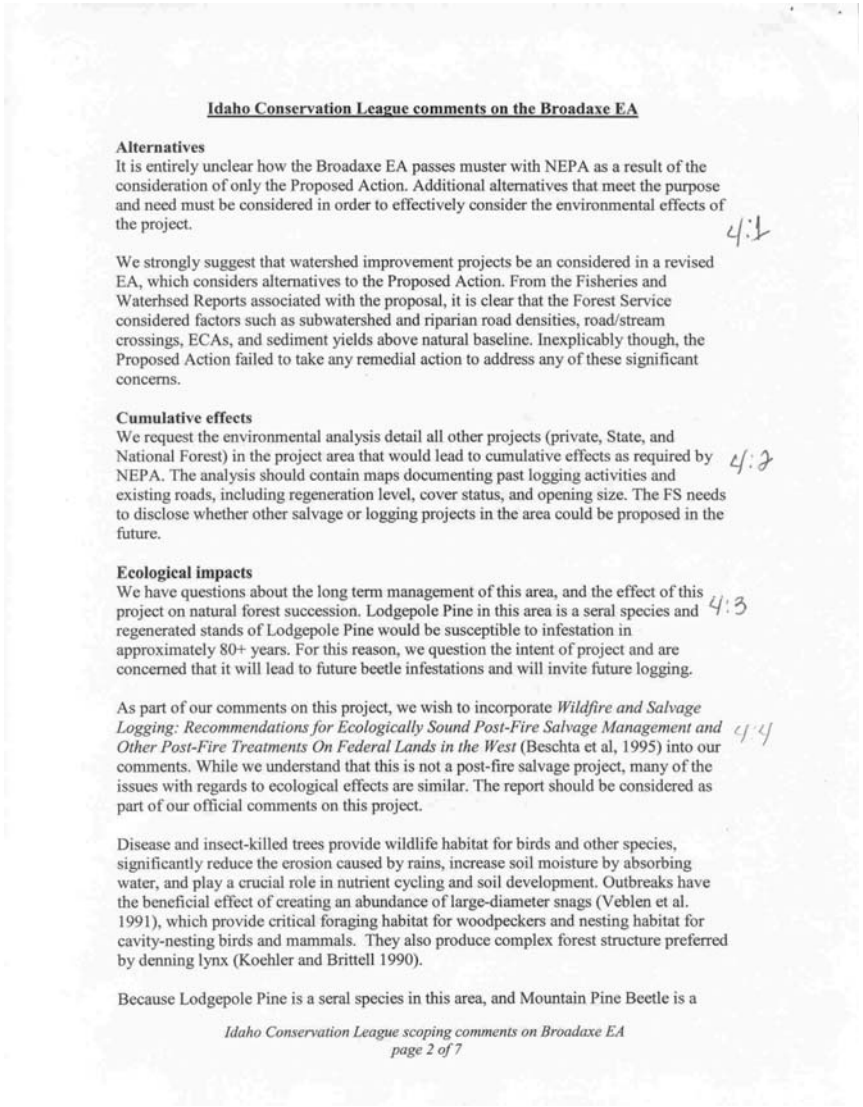
Jonathan Oppenheimer
North Idaho Associate

Idaho Conservation League scoping comments on Broadaxe EA
page 1 of 7

Forest Service Response to Letter #4

Thank you for the comments.

Letter #4 continued



Idaho Conservation League comments on the Broadaxe EA

Alternatives
It is entirely unclear how the Broadaxe 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. 4:1

We strongly suggest that watershed improvement projects be an considered in a revised EA, which considers alternatives to the Proposed Action. From the Fisheries and Waterhsed Reports associated with the proposal, it is clear that the Forest Service considered factors such as subwatershed and riparian road densities, road/stream crossings, ECAs, and sediment yields above natural baseline. Inexplicably though, the Proposed Action failed to take any remedial action to address any of these significant concerns.

Cumulative effects
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 needs to disclose whether other salvage or logging projects in the area could be proposed in the future. 4:2

Ecological impacts
We have questions about the long term management of this area, and the effect of this project on natural forest succession. Lodgepole Pine in this area is a seral species and regenerated stands of Lodgepole Pine would be susceptible to infestation in approximately 80+ years. For this reason, we question the intent of project and are concerned that it will lead to future beetle infestations and will invite future logging. 4:3

As part of our comments on this project, we wish to incorporate *Wildfire and Salvage Logging: Recommendations for Ecologically Sound Post-Fire Salvage Management and Other Post-Fire Treatments On Federal Lands in the West* (Beschta et al, 1995) into our comments. While we understand that this is not a post-fire salvage project, many of the issues with regards to ecological effects are similar. The report should be considered as part of our official comments on this project. 4:4

Disease and insect-killed trees provide wildlife habitat for birds and other species, significantly reduce the erosion caused by rains, increase soil moisture by absorbing water, and play a crucial role in nutrient cycling and soil development. Outbreaks have the beneficial effect of creating an abundance of large-diameter snags (Veblen et al. 1991), which provide critical foraging habitat for woodpeckers and nesting habitat for cavity-nesting birds and mammals. They also produce complex forest structure preferred by denning lynx (Koehler and Brittell 1990).

Because Lodgepole Pine is a seral species in this area, and Mountain Pine Beetle is a

Idaho Conservation League scoping comments on Broadaxe EA
page 2 of 7

Forest Service Response to Letter #4

4:1 – The proposed action and a no-action alternative were considered. Effects of the No-Action Alternative were documented in resource reports (Air Quality, Fire and Fuels, Fisheries, Heritage Resources, Old Growth, Rare Plants, Noxious Weeds, Soils, Vegetation, Visual Quality, Watershed, and Wildlife) but were left out of the original EA to shorten the document. Those discussions are now included in the revised EA, pages 11-29. An alternative to treat additional areas of lodgepole pine that are infested with mountain pine beetle was considered, but it was eliminated from detailed study (EA, page 4).

Watershed improvement is not part of the purpose and need for this project. The purpose and need for the project is to meet Forest Plan standards for forest protection related to insects and diseases by restoring fully stocked, diverse, vigorous stands that include species less susceptible to mountain pine beetle; so the lodgepole pine / mountain pine beetle process is not perpetuated within the treatment areas; reduce long-term hazardous fuel accumulations within treatment areas; and contribute to the local employment, income and lifestyles while the dead, dying and high-risk lodgepole pine still has some economic value (EA, page 2).

District Ranger, Chuck Mark, explained the need to address the mountain pine beetle situation in a letter dated September 9, 2004 (project file, S-2). In that letter Mr. Mark said, “I have decided to address the mountain pine beetle in the lodgepole pine in the Gold creek Drainage immediately”. He went on to say, “In the original Quartz Gold Project we addressed many other resource issues (access, watershed conditions relative to roads, wildlife, white bark pine and fisheries habitat projects, etc.). This will not be lost. We listened to and addressed many of your comments and concerns about the Quartz Gold Project Area and our original proposal. We adjusted the proposed action, developed alternatives to it, and completed the analysis of these projects. Some of this work may be included in the new proposal,

and the rest of it may continue after we address the mountain pine beetle problem in Gold Creek".

4:2 – All land in the project area and cumulative effects areas are National Forest System lands. This information was added to the EA on page 1. Relevant activities and conditions were considered for the cumulative effects analysis for each resource. See the following:

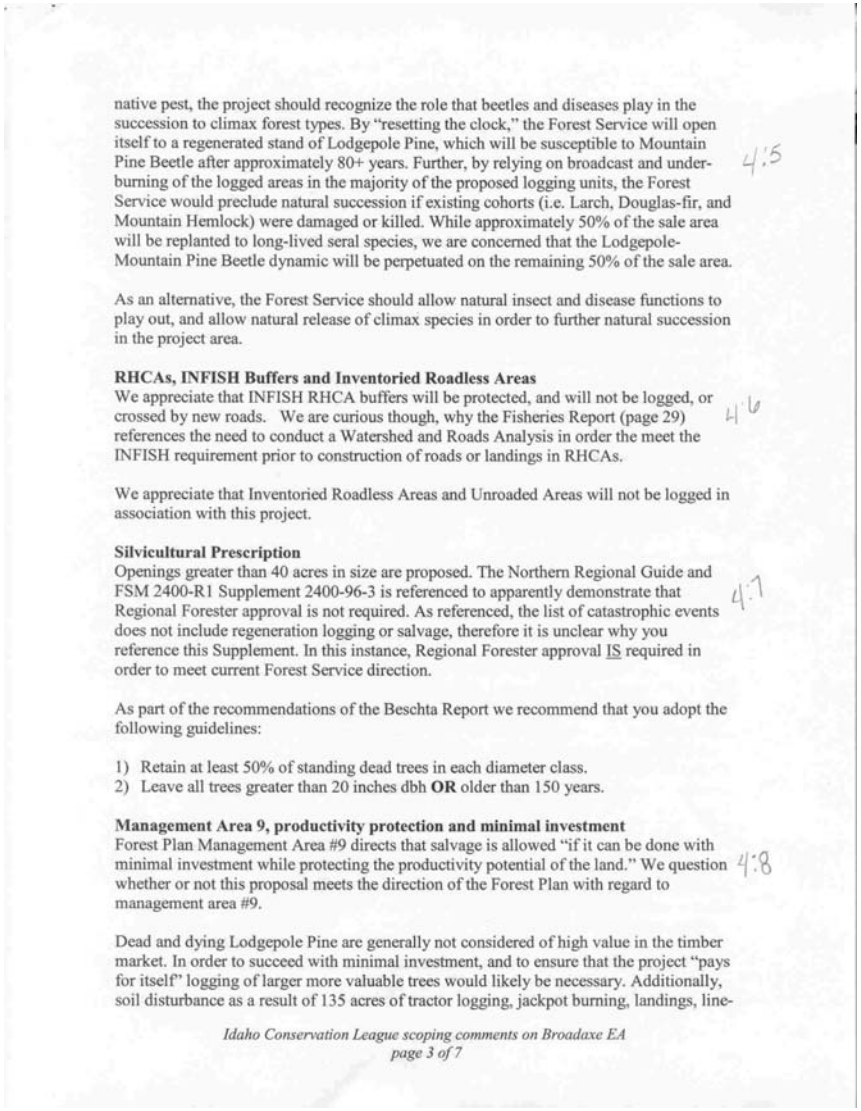
- EA, pages 10-29;
- Air Quality Specialist Report, page 5;
- Fire and Fuels Specialist Report, pages 6 and 8;
- Fisheries Specialist Report for the Broadaxe Project Area, pages 5-15, 19-24;
- Rare Plant Report, pages 2-7;
- Noxious Weed Report, pages 2-3, 5;
- Soils Report, pages 4-7;
- Proposal Coniferous Vegetation Report, pages 3-8, 12,
- 16;
- Watershed Report, pages 5-19;
- Wildlife Report, pages 3, 11-15, 19-22, 25-27, 28, 29, 32-37, 39-42;
- Project file documents AQ-1, FF-8, F-28, F-29, F-30, F-31, MH1-20, NW-3, NW-4, NW-11, OG-16, P-10, SW-2, SW-9, SW-17, SW-21, SW-24, SW-27, SW-30, SW-32, SW-33, SW-36, SW-41, V-4, V-7, V-8, V-22,W-4, W-8, W-10, W-20, W-21, W-29

There are currently no planned future timber harvest proposals other than the proposed action for this analysis area. Based on current direction within the Forest Plan, there is the potential for future proposals to manage vegetation, through timber harvest or other methods. Future timber harvest or other vegetation management proposals would require an inclusive analysis of all known previous management activities, including this proposal if implemented.

4:3 – As stated in the Purpose and Need for Action (EA, page 2) one of the forest plan objectives is to restore stands to a fully stocked, vigorous condition comprised of mixed or diverse species composition. The proposed action provides for more rapid restoration of stocking levels, as well as an increase in species diversity (through planting) within the stands proposed for treatment than would occur under the no action alternative (Vegetation Report, page 13). By increasing the representation of species other than lodgepole pine, particularly increasing the long-lived western larch and western white pine component, the extent of loss specifically to mountain pine beetle would be reduced in the future. Additionally, the risk of total stand loss due to other insects or diseases would also be reduced by increasing the species diversity within these stands (Vegetation Report, pages 16-17).

4:4 – Beschta et al., 1995 offers a scientific framework of principles and practices concerning wildfire and salvage logging and other post-fire treatments. The Broadaxe Project is not a post-fire salvage project, and conditions are substantially different than what are addressed in the report. The Beschta report states "post-fire salvage activities are treated differently than other logging in the course of environmental review". Because the Broadaxe project is not an action taken following a fire no greater liberties have been allowed regarding NEPA and NFMA as discussed on page 3 of the Beschta report. The purpose and need for this project was derived from management direction from the IPNF Forest Plan; and the project is consistent with applicable management direction, laws and regulations (EA, pages 1, 2, 5-10, 12-17, 19-22). The commenter has not provided specific comments showing how the Beschta report is applicable to the Broadaxe Project.

Letter #4 continued



native pest, the project should recognize the role that beetles and diseases play in the succession to climax forest types. By "resetting the clock," the Forest Service will open itself to a regenerated stand of Lodgepole Pine, which will be susceptible to Mountain Pine Beetle after approximately 80+ years. Further, by relying on broadcast and under-burning of the logged areas in the majority of the proposed logging units, the Forest Service would preclude natural succession if existing cohorts (i.e. Larch, Douglas-fir, and Mountain Hemlock) were damaged or killed. While approximately 50% of the sale area will be replanted to long-lived seral species, we are concerned that the Lodgepole-Mountain Pine Beetle dynamic will be perpetuated on the remaining 50% of the sale area. 4:5

As an alternative, the Forest Service should allow natural insect and disease functions to play out, and allow natural release of climax species in order to further natural succession in the project area.

RHCAs, INFISH Buffers and Inventoried Roadless Areas

We appreciate that INFISH RHCA buffers will be protected, and will not be logged, or crossed by new roads. We are curious though, why the Fisheries Report (page 29) references the need to conduct a Watershed and Roads Analysis in order the meet the INFISH requirement prior to construction of roads or landings in RHCAs. 4:6

We appreciate that Inventoried Roadless Areas and Unroaded Areas will not be logged in association with this project.

Silvicultural Prescription

Openings greater than 40 acres in size are proposed. The Northern Regional Guide and FSM 2400-R1 Supplement 2400-96-3 is referenced to apparently demonstrate that Regional Forester approval is not required. As referenced, the list of catastrophic events does not include regeneration logging or salvage, therefore it is unclear why you reference this Supplement. In this instance, Regional Forester approval IS required in order to meet current Forest Service direction. 4:7

As part of the recommendations of the Beschta Report we recommend that you adopt the following guidelines:

1) Retain at least 50% of standing dead trees in each diameter class.
2) Leave all trees greater than 20 inches dbh **OR** older than 150 years.

Management Area 9, productivity protection and minimal investment

Forest Plan Management Area #9 directs that salvage is allowed "if it can be done with minimal investment while protecting the productivity potential of the land." We question whether or not this proposal meets the direction of the Forest Plan with regard to management area #9. 4:8

Dead and dying Lodgepole Pine are generally not considered of high value in the timber market. In order to succeed with minimal investment, and to ensure that the project "pays for itself" logging of larger more valuable trees would likely be necessary. Additionally, soil disturbance as a result of 135 acres of tractor logging, jackpot burning, landings, line-

Idaho Conservation League scoping comments on Broadaxe EA
page 3 of 7

Forest Service Response to Letter #4

4:5 – Under the No-Action Alternative the stands proposed for treatment would regenerate predominantly to lodgepole pine and thus prolong the period that this species would dominate these stands (EA, page 4; Vegetation Report, pages 10-11). Under the proposed action, trees other than lodgepole pine would be retained in all units, and through planting in areas designated as MA-1 & 6 the species composition would be enhanced (Vegetation Report, page 16). As a result, the risk of total stand loss to mountain pine beetle would be reduced because of the more complex species composition. A more rapid reestablishment of these stands would be expected under the proposed action than under the no action alternative in support of the purpose and need for action (Vegetation Report, pages 9-17). The proposed action would reduce the risk of stand replacing fires as a result of reduction of the hazardous fuel load that would occur without the proposed treatments (Fire/Fuels Report, pages 6-8).

4:6 – The first action outlined under the INFISH standard for road management RF-2 is to complete a watershed analysis prior to construction of new roads or landings in RHCA within priority watersheds. As stated in the Fisheries Specialist Report (page 2) the Gold Creek drainage is in a priority watershed and there will be construction of a temporary road that may cross an ephemeral stream (page 23).

4:7 – The FSM 2400-R1 Supplement 2400-96-3, in 2471.1 under Even-aged Stands states: "The size of harvest openings created by even-aged silvicultural in the Northern Region will be normally 40 acres or less. Creation of larger openings will require 60-day public review and Regional Forester approval, with the following exceptions:

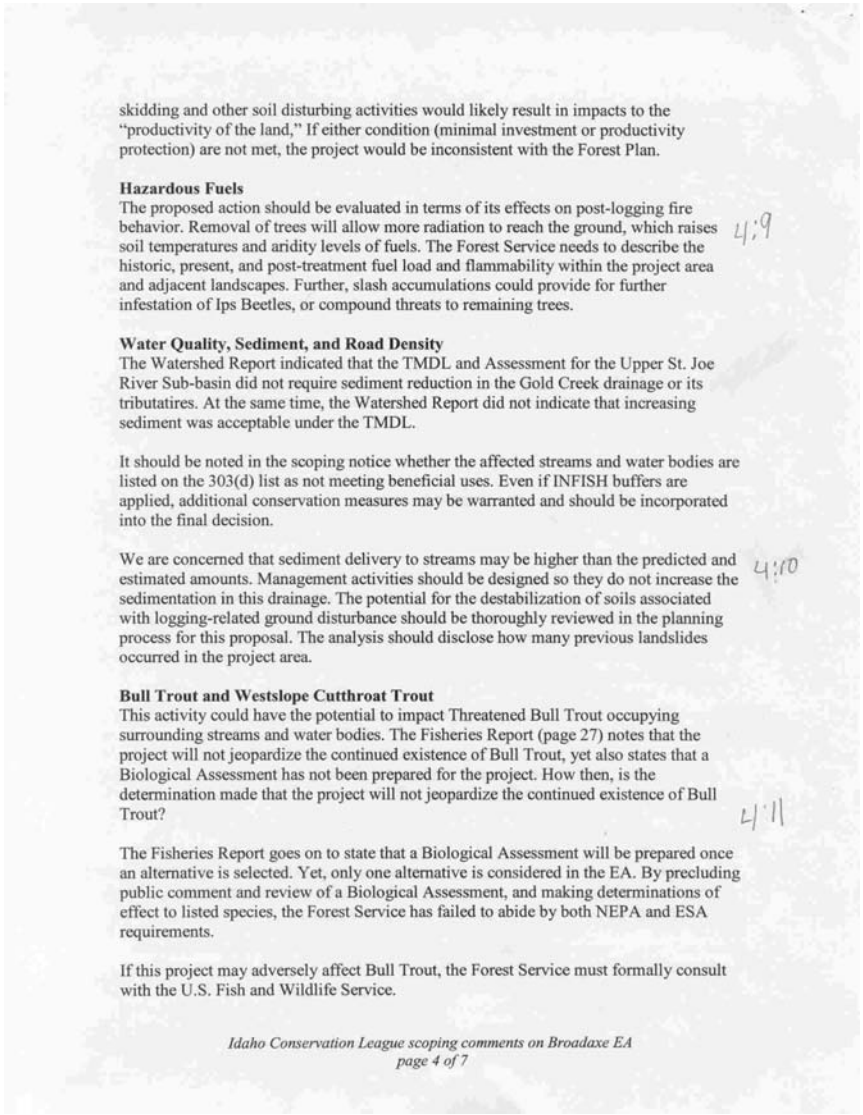
1) Where natural catastrophic events such as fire, windstorms, or insect and disease attacks have occurred, 40 acres may be exceeded without 60-day public review and Regional Forester approval, provided the public is notified and the

environmental analysis supports the decision." Notification of potential opening sizes was sent to interested people in a letter dated April 21, 2005, and is referenced in Openings Report (project file V-16, EA, pages 2, 4, 19, 21) for this proposal. Also listed in 2471.1 is a listing of information items that are required for submittal to the Regional Forester when approval of openings greater than 40 acres is requested. It further states: "This same information should be part of the project file for all exceptions to the 40-acre limitation that do not require Regional Forester Approval." The following documents are found in the project file in compliance and support of this Forest Service Manual direction:

Reforestation Indices Report(s) (V-6 a & b)
Stand Folder Reforestation Review (V-7)
Broadaxe Diagnosis Matrix (V-9 #5)
Project File Document dated 2/11/2005 (V-14)
Reforestation Needs Estimate (V-15)
Broadaxe Proposal Openings Report (V-16)
Estimated Openings (V-17)
Harvest History Map (MH-13)

4:8 – Due to the existing access in MA-9 lands and the nature of the proposed action on those lands, minimal investment is required for implementation of this proposal. Existing roads would be used, expensive helicopter logging systems would not be required, and of the 183 acres proposed for treatment in MA-9 only 38 acres would require planting to meet desired stocking levels and species composition. Protection of the productivity potential is provided for through the design features as listed in the Broadaxe EA, pages 5-9.

Letter #4 continued



skidding and other soil disturbing activities would likely result in impacts to the "productivity of the land," If either condition (minimal investment or productivity protection) are not met, the project would be inconsistent with the Forest Plan.

Hazardous Fuels
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. 4:9

Water Quality, Sediment, and Road Density
The Watershed Report indicated that the TMDL and Assessment for the Upper St. Joe River Sub-basin did not require sediment reduction in the Gold Creek drainage or its tributatires. At the same time, the Watershed Report did not indicate that increasing sediment was acceptable under the TMDL.

It should be noted in the scoping notice 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.

We are concerned that sediment delivery to streams may be higher than the predicted and estimated amounts. Management activities should be designed so they do not increase the sedimentation in this drainage. The potential for the destabilization of soils associated with logging-related ground disturbance should be thoroughly reviewed in the planning process for this proposal. The analysis should disclose how many previous landslides occurred in the project area. 4:10

Bull Trout and Westslope Cutthroat Trout
This activity could have the potential to impact Threatened Bull Trout occupying surrounding streams and water bodies. The Fisheries Report (page 27) notes that the project will not jeopardize the continued existence of Bull Trout, yet also states that a Biological Assessment has not been prepared for the project. How then, is the determination made that the project will not jeopardize the continued existence of Bull Trout? 4:11

The Fisheries Report goes on to state that a Biological Assessment will be prepared once an alternative is selected. Yet, only one alternative is considered in the EA. By precluding public comment and review of a Biological Assessment, and making determinations of effect to listed species, the Forest Service has failed to abide by both NEPA and ESA requirements.

If this project may adversely affect Bull Trout, the Forest Service must formally consult with the U.S. Fish and Wildlife Service.

