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19 October 2005

Linda Goodman, Appeal Deciding Officer
USDA Forest Service, PNW Region
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Subject: 36 CFR 215 appeal of the Collawash Thinning Decision Notice #2 (Natural Stands)

Dear Forest Service:

In accordance with 36 CFR 215, Oregon Natural Resources Council Fund (ONRC or Appellant) hereby appeals the Forest Service's decision to approve the project described below.

DECISION TITLE: Decision Notice #2 and Finding of No Significant Impact Collawash Thinning Natural Second Growth.

PROJECT DESCRIPTION: logging 55 acres of natural stands 37 acres of which are located within spotted owl critical habitat.

PROJECT LOCATION: Clackamas River Ranger District, Mt Hood National Forest, Clackamas County, Oregon. Collowash River watershed.

DATE OF DECISION: DN undated. Cover letter dated Sept 5, 2005.

NAME OF DECIDING OFFICER: Mt Hood Forest Supervisor, Gary Larson.

APPELLANTS' INTEREST: In accordance with Pub. L. 102-381, Title III, Sec. 322(c), Oct. 5, 1992 and 36 CFR 215.11, ONRC submitted comments on, and expressed interest in, this project and is entitled to appeal. Members of ONRC use and enjoy the area affected by this project for various recreational, esthetic, and scientific pursuits including but not limited to: hiking, nature study, solitude, bird watching, fishing, and hunting.

REQUEST FOR RELIEF: ONRC respectfully requests that the Forest Service withdraw the decision being appealed and —

1. issue a new decision that avoids logging and road building in natural stands and protects habitat for native species of terrestrial and aquatic flora and fauna; or
2. prepare a new EIS that fully complies with the requirements of NEPA and the CEQ regulations and addresses the specific concerns expressed in our statement of reasons below.

REQUEST FOR STAY: In accordance with 36 CFR 215.10(b) all implementation of this project must cease until 15 days after the appeal is decided.

STATEMENT OF REASONS:

The Forest Service must consider the cumulative effects on spotted owls and they cannot rely on the 1994 SEIS.

This project threatens to degrade habitat for the Threatened spotted owl. The recent status review indicates that the owl is more at risk than previously realized and the cumulative impacts of management must therefore be reconsidered.

Collawash EA Appendix E purports to analyze new information on the spotted owl, but it fails, in particular when it says …

> Does the new information tell you something substantially different about effects of the proposed action? *No. …*[and]
> Does the magnitude of changed effects require a different level of NEPA analysis than was originally applied? *No.* … [and]
> Does the new information reveal effects to federally listed or proposed species and/or designated or proposed critical habitats in a manner or to an extent not previously considered. *No. …"*

As explained below, especially under "implications" the Forest Service failed to take a hard look at this issue.

New information on the Threatened northern spotted owl indicates that there are significant new uncertainties for the owl that have not been fully considered at the regional or local scale. As recognized by the spotted owl status review, all existing suitable habitat could be critical to the survival of the spotted owl. These new concerns include:

- Competition and displacement from the barred owl which is dramatically increasing in numbers throughout the range of the spotted owl. The barred owl is barely mentioned in the 1994 SEIS. There is no discussion at all in the body of the 1994 SEIS volume I, and there is only one mention of "possible" adverse impacts in volume II of the 1994 SEIS; **Implications**: More suitable habitat may need to be protected to ensure that these two owl species can co-exist.
- The effects of West Nile Virus which is fatal to the owl; **Implications**: A larger population may be better able to survive the stochastic pressures of this disease. It may be important to avoid any further "take" of birds or habitat at least until the disease has run its course. Isolated stands of old-growth may also be important

because they may be dryer and have fewer mosquito vectors. Geographic isolation might also help protect them from the contagious spread of the disease.

