APPENDIX E

CONSIDERATION OF COMMENTS

FOREST SERVICE CONSIDERATION OF COMMENTS RECEIVED ON THE WINTER FIRE SALVAGE PROJECT ENVIRONMENTAL ASSESSMENT

The Winter Fire Salvage Project Environmental Assessment (EA) was made available for public comments during the period of November 13 through December 13 of 2003. The comment period was announced with legal notices published in the Klamath Falls Herald and News (November 13, 2003). Copies of the EA were distributed to all parties who provided input or expressed interest or concern about the project. The EA was available on the Winema National Forest website during the comment period. Timely comments on the EA of October 2003 were provided by Jay Lininger on behalf of American Lands Alliance, Blue Mountains Biodiversity Project, Northwest Ecosystem Defense Center and Klamath-Siskiyou Wildlands Center, Doug Heiken of Oregon Natural Resources Council (ONRC), Gary Johnson of Fremont Sawmill, and Mary Jo Hedrick of the Oregon Department of Fish and Wildlife. While all comments received were reviewed, substantive comments received the focus during consideration of the comments. Substantive comments are defined by 36 CFR part 215, 215.2 (Definitions) as "Comments that are within the scope of the proposed action, have a direct relationship to the proposed action and include supporting reasons for the Responsible Official to consider" (Federal Register June 4, 2003). In some cases, comments described below are paraphrased rather than quoted directly.

Jay Lininger – American Lands Alliance, Blue Mountains Biodiversity Project, Northwest Ecosystem Defense Center, and Klamath-Siskiyou Wildlands Center

1) COMMENT: ***The range of alternatives is incomplete without a "restoration-only" alternative that would accomplish needed road decommissioning and closures, drainage maintenance and noxious weed treatments without extracting biological legacies of the Winter Fire (standing dead trees).***

RESPONSE: As discussed in the EA (pgs. 15-17) only alternatives that were responsive to the needs and purposes of the project were fully developed and analyzed. The Forests proposed salvage of fire-killed trees and the associated activities to meet the underlying need for commercially valuable timber from the Winter Fire (EA pgs. 4-5) while meeting the purposes of supporting jobs in the local area, providing woodpecker habitat, rapidly regaining a ponderosa pine forest and achieving consistency with the Forest Plan. A "restoration-only" alternative as suggested would not meet the needs or purposes for which the project was proposed.

One of the primary factors the Responsible Official will use to select an alternative is an examination of how each alternative meets the project purposes and needs. Fully analyzing an alternative that would not achieve these purposes and needs would not help the responsible official make an informed decision.

2) COMMENT: ***An Environmental Impact Statement (EIS) is required for the salvage alternatives and the proposed Forest Plan Amendment.***

RESPONSE: An environmental impact statement is required when a major Federal action may significantly affect the quality of the human environment (42 USC § 4332). Agencies may prepare an environmental assessment on any action at any time in order to assist agency planning and decision making (36CFR1501.3(b)). The Decision Framework for this project is described on page 5 of the EA. One of the decisions the responsible official will make is: "Whether this action will have a significant impact on the quality of the human environment and thus require development of an environmental impact statement (EIS)." The finding of significance for this project will be determined by using the site-specific analysis found in the EA.

3) COMMENT: ***The EA asserts that post-fire salvage logging would reduce "overall fire intensity" in the project area, without disclosing the significant increase in fire hazard that will result from leaving flammable logging slash on the ground.***

According to the EA, "the tops of the trees harvested would be left on the land surface" in order to mitigate soil erosion (pp. 83-84). The felling of trees relocates unburned canopy biomass (branches and twigs) to the ground surface. This creates a readily ignitable fuel bed and significantly increases the immediate danger of a severe reburn. The change in fuel complex resulting from post-fire logging may cause higher rates of fire spread and greater flame lengths should an ignition occur. Heavy logging slash generates the highest fireline intensity of any wildland fuel type when it is dry (Andrews 1986, Rothermel 1991). Indeed, logging without timely treatment of slash is the single most important factor contributing to an increase in the intensity and severity of subsequent wildfires (Stephens 1998, van Wagtendonk 1996, Weatherspoon 1996).

At this site, fuel loading is currently low (EA p. 66). The EA does not disclose how much logging slash would remain in the project area (tons per acre), or how its presence might influence any of the three lightening fires that usually ignite in the project area in an average year (p. 66).

Although the Forest Service never quantified the actual amount of slash that would be left on the site, an agency researcher reports that fine fuels available for flaming combustion commonly increases from 3 to 13 tons per hectare in Oregon after post-fire logging operations that did not include slash treatment (Duncan 2002). Slash created by salvage logging operations, if not treated, also may increase the duration and intensity of a subsequent ground fire, with resultant increases in the severity of soil heating effects (Reinhardt and Ryan 1998).