Idaho Conservation League scoping comments on Broadaxe EA
page 4 of 7

Forest Service Response to Letter #4

4:9 - Analyzing fire severity, rather than fire behavior, provides greater insight into the short and mid-term ecological effects of fire within the sites. This is because fire severity takes into account resident heating times and the effect they have on below-ground biotic processes, which heavily influence long-term soil productivity. Fire behavior only accounts for the fire behavior characteristics of a passing flame front and does not account for post-frontal combustion, which is the primary contributor to fire severity. Also, this project is not a Wildland Urban Interface project, nor does it have an objective of improving fire fighter safety or of creating defensible space. The proposed fuels treatments are intended to reduce the activity fuel loads resulting from the proposed salvage while at the same time, preparing sites for natural and planted regeneration. Therefore, estimated measures of fire severity including duff consumption, mineral soil exposure, and fire effects on soils are more appropriate measures than fire behavior characteristics such as flame length, rate of spread, and, fireline intensity.

The two alternatives will result in very different physical fuel models. Comparing fire behavior between the two is like comparing apples to oranges: it serves no good purpose. Comparing fire severity between the two alternatives is instructive because fire severity is related directly to post fire effects (assuming a fire would occur after all the lodgepole pine have fallen in the no-action alternative) on above and below ground processes. A considerable amount of literature regarding the effects of fire on ecosystem processes to support such an analysis is available.

Broadaxe Fire-Fuels Specialist Report in the Environmental Consequences, *Fire Behavior Factors* on pages 4 and 5: The effects of increased insolation ("radiation") are already a factor in the described stands due to the lack of foliage in the now dead lodgepole pine overstory. Insolation will increase within the stands whether or not the salvage is conducted because nearly all of the dead lodgepole pine will fall down within the next 10 – 20 years, resulting in increased insolation of a more hazardous

fuel load than would exist if the salvage is conducted. Increased soil temperatures for a short time following salvage and prescribed burning are acceptable as they will likely facilitate establishment of natural and planted regeneration. Dead and down fuel moistures ("aridity levels of fuels") will decrease equally under each alternative relative to current or shaded fuel moistures due to the effects of insolation and wind exposure, as described on pages 4 and 5 of the Fire and Fuels Specialist Report.

The historic, present and post-treatment fuel loads are described throughout both the EA and the Fire and Fuels Specialist Report. The flammability of the fuels historically, presently, and post-treatment are also addressed in the EA and throughout the Fire and Fuels Specialist report through descriptions of historic fire history, current fuel loads, fire behavior factors and predicted fuel loads and fire severities. It is unnecessary to discuss the fuel loading or flammability of the adjacent landscapes as the proposed activities within the project area will have no effect on the flammability or fuel loading of adjacent landscapes or visa versa because fuels are not transient, they remain wherever they are created.

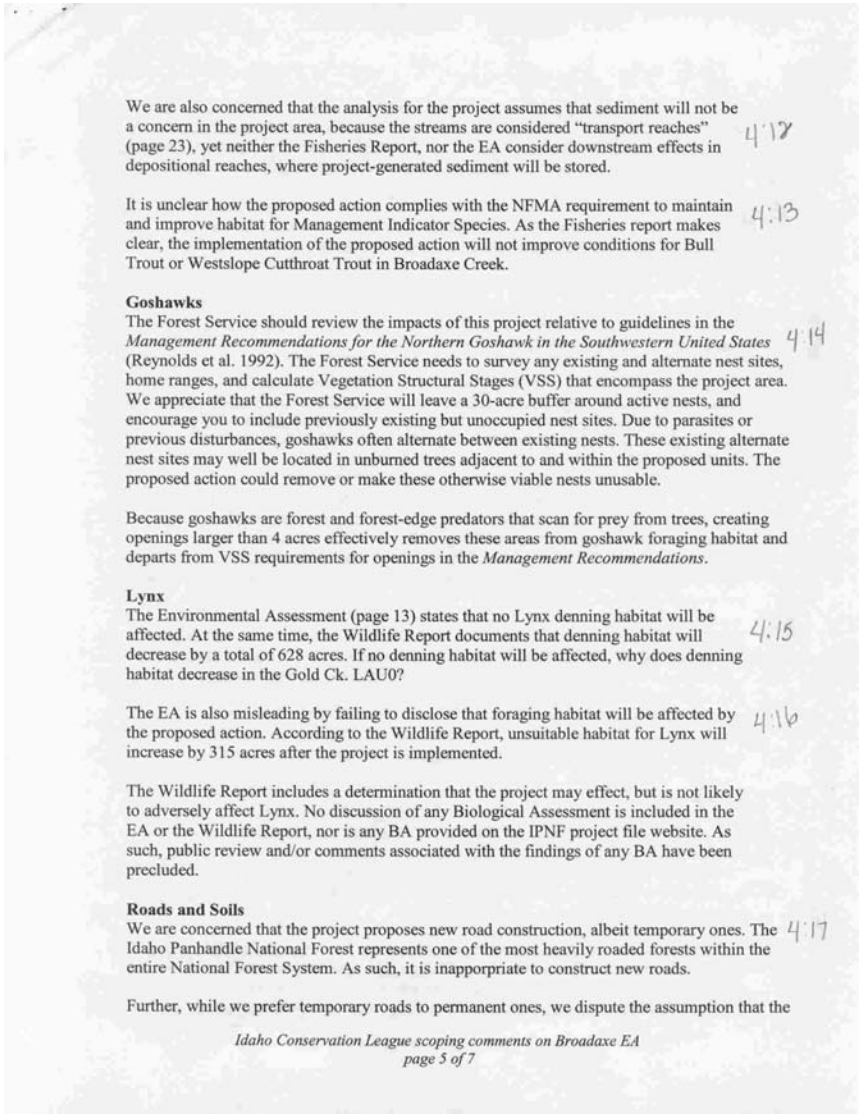
The overwhelming majority of the slash created will result from lodgepole that is already dead and as such will not contribute to an *Ips sp.* infestation because there is no longer a phloem layer for beetle larvae to feed in. Prescribed burning is proposed for the locations that will have the greatest slash loads, which will also mitigate potential *Ips* infestation. Slash resulting from salvage activities will cause less of a threat to residual trees than the predicted fuel loading from the no-action alternative in terms of fire risk (Fire and Fuels Report, pages 4-8).

4:10 – Watershed Report page16: …"even though onsite erosion rates may increase over the short term in 1% of the drainage, no detectable additional contribution of sediment to streams due to harvest-related ground disturbance is anticipated." The Watershed Report did not mention any previous landslides because there have been no recorded landslides. This is to be expected because the project area is well above the sensitive snow zone, where most management-related failures have occurred. Neither would it be instructional to attempt to document remotely-sensed natural landslides because those areas have already been delineated by the landtype mapping.

4:11 – An analysis of impacts from the Broadaxe Project was conducted for both the No-Action Alternative and the proposed action on MIS species, bull trout and westslope cutthroat trout, (Fisheries Report pages 19-24).

A biological assessment is written when a decision is made to implement a selected alternative, not before. There are two alternatives presented in the Broadaxe Project EA, the No-Action Alternative (page 4) and the Proposed Action Alternative (pages 4-5). The analysis conducted for a BA as compared to a NEPA document differs in the types of activities considered under cumulative effects, ie in NEPA future foreseeable Forest Service actions are included in the analysis whereas in a BA these activities are only included if a decision has been made and FWS concurrence has been received.

Letter #4 continued



We are also concerned that the analysis for the project assumes that sediment will not be a concern in the project area, because the streams are considered "transport reaches" (page 23), yet neither the Fisheries Report, nor the EA consider downstream effects in depositional reaches, where project-generated sediment will be stored. 4:12

It is unclear how the proposed action complies with the NFMA requirement to maintain and improve habitat for Management Indicator Species. As the Fisheries report makes clear, the implementation of the proposed action will not improve conditions for Bull Trout or Westslope Cutthroat Trout in Broadaxe Creek. 4:13

Goshawks
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. Due to parasites or previous disturbances, goshawks often alternate between existing nests. These existing alternate nest sites may well be located in unburned trees adjacent to and within the proposed units. The proposed action could remove or make these otherwise viable nests unusable. 4:14

Because goshawks are forest and forest-edge predators that scan for prey from trees, creating openings larger than 4 acres effectively removes these areas from goshawk foraging habitat and departs from VSS requirements for openings in the *Management Recommendations*.

Lynx
The Environmental Assessment (page 13) states that no Lynx denning habitat will be affected. At the same time, the Wildlife Report documents that denning habitat will decrease by a total of 628 acres. If no denning habitat will be affected, why does denning habitat decrease in the Gold Ck. LAU0? 4:15

The EA is also misleading by failing to disclose that foraging habitat will be affected by the proposed action. According to the Wildlife Report, unsuitable habitat for Lynx will increase by 315 acres after the project is implemented. 4:16

The Wildlife Report includes a determination that the project may effect, but is not likely to adversely affect Lynx. No discussion of any Biological Assessment is included in the EA or the Wildlife Report, nor is any BA provided on the IPNF project file website. As such, public review and/or comments associated with the findings of any BA have been precluded.

Roads and Soils
We are concerned that the project proposes new road construction, albeit temporary ones. The Idaho Panhandle National Forest represents one of the most heavily roaded forests within the entire National Forest System. As such, it is inapporpriate to construct new roads. 4:17

Further, while we prefer temporary roads to permanent ones, we dispute the assumption that the

Idaho Conservation League scoping comments on Broadaxe EA
page 5 of 7

Forest Service Response to Letter #4

4:12 – Watershed Report page19: "At the cumulative effects scale, a short-term, 1% increase in total sediment and a delay in water yield recovery in Gold Creek are highly unlikely to affect the channel. … Because cumulative in-stream effects would be negligible, no impacts to Gold Creek or the St. Joe River due to proposed activities are anticipated."

The impacts of sediment generated in the Broadaxe drainage, which is transported downstream is considered within the analysis of Gold Creek, "*Habitat Complexity:* The activity proposed in the Broadaxe drainage is not expected to create relevant changes to water yield or sediment in Gold Creek (Watershed Report). The lack of change would keep Gold Creek in its current condition of reduced habitat complexity" (Fisheries Report page 24).

4:13 – EA, page 22: "The proposed action would maintain habitat for bull trout … and westslope cutthroat trout." The purpose and need for this project was not to improve habitat for management indicator species (EA, page 2). However the proposed action does maintain habitat for management indicator species (Fisheries Report page 23-24).

4:14 –There are no known nests in the project area. The analysis area is not a suitable home range and there is no suitable nesting habitat present in the project or analysis area (Wildlife Report page 30)

4:15 – Table W5 in the Wildlife Report was incorrect. The corrected table is shown below. It replaces the incorrect table in the Wildlife Report and is included in the project file as document W-23.

Table W5 – Gold Creek LAU After Proposed Vegetation Treatments

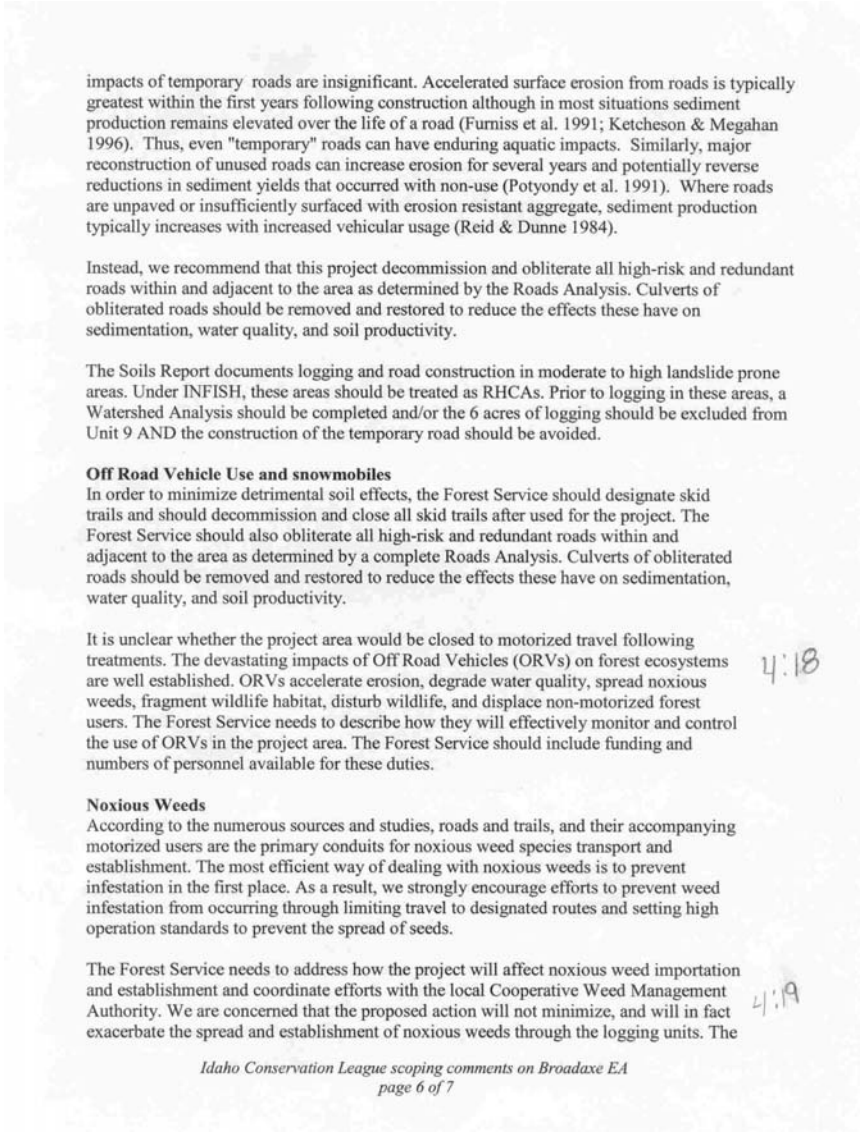
	Recommended	No Action– Ex Con		Proposed Action	
		acres	%	acres	%
Unsuitable	≤30%	2245	11.0	2560	12.5
Change last decade	<15%	197	1.0	512	2.5
Forage habitat		3393	16.6	3393	16.6
Late successional Forage		6766	33.1	6766	33.1
Potential Denning habitat	≥10%	4777	23.3	4777	23.3
Low quality forage		3284	16.0	2969	14.5

4:16 – It is only *low quality forage* that is made unsuitable not foraging habitat. Low quality forage is the equivalent of what used to be called “travel habitat”, and is not counted as early or late successional forage important for lynx. No Action and the proposed action were analyzed, and the BA is only done on the selected alternative, so that's why it's not on the website yet.

4:17 – Soils Report page 7: “Project activities are not expected to exacerbate the potential for mass erosion, therefore there should be no significant individual or cumulative effects on sensitive landtypes due to project activities.”

Only one acre in Unit 9 is highly sensitive (landslide-prone and likely to deliver sediment to a stream), and this area will be salvaged using skyline methods (SW4). In addition, a watershed analysis was completed. The potential effects were analyzed and disclosed as indicated in the Watershed sections quoted above.

Letter #4 continued



impacts of temporary roads are insignificant. Accelerated surface erosion from roads is typically greatest within the first years following construction although in most situations sediment production remains elevated over the life of a road (Furniss et al. 1991; Ketcheson & Megahan 1996). Thus, even "temporary" roads can have enduring aquatic impacts. Similarly, major reconstruction of unused roads can increase erosion for several years and potentially reverse reductions in sediment yields that occurred with non-use (Potyondy et al. 1991). Where roads are unpaved or insufficiently surfaced with erosion resistant aggregate, sediment production typically increases with increased vehicular usage (Reid & Dunne 1984).

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.

The Soils Report documents logging and road construction in moderate to high landslide prone areas. Under INFISH, these areas should be treated as RHCAs. Prior to logging in these areas, a Watershed Analysis should be completed and/or the 6 acres of logging should be excluded from Unit 9 AND the construction of the temporary road should be avoided.

Off Road Vehicle Use and snowmobiles
In order to minimize detrimental soil effects, the Forest Service should designate skid trails and should decommission and close all skid trails after used for the project. The Forest Service should also obliterate all high-risk and redundant roads within and adjacent to the area as determined by a complete Roads Analysis. Culverts of obliterated roads should be removed and restored to reduce the effects these have on sedimentation, water quality, and soil productivity.

It is unclear whether the project area would be closed to motorized travel following treatments. The devastating impacts of Off Road Vehicles (ORVs) on forest ecosystems are well established. ORVs accelerate erosion, degrade water quality, spread noxious weeds, fragment wildlife habitat, disturb wildlife, and displace non-motorized forest users. The 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. 4:18

Noxious Weeds
According to the numerous sources and studies, roads and trails, and their accompanying motorized users are the primary conduits for noxious weed species transport and establishment. The most efficient way of dealing with noxious weeds is to prevent infestation in the first place. As a result, we strongly encourage efforts to prevent weed infestation from occurring through limiting travel to designated routes and setting high operation standards to prevent the spread of seeds.

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 4:19

Idaho Conservation League scoping comments on Broadaxe EA
page 6 of 7

Forest Service Response to Letter #4

4:18 – The proposed action does not include any changes to access in the area. At the completion of proposed activities the access available in the area would be the same as the existing access (EA, pages 9, 17, 26-28).

4:19 – The Forest Service recognizes that ground disturbance and travel corridors can lead to noxious weed establishment. Design Features 11 and 13 in the Broadaxe EA provide measures to minimize this possibility. The washing of all vehicle undercarriages traveling through the project area is not possible. The designation of travel routes is beyond the scope of this document.

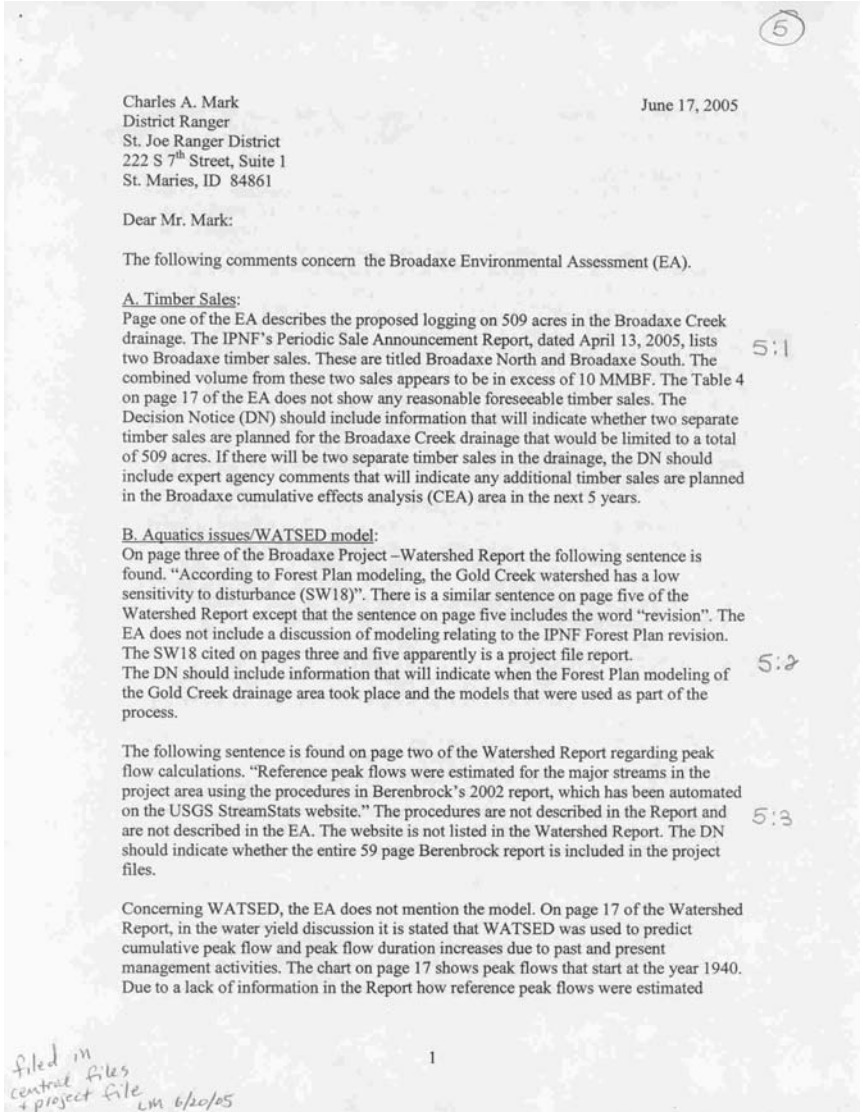
The project area is generally weed free and as such would be a priority for weed treatment should new infestations be found. The Forest Service is an active participant within the regional cooperative weed management area, and collaboration between members is ongoing.

Weed treatment and monitoring will be done in accordance with the St. Joe District Noxious Weed EIS. The adequacy of funding for complete monitoring and treatment of weeds across the district is not under the control of this district.

Letter #4 continued

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.

Letter #5



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Charles A. Mark
District Ranger
St. Joe Ranger District
222 S 7th Street, Suite 1
St. Maries, ID 84861

June 17, 2005

Dear Mr. Mark:

The following comments concern the Broadaxe Environmental Assessment (EA).

A. Timber Sales:
Page one of the EA describes the proposed logging on 509 acres in the Broadaxe Creek drainage. The IPNF's Periodic Sale Announcement Report, dated April 13, 2005, lists two Broadaxe timber sales. These are titled Broadaxe North and Broadaxe South. The combined volume from these two sales appears to be in excess of 10 MMBF. The Table 4 on page 17 of the EA does not show any reasonable foreseeable timber sales. The Decision Notice (DN) should include information that will indicate whether two separate timber sales are planned for the Broadaxe Creek drainage that would be limited to a total of 509 acres. If there will be two separate timber sales in the drainage, the DN should include expert agency comments that will indicate any additional timber sales are planned in the Broadaxe cumulative effects analysis (CEA) area in the next 5 years. 5:1

B. Aquatics issues/WATSED model:
On page three of the Broadaxe Project –Watershed Report the following sentence is found. "According to Forest Plan modeling, the Gold Creek watershed has a low sensitivity to disturbance (SW18)". There is a similar sentence on page five of the Watershed Report except that the sentence on page five includes the word "revision". The EA does not include a discussion of modeling relating to the IPNF Forest Plan revision. The SW18 cited on pages three and five apparently is a project file report. 5:2
The DN should include information that will indicate when the Forest Plan modeling of the Gold Creek drainage area took place and the models that were used as part of the process.

The following sentence is found on page two of the Watershed Report regarding peak flow calculations. "Reference peak flows were estimated for the major streams in the project area using the procedures in Berenbrock's 2002 report, which has been automated on the USGS StreamStats website." The procedures are not described in the Report and are not described in the EA. The website is not listed in the Watershed Report. The DN should indicate whether the entire 59 page Berenbrock report is included in the project files. 5:3

Concerning WATSED, the EA does not mention the model. On page 17 of the Watershed Report, in the water yield discussion it is stated that WATSED was used to predict cumulative peak flow and peak flow duration increases due to past and present management activities. The chart on page 17 shows peak flows that start at the year 1940. Due to a lack of information in the Report how reference peak flows were estimated

1

filed in central files + project file LM 6/20/05

Forest Service Response to Letter #5

5:1 – The two timber sales listed on the IPNF's Periodic Sale Announcement Report would be the sales covered in the Broadaxe EA. No other timber harvests are currently being considered for the area, so no other timber sales are reasonably foreseeable for any of the cumulative effects areas discussed in the Broadaxe EA.

5:2 – Project file document SW-18 discloses that the watershed condition modeling was completed in 2004 for the Forest Plan Revision effort. It also includes the model methodology.

5:3 –
The website is: http://streamstats.usgs.gov/html/idaho.html. The entire 59-page report is in the project file.