- The potential loss of habitat from Sudden Oak Death syndrome; **Implications**: Loss of habitat to SOD, makes remaining habitat more valuable than previously considered in any programmatic NEPA document.
- Greater than expected loss of habitat to wildfire over the last several years; **Implications**: Loss of habitat to fire and the risk of more such losses, makes all remaining habitat more valuable than previously considered in any programmatic NEPA document.
- The potential effect of climate change on regional vegetation patterns; **Implications**: Under a new climate regime, we may not be able to regrow new owl habitat in the reserves as assumed in the NW Forest Plan. Existing old forests are relatively resilient to climate change. It is risky to be conducting regen harvest and expect to be able grow new owl habitat in the reserves under an uncertain climate regime;
- Misapplication of the Healthy Forest Initiative. **Implications**: While it is true that some treatments if carefully done could help reduce the risk of fire while also retaining some owl habitat values, many such fuel reduction treatments in eastside owl habitat will degrade some existing owl habitat, so the remaining owl habitat throughout the owls range becomes more important than previously considered in any programmatic NEPA document.
- The 9th Circuit ruled in Gifford Pinchot Task Force v. USFWS, 378 F.3d at 1062, that avoiding jeopardy is not enough, that critical habitat is intended for recovery. The Gifford Pinchot case invalidated the FWS's regulatory definition of Adverse Modification of Critical Habitat and found that FWS's application of the erroneous standard in the relevant Biological Opinions was not harmless error. The Gifford Pinchot case also held that FWS could not rely on the presence of suitable owl habitat in the late successional reserve network to find that the loss of critical habitat was not "destruction or adverse modification.". **Implications:** The decision to approve logging must not be based on an erroneous standard. A change in information, requiring NEPA supplementation "need not be strictly environmental . . . ; the test is whether the new information so alters the project's character that a new 'hard-look' at the environmental consequences is needed." . . . [I]nformation "that does not seriously change the environmental picture, but that nevertheless affects, or could affect, the decisionmaking process, is subject to the procedural requirements of NEPA." Natural Resources Defense Council v. Lujan, 768 F. Supp. 870, 886-87 (D.D.C. 1991).
- There has also been a continuous loss of suitable owl habitat on non-federal lands that should be considered as a cumulative impact on the viability of the species. **Implications:** Continued loss of habitat on private lands renders remaining suitable habitat on federal land more valuable than it was in 1994 when there was more owl habitat on all ownerships.
- The entire Northwest Forest Plan is premised on the existence of the network of reserves. On Sept 7, 2005 the BLM published a notice of intent to prepare a EIS to revise its western Oregon RMP which will consider eliminating the reserve system on BLM lands. Continued logging will cause further loss of suitable

> habitat and will have long-term consequences. It is arbitrary and capricious to allow implementation of a plan premised on the existence of reserves if those reserves are going away. **Implications:** If there is a chance that BLM reserves will no longer be protected, then all remaining suitable habitat must be protected to retain options for the conservation of the Threatened spotted owl, marbled murrelet, and SONC Coho salmon. The spotted owl cumulative effects analysis in the 1994 SEIS is no longer valid and must be reconsidered at the regional scale. No project-level NEPA document can rely on the 1994 effects analysis because the publication of the NOI means that elimination of the reserves is a "reasonably foreseeable" action.

In September of 2004, FWS' contractor, Sustainable Ecosystems Institute, completed a 500+ page report on the current status of the spotted owl. The report brings to light a series of new concerns about the continued viability of the spotted owl and the agency must prepare a new NEPA analysis to review and consider all the new information about new threats contained in this report. See Courtney, Blakesley, Bigely, Cody, Dumbacher, Fleischer, Franklin, Franklin, Gutierrez, Marzuluff, Sztukowski. September 2004. Scientific evaluation of the status of the Northern Spotted Owl. Sustainable Ecosystems Institute, Portland, Oregon. http://www.sei.org/owl/finalreport/finalreport.htm A few months later, the FWS completed it's status review and analysis of the SEIS report. This official FWS report dated November 2004 describes relevant new information about the owl and is available here:
http://pacific.fws.gov/ecoservices/endangered/recovery/pdf/NSO_5-yr_Summary.pdf

New and increasing threats to spotted owls (Barred owl competition, West Nile Virus, Sudden Oak Death, and increasing habitat loss from wildfires) were not fully considered in the 1994 SEIS for the NW Forest Plan, so the agencies cannot tier to that EIS.

Spotted owls are now declining so rapidly in Washington and Canada that the protection of the remaining owls in Oregon may be far more important to overall survival of the species than previously considered.

The status review shows that habitat loss has been greatest in Oregon. Before allowing any more "take" of spotted owls and before allowing any more adverse modification of suitable habitat, the agencies must prepare a new EIS that considers all the new information and considers whether to increase protection for spotted owls in Oregon.

In view of heightened concern for the future status of the spotted owl caused by continued habit loss from logging and fires, barred owl competition, West Nile Virus, Sudden Oak Death syndrome, and global climate change, all remaining suitable habitat should be protected. Jerry Franklin's summarized the "findings" of the Northern Spotted Owl Status Review scientific review panel as follows:

> The implications of the scientific findings with regards to conservation strategies.
> ...
> ... in view of current uncertainties, such as the eventual outcome of the Spotted Owl/Barred Owl competition, West Nile Virus, and Sudden Oak Death, and

> whatever else comes along -- such as global change and other kinds of introductions -- existing suitable habitat could be important to the persistence of the Northern Spotted Owl. [repeated with emphasis] Existing suitable habitat could be important to the persistence of the Northern Spotted Owl, i.e., risk to Northern Spotted Owl may increase if additional suitable habitat is removed. It is not clear where the Spotted Owl may find the refuge or refuges from new threats within existing suitable habitat. Barred Owl intrusions do not negate the need for structurally complex forest habitat to sustain Northern Spotted Owl based on existing knowledge.