Research on the Klamath National Forest in northwest California found greater proportions of high severity fire on lands where salvage logging occurred after a 1977 wildfire compared to burned sites that were not logged (Weatherspoon and Skinner

1995). More recent research in the same area points to an increased likelihood of catastrophic reburning at very short timescales when burned forests are logged (Odion et al. in review). This is primarily due to accumulations of residual logging slash. In the absence of post-fire logging, intense reburns are not likely.

An EIS is required to address the significant effects to public health and safety, this controversial issue and the unknown risks it presents.

RESPONSE: In the Fuels section of the EA (pg. 67), it is recognized that "trees less than merchantable size and the logging related slash will contribute to fuel loadings in the treated units".

The specific statement made in the Fuels section of the EA (pg. 67) is "Although likely fire occurrence would be the same in all alternatives, the overall fire intensity would be lower in Alternatives 2 and 3 and any negative effects on the natural resources in the area from fire will be less than those expected under Alternative 1" (No Action).

The fine woody fuels pose a short-term fire hazard until the slash from the harvesting operations decays and compacts. In the mid and long term however, removing the large fuels would produce lower fuel loadings than would be expected without harvest operations.

The overall improvement, in terms of fuel loading or fire risk is noted in Mclver and Starr "Work examining fuels on harvested green tree stands suggests that post fire logging may increase short-term fuel loads and fire risk, owing to increased fine activity fuels, but reduce intermediate and long-term fire risk through removal of larger dead structure." (page 21) and "Logging in post fire stands, however, would be expected to produce less fine activity fuel because the fine material burned, and one would expect removal of large diameter material to have an intermediate-term effect similar to green tree stands." (page 19) and "The removal of merchantable material from a logged post fire site will be expected to affect habitat for certain species of wildlife and reduce intermediate-term fuel loadings." (page 17).

The references of Stephens 1998, van Wagtendonk 1996 and Weatherspoon 1996 address management practices, including fuel treatments, in green stands, not a post-fire environment such as the Winter Fire area. While it is easy to agree that heavy logging slash generated through treatments such as thinnings, insect sanitation and salvage cuts, and other partial cuttings, could contribute to increased fire intensity, the potential activity-generated fuels in the Winter Fire Salvage Project will be rather dissimilar.

Tree crowns were completely consumed or significantly burned on those trees that would be felled during salvage logging. The fire area has now been subject to two winter snow packs, which has likely resulted in all the scorched needles and twigs and some limbs falling to the ground and beginning to decay. Salvage logging will not result in heavy slash concentrations across the area; rather treetops would be left scattered discontinuously across the harvest units.

In reference to the quote above from Duncan (2002), the document ("Postfire logging: Is it beneficial to a forest?" *Science Findings* 47 October 2002. USDA) also notes on page 3, in a quote from Roger Ottmar PNW research forester, "If it is left unlogged, it may indeed increase fire hazard as the fire-killed trees begin to fall and add fuels to the ground. However, that hazard drops dramatically over the years as the material decays and is compacted by snow. Similarly, the slash left by logging initially increases fuels available to burn if the fuels are not treated immediately; but the fuel level rapidly drops as the slash decays and compacts." Additionally on page 5, "the jury is still out on the reburn question. All size classes of woody fuel actually increased on the logged as well as the control units in the experiment. But logging added more small-diameter fuel in the short term due to handling of the felled logs. This resulted in slightly higher post-logging fuel load in the harvested units. Yet logging also reduced the amount of standing fuel, in the form of dead trees, he notes. As these dead trees fall down, they will contribute to future fuel loads. If their decay rate is fast and the next fire doesn't happen for a long while, the initial fuel differences between control and salvage won't matter much. But if decay rate is slow, or if the next fire happens soon, then a "reburn" effect could occur" (Ottmar in Duncan 2002). The document goes on to read, "Model projections reveal that logging units might have less fuel in the long run and may burn less intensely, but, …the rates of decay of down material make a huge difference to those results. Rapid decay, rapid loss of fuel. Slow decay, plenty of fuel for subsequent fires for up to 50 years."

An evaluation of current and predicted fuel conditions/fire behavior through use of the BEHAVE fuel model under a harvest/no harvest scenario, found that harvesting commercial size material would reduce potential risks associated with energy release and resistance to control and mop up. Development of a dense brush/shrub cover fuel type would be the most critical fuel element that would directly influence fire behavior and pose the greatest challenge to suppression efforts (Fuels and Fire Behavior Analysis, Winter Fire, Baldwin 2004).

The fire consumed a very high amount of surface fuel, even in the low fire intensity areas where most of the surface fuel was consumed (EA pg. 66). Salvage will occur in areas where burn intensity was moderate to high and most surface fuel was consumed. As discussed in the EA page 66, throughout the Winter Fire area there are on average 3 fire starts annually, this equate to about 1 fire start for every 11,000 acres. Fires have and will occur at irregular intervals, the risk of a fire start in any particular area is small however and not affected by the choice of any alternative.