Letter #5 continued

using the Berenbrock procedure, it is not clear why reference peak flows were estimated by the Berenbrock procedure instead of using the WATSED model. 5:4

B1.WATSED and ECA:
On pages 17 and 18 of the EA the watershed resources discussion mentions cumulative ECA and management-induced ECA. On page nine of the Watershed Report ECA is described as follows. "Equivalent clearcut area (ECA) is a measure of the total amount of forest canopy reduction in a watershed due to management activities such as harvesting and road building." On page 17 of the Report the following statement is also made. "Cumulative ECA is a conservative over-estimate of canopy openings, because partial canopy removals are included." On page 8 of the Report it is indicated the ECA in the Broadaxe drainage, as calculated by WATSED, is approximately 8%. For the Gold Creek drainage, the ECA is approximately 11% as calculated by WATSED. Table 6 on page 14 of the Report contains similar figures. The Management History Report contains information regarding acres of past logging in a number of drainages including Gold Creek. The data shows that approximately 1,842 acres in the Gold Creek drainage were clearcut between the years 1966 and 1993. Several of the clearcuts were larger than 300 acres, including a clearcut 373 acres in size. There was also a significant amount of additional regeneration logging in this drainage after 1966. One shelterwood/seed tree cut unit was 391 acres in size.
Given the large amount of regeneration logging that has taken place in the drainage, along with other types of logging, there should be high quality information with expert agency comments in the DN that would describe the methods used to calculate the percent of hydrologic recovery of the large clearcuts as it relates to the stated figure of 11% for existing ECA in the drainage. If the 11% figure is represented as being accurate when all logging and road building in the drainage are fully accounted for with WATSED, the supporting data should be included in the project file. 5:5

The following discussions and information concern WATSED and also the ECA procedure. Previous IPNF Environmental Assessments and EISs have described the shortcoming of the model, including the Fernan Ranger District's 1992 Barney Rubble's Cabin EA, page 29.

> *The program estimates fine sediment delivery using several variables including bedrock geology, slope percent, and slope position (ridge, streamside, etc.). It is very important to recognize that these figures do not include the delivery of coarse (larger than sand size) material to the stream and thus greatly under estimate the actual volume of material delivered to the channel. This is likely to be especially important in watersheds such as Burnt Cabin where road densities are high (especially unmaintained non-system roads) and culvert failures are an important component of the total sediment delivery.*

The 1994 Wallace Ranger District Prichard Creek FEIS also discussed the inability of the model to account for coarse material, page III-27.

> *It is important to recognize that, except for mass failure hazards, model values do not include the delivery of coarse (larger than sand size) material to the stream and thus greatly under estimate the volume of material that may actually delivered to the channel.*

2

Forest Service Response to Letter #5

5:4 – The USGS method predicts instantaneous peak flows. WATSED does not.

5:5 – WATSED includes recovery curves and factors as disclosed in the WATBAL Users Guide (Literature Cited). The WATSED estimate of ECA is probably an over-estimate because it assumes no recovery on unused roads.

The road density in Broadaxe is <3 mi/mi.^{2}. No roads encroach on channels except at the few crossings (most of which are above the sensitive snow zone); therefore coarse sediment delivery to streams is highly unlikely.

The ECA procedure for predicting streamflow response was not used in this analysis. ECA was used as a relative indicator of watershed condition and a means to compare alternatives (Watershed Report, pages 9-10), not as an absolute value or standard for evaluating effects on water quality or quantity.

Letter #5 continued

Concerning the model and ECA, the WATSED manual, PC/96, discloses how the ECA procedure is used as part of the WATSED process and water yields, page 7.

> *Disturbed areas are calculated in the form of "Equivalent Clearcut Acres" (ECA). The ECA value is dependent on the percent of tree crown removal for logging, site preparation and fire.4 This value is used in determining the water yield increase. The ECA value changes over time due to the recovery rates being applied.* [4 Forest Hydrology, Hydrologic Effects of Vegetation Manipulation, Part II, Haupt, N.F. et. al, 1976, figure 10. p.59]

The following critique of the ECA model is taken from the USDA Forest Service Pacific Southwest Research Station General Technical Report "Research and Cumulative Watershed Effects". [Leslie M. Reid, 1993, PSW-GTR-141] On page 28 of the GTR there is an examination of the ECA procedure.

> *Application of the model first requires calibration for an area. The extent to which each management activity increases water yield is determined as a function of vegetation type, elevation, and age of the activity. Although these relationships could be defined for many land uses, only those related to timber management are usually included. Values for each land type and use category are then compared to values for a clearcut to calculate the area of clearcut that would produce the same change, and this is used to calculate the equivalent clearcut area (ECA) coefficients for the category. The amount of monitoring data required for full calibration of model coefficients is usually prohibitive, so professional judgment is often used to define ECA coefficients.*

The discussion on page 28 also contains the following paragraphs.

> *Because ECAs are calculated for a particular time, they do not account for past impacts that might interact with conditions at the evaluation time. Thus, the persistent effects old landslides are not accounted for in an ECA analysis. Potential impact is assumed to be proportional to a year's transgression, and the recovery period for the impacted resources is implicitly assumed to be the same as that for water yield on a clearcut. This means that the model does not apply to morphological changes that are cumulative through time.*
>
> *A model can be applied to new sites only if its assumptions are valid there. The ECA model assumes that (1) channel disruption is caused by increased peak flows, (2) increased peak flows are proportional to increased water yield, and (3) increased water yield is proportional to area logged. If these are valid for a particular area, then the model may be appropriate, but assumptions must be tested carefully if the model is to be applied with confidence. Several studies have compared water-yield increases predicted by ECA with measured changes. King (1989) showed a 44 percent underestimate by ECA in basins smaller than those the model was designed for, and Belt (1980; quoted in King 1989) found a 38 percent underestimate in appropriately sized basins.*
>
> *The theoretical foundation for the ECA method is weak. Logging is known to increase water yield by reducing transpiration, but this increase occurs primarily during the drier seasons and rarely affects the highest peak flows. However, peak flows may be significantly increased by logging in areas subject to rain-on-snow events, because snow accumulates more and melts faster in cleared areas. This is likely to have a more significant effect on channel-modifying peaks than altered transpiration. An index of clearcut area may fortuitously address both mechanisms of change, but numerical predictions are likely to be unfounded because the underlying processes are different.*

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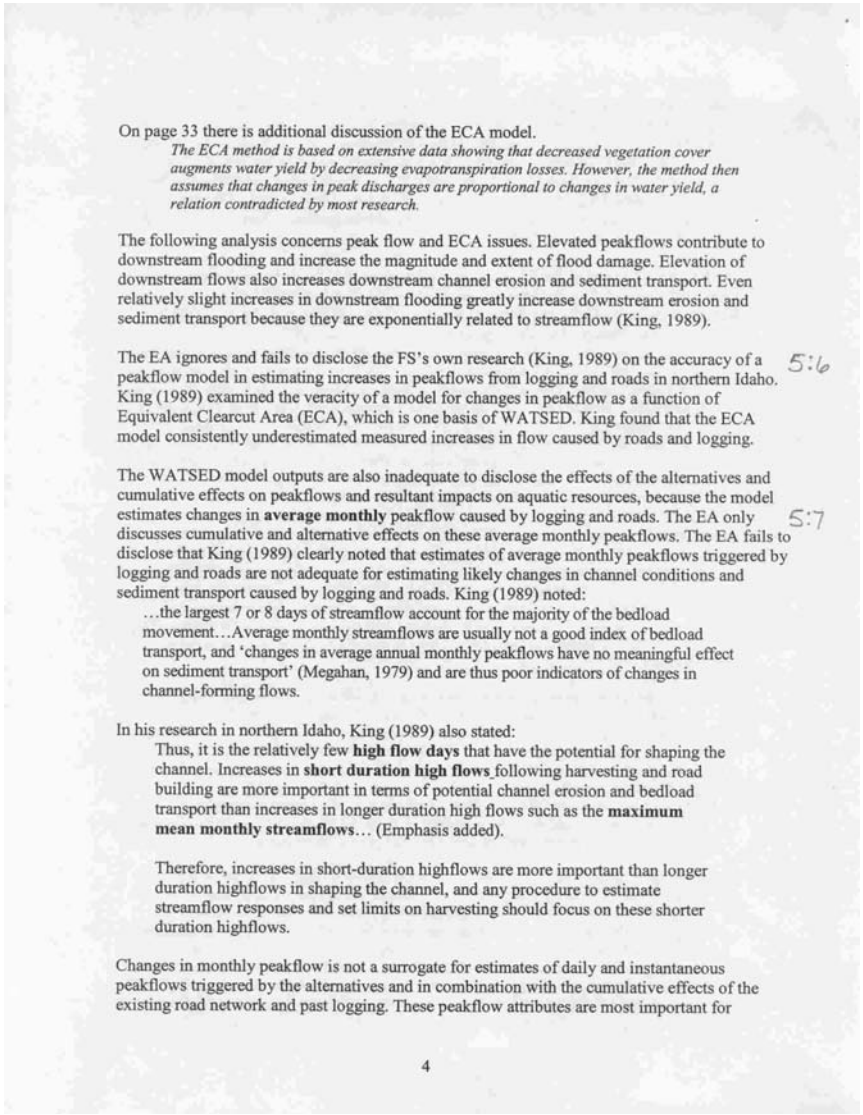
Forest Service Response to Letter #5

Letter #5 continued



On page 33 there is additional discussion of the ECA model.

> *The ECA method is based on extensive data showing that decreased vegetation cover augments water yield by decreasing evapotranspiration losses. However, the method then assumes that changes in peak discharges are proportional to changes in water yield, a relation contradicted by most research.*

The following analysis concerns peak flow and ECA issues. Elevated peakflows contribute to downstream flooding and increase the magnitude and extent of flood damage. Elevation of downstream flows also increases downstream channel erosion and sediment transport. Even relatively slight increases in downstream flooding greatly increase downstream erosion and sediment transport because they are exponentially related to streamflow (King, 1989).

The EA ignores and fails to disclose the FS's own research (King, 1989) on the accuracy of a peakflow model in estimating increases in peakflows from logging and roads in northern Idaho. King (1989) examined the veracity of a model for changes in peakflow as a function of Equivalent Clearcut Area (ECA), which is one basis of WATSED. King found that the ECA model consistently underestimated measured increases in flow caused by roads and logging. 5:6

The WATSED model outputs are also inadequate to disclose the effects of the alternatives and cumulative effects on peakflows and resultant impacts on aquatic resources, because the model estimates changes in **average monthly** peakflow caused by logging and roads. The EA only discusses cumulative and alternative effects on these average monthly peakflows. The EA fails to disclose that King (1989) clearly noted that estimates of average monthly peakflows triggered by logging and roads are not adequate for estimating likely changes in channel conditions and sediment transport caused by logging and roads. King (1989) noted: 5:7

> …the largest 7 or 8 days of streamflow account for the majority of the bedload movement…Average monthly streamflows are usually not a good index of bedload transport, and 'changes in average annual monthly peakflows have no meaningful effect on sediment transport' (Megahan, 1979) and are thus poor indicators of changes in channel-forming flows.

In his research in northern Idaho, King (1989) also stated:

> Thus, it is the relatively few **high flow days** that have the potential for shaping the channel. Increases in **short duration high flows** following harvesting and road building are more important in terms of potential channel erosion and bedload transport than increases in longer duration high flows such as the **maximum mean monthly streamflows**… (Emphasis added).
>
> Therefore, increases in short-duration highflows are more important than longer duration highflows in shaping the channel, and any procedure to estimate streamflow responses and set limits on harvesting should focus on these shorter duration highflows.

Changes in monthly peakflow is not a surrogate for estimates of daily and instantaneous peakflows triggered by the alternatives and in combination with the cumulative effects of the existing road network and past logging. These peakflow attributes are most important for

4

Forest Service Response to Letter #5

5:6 – The WATSED model incorporates several other variables in addition to ECA. The Watershed Report (page 18) discloses that the project will result in changes in peak flows similar to what would occur with no action.

5:7 – The Watershed Report (pages 18-19) discloses that the project is unlikely to change the stream channels any more than the no-action alternative. Therefore, even if a quantitative estimate of instantaneous peak flow effects could be calculated, it would not be instructional.

Letter #5 continued

determining the likely effects on channels and sediment transport triggered by logging and roads (King, 1989). Average peakflows are not of greatest concern. Sediment transport and channel change are greatly affected during extreme events.

WATSED and ECA estimates of peakflow changes do not address changes in daily and instantaneous peakflows from rain-on-snow and other storm events exacerbated by logging and roads. The watershed analysis ignores the occurrence of high peak flows due to such events. Such events have occurred within the project area. Rain-on-snow events during the winter and spring months have been found to be the dominant mechanism causing peak flows in the area (MacDonald and Hoffman, 1995). 5:8

The EA fails to disclose that small headwater channels are especially vulnerable to increased erosion and sediment transport to downstream habitats caused by increased peakflows (King, 1989). Increased peakflows lead to head cutting channel erosion, expansion of cross-sectional channel area, channel widening, and elevated bank erosion. Increases in peakflow, alone, can increase erosion in smaller streams contributing to downstream sedimentation in pools and low gradient stream reaches. King (1989) warned that the increased peakflow documented in watersheds in northern Idaho could increase downstream sedimentation since sediment transport was highly correlated to peak streamflow magnitude. Although channel adjustment processes are complicated, it is indisputable that increases in peakflow will result in enlarged channel area via increased channel erosion (Schumm, 1969; Richards, 1982). The EA fails to adequately disclose that these impacts can be extremely significant, even if they are "immeasurable." 5:9 5:10

B2. Water yields/WATSED/dynamic equilibrium:
The St. Joe GA at page 14 included the following statement. "Several of the area's streams are no longer in "dynamic equilibrium" (defined on page 22); erosion rates are well beyond the stream's capacity to respond to slope processes and watershed disturbances."
The following statements are found on page 29 of the GA. "Main channel habitat conditions from Gold Creek down stream, have been and continue to be a major concern due to bedload input from tributaries" and "Tributary conditions are critical not only to spawning and early life histories of the native trout but excessive bedload from the tributaries contribute to the risk of habitat modification in over—wintering habitat far downstream."
Despite the dynamic equilibrium problems and bedload problems that are cited in the GA for watersheds including Gold Creek, the water yield discussion on pages 17 and 18 of the Watershed Report do not indicate there will be any lessening of the dynamic equilibrium problems and bedload problems in the Gold Creek watershed. On page 19 of the Watershed Report it is pointed out "The lower 1.6 mile reach of Gold Creek is already impacted by gravel aggradation and is inherently more sensitive to disturbance."

It is not clear how an increase in water yields and peak flows in this watershed over a number of years as a result of the proposed logging activities would not cause additional dynamic equilibrium problems and additional bedload problems in the already degraded watershed. It appears the WATSED model is not capable of analyzing dynamic equilibrium issues or bedload movement. 5:11

5

Forest Service Response to Letter #5

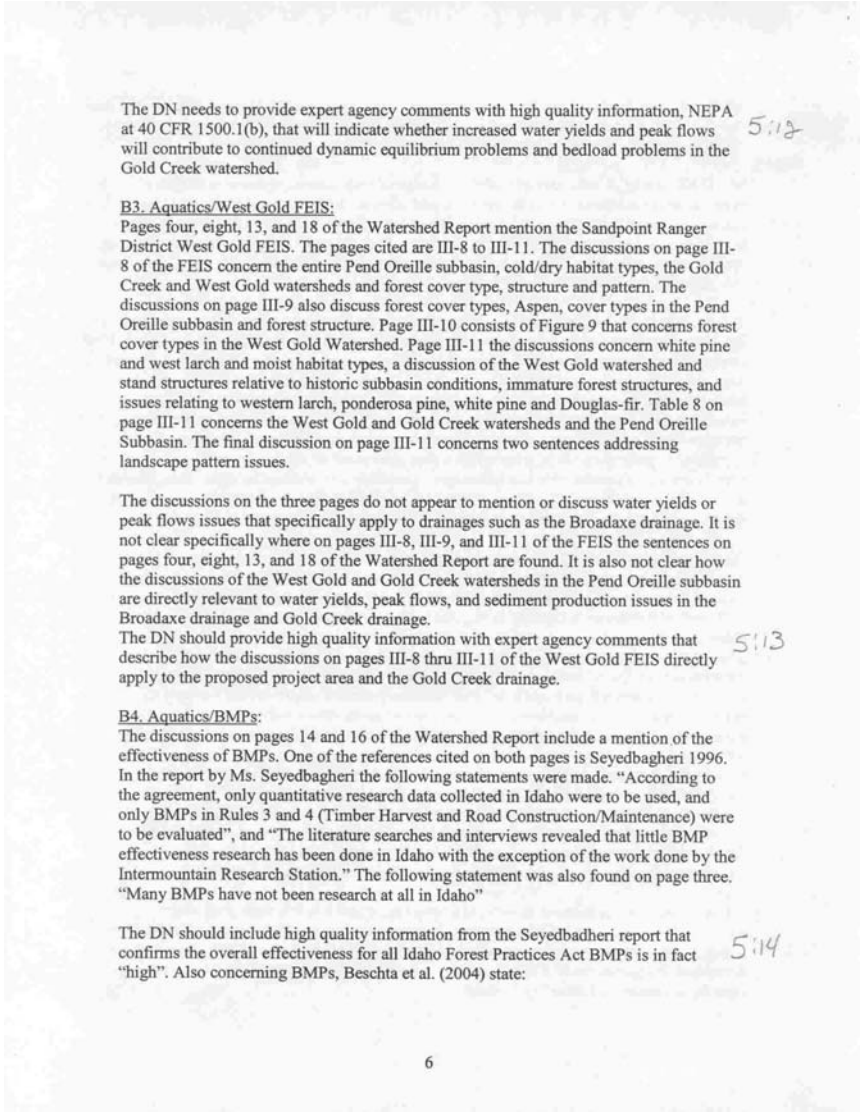
5:8 – See previous responses, rain-on-snow was addressed in the Watershed Report (pages 3, 5, 7, 8, 9,18).

5:9 – See response to comments 5:6 & 5:7

5:10 – See response to comments 5:6 & 5:7. The Watershed Report (page 18) discloses that the effects of the proposed action would be similar to those of no action.

5:11 – There are no standards for dynamic equilibrium or bedload movement. Nor is it claimed that WATSED can evaluate these. Watershed Report page 3: "Like any model, it simplifies extremely complex physical systems to generate specific quantitative values. These values cannot be assumed to represent actual in-stream sediment or flow levels. Therefore, model results are realistically limited to providing a means of comparison, not an absolute measure against verifiable standards (SW20)." See also Watershed Report pages 14, 16 and 18-19.

Letter #5 continued



The DN needs to provide expert agency comments with high quality information, NEPA at 40 CFR 1500.1(b), that will indicate whether increased water yields and peak flows will contribute to continued dynamic equilibrium problems and bedload problems in the Gold Creek watershed. 5:12

B3. Aquatics/West Gold FEIS:
Pages four, eight, 13, and 18 of the Watershed Report mention the Sandpoint Ranger District West Gold FEIS. The pages cited are III-8 to III-11. The discussions on page III-8 of the FEIS concern the entire Pend Oreille subbasin, cold/dry habitat types, the Gold Creek and West Gold watersheds and forest cover type, structure and pattern. The discussions on page III-9 also discuss forest cover types, Aspen, cover types in the Pend Oreille subbasin and forest structure. Page III-10 consists of Figure 9 that concerns forest cover types in the West Gold Watershed. Page III-11 the discussions concern white pine and west larch and moist habitat types, a discussion of the West Gold watershed and stand structures relative to historic subbasin conditions, immature forest structures, and issues relating to western larch, ponderosa pine, white pine and Douglas-fir. Table 8 on page III-11 concerns the West Gold and Gold Creek watersheds and the Pend Oreille Subbasin. The final discussion on page III-11 concerns two sentences addressing landscape pattern issues.

The discussions on the three pages do not appear to mention or discuss water yields or peak flows issues that specifically apply to drainages such as the Broadaxe drainage. It is not clear specifically where on pages III-8, III-9, and III-11 of the FEIS the sentences on pages four, eight, 13, and 18 of the Watershed Report are found. It is also not clear how the discussions of the West Gold and Gold Creek watersheds in the Pend Oreille subbasin are directly relevant to water yields, peak flows, and sediment production issues in the Broadaxe drainage and Gold Creek drainage.
The DN should provide high quality information with expert agency comments that describe how the discussions on pages III-8 thru III-11 of the West Gold FEIS directly apply to the proposed project area and the Gold Creek drainage. 5:13

B4. Aquatics/BMPs:
The discussions on pages 14 and 16 of the Watershed Report include a mention of the effectiveness of BMPs. One of the references cited on both pages is Seyedbagheri 1996. In the report by Ms. Seyedbagheri the following statements were made. "According to the agreement, only quantitative research data collected in Idaho were to be used, and only BMPs in Rules 3 and 4 (Timber Harvest and Road Construction/Maintenance) were to be evaluated", and "The literature searches and interviews revealed that little BMP effectiveness research has been done in Idaho with the exception of the work done by the Intermountain Research Station." The following statement was also found on page three. "Many BMPs have not been research at all in Idaho"

The DN should include high quality information from the Seyedbadheri report that confirms the overall effectiveness for all Idaho Forest Practices Act BMPs is in fact "high". Also concerning BMPs, Beschta et al. (2004) state: 5:14

6

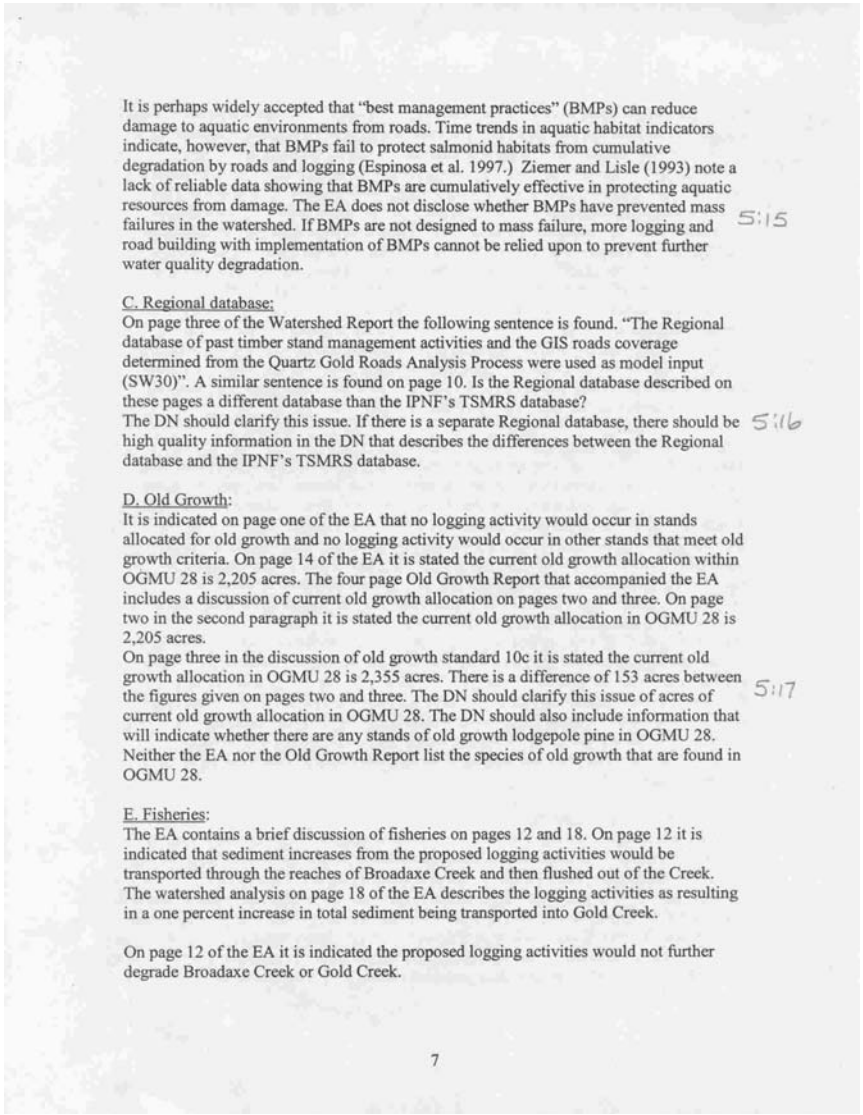
Forest Service Response to Letter #5

5:12 – Watershed Report page 19: "At the cumulative effects scale, a short-term, 1% increase in total sediment and a delay in water yield recovery in Gold Creek are highly unlikely to affect the channel. … Because cumulative in-stream effects would be negligible, no impacts to Gold Creek or the St. Joe River due to proposed activities are anticipated."