U.S. FISH & WILDLIFE SERVICE SCIENTIFIC REVIEW PANEL FOR THE NORTHERN SPOTTED OWL. . June 22, 2004 PUBLIC HEARING. WASHINGTON STATE UNIVERSITY, VANCOUVER CAMPUS. TRANSCRIPT OF PROCEEDINGS, page 121. http://www.sei.org/owl/meetings/minutes/june-meeting-transcripts.pdf

A recent presentation by the FWS to the Willamette Province Advisory Committee discussed the following "implications" of the 5-year status review:

"Does the new information trigger reinitiation?"
"What are the management implications to NWFP and agency projects?"
"Protect more habitat … that produces benefits?"
"Do OR and CA populations become more important … protect them more?"
"Re-evaluate conservation needs?"

Jim Thrailkill FWS Presentation to the Willamette PAC. December 9, 2004. An EIS is needed to determine whether the effects of further logging of mature and old-growth forests may be significant.

The conclusion that logging will benefit these natural stands is not supported by the best available scientific evidence.

The silvicultural diagnosis says:

> Natural Second-Growth
>
> Units 9 a/b and 10 are natural second-growth stands composed of mid seral natural second-growth and scattered residuals ranging in approximate age from 89 to 95 years as a result of early fire disturbance. At present, these stands are overstocked and are experiencing some suppression mortality. Stem and root decay is affecting small pockets of true fir in the stand. There is an abundance of species diversity throughout these stands but they lack vertical structure since most of the trees are approximately the same height and the trees are so crowded. There is also very little ground vegetation present as a result of their overstocked nature. Thinning at this time would serve to maintain growth and vigor of the stands while providing opportunities for structural diversity and downed wood recruitment.

The DN claims to be introducing variability into these natural stands, but there is no evidence that human intervention is need for these stand to fulfill the spotted owl recovery objectives of this CHU. The stands are already diverse and natural processes are underway to continue the natural development of these stands. Beneficial mortality is already occurring. In fact, the best available information indicates that logging will reduce the quality of these stands and retard the development of high quality spotted owl habitat. This is because, among other things, thinning "captures mortality" and mortality is needed by owls and their prey species and serves other important ecological functions. This is why the Northwest Forest Plan established >80 years as the age at which beneficial effects of thinning would not be expected.

In the paragraphs below, we present the evidence that logging is not an appropriate restoration tool in older stands. Many of the sources below cited refer to HCAs and LSRs but they apply equally to this CHU where the Forest Service claims to be logging will be beneficial to the spotted owl.

"[N]o consensus exists about whether any silvicultural systems would produce the desired results. The ability to harvest timber in currently suitable owl habitat and have that habitat remain suitable has not been clearly demonstrated." ISC Report p 104.

"Late-successional forest communities are the result of a unique interaction of disturbance, regeneration, succession and climate that probably can never be created with management. At present, we do not even fully understand the structure, species composition, and function of these forests. The best we can hope to accomplish through silviculture is to at least partially restore or accelerate the development of some of the structural and compositional features of such forests. Because they will be regenerated by different processes during a different period from that of the existing late-successional forests, it is highly likely that silviculturally created stand will look and function differently from current old stands that developed over the last 1,000 years. Consequently, conserving a network of natural old-growth stands is imperative for preserving biodiversity into the future." FEMAT IV-31, 32.

In 1991 Congress asked the Interagency Scientific Committee why we could not log the owl back to life.

> **Question— Why do the HCAs [owl reserves] not allow forest management activities? Answer—** The intent of the HCAs is to provide a network of large blocks of habitat for northern spotted owls until reasonable certainty exists that forest practices are available for producing and maintaining equally good habitat. Such management can then be applied in HCAs. Proven technology to achieve that end does not currently exist. Because extant populations will be greatly reduced (perhaps by 50 percent or more) by cutting, we believe ensuring that the quality of the habitat retained within HCAs must be as high as possible.

February 1991 Questions and Answers on A Conservation Strategy for the Northern Spotted Owl (prepared in response to written questions from the Senate Energy and Natural Resources Committee to the Interagency Scientific Committee on the May 1990 ISC Report).

Since the Northwest Forest Plan was approved, there is no new information indicating that commercial logging of suitable nesting, roosting, foraging habitat is compatible with owl conservation. The Northwest Forest Plan "Research Synthesis" asserts that some silvicultural methods are being tested but results are not yet available.[1]

Answering the logging compatibility question will require long-term research. "It has become apparent that many questions relating to integrated management for multiple resource objectives cannot be answered by the type of small-plot silvicultural studies common in the past. These questions require long-term experimentation on areas large enough to allow evaluation of operational feasibility, public response to visual effects, wildlife effects, comparative costs, and timber yields (McComb et al. 1994)." Curtis, Robert O.; Marshall, David D.; DeBell, Dean S., eds. 2004. Silvicultural options for young-growth Douglas-fir forests: the Capitol Forest study—establishment and first results. Gen. Tech. Rep. PNW-GTR-598. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 110 p. http://www.fs.fed.us/pnw/pubs/pnw_gtr598.pdf

The SAT Report specifically highlighted the risks associated with logging in suitable owl habitat within Old-Growth Emphasis Areas. **[S]pecifically … Bureau of Land Management's intentions to selectively cut forest stands to create conditions favorable for spotted owls, represents increased risks to the viability of the spotted owl** [SAT Report p 145]. The SAT said there were at least five factors that support this conclusion and affirm the ISC's decision to exclude logging and rely on prescribed fire and other natural processes to maintain and restore habitat in the reserves:

a. There is "a recognition on the part of biologists that spotted owl habitat exists within a continuum with respect to its ability to provide for all the life needs of the spotted owl. … [I]t appears that Bureau of Land Management viewed all types of suitable spotted owl habitat equally in terms of their capability to provide for the balance between birth and death rates. …. The Scientific Analysis Team considers this approach particularly risky when assessing forest stands which develop in response to timber harvest. In the opinion of Scientific Analysis Team, assessments that do not account for the differential quality of habitats fail to fully assess the risks associated with habitat manipulation." [SAT Report p 146]

b. "Lacking experience with selective cutting designed to create spotted owl habitat, such practices must be considered as untested hypotheses requiring testing to determine their likelihood of success. ... Given the uncertainty of achieving such expectations, it is likely that some silvicultural treatments, which have been characterized as largely experimental, may well have an opposite effect from that expected. Consequently, such treatments may hinder the development of suitable habitat or they may only partially succeed, resulting in development of marginal habitat that may not fully provide for the needs of spotted owls. Results which fall short of the expected conditions

[1] Haynes, Richard W.; Perez, Gloria E., tech. eds. 2000. Northwest Forest Plan research synthesis. Gen. Tech. Rep. PNW-GTR-498. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 130 p. http://www.fs.fed.us/pnw/pubs/gtr498.pdf

could occur because of delay or failure to regenerate stands that have been cut, increased levels of windthrow of remaining trees, mechanical damage during logging to trees remaining in the logging unit, the spread of root rot and other diseases. Increased risk of wildfires associated with logging operations that increase fuels and usually employ broadcast burning to reduce the fuels also increase the risk of not attaining expected results. Such events may spread to areas adjacent to stands that are logged, thereby affecting even more acreage than those acres directly treated." [SAT p 147-148] The SAT indicates that these comments apply equally to density management and patch cutting, both of which BLM promoted as tools to enhance owl habitat. The SAT also cited concerns about the effect of logging on snags and down woody debris which are essential features of owl habitat.

c. "Planning produces a description of desired future conditions [and] culminates in a final plan for a project which, for timber sales, involves legal contracts obligating the purchaser and the seller to specific provisions. … Our experience is that commonly not all provisions of the plan are thoroughly incorporated into such contracts, nor are all contract provisions thoroughly administered to ensure compliance. This situation further increases the probability that objectives for attaining desired future conditions for habitat will be met." [SAT p 148-149].

d. "There are also probabilities associated with how well monitoring will identify 'trigger points' that indicate a management plan may need modification. The more complex the plan (i.e., the more variables there are to monitor) the less likely the monitoring plan will successfully detect problems. Manipulation of forest stands to accelerate development of spotted owl habitat on a landscape scale, as prescribed in the Bureau of Land Management Preferred Alternative, is an extremely complex issue involving a myriad of variables over a very long timeframe. Development of a monitoring plan intensive enough to isolate the causes of observed variations for wide-scale implementation of the Bureau of Land Management Preferred Alternative seems unlikely to us. … [I]nadequate monitoring will increase, perhaps dramatically, the risk of failure of a plan that relies heavily on adaptive management." [SAT p 149].

e. "A basic requirement for a viable adaptive management strategy is the existence of resources necessary to make the required adjustments. Adaptive management can only be expected to reduce risk if options to adjust management to fit new circumstances are not eliminated. Adaptive management, therefore, can be considered a means to reduce risk associated with a Resource Management Plan commensurate with the options for adjustment which remain during the time the plan is in effect." [SAT p 149-150] In other words, silvicultural manipulation of old forests has long-term consequences with unknown outcomes which is likely to foreclose some future options in those stands thus reducing the utility of adaptive management. A prime example is the fact that logging "captures mortality,"

yet mortality is an essential feature of old-growth habitat used by both owls and their prey.