5:13 – The reference to the West Gold FEIS pages simply refers to the general observation that severe wildfires, which have occurred in both the Gold Creek sub-basin of Lake Pend Oreille and in the Gold Creek sub-basin of the St. Joe River, likely resulted in water yields and peak flows substantially greater than those predicted for the proposed management. Therefore, the proposed action would be well within the HRV. The reference also includes Forest and Regional BMP monitoring reports and FSH 2509.11. These BMPs are accepted by the State of Idaho to be compliant with CWA requirements (FPA), and FS SWCPs (FSH 2509.11) are actually more rigorous than required by FPA.

5:14 – See response to 5:13. The Seyedbagheri report is incorporated by reference in the Watershed Report (Literature Cited).

Letter #5 continued



It is perhaps widely accepted that "best management practices" (BMPs) can reduce damage to aquatic environments from roads. Time trends in aquatic habitat indicators indicate, however, that BMPs fail to protect salmonid habitats from cumulative degradation by roads and logging (Espinosa et al. 1997.) Ziemer and Lisle (1993) note a lack of reliable data showing that BMPs are cumulatively effective in protecting aquatic resources from damage. The EA does not disclose whether BMPs have prevented mass failures in the watershed. If BMPs are not designed to mass failure, more logging and road building with implementation of BMPs cannot be relied upon to prevent further water quality degradation. 5:15

C. Regional database:
On page three of the Watershed Report the following sentence is found. "The Regional database of past timber stand management activities and the GIS roads coverage determined from the Quartz Gold Roads Analysis Process were used as model input (SW30)". A similar sentence is found on page 10. Is the Regional database described on these pages a different database than the IPNF's TSMRS database?
The DN should clarify this issue. If there is a separate Regional database, there should be high quality information in the DN that describes the differences between the Regional database and the IPNF's TSMRS database. 5:16

D. Old Growth:
It is indicated on page one of the EA that no logging activity would occur in stands allocated for old growth and no logging activity would occur in other stands that meet old growth criteria. On page 14 of the EA it is stated the current old growth allocation within OGMU 28 is 2,205 acres. The four page Old Growth Report that accompanied the EA includes a discussion of current old growth allocation on pages two and three. On page two in the second paragraph it is stated the current old growth allocation in OGMU 28 is 2,205 acres.
On page three in the discussion of old growth standard 10c it is stated the current old growth allocation in OGMU 28 is 2,355 acres. There is a difference of 153 acres between the figures given on pages two and three. The DN should clarify this issue of acres of current old growth allocation in OGMU 28. The DN should also include information that will indicate whether there are any stands of old growth lodgepole pine in OGMU 28. Neither the EA nor the Old Growth Report list the species of old growth that are found in OGMU 28. 5:17

E. Fisheries:
The EA contains a brief discussion of fisheries on pages 12 and 18. On page 12 it is indicated that sediment increases from the proposed logging activities would be transported through the reaches of Broadaxe Creek and then flushed out of the Creek. The watershed analysis on page 18 of the EA describes the logging activities as resulting in a one percent increase in total sediment being transported into Gold Creek.

On page 12 of the EA it is indicated the proposed logging activities would not further degrade Broadaxe Creek or Gold Creek.

7

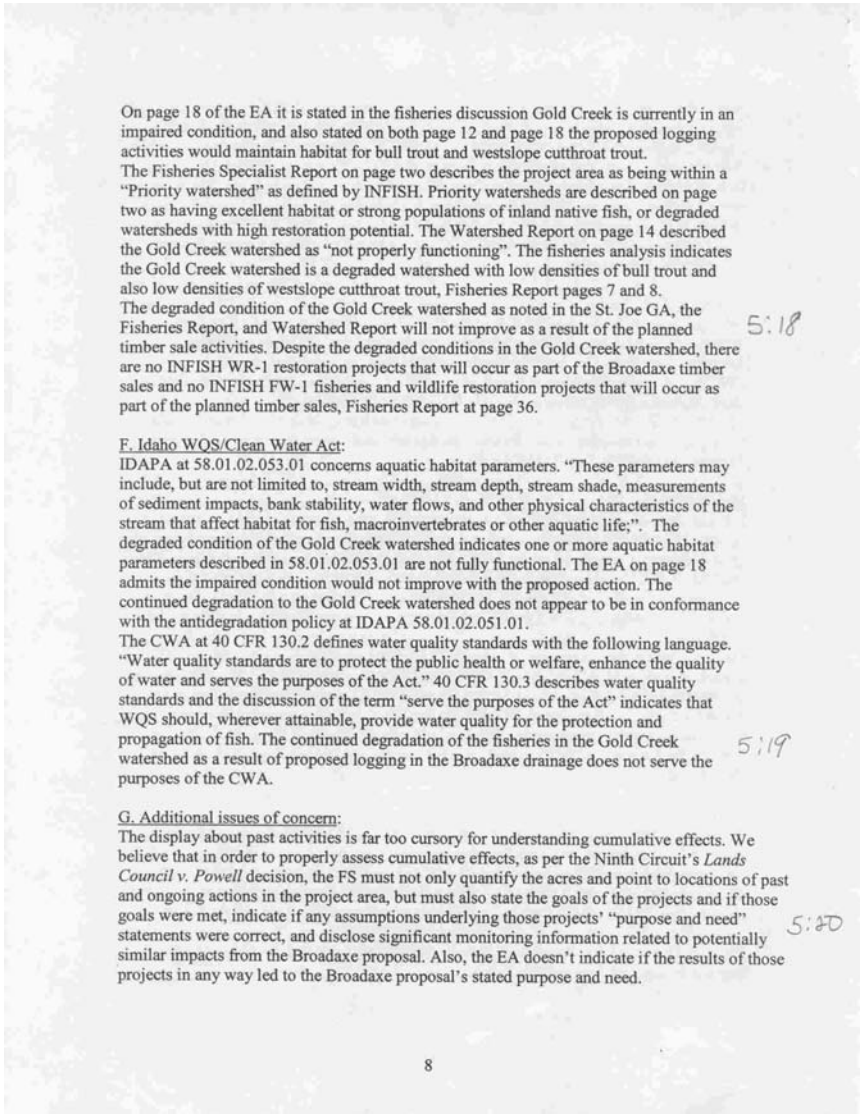
Forest Service Response to Letter #5

5:15 – The Watershed Report does not discuss mass failures because management has not caused any in the project area. The Soils Report (page 7) does disclose that no ground-disturbing activities will occur on highly sensitive landtypes.

5:16 – TSMRS is the Regional database.

5:17 –The figure "2,195" displayed in the revised EA is the correct number. Those errors have been fixed in the updated version of the Old Growth Report. Thank you for pointing it out. The Old Growth Type, as determined by the habitat type and cover type as defined in Old-Growth Forest Types of the Northern Region (Green et all, 1992, errata corrected 02/05) is listed in the project file (OG-5). OGMU 28 includes old growth stands that are lodgepole old growth type (Old Growth Type code 2, project file OG-5).

Letter #5 continued



On page 18 of the EA it is stated in the fisheries discussion Gold Creek is currently in an impaired condition, and also stated on both page 12 and page 18 the proposed logging activities would maintain habitat for bull trout and westslope cutthroat trout.
The Fisheries Specialist Report on page two describes the project area as being within a "Priority watershed" as defined by INFISH. Priority watersheds are described on page two as having excellent habitat or strong populations of inland native fish, or degraded watersheds with high restoration potential. The Watershed Report on page 14 described the Gold Creek watershed as "not properly functioning". The fisheries analysis indicates the Gold Creek watershed is a degraded watershed with low densities of bull trout and also low densities of westslope cutthroat trout, Fisheries Report pages 7 and 8.
The degraded condition of the Gold Creek watershed as noted in the St. Joe GA, the Fisheries Report, and Watershed Report will not improve as a result of the planned timber sale activities. Despite the degraded conditions in the Gold Creek watershed, there are no INFISH WR-1 restoration projects that will occur as part of the Broadaxe timber sales and no INFISH FW-1 fisheries and wildlife restoration projects that will occur as part of the planned timber sales, Fisheries Report at page 36. 5:18

F. Idaho WQS/Clean Water Act:
IDAPA at 58.01.02.053.01 concerns aquatic habitat parameters. "These parameters may include, but are not limited to, stream width, stream depth, stream shade, measurements of sediment impacts, bank stability, water flows, and other physical characteristics of the stream that affect habitat for fish, macroinvertebrates or other aquatic life;". The degraded condition of the Gold Creek watershed indicates one or more aquatic habitat parameters described in 58.01.02.053.01 are not fully functional. The EA on page 18 admits the impaired condition would not improve with the proposed action. The continued degradation to the Gold Creek watershed does not appear to be in conformance with the antidegradation policy at IDAPA 58.01.02.051.01.
The CWA at 40 CFR 130.2 defines water quality standards with the following language. "Water quality standards are to protect the public health or welfare, enhance the quality of water and serves the purposes of the Act." 40 CFR 130.3 describes water quality standards and the discussion of the term "serve the purposes of the Act" indicates that WQS should, wherever attainable, provide water quality for the protection and propagation of fish. The continued degradation of the fisheries in the Gold Creek watershed as a result of proposed logging in the Broadaxe drainage does not serve the purposes of the CWA. 5:19

G. Additional issues of concern:
The display about past 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 in the project area, but 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 Broadaxe proposal. Also, the EA doesn't indicate if the results of those projects in any way led to the Broadaxe proposal's stated purpose and need. 5:20

8

Forest Service Response to Letter #5

5:18 – The purpose and need for this project did not include fisheries or wildlife restoration projects; it included the items identified on page 2 of the Broadaxe EA.

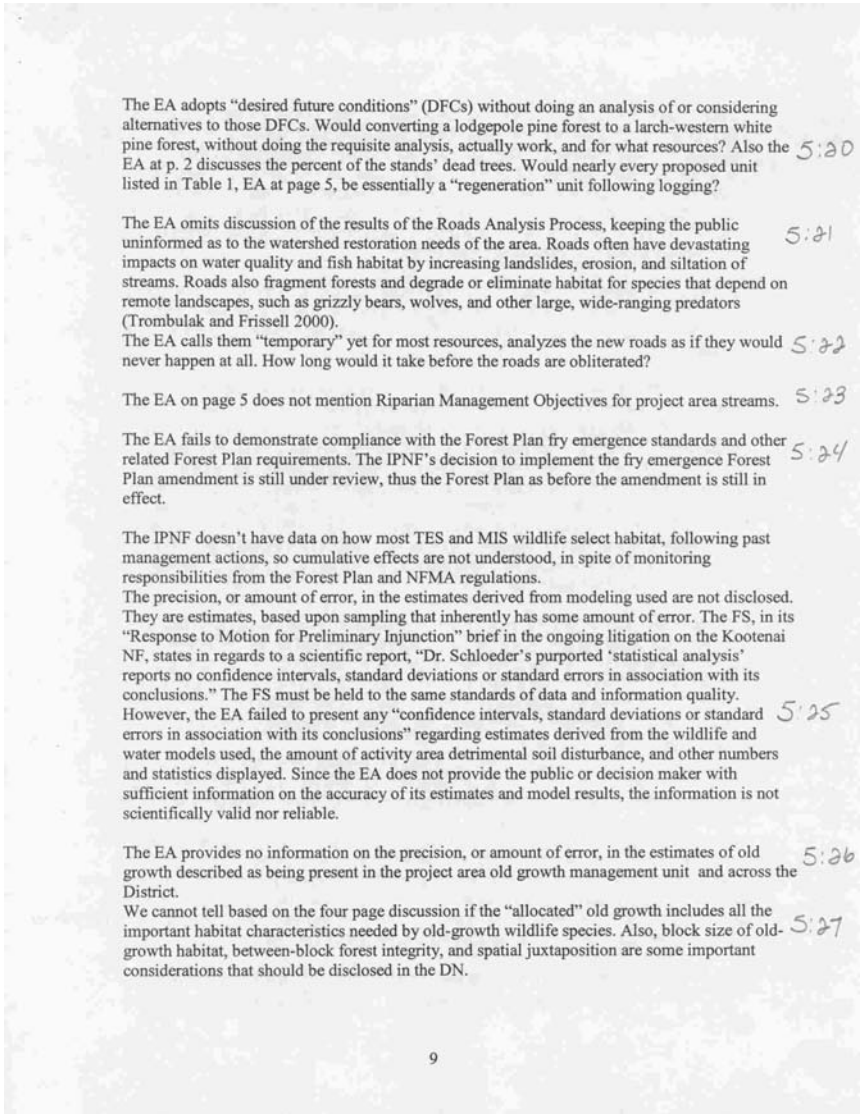
No fisheries or wildlife projects were included in this project as mitigation measures. The project is not anticipated to cause a change to the current conditions of the aquatic environment, therefore there is no need to rectify, reduce eliminate or compensate for impacts. The Fisheries Specialist Report page 23 identifies that the Broadaxe project will not change the current condition of Broadaxe Creek, "*Habitat Complexity:* This would improve slowly over time as the conifers within the riparian zone grow and fall into the stream thus creating new pool habitat and greater complexity. There is the potential for slight sediment and water yield increases but the increases are not considered large enough to cause channel changes or changes to pool volume (Watershed Report, page 18). The slight sediment increase would not cause a shift towards a uniform substrate composition or create negative impacts to fry emergence, because the reaches in Broadaxe Creek are transport reaches and the slight amount of additional sediment would be flushed through the system." Neither will the project impact Gold Creek, "*Habitat Complexity:* The activity proposed in the Broadaxe Drainage is not expected to create relevant changes to water yield or sediment in Gold Creek (Watershed Report). The lack of change would keep Gold Creek in its current condition of reduced habitat complexity" (Fisheries Report page 24).

Because the project will not change the current status of water quality and beneficial uses (Watershed Report pages 14-16) no mitigation projects are required by CWA/IDAPA 58.01.02

5:19 – The Watershed Report (pages 13-19) does not indicate that the project will degrade habitat or exacerbate the existing condition any more than no action.

5:20 – Past activities: Each resource specialists considered effects of past activities when describing the existing conditions

Letter #5 continued



The EA adopts "desired future conditions" (DFCs) without doing an analysis of or considering alternatives to those DFCs. Would converting a lodgepole pine forest to a larch-western white pine forest, without doing the requisite analysis, actually work, and for what resources? Also the EA at p. 2 discusses the percent of the stands' dead trees. Would nearly every proposed unit listed in Table 1, EA at page 5, be essentially a "regeneration" unit following logging? 5:20

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. Roads also fragment forests and degrade or eliminate habitat for species that depend on remote landscapes, such as grizzly bears, wolves, and other large, wide-ranging predators (Trombulak and Frissell 2000). 5:21

The EA calls them "temporary" yet for most resources, analyzes the new roads as if they would never happen at all. How long would it take before the roads are obliterated? 5:22

The EA on page 5 does not mention Riparian Management Objectives for project area streams. 5:23

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. 5:24

The IPNF doesn't have data on how most TES and MIS wildlife select habitat, following past management actions, so cumulative effects are not understood, in spite of monitoring responsibilities from the Forest Plan and NFMA regulations.
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. The FS, in its "Response to Motion for Preliminary Injunction" brief in the ongoing litigation on the Kootenai NF, states in regards to a scientific report, "Dr. Schloeder's purported 'statistical analysis' reports no confidence intervals, standard deviations or standard errors in association with its conclusions." The FS must be held to the same standards of data and information quality. 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. 5:25

The EA provides no information on the precision, or amount of error, in the estimates of old growth described as being present in the project area old growth management unit and across the District. 5:26

We cannot tell based on the four page discussion 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 that should be disclosed in the DN. 5:27

9

Forest Service Response to Letter #5

5:20 continued - for resources. See Air Quality Specialist Report, pages 2-3; Fire and Fuels Specialist Report, pages 2-3; Fisheries Specialist Report, pages 2-17; Heritage Resources, page 1; Rare Plant Report, pages 3-5; Soils Report, pages 4-5; Coniferous Vegetation Report, pages 3-8; Visual Quality Report, pages 2-4; Watershed Report, pages 3-9; Wildlife Report, pages 3, 12-13, 14, 18, 21, 25, 28, 30, 33, 34, 36, 39, 41

The majority of previous timber harvests in the Broadaxe Project Area have been regeneration harvests, and those areas are satisfactorily restocked and progressing as planned (Vegetation Report, page 5; project file V-7). The Soils (page 4) and Watershed (page 9) Reports discuss monitoring of the Beetlemania Timber Sale with a similar purpose and need as the proposed project. Monitoring of the 1998 Beetlemania Salvage units in the lower Broadaxe Drainage showed BMPs were implemented and were highly effective in preventing erosion (Soils Report, page 4; project file SW-9). Previous projects did not lead to the Broadaxe purpose and need. The analysis process for vegetation is disclosed in the Coniferous Vegetation Report page 2, as well as the Desired Conditions portion of the project file (V-9 #1 through #6). As disclosed in the Broadaxe EA (pages 4-5) and discussed in the Coniferous Vegetation Report (page 17), the openings are the result of the loss of live trees due to a mountain pine beetle infestation in the lodgepole pine component. These openings are also discussed in project file documents V-13, V-14, V-15, V-16, and V-17. The proposed action is in response to the purpose and need for this project as discussed in the Broadaxe EA and analyzed in the Coniferous Vegetation Report and associated project file documents.

5:21 – The Roads Analysis Process was used to identify access needs and resource risks associated with roads as part of the Quartz Gold Project. District Ranger, Chuck Mark, explained the need to address the mountain pine beetle situation in a letter dated September 9, 2004 (project file, S-2). In that letter Mr. Mark said, "I have decided to address the mountain pine beetle in the lodgepole pine in the Gold creek Drainage immediately". He

went on to say, “In the original Quartz Gold Project we addressed many other resource issues (access, watershed conditions relative to roads, wildlife, white bark pine and fisheries habitat projects, etc.). This will not be lost. We listened to and addressed many of your comments and concerns about the Quartz Gold Project Area and our original proposal. We adjusted the proposed action, developed alternatives to it, and completed the analysis of these projects. Some of this work may be included in the new proposal, and the rest of it may continue after we address the mountain pine beetle problem in Gold Creek”. The Broadaxe proposed action does not include changes in access management, but that does not mean changes will not be considered in the future. The District is currently looking into options for funding the planning and analysis of access changes in the Quartz Gold Area.

5:22 – Temporary roads were discussed in the EA and in resource reports. Design features to limit effects from temporary roads are discussed on page 8 of the EA. Page 20 of the EA states, “Temporary road would also decrease canopy cover, in addition to altering hillslope morphology and hydrologic functioning over the short term.” On page 21 the EA says, “The proposed salvage units and temporary road are all well above the sensitive snow zone.” Page 17 of the EA states, “Potential detrimental disturbance, including temporary roads, may affect up to eight percent …” and “Direct effects due to construction and recontouring a temporary road are predicted in proposed Units 6 and 8, however, the total disturbance would be less than or equal to 13 percent in each activity area”. Effects from the temporary roads are discussed on pages 17, 23 and 30 of the Fisheries Report; pages 6 of the Rare Plant Report; pages 1, 6 and 7 of the Soils Report; pages 10, 13, 15, 16 and 18 of the Watershed Report; and pages 7, 13, 15, 20 and 42 of the Wildlife Report.

Temporary roads would be fully recontoured to the natural slope when yarding operations are complete (EA, page 8). The Forest Service anticipates yarding operations would take no more than two logging seasons (EA, page 4; FONSI, page 1).

5:23 – On page 5 of the EA the following is listed under Design Feature 3.b., “All Inland Native Fish Strategy (INFS) standards and guidelines that apply to activities in the Broadaxe Project would be utilized (Fisheries Report, Appendix A). This project would utilize the standard widths described for the Riparian Habitat Conservation Areas (RHCAs) described in Table 2.” Within the standards and guidelines there are several references to “meet Riparian Management Objectives” or “… would not retard or prevent attainment of other Riparian Management Objectives”.

5:24 – See both the Broadaxe EA (page 21) and the Fisheries Specialist Report (page 1) for the reference to the status of the Forest Plan Fry emergence standard.

On June 2, 2005, 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).

Based on the June 2nd decision, there are no longer any fry emergence standards and therefore they will not be addressed further.

5:25 – The wildlife analysis does not purport to be a statistical analysis, and NEPA does not require such an analysis. The EA and supporting Wildlife Report assess the existing condition and environmental effects commensurate with the scope of the project and risk to resources. The analysis uses qualitative and quantitative aspects of habitat as appropriate and relevant to the resource and risks. The analysis methods are documented in the Wildlife Report (pages 2-3), as are the indicators of effects and means of measurement (page 11). The references for the analysis provide the scientific basis for the analysis.

5:26 – The revised Broadaxe Old Growth Report, and the 2004 Forest Plan Monitoring Report draft Old Growth Chapter (Project Records OG-13, OG-15) contain 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, and for the Avery District portion of the St. Joe Ranger District (which is where the Broadaxe Project is located).

Ranger District	90% Confidence Interval Lower Bound	Point Estimate	90% Confidence Interval Upper Bound	# of Subplots
Avery	10.9%	16.6%	22.8%	340
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 and on the Avery Ranger District are both 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.

At the Avery District scale, we find that:

- The FIA data, current estimate of the proportion of old growth on the forested lands of the Avery District is 16.6%. The 90% confidence intervals of this estimate are 10.9% to 22.8%.
- The Avery District stand-level total of mapped acres allocated and maintained for old growth equals approximately 12.3% of forested lands. This stand-level percentage is within the 90% confidence interval of the FIA old growth estimate.

Information on how stands were allocated to old growth is contained in the latest IPNF Forest Plan Monitoring Report. The IPNF does not harvest allocated old growth stands, and has not done so for a number of years. 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 among 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.