f. SAT then noted the cumulative effects of all these uncertainties, "The combined risks associated with treatment of spotted owl habitat or stands expected to develop into suitable habitat for spotted owls, as discussed above, will likely result in situations where either habitat development is inhibited or only marginal habitat for spotted owls is developed. The exact frequency of these partial successes or failures is unknown. Given the likely cumulative relationship among the risks for each factor, it appears to us that the overall risk of not meeting habitat objectives is high. … Members of the Interagency Scientific Committee indicated that, because a plan (the Interagency Scientific Committee's Strategy) was put forth which proposes to reduce the population of a threatened species by as much as 50 percent, providing the survivors with only marginal habitat would be extremely risky and certainly in their minds not "scientifically credible" (USDA 1991:45)." [SAT p 151].[2]

g. The SAT concluded, "The transition period (1-50 years) between implementation of the Interagency Scientific Committee's Strategy and achievement of an equilibrium of habitat and spotted owls is a critical consideration. … Given the existing risks that face owl populations and the sensitivity of the transition period, the short-term effect of these actions on habitat loss may be much more significant than the long-term predicted habitat gains. We further conclude that, although research and monitoring studies are presently being initiated, no significant new data exist which suggest that the degree of certainty that is expressed in the Bureau of Land Management Draft Resource Management Plans for developing owl habitat silvicultural treatments is justified. Therefore, it is our opinion that the course prescribed in the Interagency Scientific Committee's Strategy, pertaining to timber harvest in Habitat Conservation Areas, remains the most likely course to result in superior habitat conditions within reserves (i.e., Old-Growth Emphasis Areas). The approach prescribed by the Interagency Scientific Committee's Strategy preserves options for adjustments in the course of management under a philosophy of adaptive management.." [SAT p 151-152].

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[2] In answers to questions from the United States Senate Subcommittee on Energy and Natural Resources (USDA 1991:53) members of the Interagency Scientific Committee provided additional background regarding the intent for habitat in Habitat Conservation Areas.

> "The intent of the Habitat Conservation Areas is to provide a network of large blocks of habitat for northern spotted owls *until reasonable certainty exists* (emphasis added) that forest practices are available for producing and maintaining equally good habitat. Such management can then be applied in Habitat Conservation Areas. *Proven technology to achieve that end does not currently exist* (emphasis added). Because extant populations will be greatly reduced (perhaps by 50 percent or more) by. cutting, we believe that ensuring that the quality of the habitat retained within must be as high as possible.., so the team recommended that existing old forests in Habitat Conservation Area should be left unmanaged, and that some previously harvested stands be allowed to develop in an unmanaged condition."

h. The SAT noted that "considerable additional research is likely required" before we will know whether silviculture can be compatible with spotted owls, and while the spotted owl is relatively well studied, the risks and uncertainty are even more pronounced for the hundreds of other species associated with old-growth. (SAT p 147). It should also be recognized that FEMAT was directed to ensure that "tests of silviculture should be judged in an ecosystem context and not solely on the basis of single species or several species response." (FEMAT p iii).

The FS and FWS seem to believe that CHU that was allocated to the Matrix only needs to fulfill a dispersal function. However, the final rule designated CHU had higher expectations (that CH would fulfill all the owls life needs not just dispersal). The FWS cannot change the purpose of critical habitat without preparing a new rule which it has not done. Furthermore, the quality of dispersal habitat is directly proportional to its similarity to suitable NRF habitat, so this logging project will degrade the quality of thses lands even for dispersal and foraging. This is contrary to the recovery objective for the CHU.

Significant and Cumulative impacts require an Environmental Impact Statement—

Logging that degrades a designated critical habitat for the Threatened spotted owl has significant impacts are requires an EIS. There is also significant cumulative effects associated with this and other logging projects within the range and habitat of the spotted owl, and the Forest Service can no longer tier to the 1994 SEIS, because there is significant new information indicating that the spotted owl is more at risk than considered in 1994.

The EA snag analysis is inadequate. The EA Response to comments says:
"Two methodologies are used to describe effects to snags: DecAid and biological potential. Biological potential is the measure used in Forest Plan standards and guidelines. The analysis shows that on the landscape scale, snags are not scarce (s. 4.5.4)." The problem is that the biological potential methods have been discredited and the adoption of the DecAID methods have not been subjected to NEPA analysis.

In a dynamic ecosystem life may be fleeting but the snags and logs that survive disturbance provide very critical temporal links from one stand to the next. Under natural conditions, a forest hands down a large legacy of living and dead material from one stand to another even after an intense disturbance. See

1. Franklin, J.F., Lindenmayer, D., MacMahon, J.A., McKee, A., Magnuson, J., Perry, D.A., Waide, R., and Foster, D. 2000. Threads of Continuity. Conservation Biology in Practice. [Malden, MA] Blackwell Science, Inc. 1(1) pp9-16.
2. William F. Laudenslayer, Jr., Patrick J. Shea, Bradley E. Valentine, C. Phillip Weatherspoon, and Thomas E. Lisle *Technical Coordinators.* Proceedings of the Symposium on the Ecology and Management of Dead Wood in Western Forests. PSW-GTR-181. http://www.fs.fed.us/psw/publications/documents/gtr-181/