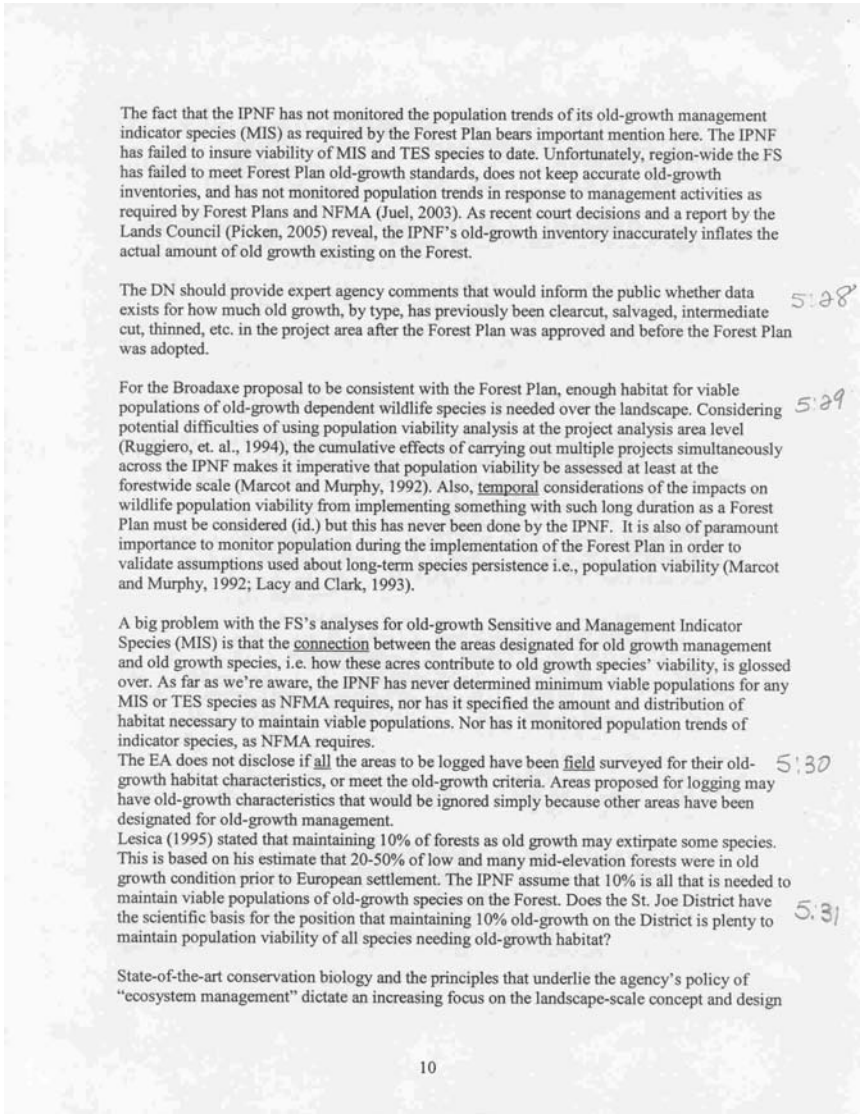
This is exactly the result from the Broadaxe analysis area old growth review. The old growth analysis area was all of Old Growth Management Unit (OGMU) 28, which includes, but is much larger than the project area. As documented in Project File OG-5, this review found a few stands previously classified as old growth no longer met old growth minimum criteria, but a larger number of previously unverified stands did now meet old growth minimum criteria. As a result of this analysis area review, there was a net increase in identified old growth within OGMU 28.

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 old growth stands were reviewed, validated, and updated as appropriate. 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 documents OG-3, OG-4, OG-5, OG-9 and other OG documents that contain 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 both the entire IPNF and the District.

5:27 – Allocated old growth meets the definition in Green, et al as required by the Forest Plan. The analysis for old growth associated species is in addition to and separate from the analysis of effects on allocated old growth. Wildlife species that are associated with old growth are analyzed using capable and suitable habitat for the species based on habitat associations as described in the literature and incorporated into the IPNF wildlife habitat model, for some species. Descriptions of suitable habitat can be found in the Wildlife Report under the individual species analysis, and in wildlife project file (W8). This includes allocated old growth stands as well as stands that aren't old growth. The IPNF Forest Plan Monitoring and Evaluation Report 2003, provides results of old growth monitoring (pages 89-93) and documents compliance with Forest Plan standards. That report also includes an assessment of Population Trends of Indicator Species (pages 32-35). Old growth analysis methods for the Broadaxe EA are described on pages 1-2 of the Broadaxe Proposal Revised Old Growth Report.

Letter #5 continued



The fact that the IPNF has not monitored the population trends of its old-growth management indicator species (MIS) as required by the Forest Plan bears important mention here. The IPNF has failed to insure viability of MIS and TES species to date. Unfortunately, region-wide the FS has failed to meet Forest Plan old-growth standards, does not keep accurate old-growth inventories, and has not monitored population trends in response to management activities as required by Forest Plans and NFMA (Juel, 2003). 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.

The DN should provide expert agency comments that would inform the public whether data exists for how much old growth, by type, has previously been clearcut, salvaged, intermediate cut, thinned, etc. in the project area after the Forest Plan was approved and before the Forest Plan was adopted. 5:28

For the Broadaxe proposal to be consistent with the Forest Plan, enough habitat for viable populations of old-growth dependent wildlife species is needed over the landscape. Considering potential difficulties of using population viability analysis at the project analysis area level (Ruggiero, et. al., 1994), the cumulative effects of carrying out multiple projects simultaneously across the IPNF makes it imperative that population viability be assessed at least at the forestwide scale (Marcot and Murphy, 1992). Also, temporal considerations of the impacts on wildlife population viability from implementing something with such long duration as a Forest Plan must be considered (id.) but this has never been done by the IPNF. It is also of paramount importance to monitor population during the implementation of the Forest Plan in order to validate assumptions used about long-term species persistence i.e., population viability (Marcot and Murphy, 1992; Lacy and Clark, 1993). 5:29

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. As far as we're aware, the IPNF has never determined minimum viable populations for any MIS or TES species as NFMA requires, nor has it specified the amount and distribution of habitat necessary to maintain viable populations. Nor has it monitored population trends of indicator species, as NFMA requires.
The EA does not disclose if all the areas to be logged have been field surveyed for their old-growth habitat characteristics, or meet the old-growth criteria. Areas proposed for logging may have old-growth characteristics that would be ignored simply because other areas have been designated for old-growth management. 5:30
Lesica (1995) stated that maintaining 10% of forests as old growth may extirpate some species. This is based on his estimate that 20-50% of low and many mid-elevation forests were in old growth condition prior to European settlement. The IPNF assume that 10% is all that is needed to maintain viable populations of old-growth species on the Forest. Does the St. Joe District have the scientific basis for the position that maintaining 10% old-growth on the District is plenty to maintain population viability of all species needing old-growth habitat? 5:31

State-of-the-art conservation biology and the principles that underlie the agency's policy of "ecosystem management" dictate an increasing focus on the landscape-scale concept and design

10

Forest Service Response to Letter #5

5:28 – Within this project area there has been one stand that was identified as old growth in the data base that has received a timber harvest treatment. This stand was shelterwood seed cut in 1972 that received a shelterwood removal cut in 1988. During the old growth validation process conducted for this area the stand was found to not meet the minimum old growth criteria and was dropped from the old growth inventory. This stand is not included in the existing condition calculation for old growth analysis in this project.

5:29 – The 1987 Idaho Panhandle National Forests Forest Plan calls for maintaining 10% of the forested portion of the IPNF as old growth. The IPNF is using two independent tools to inventory and monitor old growth at the Forest-wide scale. These are: Forest Inventory and Analysis (FIA) data and IPNF stand-level inventory with old growth status recorded in the TSMRS. The two independent Forest Service old growth inventories produce remarkably similar results. Bases 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 stand-level inventory of allocated old growth is 12.1% of forested lands. Together, these two inventories offer compelling evidence that the IPNF is meeting Forest Plan standards for the amount of old growth to be retained (USDA Forest Service, 2005, draft old growth chapter for IPNF 2004 Forest Plan Monitoring and Evaluation Report). The IPNF Forest Plan Monitoring and Evaluation Report, 2003, provides results of old growth monitoring (pages 89-93) and documents compliance with Forest Plan standards. That report also includes an assessment of Population Trends of Indicator Species (pages 32-35).

5:30 –No activity would occur in stands allocated for old growth or in other stands that meet old growth criteria (Old Growth Report, page 3; EA, page 15). The old growth analysis and validation process for this project is discussed in the Broadaxe Old Growth Report, pages 1-2. Connectivity is addressed in the EA (pages

28-29) and in the Wildlife Report (pages 14-15). Opportunities for wildlife movement and travel would be maintained.

5:31 – The Forest Plan directs old growth management on the IPNF. The Forest and this project are in compliance with the Forest Plan directives (EA, page 15; Growth Report, pages 1-5 USDA Forest Service, 2005, draft old growth chapter for IPNF 2004 Forest Plan Monitoring and Evaluation Report). The basis for the 10% standard is included in the project record for the Forest Plan. In any case, the analysis for potential effect on old growth associated wildlife species is, in part, based on the premise that by not impacting old growth (regardless if it is allocated or not) and maintaining or not impacting sufficient suitable habitat for old growth-associated species there is no affect on populations at the project level and by extension on viability. Put another way, if there is no impact on suitable habitat (or there is no suitable habitat to impact) there is no impact on populations.

Letter #5 continued

of large biological reserves accompanied by buffer zones and habitat connectors as the most effective (and perhaps only) way to preserve wildlife diversity and viability (Noss, 1993).

The FS has stated: "Well distributed habitat is the amount and location of required habitat which assure that individuals from demes,[1] distributed throughout the population's existing range, can interact. Habitat should be located so that genetic exchange among all demes is possible." (Mealey 1983.)

The FS has acknowledged that viability is not merely a project area consideration, that the scale of analysis must be broader:

> Population viability analysis is not plausible or logical at the project level such as the scale of the Dry Fork Vegetation and Recreation Restoration EA. Distributions of common wildlife species as well as species at risk encompass much larger areas than typical project areas and in most cases larger than National Forest boundaries. No wildlife species that presently occupy the project area are at such low numbers that potential effects to individuals would jeopardize species viability. No actions proposed under the preferred alternative would conceivably lead to loss of population viability. (Lewis and Clark NF, Dry Fork EA Appendix D at p. 9.)

The FS should firmly establish that the species that exist, or historically are believed to have been present in the analysis area are still part of viable populations. Since Forest Plan monitoring efforts have failed in this regard, it must be a priority for project analyses. Identification of viable populations is something that must be done at a specific geographic scale. The analysis must cover a large enough area to include a cumulative effects analysis area that would include truly viable populations. Analysis must identify viable populations of MIS, TES, at-risk, focal, and demand species of which the individuals in the analysis area are members in order to sustain viable populations. 5:54

The continued fragmentation of the IPNF is a major ongoing concern. It is documented that edge effects occur 10-30 meters into a forest tract (Wilcove et al., 1986). The size of blocks of interior forest that existed historically before management (including fire suppression) was initiated--compared to the present condition—is not adequately considered. Again, this should be a landscape ecology analysis that looks at the larger picture of the fragmentation of habitat in surrounding concentric circles. 5:55

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. 5:32

Logging, roadbuilding and other disturbance associated with the project and other cumulative impacts would affect goshawk nesting, post-fledging family habitat, alternative nesting, foraging,

[1]Subpopulations.

Forest Service Response to Letter #5

5:54 - The IPNF Forest Plan identified the MIS for the Forest, the Regional Forester issued the Sensitive Species for the Region and Forest, and the USFWS identified listed species on the Forest. NEPA directs the Forest Service to focus on a full and fair discussion of significant issues, and identify and eliminate from detailed study the issues that are not significant. The EA and supporting Wildlife Report addressed past actions, species relevancy, existing conditions, and environmental effects; and provides context for the project. The cumulative effects areas were also identified and the rationale documented. The analysis for potential effect on wildlife species is, in part, based on the premise that by maintaining or not impacting sufficient suitable habitat for species there is no effect on populations at the project level, and by extension on viability. Put another way, if there is no impact on suitable habitat (or there is no suitable habitat to impact) there is no impact on populations.

5:55 - Fragmentation was identified as an issue, and Design Features 4, 5, 6, 7, 13d, g, and h were developed to address it (EA, pages 6-7, 9). Opportunities for wildlife movement and travel would be maintained (EA, pages 28-29; Wildlife Report, pages 14-15). The proposed action would result in no direct management induced changes to forest structure (Vegetation Report, page 14). If left untreated the proposed action units would become sparsely timbered open stands regenerating back to lodgepole pine over time (EA, pages 17-19; Vegetation Report, page 12). The project would not change existing old growth patch sizes (Old Growth Report, page 4). The proposed salvage logging will not affect the amount of fragmentation, but could affect the character of it as trees that may have persisted for a few more years are being removed in a shorter time frame (Vegetation Report, pages 11-14).

5:32 – The Wildlife Report (page 36) does not dismiss effects on upland habitat for boreal (western) toads and includes in the Affected Environment section, under western toads a discussion of habitat

Letter #5 continued

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).

The FS's analysis resulting in "no effects" determination on goshawks seems to reflect a very poor understanding of northern goshawk habitat requirements. Reynolds, et al. 1992 provide a basis for a northern goshawk conservation strategy that could be implemented if forestwide habitat considerations were to be truly taken into account. 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.

5:56

USDA Forest Service, 2000b recommends that forest opening greater than 50-60 acres be avoided in the vicinity of goshawks. At least five years of monitoring is necessary to allow for effective estimates of habitat quality (Id.). Research suggests that a localized distribution of 50% old growth should be maintained to allow for viability of goshawks (Suring et al. 1993).

Goshawks are often associated with a thick overstory cover and areas with a large number of large trees. For example, Hayward and Escano (1989) recommend an overstory canopy between 75 and 80%. According to the BE/BA for the Keystone Quartz EIS in the Beaverhead-Deerlodge NF, "Goshawks prefer vegetation structure that permits them to approach prey unseen and to use their flight maneuverability to advantage (Widen, 1989, Beier and Drennan 1997)…"

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.

The EA failed to disclose and analyze the uncertain and precarious population status of the fisher, as described in Witmer, et al., 1998: 5:33

> The status of the fisher in the Western United States is poorly known but generally perceived as precarious and declining. This is a serious issue alone, but it also is a component of the larger problem of the decline of biological diversity. Recovery of species of concern must necessarily focus on the population level, because this is the scale at which genetic variation occurs and because population [sic] are the constituent elements of communities and ecosystems. Systematic habitat alteration and overexploitation have reduced the historical distribution of fishers in suitable habitat in the interior Columbia basin to isolated and fragmented populations. Current populations may be extremely vulnerable to local and regional extirpation because of their lack of connectivity and their small numbers (Id. at 14, internal citations omitted).

12

Forest Service Response to Letter #5

5:32 continued - and disclosure of the presence of mesic stands that could provide suitable habitat. The Wildlife Report goes on to say that habitat alterations from timber harvest have not been shown as a causative agent for population declines (Loeffler, 1998, page11).

5:56 - See the Wildlife Report sections on Analysis Methods (pages 2-3) in particular the discussion regarding capable and suitable habitat, Issue Indicators (page 10-11) Table W2 – Measurement Issues for Wildlife, the row for goshawk, and the analysis for Northern Goshawks (pages 29-32). In short you'll see that there is limited "capable" nesting habitat for goshawks in the analysis area and currently no suitable nesting habitat in the project area. The existing condition of the area cannot support breeding goshawks. The no effect determination is based on the type of habitat being treated and the lack of impact on suitable habitat. No activity would occur in stands that meet old growth criteria (EA, page15). The openings are occurring naturally as a result of the mortality in the lodgepole pine caused by the mountain pine beetle (EA, page 4).

5:33 - See the Wildlife Report Analysis Methods (page 2-3), Issue Indicators (page 10-11), and the analysis for Fisher (and Marten) (page 23-27). The analysis shows that due to the existing condition of the project area and the stands proposed for treatment there would be no effect on suitable habitat, and there would no change in the condition of the area to support fisher.

Letter #5 continued

The proposed project would likely 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. "Though the post-treatment stand condition would not be 'clear cuts', they would be fairly open and Jones (1991) did not expect to find substantial fisher hunting use of plantations by fishers until canopy approached 80% and 10-15 feet respectively (depending on snow depths)" (Flathead NF's Spotted Beetle EA, p. 3-62). 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. 5:34

Jones (undated) provides an example of a conservation strategy for the fisher, something the FS has so far neglected for this Sensitive species.

Regarding another IPNF Sensitive species, the black-backed woodpecker, Cherry (1997) states:

> The black-backed woodpecker appears to fill a niche that describes everything that foresters and fire fighters have attempted to eradicate. For about the last 50 years, disease and fire have been considered enemies of the 'healthy' forest and have been combated relatively successfully. We have recently (within the last 0 to 15 years) realized that disease and fire have their place on the landscape, but the landscape is badly out of balance with the fire suppression and insect and disease reduction activities (i.e. salvage logging) of the last 50 years. Therefore, the black-backed woodpecker is likely not to be abundant as it once was, and continued fire suppression and insect eradication is likely to cause further decline.

The Region 1 black-backed woodpecker assessment (Hillis et al., 2003) notes that the black-backed woodpecker depends upon the very forest that this project targets for much of its logging, removal of dead and dying trees:

> Black-backed woodpeckers occupy forested habitats that contain high densities of recently dead or dying trees that have been colonized by bark beetles and woodborer beetles (Buprestidae, Cerambycidae, and Scolytidae). These beetles and their larvae are most abundant within burned forests. In unburned forests, bark beetle and woodborer infested trees are found primarily in areas that have undergone natural disturbances, such as wind-throw, and within structurally diverse old-growth forests. (Internal citations omitted.)
>
> …Black-backed woodpeckers also occur in unburned landscapes Bull et al., 1986, Goggans et al.1987, Bate 1995, Hoffman 1997, Weinhagen 1998, Steeger and Dulisse in press, Taylor unpublished data). Taylor's observations of black-backed woodpeckers in unburned forests in northern Idaho suggest that they may occur at substantially lower densities in unburned forests, but no rigorous comparisons between black-backed woodpecker densities in burned and unburned forests have

13

Forest Service Response to Letter #5

5:34 – See response to comment 5:33 above.

Letter #5 continued

been done. Hutto (1995) hypothesized that black-backed woodpeckers reproduce at *source* reproductive levels in burns, but may drop to *sink* reproductive levels in the intervening periods between large burns.

The FS has yet to design a consistent, workable, scientifically defensible strategy to ensure viable populations of the black-backed woodpeckers. The cumulative impacts of the IPNF's ongoing fire suppression policy are also not adequately considered. 5:57

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 Broadaxe project. 5:58

The IPNF provides inadequate management strategies to insure viability of the pine marten. 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 Broadaxe project would reduce the availability of prey species for the marten. 5:35

Old growth allows martens to avoid predators, provides resting and denning places in coarse woody debris and large diameter trees, and allows for access under the snow surface. USDA Forest Service, 1990 is summary of old-growth habitat needs of martens reviewed research suggesting that martens prefer forest stands with greater than 40% tree canopy closure and rarely venture more than 150 feet from forest cover, particularly in winter. It also cites research suggesting that at least 50% of female marten home range should be maintained in mature or old growth forest. Also, consideration of habitat connectivity is essential to ensuring marten viability: "To ensure that a viable population of marten is maintained across its range, suitable habitat for individual martens should be distributed geographically in a manner that allows interchange of individuals between habitat patches (Ibid.).

The IPNF has otherwise recognized the need for updated guidelines for the pine marten: "Apply snag and down woody material guidelines from the Upper Columbia River Basin Assessment to improve marten habitat" (USDA Forest Service 2000c, p. 39).

The flammulated, boreal owl and the great gray owl are species of concern that are sensitive to logging and other management activities. The IPNF provides inadequate management strategies to insure their viability. See, for example, Hayward and Verner, 1994. 5:59

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. Bull, et al., 1997 state: 5:60

This document presents new information on the retention and selection of trees and logs most valuable to wildlife.

14

Forest Service Response to Letter #5

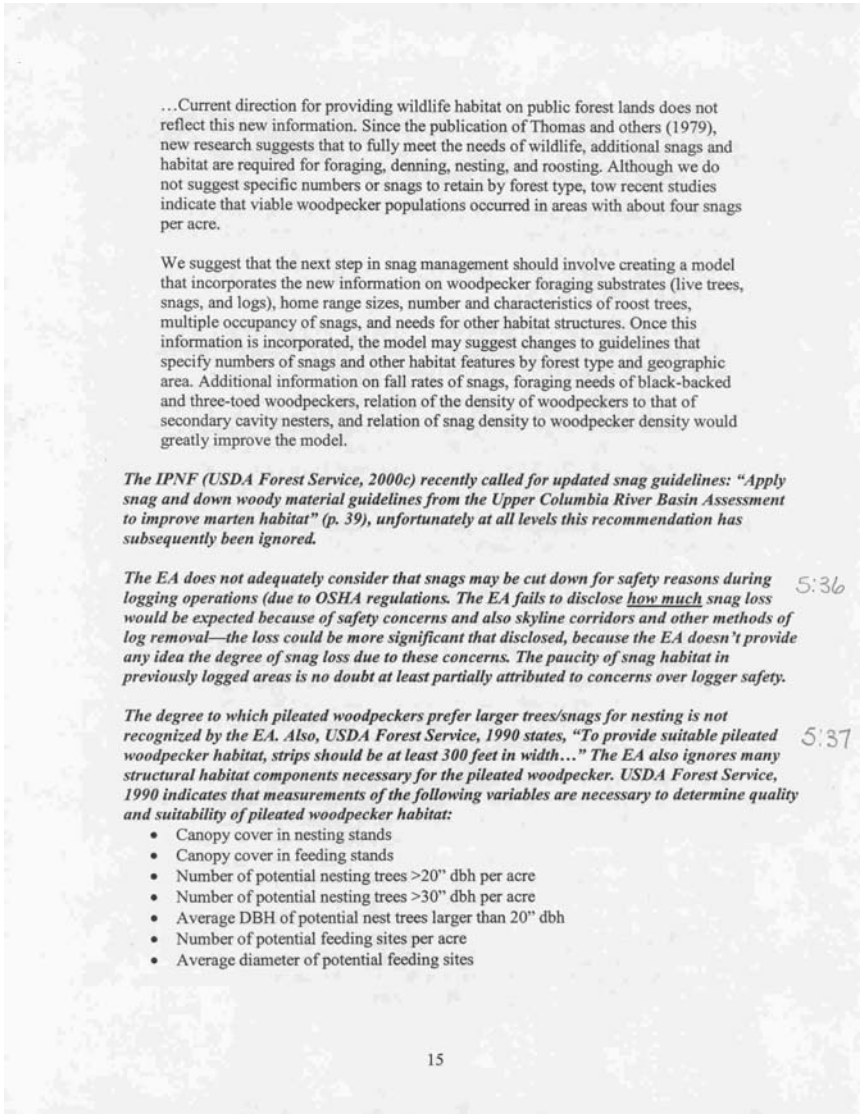
5:57 - See the Wildlife Report Analysis Methods (page 2-3), Issue Indicators (page 10-11), and the analysis for black-backed woodpecker (page 32-33). The analysis shows that while 509 acres of suitable habitat would be treated (actual treated acres will be less due to unloggable areas within units and the no cut travel corridor buffer) a greater amount, approximately 702 acres, of high quality suitable habitat would be retained. This habitat, combined with the amount of mature and/or old forest present in the wildlife analysis area is expected to allow black-backed woodpeckers to continue to persist in the area. Large fires over the last 15 years have created an abundance of black-backed woodpecker habitat in Region 1, (Hillis et. al., 2002, page 9) which is undoubtably contributing to the persistence of black-backed woodpecker populations. No activity would occur in stands that meet old growth criteria (EA, page 15).