3. Lofroth, Eric. 1998. The dead wood cycle. In: Conservation biology principles for forested landscapes. Edited by J. Voller and S. Harrison. UBC Press, Vancouver, B.C. pp. 185-214. 243 p. http://www.for.gov.bc.ca/hre/deadwood/DTrol.htm
4. Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 *in* ***Wildlife-Habitat Relationships in Oregon and Washington*** (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001) http://www.nwhi.org/nhi/whrow/chapter24cwb.pdf
5. Stevens, Victoria. 1997. The ecological role of coarse woody debris: an overview of the ecological importance of CWD in B.C. forests. Res. Br., B.C. Min. For., Victoria, B.C. Work. Pap. 30/1997. http://www.for.gov.bc.ca/hfd/pubs/docs/Wp/Wp30.pdf

Felling and removal of large trees, whether they are alive or dead, removes large material that is normally handed down from one stand to the next. The loss of this material has serious adverse consequences for wildlife, hydrology, soil, etc. These legacies are often described as "lifeboats" that allow species to persist in post-disturbance forests and/or return more rapidly to post-disturbance forests. Given cumulative loss of habitat and ecological functions over the last century, how many lifeboats can we take off the ship when threatened and endangered species and sensitive species are at stake? The NEPA analysis must account for all the values provided by snags and down wood and the effect of removing these legacy structures.

The NEPA analysis must recognize that mechanical treatments unavoidably reduce snag habit, if for no other reason than the habitual removal of snags for safety reasons. In the Windjammer EA, the Siuslaw NF noted that at least six times more coarse wood carries over from old-growth forests after wildfire compared to timber harvest, and the CWD left after logging is smaller and decays faster (*citing* Spies & Cline 1988)[3]. Even when snag removal is not an intentional design feature of a project, hazard tree felling normally occurs in all treatment areas, plus a safety buffer around all treatment areas, plus a safety corridor along roads, and other work areas. This is a large part of why Korol et al (2002) found that large snag habitat is below historic range of variability, and in the future would attain historic levels only in roadless and wilderness areas. Given the current extent of the road network and the historic extent of logging, the cumulative effects analysis must recognize the inherent conflict between "forest management" (past, present and future) and snags and all their values.

Bats, martens, woodpeckers, bears, amphibians, invertebrates, and many other species are dependant upon snags and down wood. Approximately 31% of the total bird fauna of this region use snags for nesting and denning, foraging, roosting, communicating, and as hunting and resting perches. (Raphael and White 1984), so the importance of dead wood as a habitat element cannot be over-stated. Snags and down wood also serve several

[3] Spies, T. A., and S. P. Cline. 1988. Coarse woody debris in forests and plantations of coastal Oregon. Pp. 5-23 in: C. Maser, R. F. Tarrant, J. M. Trappe, and J. F. Franklin, ed. From the forest to the sea: a story of fallen trees. Gen. Tech. Rpt. PNW- GTR-229. USDA Forest Service, Portland OR. http://www.fs.fed.us/pnw/pubs/229chpt1.pdf

crucial ecosystem functions related to site productivity, nutrient storage & cycling, hydrology, geomorphology, disturbance, and habitat (terrestrial, riparian and aquatic).

Current plan direction for protecting and providing snags and down wood tends to be focused on a small subset of the full spectrum of values provided by dead wood and does not ensure the continued operation of these ecosystem functions or meet the complete lifecycle needs of the many species associated with this unique and valuable habitat component.

The Forest Service failed to consider the findings presented in Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 *in* ***Wildlife-Habitat Relationships in Oregon and Washington*** (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001)
http://www.nwhi.org/nhi/whrow/chapter24cwb.pdf

> **Lessons Learned During the Last Fifteen Years**
> …
> Several major lessons have been learned in the period 1979-1999 that have tested critical assumptions of these earlier management advisory models:
>
> **.** Calculations of numbers of snags required by woodpeckers based on assessing their .biological potential. (that is, summing numbers of snags used per pair, accounting for unused snags, and extrapolating snag numbers based on population density) is a flawed technique. Empirical studies are suggesting that snag numbers in areas used and selected by some wildlife species are far higher than those calculated by this technique.[226]
>
> **.** Setting a goal of 40% of habitat capability for primary excavators, mainly woodpeckers,[369] is likely to be insufficient for maintaining viable populations.
>
> **.** Numbers and sizes (dbh) of snags used and selected by secondary cavity-nesters often exceed those of primary cavity excavators.
>
> **.** Clumping of snags and down wood may be a natural pattern, and clumps may be selected by some species, so that providing only even distributions may be insufficient to meet all species needs.
>
> **.** Other forms of decaying wood, including hollow trees, natural tree cavities, peeling bark, and dead parts of live trees, as well as fungi and mistletoe associated with wood decay, all provide resources for wildlife, and should be considered along with snags and down wood in management guidelines.
>
> **.** The ecological roles played by wildlife associated with decaying wood extend well beyond those structures per se, and can be significant factors influencing community diversity and ecosystem processes.