5:58 - The Wildlife Report does not discount this scientific information but focuses on habitat parameters relevant to the project area that would likely have a larger effect on wolverine. For example, the project area is not a mid to low elevation Douglas-fir forest. Please see the Wildlife Report Analysis Methods (page 2-3), Issue Indicators (page 10-11), and the analysis for Wolverine (page 27-29).

5:35 – See the Wildlife Report Analysis Methods (page 2-3), Issue Indicators (page 10-11), and the analysis for Fisher (and Marten) (page 23-27). The analysis shows that due to the existing condition of the project area and the stands proposed for treatment there would be no effect on suitable habitat, and there would no change in the condition of the area to support marten. Connectivity is addressed in the EA (pages 28-29; Wildlife Report (pages 14-15) which state that opportunities for wildlife movement and travel would be maintained.

5:59 – The flammulated owl is the only one of these species on the Northern Region's Sensitive Species List for the IPNF. See the Wildlife Report Analysis Methods (page 2-3), Issue

Letter #5 continued



…Current direction for providing wildlife habitat on public forest lands does not reflect this new information. Since the publication of Thomas and others (1979), new research suggests that to fully meet the needs of wildlife, additional snags and habitat are required for foraging, denning, nesting, and roosting. Although we do not suggest specific numbers or snags to retain by forest type, tow recent studies indicate that viable woodpecker populations occurred in areas with about four snags per acre.

We suggest that the next step in snag management should involve creating a model that incorporates the new information on woodpecker foraging substrates (live trees, snags, and logs), home range sizes, number and characteristics of roost trees, multiple occupancy of snags, and needs for other habitat structures. Once this information is incorporated, the model may suggest changes to guidelines that specify numbers of snags and other habitat features by forest type and geographic area. Additional information on fall rates of snags, foraging needs of black-backed and three-toed woodpeckers, relation of the density of woodpeckers to that of secondary cavity nesters, and relation of snag density to woodpecker density would greatly improve the model.

The IPNF (USDA Forest Service, 2000c) recently called for updated snag guidelines: "Apply snag and down woody material guidelines from the Upper Columbia River Basin Assessment to improve marten habitat" (p. 39), unfortunately at all levels this recommendation has subsequently been ignored.

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 <u>how much</u> 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. The paucity of snag habitat in previously logged areas is no doubt at least partially attributed to concerns over logger safety. 5:36

The degree to which pileated woodpeckers prefer larger trees/snags for nesting is not recognized by the EA. Also, USDA Forest Service, 1990 states, "To provide suitable pileated woodpecker habitat, strips should be at least 300 feet in width…" The EA also ignores many structural habitat components necessary for the pileated woodpecker. USDA Forest Service, 1990 indicates that measurements of the following variables are necessary to determine quality and suitability of pileated woodpecker habitat: 5:37

- Canopy cover in nesting stands
- Canopy cover in feeding stands
- Number of potential nesting trees >20" dbh per acre
- Number of potential nesting trees >30" dbh per acre
- Average DBH of potential nest trees larger than 20" dbh
- Number of potential feeding sites per acre
- Average diameter of potential feeding sites

15

Forest Service Response to Letter #5

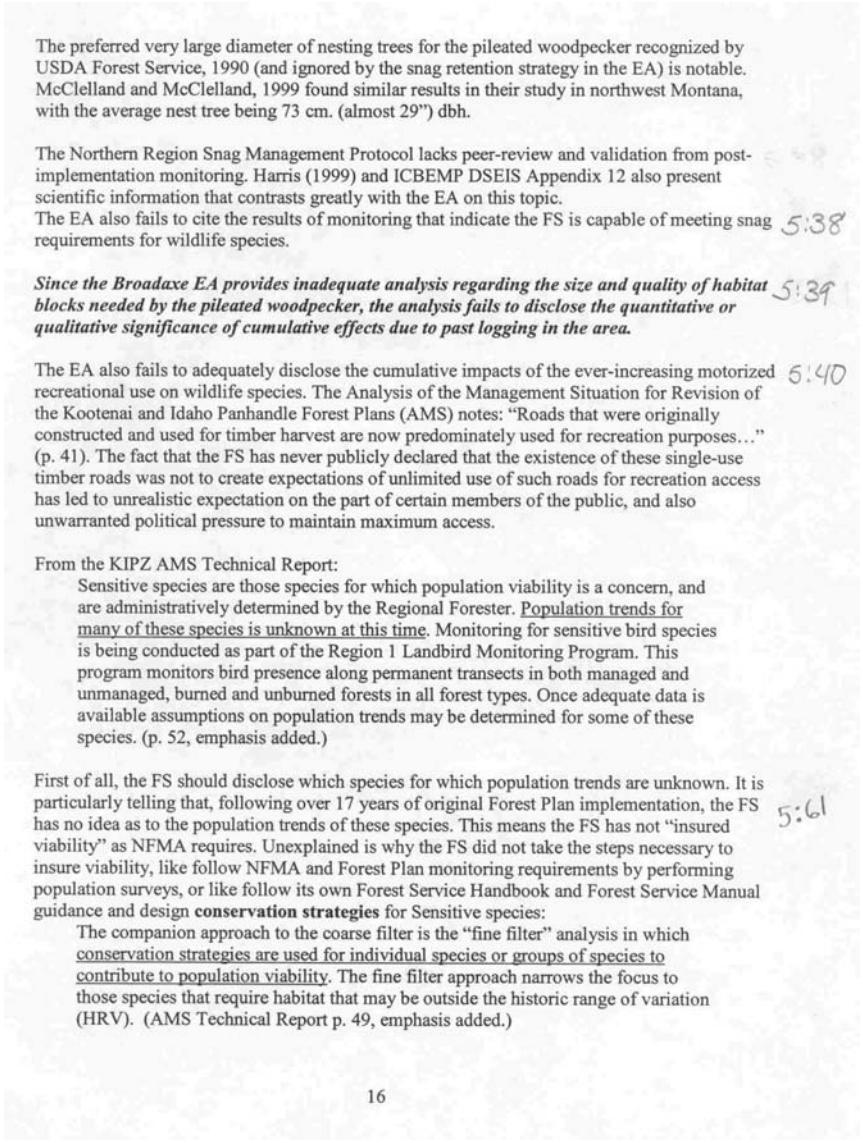
5:59 continued - Indicators (page 10-11), and the analysis for flammulated owl (page 33-36). The analysis shows that due to the existing condition of the project area there is no suitable and very little capable habitat present, and therefore there would be no change in the limited ability of the area to support flammulated owls.

5:60 - No activity would occur in stands that meet old growth criteria (EA, page15). The EA, Table 3 on page 7, shows that snag per acre retention levels for this project are greater than four per acre.

5:36 – Please refer to the Wildlife Report section on Snag/Cavity Habitat (page 10) and project file document W-3 Snag and Leave Tree Requirements for the analysis of snag habitat. The loss of snags through salvage harvest is acknowledged, and reasons the project will meet snag and leave tree guidelines are presented.

5:37 – The Wildlife Report states that pileated woodpeckers require tall, large diameter trees for nesting, and that large/mature/old timber stands provide suitable habitat (pages 38-40). The proposed action units are not suitable habitat because they are open canopied stands of small diameter (average 9"-14") timber (project file V-5).

Letter #5 continued



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 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.
The EA also fails to cite the results of monitoring that indicate the FS is capable of meeting snag requirements for wildlife species. 5:38

Since the Broadaxe EA provides inadequate analysis regarding the size and quality of habitat blocks needed by the pileated woodpecker, the analysis fails to disclose the quantitative or qualitative significance of cumulative effects due to past logging in the area. 5:39

The EA also fails to adequately disclose the cumulative impacts of the ever-increasing motorized recreational use on wildlife species. The Analysis of the Management Situation for Revision of the Kootenai and Idaho Panhandle Forest Plans (AMS) notes: "Roads that were originally constructed and used for timber harvest are now predominately used for recreation purposes…" (p. 41). The fact that the FS has never publicly declared that the existence of these single-use timber roads was not to create expectations of unlimited use of such roads for recreation access has led to unrealistic expectation on the part of certain members of the public, and also unwarranted political pressure to maintain maximum access. 5:40

From the KIPZ AMS Technical Report:

> Sensitive species are those species for which population viability is a concern, and are administratively determined by the Regional Forester. Population trends for many of these species is unknown at this time. Monitoring for sensitive bird species is being conducted as part of the Region 1 Landbird Monitoring Program. This program monitors bird presence along permanent transects in both managed and unmanaged, burned and unburned forests in all forest types. Once adequate data is available assumptions on population trends may be determined for some of these species. (p. 52, emphasis added.)

First of all, the FS should disclose which species for which population trends are unknown. It is particularly telling that, following over 17 years of original Forest Plan implementation, the FS has no idea as to the population trends of these species. This means the FS has not "insured viability" as NFMA requires. Unexplained is why the FS did not take the steps necessary to insure viability, like follow NFMA and Forest Plan monitoring requirements by performing population surveys, or like follow its own Forest Service Handbook and Forest Service Manual guidance and design **conservation strategies** for Sensitive species: 5:61

> The companion approach to the coarse filter is the "fine filter" analysis in which conservation strategies are used for individual species or groups of species to contribute to population viability. The fine filter approach narrows the focus to those species that require habitat that may be outside the historic range of variation (HRV). (AMS Technical Report p. 49, emphasis added.)

16

Forest Service Response to Letter #5

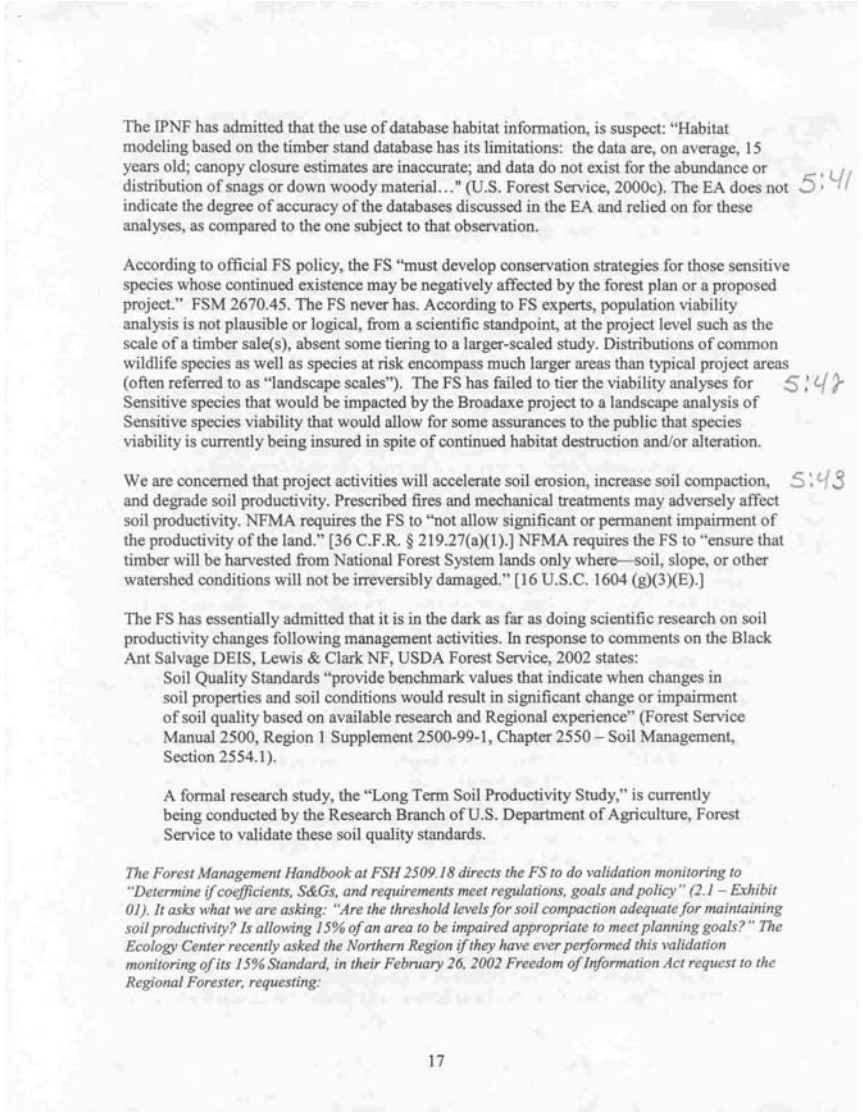
5:38 – The 2003 Idaho Panhandle National Forests Monitoring and Evaluation Report documents snag monitoring on the IPNF (USDA, 2003). Please refer to page 84. The Wildlife Report sections on Snag/cavity habitat (page 10), and black-backed woodpecker (pages 32-34) indicate that snag habitat requirements would be met. Also, please refer to the response to comment 5:57.

5:39 – Again please see the Wildlife Report Analysis Methods (page 2-3), Issue Indicators (page 10-11), and the analysis for pileated woodpecker (page 38-40). The analysis shows that due to the existing condition of the project area and the stands proposed for treatment there would be no effect on suitable habitat and there would no change in the condition of the area to support pileated woodpeckers. Feeding and nesting habitat are not limiting for pileated woodpeckers. Timber mortality from insects and disease is increasing in the project area. The amount of snag habitat available for use as feeding and nesting sites for pileated woodpeckers is increasing because of this. The high level of mature and old growth forest present indicates good habitat quality for pileated woodpeckers in the wildlife project area (Wildlife Report, page 39).

5:40 – There will be no change in the type or amount of access in the project area as a result of this project. Please refer to the EA, pages 9, 17, 26-28; Wildlife Report pages 11-12).

5:61 - The *IPNF Forest Plan Monitoring and Evaluation Report – 2003* (referenced in the EA) provides information on population trends for MIS (which includes some TE&S species). The analysis in the Wildlife Report documents the potential effects on habitat and relevant species. The determinations of potential effects are based on survival of individuals and persistence of populations (Ruggiero et. al. 1994). The analysis reveals that for each species there is either "no impact" or inconsequential effects (e.g. maintain suitable habitat or something equivalent). The intensity of the analysis is commensurate with the risk associated

Letter #5 continued



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. 5:41

According to official FS policy, the FS "must develop conservation strategies for those sensitive species whose continued existence may be negatively affected by the forest plan or a proposed project." FSM 2670.45. The FS never has. According to FS experts, population viability analysis is not plausible or logical, from a scientific standpoint, at the project level such as the scale of a timber sale(s), absent some tiering to a larger-scaled study. Distributions of common wildlife species as well as species at risk encompass much larger areas than typical project areas (often referred to as "landscape scales"). The FS has failed to tier the viability analyses for Sensitive species that would be impacted by the Broadaxe 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. 5:42

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. NFMA requires the FS to "not allow significant or permanent impairment of the productivity of the land." [36 C.F.R. § 219.27(a)(1).] NFMA requires the FS to "ensure that timber will be harvested from National Forest System lands only where—soil, slope, or other watershed conditions will not be irreversibly damaged." [16 U.S.C. 1604 (g)(3)(E).] 5:43

The FS has essentially admitted that it is in the dark as far as doing scientific research on soil productivity changes following management activities. In response to comments on the Black Ant Salvage DEIS, Lewis & Clark NF, USDA Forest Service, 2002 states:

> Soil Quality Standards "provide benchmark values that indicate when changes in soil properties and soil conditions would result in significant change or impairment of soil quality based on available research and Regional experience" (Forest Service Manual 2500, Region 1 Supplement 2500-99-1, Chapter 2550 – Soil Management, Section 2554.1).
>
> A formal research study, the "Long Term Soil Productivity Study," is currently being conducted by the Research Branch of U.S. Department of Agriculture, Forest Service to validate these soil quality standards.

The Forest Management Handbook at FSH 2509.18 directs the FS to do validation monitoring to "Determine if coefficients, S&Gs, and requirements meet regulations, goals and policy" (2.1 – Exhibit 01). It asks what we are asking: "Are the threshold levels for soil compaction adequate for maintaining soil productivity? Is allowing 15% of an area to be impaired appropriate to meet planning goals?" The Ecology Center recently asked the Northern Region if they have ever performed this validation monitoring of its 15% Standard, in their February 26, 2002 Freedom of Information Act request to the Regional Forester, requesting:

17

Forest Service Response to Letter #5

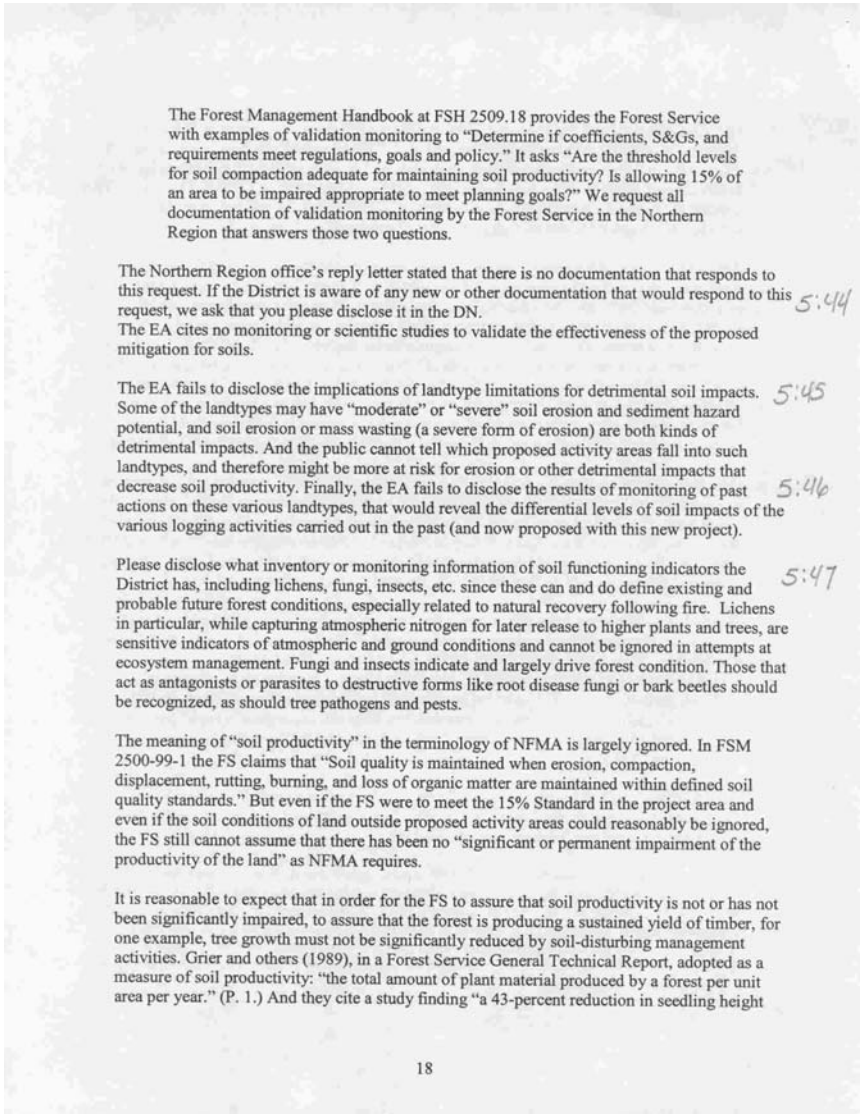
5:61 continued - with the project and the potential impacts on the species involved. The determinations constitute informed decisions on the effects of the management action on populations.

5:41 – The accuracy of the database is considered sufficient for the level of analysis needed. Inaccurate information was revised as necessary, Wildlife Report (page 3). All stand information was carefully reviewed for accuracy, and 41% of the wildlife project analysis area received new field exams in 2004. Please refer to the Wildlife Report (page 23).

5:42 – The EA and supporting Wildlife Report addressed past actions, species relevancy, existing conditions, and environmental effects; and these provide context for the project. The cumulative effects areas were also identified and the rationale documented (Wildlife Report pages 4-42). The analysis for potential effect on wildlife species is in part, based on the premise that by maintaining or not impacting sufficient suitable habitat for species there is no effect on populations at the project level, and by extension on viability. Put another way, if there is no impact on suitable habitat (or there is no suitable habitat to be impacted) there is no impact on populations.

5:43 – The Soil Report (pages 6-7) discusses productivity and tiers to both the IPNF Forest Plan Standard and the Region 1 Manual Supplement (page 8). See also SW-4 and site-specific design features (EA, pages 7-8).

Letter #5 continued



The Forest Management Handbook at FSH 2509.18 provides the Forest Service with examples of validation monitoring to "Determine if coefficients, S&Gs, and requirements meet regulations, goals and policy." It asks "Are the threshold levels for soil compaction adequate for maintaining soil productivity? Is allowing 15% of an area to be impaired appropriate to meet planning goals?" We request all documentation of validation monitoring by the Forest Service in the Northern Region that answers those two questions.

The Northern Region office's reply letter stated that there is no documentation that responds to this request. If the District is aware of any new or other documentation that would respond to this request, we ask that you please disclose it in the DN. 5:44
The EA cites no monitoring or scientific studies to validate the effectiveness of the proposed mitigation for soils.

The EA fails to disclose the implications of landtype limitations for detrimental soil impacts. 5:45
Some of the landtypes may have "moderate" or "severe" soil erosion and sediment hazard potential, and soil erosion or mass wasting (a severe form of erosion) are both kinds of detrimental impacts. And the public cannot tell which proposed activity areas fall into such landtypes, and therefore might be more at risk for erosion or other detrimental impacts that decrease soil productivity. Finally, the EA fails to disclose the results of monitoring of past 5:46
actions on these various landtypes, that would reveal the differential levels of soil impacts of the various logging activities carried out in the past (and now proposed with this new project).

Please disclose what inventory or monitoring information of soil functioning indicators the 5:47
District has, including lichens, fungi, insects, etc. since these can and do define existing and probable future forest conditions, especially related to natural recovery following fire. Lichens in particular, while capturing atmospheric nitrogen for later release to higher plants and trees, are sensitive indicators of atmospheric and ground conditions and cannot be ignored in attempts at ecosystem management. Fungi and insects indicate and largely drive forest condition. Those that act as antagonists or parasites to destructive forms like root disease fungi or bark beetles should be recognized, as should tree pathogens and pests.

The meaning of "soil productivity" in the terminology of NFMA is largely ignored. In FSM 2500-99-1 the FS claims that "Soil quality is maintained when erosion, compaction, displacement, rutting, burning, and loss of organic matter are maintained within defined soil quality standards." But even if the FS were to meet the 15% Standard in the project area and even if the soil conditions of land outside proposed activity areas could reasonably be ignored, the FS still cannot assume that there has been no "significant or permanent impairment of the productivity of the land" as NFMA requires.

It is reasonable to expect that in order for the FS to assure that soil productivity is not or has not been significantly impaired, to assure that the forest is producing a sustained yield of timber, for one example, tree growth must not be significantly reduced by soil-disturbing management activities. Grier and others (1989), in a Forest Service General Technical Report, adopted as a measure of soil productivity: "the total amount of plant material produced by a forest per unit area per year." (P. 1.) And they cite a study finding "a 43-percent reduction in seedling height

18

Forest Service Response to Letter #5

5:44 – The District does not have newer information on this issue. The Soil Report (page 1) states the basis for the Standard.

5:45 – Soils Report page 7: "No ground-based vegetative or fuels treatment activities would occur on highly sensitive landtypes (SW-4)." SW-4 is a table and map disclosing the landtypes in the proposed salvage units that are sensitive to disturbance (only 1 skyline acre in Unit 9 is highly sensitive due to erosion or mass wasting potential).

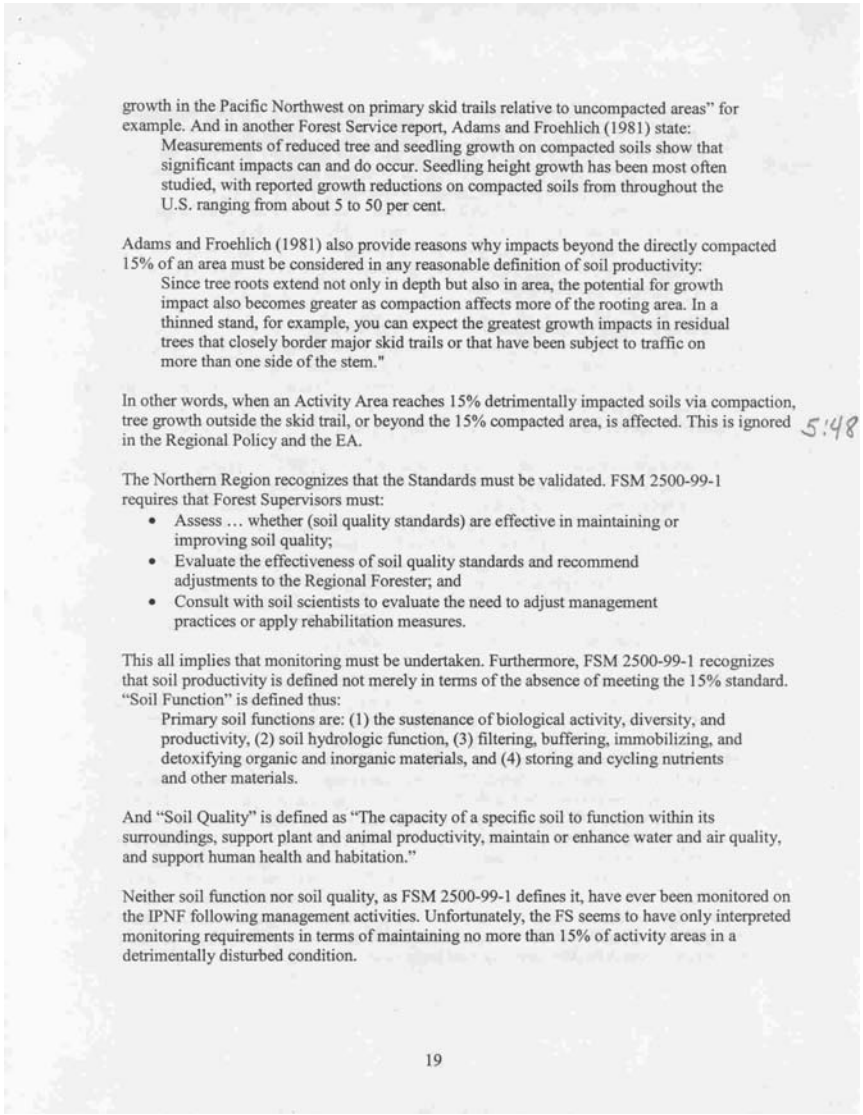
5:46 – This was not specifically disclosed. However, the soil impacts monitoring for the Beetlemania project did occur on the same low-moderate sensitivity landtypes (409 & 444) and on other similar landtypes (weakly weathered belts on sideslopes and breaklands with moderate sensitivity) as those in the proposed project (Watershed Report, page 9; Soils Report, page 4). Monitoring of that project showed generally less than ten percent detrimental soil disturbance (EA, page 17).

Skid trail area will be limited to <15%. Therefore, for the worst-case cited, compaction-related growth reductions in any individual ground-based unit (<30% of the total proposed activity area) will be <8% (<3% of the total activity area).

It is unlikely that many trees will have skid trails on more than one side of the stem. Skid trails would be spaced at least 100 feet apart, except where converging (EA, page 7, Design Feature 8.a.III). The possibility exists for trees to have skid trails on both sides if they are located where skid trails converge. Otherwise trails will be at least 100 feet apart.

5:47 – Brodo et al. (2001) state that the contributions of nitrogen to ecosystems by lichens are uncertain. However in the old growth, conifer forests of the Pacific Northwest where certain genera are large and abundant, nitrogen contributions of up to 50% have been reported but not confirmed. In the Pacific Northwest, approximately 15% of lichen genera contain cyanobacteria as their primary photobionts (McCune and Geiser 1997).

Letter #5 continued



growth in the Pacific Northwest on primary skid trails relative to uncompacted areas" for example. And in another Forest Service report, Adams and Froehlich (1981) state:

> Measurements of reduced tree and seedling growth on compacted soils show that significant impacts can and do occur. Seedling height growth has been most often studied, with reported growth reductions on compacted soils from throughout the U.S. ranging from about 5 to 50 per cent.

Adams and Froehlich (1981) also provide reasons why impacts beyond the directly compacted 15% of an area must be considered in any reasonable definition of soil productivity:

> Since tree roots extend not only in depth but also in area, the potential for growth impact also becomes greater as compaction affects more of the rooting area. In a thinned stand, for example, you can expect the greatest growth impacts in residual trees that closely border major skid trails or that have been subject to traffic on more than one side of the stem."

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. 5:48

The Northern Region recognizes that the Standards must be validated. FSM 2500-99-1 requires that Forest Supervisors must:

- Assess … whether (soil quality standards) are effective in maintaining or improving soil quality;
- Evaluate the effectiveness of soil quality standards and recommend adjustments to the Regional Forester; and
- Consult with soil scientists to evaluate the need to adjust management practices or apply rehabilitation measures.

This all implies that monitoring must be undertaken. Furthermore, FSM 2500-99-1 recognizes that soil productivity is defined not merely in terms of the absence of meeting the 15% standard. "Soil Function" is defined thus:

> Primary soil functions are: (1) the sustenance of biological activity, diversity, and productivity, (2) soil hydrologic function, (3) filtering, buffering, immobilizing, and detoxifying organic and inorganic materials, and (4) storing and cycling nutrients and other materials.

And "Soil Quality" is defined as "The capacity of a specific soil to function within its surroundings, support plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation."

Neither soil function nor soil quality, as FSM 2500-99-1 defines it, have ever been monitored on the IPNF following management activities. Unfortunately, the FS seems to have only interpreted monitoring requirements in terms of maintaining no more than 15% of activity areas in a detrimentally disturbed condition.

19

Forest Service Response to Letter #5

5:47 continued - Cyanobacteria are fungi which are capable of nitrogen fixation. Genera which contain cyanobacteria photobionts include *Collema*, *Hydrothyria*, *Koerberia*, *Lempholemma*, *Leptochidium*, *Leptogium*, *Massalongia*, *Pannaria*, *Parmeliella*, *Polychidium*, and *Pseudocyphellaria*. Some lichens may contain cyanobacteria, although not as the primary photobiont (*Solorina*, *Psoroma hypnorum*, some species of *Lobaria*, *Nephroma*, *Peltigera*, *Pilophorus*, and *Leptochidium, Stereocaulon*).

The majority of these species are either rare, would not be found within habitats in the Broadaxe Project Area, or would be found in specialized habitats such as seeps or rock outcrops that would not be affected by project activities. A ground-dwelling *Peltigera* was the only genera noted in stands surveyed for rare plants in the project area but was far from abundant. It is improbably that nitrogen cycling in project stands would be negatively impacted due to effects on members of this genus.

5:48 – The Soils Report (page 6) discloses that project activities would not exceed 13% detrimental impacts, as defined by the Regional guidance.

The Idaho Panhandle National Forests, Forest Supervisor and R1 specialists have been very involved in the ongoing efforts to resolve this issue. The Region is on the IFTNC Steering Committee and there is a long-term soil productivity study site on the IPNF. In addition, a research project has been proposed by Debbie Page-Dumroese (RMRS) in response to a request from Gina Rone (IPNF Soils) and Sharon DeHart (R1 Soils) to study the effects of timber and fuels management on soil productivity (including chemical, physical, and biological conditions). So far, the funding has not been available to conduct this study.

Letter #5 continued

Page-Dumroese et al. 2000 emphasize the importance of validating soil quality standards using the results of monitoring:

> Research information from short- or long-term research studies supporting the applicability of disturbance criteria is often lacking, or is available from a limited number of sites which have relative narrow climatic and soil ranges. …Application of selected USDA Forest Service standards indicate that blanket threshold variables applied over disparate soils do not adequately account for nutrient distribution within the profile or forest floor depth. These types of guidelines should be continually refined to reflect pre-disturbance conditions and site-specific information. (Abstract.)

The FS's methodology might approach adequacy if the FS were to have actually validated it by performing objective, scientifically adequate measures of compaction such as measures of bulk density. Adams and Froehlich (1981) state: "While general field observations can be useful in recognizing severe compaction problems, measurement of actual changes in soil density permits the detection of less obvious levels of compaction." It is these "less obvious levels of compaction" that are missed by the kind of monitoring the FS has performed on the IPNF.

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. They discovered that although "the most significant increase in compaction occurred at a depth of 4 inches… some sites showed that maximum compaction occurred at a depth of 8 inches… (and) "Furthermore, ... subsurface compaction occurred in glacial deposits to a depth of at least 16 inches." (Kuennen, Edson, and Tolle, 1979.) 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 Broadaxe project, will not significantly or permanently impair the productivity of the soil. 5:49

In interpreting the requirements of NEPA, the federal courts have evaluated the adequacy of mitigation measures that EISs and EAs rely upon. Relying upon inadequate mitigation measures to protect soils fails to meet this judicially specified test of compliance with NEPA regulations.

Following a study by Cullen and others (1991) which was carried out on the Kootenai and Flathead NFs the authors concluded: "This result lends support to the general observation that most compaction occurs during the first and second passage of equipment." And Page-Dumroese (1993), in a FS research report investigating logging impacts on volcanic ash-influenced soil in the adjacent IPNF, states, "Moderate compaction was achieved by driving a Grappler log carrier over the plots twice." She also cited other studies that indicated: "Large increases in bulk density have been reported to a depth of about 5 cm with the first vehicle pass over the soil." Williamson and Neilsen (2000) assessed change in soil bulk density with number of passes and found 62% of the compaction to the surface 10cm to come with the first pass of a logging machine. In fine textured soils Brais and Camire (1997) demonstrated that the first pass creates 80 percent of the total disturbance to the site.

20

Forest Service Response to Letter #5

5:49 – This is a research issue. However, the IPNF has analyzed a large number of bulk density samples. This data was used to create the Spreadsheet Model for predicting soil impacts (Lit Cited: Niehoff, 2002). Furthermore, there are no treatments proposed on glacial deposits.

Letter #5 continued

Adams and Froehlich (1981) state, "Unfortunately, little research has yet been done to compare the compaction and related impacts caused by low-pressure and by conventional logging vehicles."

From Grier and others (1989):

> The potential productivity of a site can be raised or lowered by management activities causing a permanent or long-term increase or decrease in the availability of nutrients essential for plant growth. (P. 27.)
>
> …Any time organic matter is removed from a site, a net loss of nutrients from that site also occurs. In timber harvesting or thinning, nutrient losses tend to be proportional to the volume removed. (P. 27.)
>
> …Slash burning is a common site preparation method that can affect soil chemical properties tremendously. A great deal of controversy is often associated with using fire because of the wide variety of effects, some of which are definitely detrimental to site quality and some of which are beneficial. (P. 30.)

The IPNF has never attempted to put in place a scientifically sound definition of "soil productivity" that can be measured and compared to baseline conditions. Harvey et al., 1994 state:

> ***The ...descriptions of microbial structures and processes suggest that they are likely to provide highly critical conduits for the input and movement of materials within soil and between the soil and the plant. Nitrogen and carbon have been mentioned and are probably the most important. Although the movement and cycling of many others are mediated by microbes, sulfur phosphorus, and iron compounds are important examples.***
>
> ***The relation between forest soil microbes and N is striking. Virtually all N in eastside forest ecosystems is biologically fixed by microbes... Most forests, particularly in the inland West, are likely to be limited at some time during their development by supplies of plant-available N. Thus, to manage forest growth, we must manage the microbes that add most of the N and that make N available for subsequent plant uptake.***

(Internal citations omitted.)

The Forest Plan never anticipated nor disclosed the degree to which land management activities, including timber production grazing, and management of recreational activities, would lead to so much of the IPNF being infested with noxious weeds. The Sheep Creek Salvage FEIS (USDA Forest Service, 2005a) states at p. 173:

> Noxious weed presence may lead to physical and biological changes in soil. Organic matter distribution and nutrient flux may change dramatically with noxious weed invasion. Spotted knapweed (*Centaurea biebersteinii D.C.*) impacts phosphorus levels at sites (LeJeune and Seastedt, 2001) and can

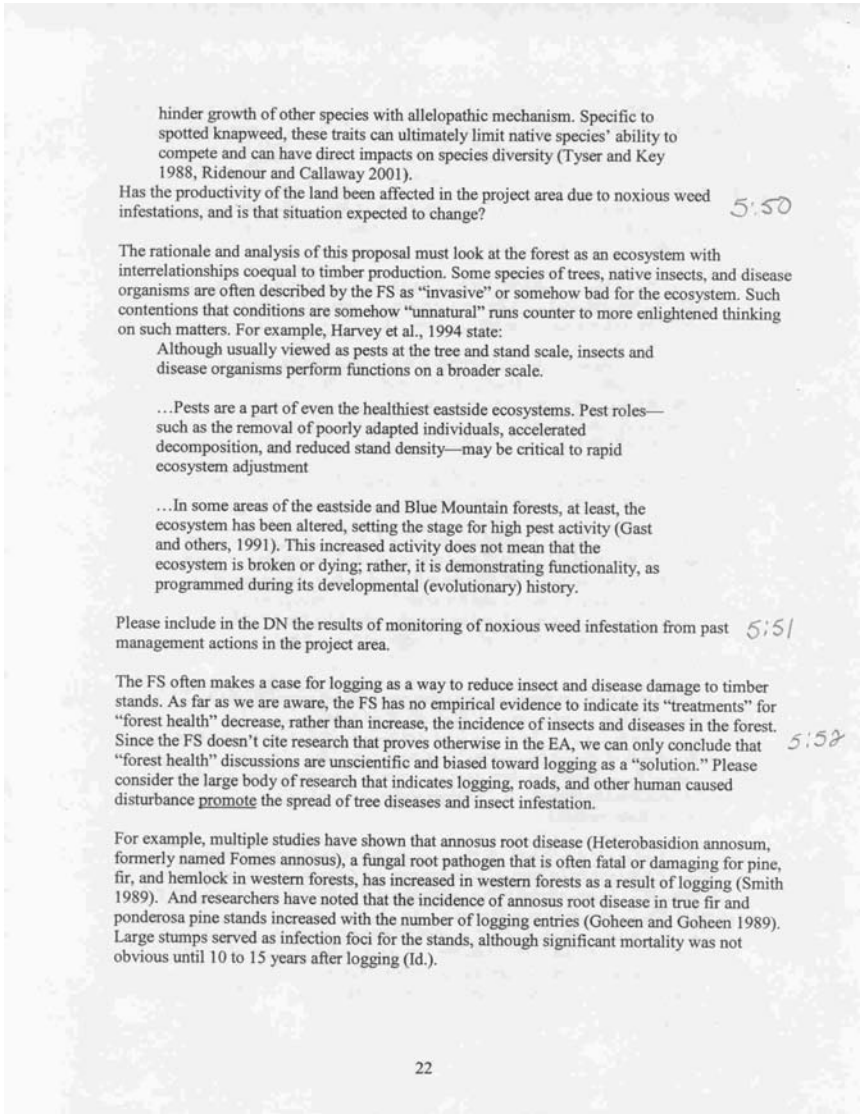
21

Forest Service Response to Letter #5

The Soils Report addresses this issue.

The Soils Report discloses and analyzes this issue.

Letter #5 continued



hinder growth of other species with allelopathic mechanism. Specific to spotted knapweed, these traits can ultimately limit native species' ability to compete and can have direct impacts on species diversity (Tyser and Key 1988, Ridenour and Callaway 2001).

Has the productivity of the land been affected in the project area due to noxious weed infestations, and is that situation expected to change? 5:50

The rationale and analysis of this proposal must look at the forest as an ecosystem with interrelationships coequal to timber production. 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.

Please include in the DN the results of monitoring of noxious weed infestation from past management actions in the project area. 5:51

The FS often makes a case for logging as a way to reduce insect and disease damage to timber stands. As far as we are aware, the FS has no empirical evidence to indicate its "treatments" for "forest health" decrease, rather than increase, the incidence of insects and diseases in the forest. 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 promote the spread of tree diseases and insect infestation. 5:52

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.).

22

Forest Service Response to Letter #5

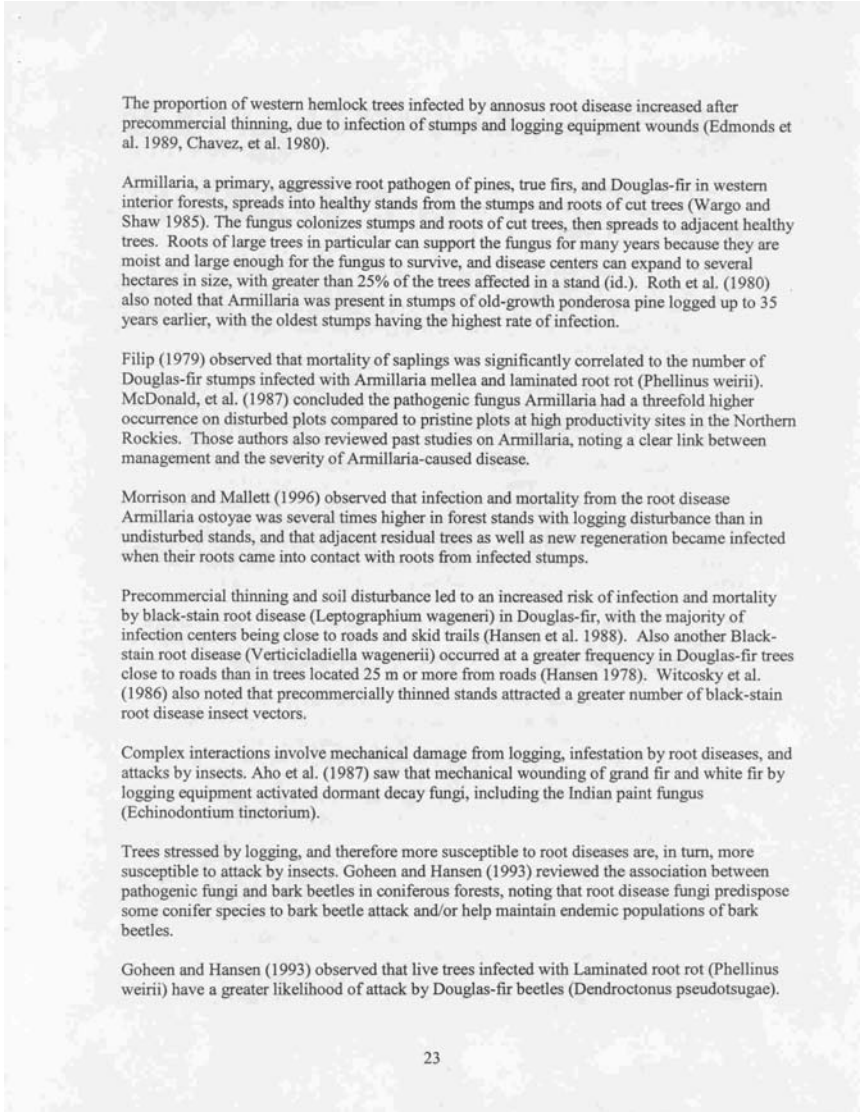
5:50 – The project area is generally free of noxious weeds (Noxious Weed Report). This may be due to the elevation and short growing season of the project area, as many of our high elevation sites across the district have few weeds. Design features exist to minimize the potential for introducing new weeds to the area and site productivity is not expected to decline due to large-scale invasion of noxious weeds.

5:51 – There have been no recent management actions within the Broadaxe Project Area that would be expected to lead to an increase in noxious weeds, however, surveys of the area have been completed and summaries of findings are given in the Broadaxe Noxious Weed Report on page 2. Weed densities within the project area are generally pretty low in part due to the high elevation of the stands. Weed densities are generally not high enough to support biological control agents (Noxious Weed Report, page 2).

5:52 – The purpose and need for the Broadaxe proposal is to meet forest plan standards for forest protection related to insects and diseases by restoring fully-stocked, diverse, vigorous stands that include species less susceptible to mountain pine beetle (western white pine and western larch) so the lodgepole pine / mountain pine beetle process is not perpetuated within the treatment stands (EA, page 2). Proposed harvests are only proposed in areas currently infested with mountain pine beetle where high percentages of the lodgepole pine are already dead (EA, page 4).

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

Letter #5 continued



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.

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.

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.

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).

23

Forest Service Response to Letter #5

5:52 continued

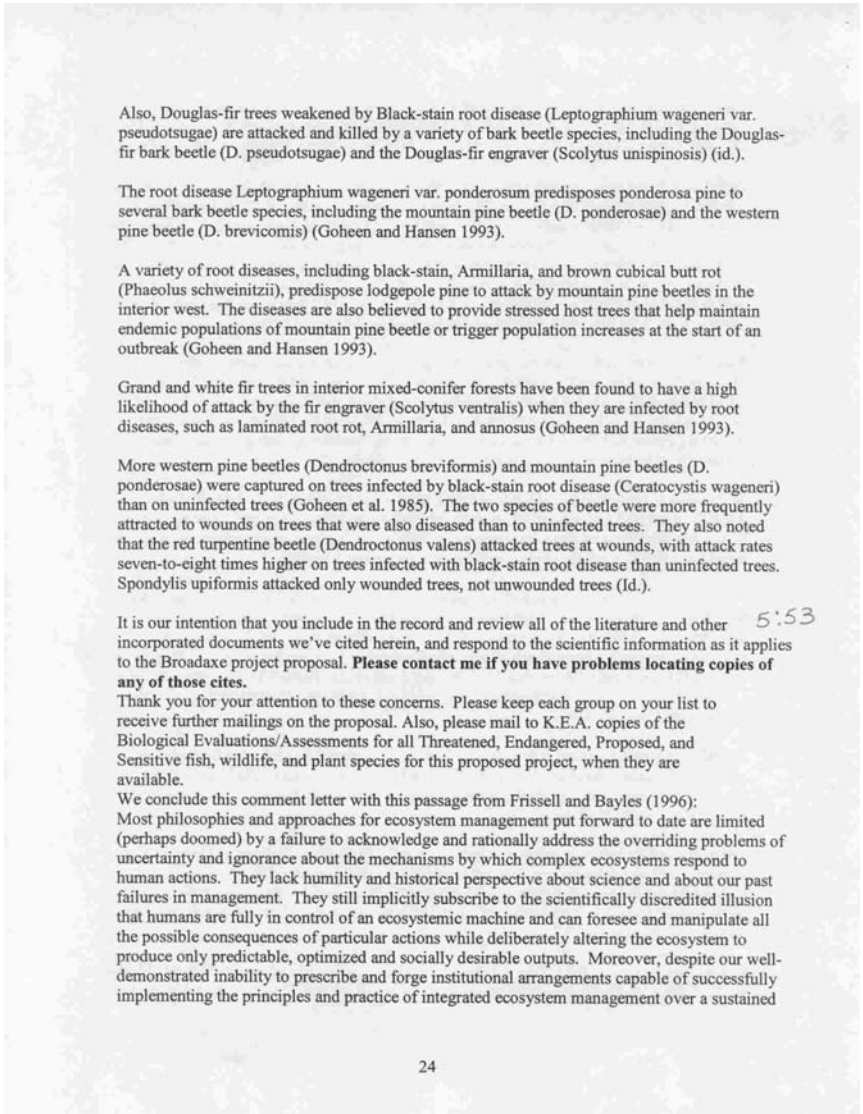
Kliejunas (1986) in which annosus-infected fir stumps were found not to result in infection of planted pines.