The bottom line is that current management at both the plan and project level does not reflect all this new information about the value of abundant snags and down wood. The agency must avoid any reduction of existing or future large snags and logs (including as part of this project) until the applicable management plans are rewritten to update the snag retention standards. See also PNW Research Station, "Dead and Dying Trees: Essential for Life in the Forest," Science Findings, Nov. 1999 (http://www.fs.fed.us/pnw/sciencef/scifi20.pdf) ("Management implications: Current

direction for providing wildlife habitat on public forest lands does not reflect findings from research since 1979; more snags and dead wood structures are required for foraging, denning, nesting, and roosting than previously thought.") See also:
Jennifer M. Weikel and John P. Hayes, HABITAT USE BY SNAG-ASSOCIATED SPECIES: A BIBLIOGRAPHY FOR SPECIES OCCURRING IN OREGON AND WASHINGTON, Research Contribution 33 April 2001, http://www.fsl.orst.edu/cfer/snags/bibliography.pdf; and DecAID, the Decayed Wood Advisor for Managing Snags, Partially Dead Trees, and Down Wood for Biodiversity in Forests of Washington and Oregon, http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf

The Forest Service failed to consider the following before relying on DecAID:

1. Before relying on DecAID, the agency must prepare a comprehensive NEPA analysis to consider alternative ways of ensuring viability of all species dependent upon snags and dead wood. While it is true that the "potential population" or "habitat capability" method is no longer considered scientifically valid, the agency has not yet considered a full range of alternative methods to replace the habitat capability method mandated in the forest plans.
2. Before using DecAID, the agency must establish a rational link between the tolerance levels in DecAID and the relevant management requirements in the applicable resource management plan. For instance, since the Eastside Screens require maintenance of 100% potential population of primary cavity excavators, the agency must explain why that does not translate into maintaining *100% of the potential tolerance level*. If the site is capable of supporting 80% tolerance levels, the agency should not be able to manage for 30-50% tolerance levels and still meet the 100% potential population requirement.
3. Blind reliance on DecAID is inappropriate. DecAID does not pick the management objective. The agency must specify the management objective based on RMP objectives for the land allocation or based on natural "range of variation." Since large snags are outside the natural range of variability across the landscape, the agency must retain all large snags to start moving the landscape toward the natural range of variability, or the agency must carefully justify in the NEPA analysis every large snag it proposes to remove. See Jerome J. Korol, Miles A. Hemstrom, Wendel J. Hann, and Rebecca A. Gravenmier. 2002. *Snags and Down Wood in the Interior Columbia Basin Ecosystem Management Project*. PNW-GTR-181. http://www.fs.fed.us/psw/publications/documents/gtr-181/049_Korol.pdf This paper estimates that even if we apply enlightened forest management on federal lands for the next 100 years, we will still reach only 75% of the historic large snag abundance measured across the interior Columbia Basin, and most of the increase in large snags will occur in roadless and wilderness areas.
4. Be sure to use the DecAID tool appropriately. The agency must address the dynamics of snag habitat over time, by ensuring that recommended snag levels are maintained over time given typically high rates of snag fall and low rates of snag recruitment following fire. These dynamics are not accounted for in the DecAID advisor. The agency often misuses the DecAID decision support tool by

looking at only a snap-shot in time. The agency relies on DecAID to analyze impacts on snag dependent species, but the agency fails to recognize that

> "DecAID is NOT: … a snag and down wood decay simulator or recruitment model [or] a wildlife population simulator or analysis of wildlife population viability. … Because DecAID is not a time-dynamic simulator … it does not account for potential temporal changes in vegetation and other environmental conditions, … DecAID could be consulted to review potential conditions at specific time intervals and for a specific set of conditions, but dynamic changes in forest and landscape conditions would have to be modeled or evaluated outside the confines of the DecAID Advisor."

Marcot, B. G., K. Mellen, J. L. Ohmann, K. L. Waddell, E. A. Willhite, B. B. Hostetler, S. A. Livingston, C. Ogden, and T. Dreisbach. In prep. "DecAID -- work in progress on a decayed wood advisor for Washington and Oregon forests." Research Note PNW-RN-XXX. USDA Forest Service, Pacific Northwest Region, Portland OR. (pre-print)
http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf/HomePageLinks/44C813BC574BDFCC88256B3E006C63DF

To clearly and explicitly address the issue of "snag dynamics" the can start by reading and responding to the snag dynamics white paper on the DecAID website which says "To achieve desired amounts and characteristics of snags and down wood, managers require analytical tools for projecting changes in dead wood over time, and for comparing those changes to management objectives such as providing dead wood for wildlife and ecosystem processes" and includes "key findings" and "management implications" including "The high fall rate (almost half) of recent mortality trees needs to be considered when planning for future recruitment of snags and down wood. Trees that fall soon after death provide snag habitat only for very short periods of time or not at all, but do contribute down wood habitat. In fact, these trees are a desirable source of down wood as they will often begin as mostly undecayed wood and, if left on the forest floor, will proceed through the entire wood decay cycle with its associated ecological organisms and processes that are beneficial to soil conditions and site productivity."
http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf/HomePageLinks/863EEA66F39752C088256C02007DF2C0?OpenDocument

5. The tolerance levels from DecAID may be too low to support viable populations of wildlife associated with dead wood, because anthropogenic factors that tend to reduce snags (e.g., firewood cutting, hazard tree felling, fire suppression, and salvage logging) may have biased the baseline data that DecAID relies upon to describe "natural" conditions. See Kim Mellen, Bruce G. Marcot, Janet L. Ohmann, Karen L. Waddell, Elizabeth A. Willhite, Bruce B. Hostetler, Susan A. Livingston, and Cay Ogden. *DecAID: A Decaying Wood Advisory Model for Oregon and Washington* in PNW-GTR-181, *citing* Harrod, Richy J.; Gaines, William L.; Hartl, William E.; Camp, Ann. 1998. *Estimating historical snag density in dry forests east of the Cascade Range.* PNW-GTR-428.
http://www.fs.fed.us/pnw/pubs/gtr_428.pdf

6. DecAID is still an untested new tool. The agencies must conduct effectiveness monitoring to determine whether the snag and down wood retention recommendations in the DecAID advisor will meet management objectives for wildlife and other resource values.
7. DecAID must be used with extreme caution in post-fire landscapes because the data supporting DecAID does not include natural post-fire landscapes. ("The inventory data likely do not represent recent post-fire conditions very well … young stands originating after recent wildfire are not well represented because they are an extremely small proportion of the current landscape … The dead wood summaries cannot be assumed to apply to areas that are not represented in the inventory data." "DecAID caveats" http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf).
8. DecAID relies on a wide range of sources in the literature, some of which recommend much higher levels of snag retention than reflected in the advisor. The agency NEPA analysis should disclose the published literature with higher levels of snag and wood retention and discuss their potential relevance for the project. ("the agency must disclose responsible opposing scientific opinion and indicate its response in the text of the final statement itself. 40 C.F.R. § 1502.9(b)." Center for Biological Diversity v. United States Forest Service, No. 02-16481 (9th Cir., Nov. 18, 2003).)
9. DecAID tolerance levels need careful explanation. These tolerance levels are very difficult to put in terms that are understandable by the general public, but if the Forest Service is going to use this tool they must make it understandable. The NEPA analysis should provide cumulative species curves for each habitat type and each forest structural stage and should explain the studies and publications that support the data points on the curves. What kind of habitat were the studies located in? What was the management history of the site? Was the study investigated nesting/denning, or roosting and foraging too?
10. DecAID does not account for the unique habitat features associated with snags. DecAID primarily just counts snags and assumes that all snags of approximately the same size have equal habitat value, but this fails to account for the fact that certain types of snags and dead wood features are unique, such as: hardwood snags, hollow trees and logs, different decay classes, etc. The NEPA analysis must account for these features and the agency should disproportionately retain dead wood likely to serve these unique habitat functions.
11. DecAID authors caution that "it is imperative, however, to not average snag and down wood densities and sizes across too broad an area, such as across entire watersheds, leaving large areas within watersheds with snags or down wood elements that are too scarce or too small" Kim Mellen, Bruce G. Marcot, Janet L. Ohmann, Karen L. Waddell, Elizabeth A. Willhite, Bruce B. Hostetler, Susan A. Livingston, and Cay Ogden. *DecAID: A Decaying Wood Advisory Model for Oregon and Washington* in PNW-GTR-181. http://www.fs.fed.us/psw/publications/documents/gtr-181/042_MellenDec.pdf While we agree that snags and won wood must not be averaged over wide areas, we also must emphasize that snags and down wood are far below historic levels on non-federal lands, so in order to ensure viable populations of wildlife and

avoid trends toward ESA listing, federal lands must be managed to compensate for the lack of down wood on non-federal lands.

12. DecAID appears to be based on the idea that the habitat needs of certain key wildlife species represent the best determinant of how much dead wood to retain, and this may in fact be true, but DecAID should also include cumulative curves for other ecological functions provided by dead wood, including: site productivity, nutrient storage and release, erosion control, sediment storage, water storage, water infiltration and percolation, post-fire micro-site maintenance, biological substrate, thermal mass, etc. How much dead wood is needed for thee functions.

Sincerely,

Doug Heiken