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 pi nes. 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 HT’s, and possibly the very driest Douglas-fir (pinegrass). This may account for the apparent absence of this pathogen on the IPNF, Clearwater NF and Nez Perce NF.

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

Letter #5 continued



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.).

5:53

It is our intention that you include in the record and review all of the literature and other incorporated documents we've cited herein, and respond to the scientific information as it applies to the Broadaxe project proposal. **Please contact me if you have problems locating copies of any of those cites.**

Thank you for your attention to these concerns. Please keep each group on your list to receive further mailings on the proposal. Also, please mail to K.E.A. copies of the Biological Evaluations/Assessments for all Threatened, Endangered, Proposed, and Sensitive fish, wildlife, and plant species for this proposed project, when they are available.

We conclude this comment letter with this passage from Frissell and Bayles (1996):

Most philosophies and approaches for ecosystem management put forward to date are limited (perhaps doomed) by a failure to acknowledge and rationally address the overriding problems of uncertainty and ignorance about the mechanisms by which complex ecosystems respond to human actions. They lack humility and historical perspective about science and about our past failures in management. They still implicitly subscribe to the scientifically discredited illusion that humans are fully in control of an ecosystemic machine and can foresee and manipulate all the possible consequences of particular actions while deliberately altering the ecosystem to produce only predictable, optimized and socially desirable outputs. Moreover, despite our well-demonstrated inability to prescribe and forge institutional arrangements capable of successfully implementing the principles and practice of integrated ecosystem management over a sustained

24

Forest Service Response to Letter #5

5:52 continued

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.

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 longterm 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 ostoyae* 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).

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. The 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.

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 discussion

5:53 – The literature and other incorporated documents have been reviewed (Project File, CP-19).

Letter #5 continued

time frame an at sufficiently large spatial scales, would-be ecosystem managers have neglected to acknowledge and critically analyze past institutional and policy failures. They say we need ecosystem management because public opinion has changed, neglecting the obvious point that public opinion has been shaped by the glowing promises of past managers and by their clear and spectacular failure to deliver on such promises.

Sincerely,
/s/
Mike Mihelich Forest Watch Coordinator
Kootenai Environmental Alliance PO Box 1598 Coeur d'Alene, ID 83816-1598
208-6667 9093 or 664-4741
The Lands Council, Mike Petersen, 423 W. First Ave., Suite 240, Spokane, WA 99201
The Ecology Center, Jeff Juel, 314 North First Street West, Missoula, MT 59802
Gary McFarlane, Friends of the Clearwater, PO Box 9241, Moscow, ID 83843

Literature cited:

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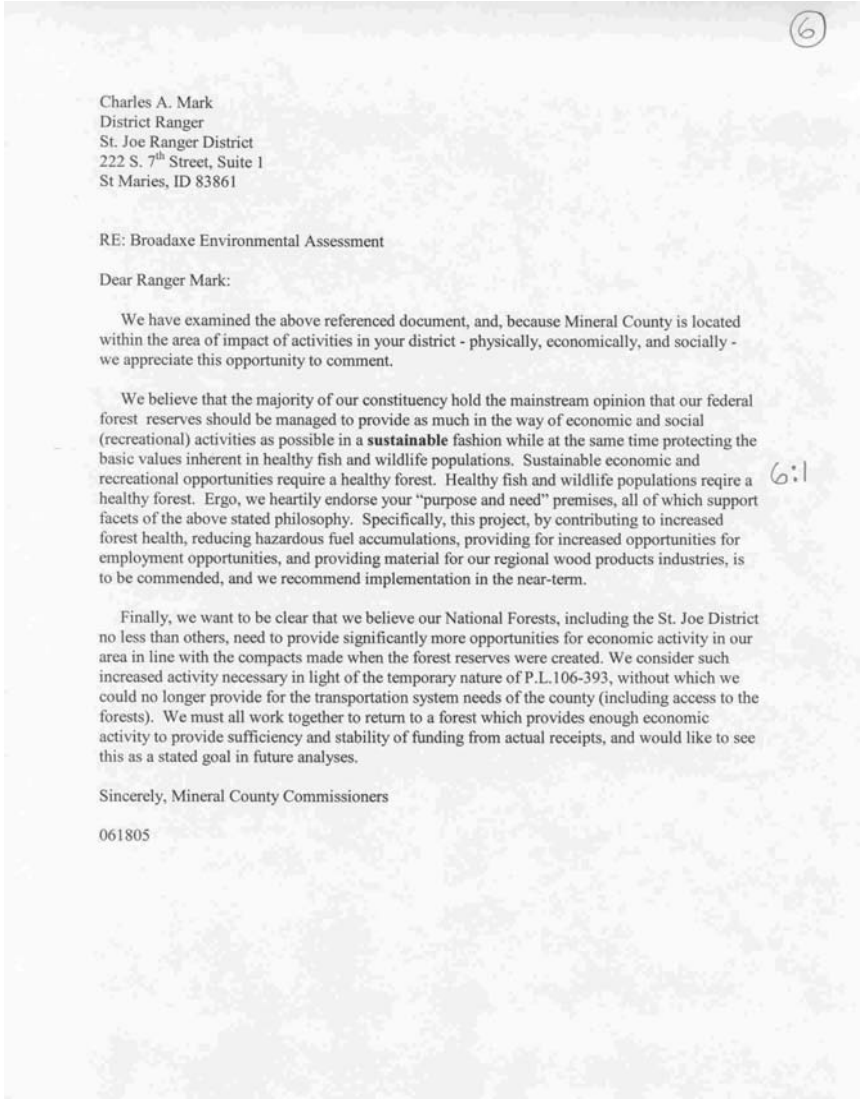
25

Letter #6



(6)

Charles A. Mark
District Ranger
St. Joe Ranger District
222 S. 7th Street, Suite 1
St Maries, ID 83861

RE: Broadaxe Environmental Assessment

Dear Ranger Mark:

We have examined the above referenced document, and, because Mineral County is located within the area of impact of activities in your district - physically, economically, and socially - we appreciate this opportunity to comment.

We believe that the majority of our constituency hold the mainstream opinion that our federal forest reserves should be managed to provide as much in the way of economic and social (recreational) activities as possible in a **sustainable** fashion while at the same time protecting the basic values inherent in healthy fish and wildlife populations. Sustainable economic and recreational opportunities require a healthy forest. Healthy fish and wildlife populations reqire a healthy forest. Ergo, we heartily endorse your "purpose and need" premises, all of which support facets of the above stated philosophy. Specifically, this project, by contributing to increased forest health, reducing hazardous fuel accumulations, providing for increased opportunities for employment opportunities, and providing material for our regional wood products industries, is to be commended, and we recommend implementation in the near-term. 6:1

Finally, we want to be clear that we believe our National Forests, including the St. Joe District no less than others, need to provide significantly more opportunities for economic activity in our area in line with the compacts made when the forest reserves were created. We consider such increased activity necessary in light of the temporary nature of P.L.106-393, without which we could no longer provide for the transportation system needs of the county (including access to the forests). We must all work together to return to a forest which provides enough economic activity to provide sufficiency and stability of funding from actual receipts, and would like to see this as a stated goal in future analyses.

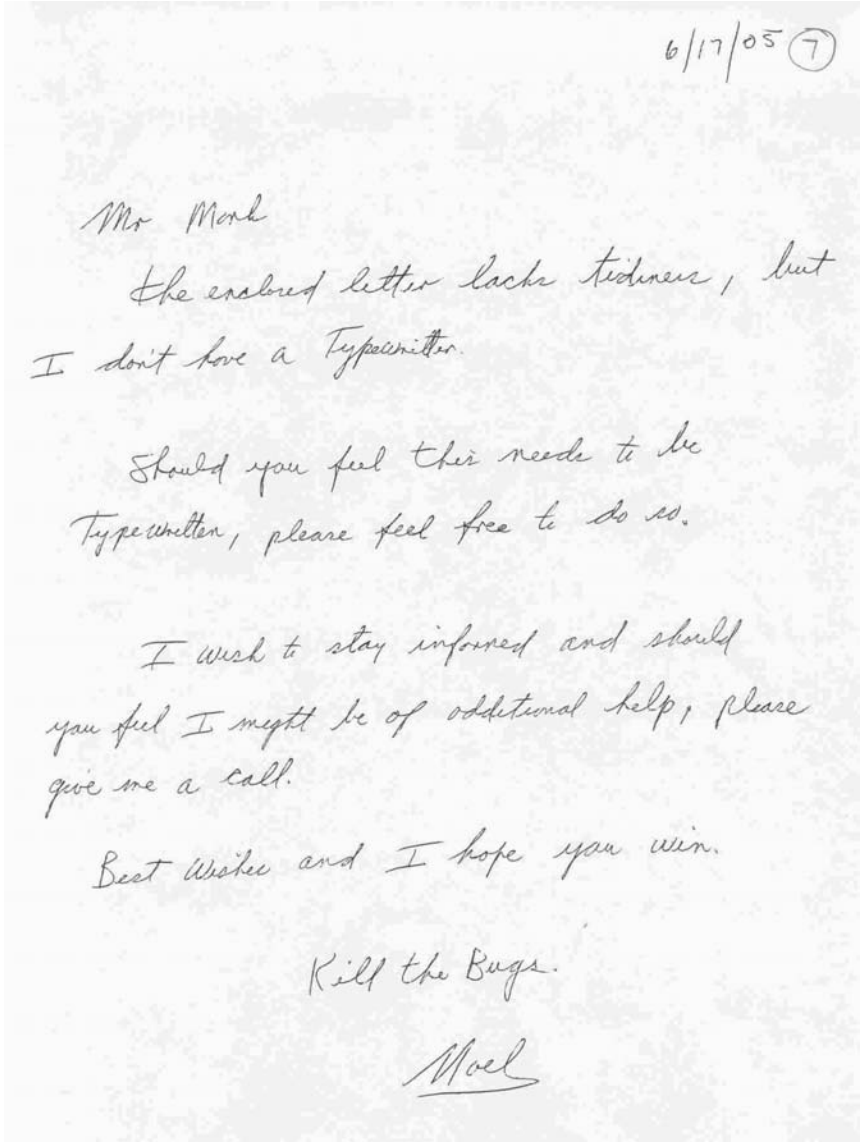
Sincerely, Mineral County Commissioners

061805

Forest Service Response to Letter #6

6:1 – Thank you for your comments.

Letter #7



6/17/05 (7)

Mr Monk

The enclosed letter lacks tidiness, but I don't have a Typewriter.

Should you feel this needs to be Typewritten, please feel free to do so.

I wish to stay informed and should you feel I might be of additional help, please give me a call.

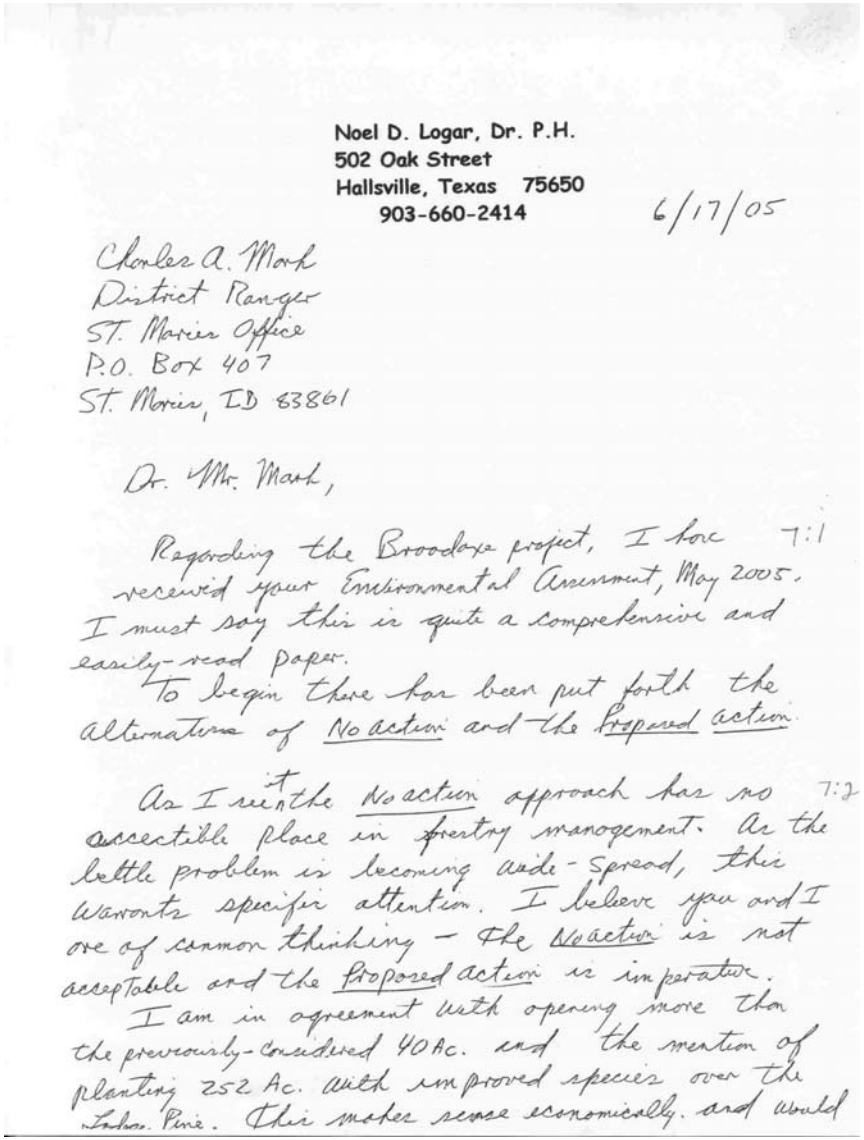
Best Wishes and I hope you win.

Kill the Bugs.

Moel

Forest Service Response to Letter #7

Letter #7 continued



Noel D. Logar, Dr. P.H.
502 Oak Street
Hallsville, Texas 75650
903-660-2414

6/17/05

Charles A. Mark
District Ranger
St. Maries Office
P.O. Box 407
St. Maries, ID 83861

Dr. Mr. Mark,

Regarding the Broodaxe project, I have 7:1
received your Environmental Assessment, May 2005.
I must say this is quite a comprehensive and
easily-read paper.
To begin there has been put forth the
alternatives of No action and the Proposed action.

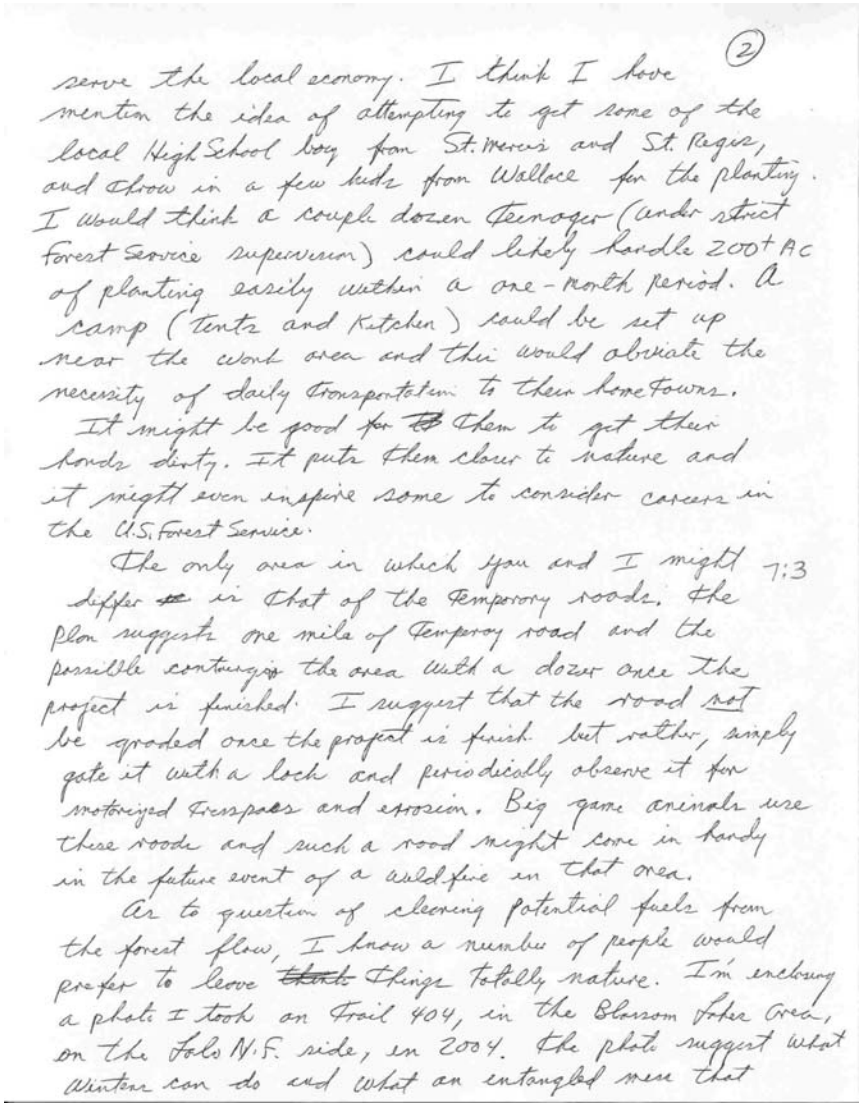
As I see it the No action approach has no 7:2
acceptable place in forestry management. As the
beetle problem is becoming wide-spread, this
warrants specific attention. I believe you and I
are of common thinking – the No action is not
acceptable and the Proposed action is imperative.
I am in agreement with opening more than
the previously-considered 40 Ac. and the mention of
planting 252 Ac. with improved species over the
Lodge. Pine. This makes sense economically, and would

Forest Service Response to Letter #7

7:1 - Thank you for all your comments.

7:2 – The Forest Service is required to consider no action as an alternative to a proposed action. It is a viable alternative, and it provides a means of comparing effects of the proposed action (EA, pages 4, 11-17, 19-21, 23-28).

Letter #7 continued



(2)

serve the local economy. I think I have mention the idea of attempting to get some of the local High School boys from St. Maries and St. Regis, and throw in a few kids from Wallace for the planting. I would think a couple dozen Teenagers (under strict Forest Service supervision) could likely handle 200+ AC of planting easily within a one-month period. A camp (tents and kitchen) could be set up near the work area and this would obviate the necessity of daily transportation to their hometowns.

It might be good for ~~to~~ them to get their hands dirty. It puts them closer to nature and it might even inspire some to consider careers in the U.S. Forest Service.

The only area in which you and I might differ ~~is~~ is that of the temporary roads. The plan suggests one mile of temporary road and the possible contouring the area with a dozer once the project is finished. I suggest that the road not be graded once the project is finish but rather, simply gate it with a lock and periodically observe it for motorized trespass and erosion. Big game animals use these roads and such a road might come in handy in the future event of a wildfire in that area. 7:3

As to question of cleaning potential fuels from the forest floor, I know a number of people would prefer to leave ~~them~~ things totally nature. I'm enclosing a photo I took on Trail 404, in the Blossom Lake Area, on the Fools N.F. side, in 2004. The photo suggest what Winter can do and what an entangled mess that

Forest Service Response to Letter #7

7:3 – The temporary roads proposed in the Broadaxe EA are not required for the long-term management of the National Forest. Gates and their maintenance are an expensive part of access management. In this case, where the roads are not required for long-term management, the costs to install and maintain gates and the possible environmental effects of the roads and the access they provide outweigh the benefits the roads may provide.

Letter # 7 photo

Letter #7 back of photo

Lolo N.F.

T. # 404

Blossom Lakes Area

July, 2004

Letter #7 continued

(3)

become, and of course this looks like a good example of a fuel ladder. Big Some can't get through such a mess and in winter I've never seen them in such areas, but find them amongst the brance in the open area. Incidentally, I've been in this area a few times over the last 40 years, there is always patches of pack snow (1-2 ft. high) at least through July. The point here is that perhaps we should be looking at cleaning up ground cover to improve utilization of the forest by both man and animals.

When driving through South Dakota, on my way home to Idaho, I stopped in to visit with some of the people of the U.S.F.S. Black Hills N.F. I noted they clean up the ground fuel back at least 100 ft. on either side of the ~~road~~ road. the lower branch of the trees are trimmed back and the piles of burnable material is gathered and located in strategic location awaiting ~~to~~ burning in the Fall, safer reason. There species of trees differ from ours of the CdA and St. Joe Drainages, they are predominantly Black Hill Spruce and Ponderosa. They point out that the Ponderosa are prolific seeders and if not attended to, they, in short, crowd out the other species. Thinning is imperative or else, the seedlings are overstock ~~don~~ "dog-hair" stands - according to one of their brochures. I am totally in favor of cleaning the forest floor, clearing and burning slash, and attending to thining. I would think Thinning should be a cardinal undertaking of proper Forest Management.

Letter #7 continued

(4)

Regarding an approach of natural revegetation of open areas, I can attest to the use of such areas by deer and elk. During the winter snows, they are commonly seen consuming the browse in such areas.

I support the planting of more-resistant species of trees and the saving and close watch over old growth.

There is much more I could comment on, but all of anything more would be right in tune with your specific suggestions in the EA.

I was impressed with your thoroughness in all of the aspects of your proposal. You should be comended on this.

In sum, your proposal sits well with me and I ~~do~~ see no need for changes of significance in your proposal.

As I have mentioned before, the results of the beetles are unsightly ~~as~~ as anyone might agree after having observed a infested stand of timber as what appear ~~on the~~ in the photo on the cover of your Broadaxe Environmental Assessment, May 2005.

Please keep me informed.

Sincerely,

Dr. Noel D Foss

Letter #7 continued

Chester

A very late thought: ↓

I took a group with me along the St. Joe Divide Trail (T. #16) and between Moon Pass + Stevens Peak, a badger stumbled out of the brush on onto the road portion of the trail. Upon seeing us, he ran like hell along the road, rather than disappearing over the bank.

Drum Roll: This is another example to support my position that wildlife gladly utilize our road system

Noel