The Interdisciplinary Team concluded that the positive value of treetops left scattered discontinuously across the landscape, as erosion control and organic material, would outweigh any negative value as fuel. This strategy that represents a balance of risk; future fire hazard; contributions of down material to habitat and soils; are supported by Brown (2003). In GTR-105 he notes that management of coarse woody debris following fire needs to consider the positive contributions of such material in terms of ecological needs, while at the same time addressing its contribution to fire hazard.

4) COMMENT: ***New plantations would increase fire hazard. Tree planting following post-fire logging operations significantly increases fire hazard in the mid- to long-term. The Winter EA asserts that seedlings would be planted with sufficiently wide spacing "so that the tree crowns would not touch as quickly," and thus "help reduce the fire hazard in the new stands that develops" (p. 67). It is dangerous to think that tree spacing alone would "reduce the fire hazard." First, the EA continues to ignore the effects of elevated slash loading in the newly planted stands, and this factor consistently accounts for the most intense and severe wildfires wherever the phenomenon is studied. Second, the EA proposes no means to mitigate the altered microclimate that exists in tree plantations compared to the unlogged forest they would replace. Third, the EA overlooks the short- to mid-term connectivity of branches among trees and brush that would exist before trees begin to overtop and shade out inevitable brush growth, as predicted. Post-fire logging and plantation establishment will reinforce a tendency toward high fire severity. The EA fails to deal with the reality that post-fire logging irreversibly hinders the natural low-severity fire regime.***

RESPONSE: Post-fire logging is proposed on approximately 2,997 acres of the 23,915 acres of National Forest lands included in the Winter Fire. Of this 2,997 acres proposed for salvage logging, approximately 906 acres would be planted with ponderosa pine seedlings. The conifer planting included in the action alternatives is one of the necessary steps to meet the purpose and need to "rapidly regain a ponderosa pine forest". The planting would be at a density well below that typically used in the past. Instead the amount (density) planted is designed to allow development of old park-like stands of ponderosa pine. See EA pages 48 to 54 for a detailed discussion. Also see response to comment 32.

Within the approximately 23,915 acres of National Forest within the fire perimeter, the proposed conifer planting (906 acres) included in Alternatives 2 and 3 would produce a varied mosaic; with areas of suitable ground planted to achieve stocking densities of approximately 100-150 trees per acre; areas of non-suitable ground planted to achieve stocking densities of approximately 50 trees per acre and large areas where no salvage or planting activity will occur allowing for natural recovery processes.

Natural regeneration will not reforest areas of complete mortality greater than a few acres in size, actual size somewhat dependent on shape, distance from seed producing trees, and wind direction. Without planting, very little ponderosa pine establishment would occur due to the limited ability of ponderosa pine to seed over large areas, the large expanses of burned area where live ponderosa pine does not currently exist, and the long intervals between cone crops where viable ponderosa seed is abundant. The planting prescriptions are designed to produce a low-density young stand, rather than a stand that is inherently at risk because of fuels arrangement. The fire behavior in higher vegetative mortality areas of the Winter Fire was outside the range of historical fire behavior ("*natural low-severity fire regime*") for the ponderosa pine type in this area. The current condition does not represent some historical norm that would now enter a "normal successional process"**.** Due to extensive areas of tree mortality, the amount of area without a ponderosa pine seed source is far greater than would have occurred historically.

In the Soils section of the EA (page 84) it is reported that reforesting with ponderosa pine would limit wind erosion, stabilize these depositional soils, and enhance snow catch in the dry landscape.

5) COMMENT: ***Removing large trees would increase fire hazard. The objective of post-fire logging is to remove large-diameter, commercially valuable trees that were not consumed by the fire. Large-diameter standing trees and downed logs have several features that tend to mitigate their potential contributions to fire hazard, and depending on weather conditions and time of year, their presence on the landscape can actually reduce the danger of intense, rapidly spreading fires. In general, fires burning through heavy fuels such as large-diameter downed logs tend to burn slowly, and depending on their spatial arrangement and fuel moisture levels, large downed logs can dampen a fire's intensity and rate of spread (Rothermel 1991). The EA fails to analyze and disclose factors that mitigate the flammability of large fuels. Indeed, it continues to insist that snag fall coupled with brush growth "would be the most critical fuel element that would directly influence fire behavior and post the greatest challenge to suppression effort"(p.67).***

The Forest Service's analysis on this point suffers from several flaws that undermine its professional and scientific integrity. First, it places unwarranted emphasis on live fuels (brush) as "the greatest challenge to (fire) suppression efforts". Live vegetation has greater moisture content and is thus less prone to ignite and carry fire than dead woody fuel (Albini 1977, Reinhardt and Ryan 1998). The relative moisture in a fire-regenerated brush field shaded by standing snags and buffered by downed logs would present a far less extreme fire environment than the slash-loaded, even-aged plantations which the Forest Service seeks to create.

"Second, the Forest Service exaggerates snag fall rates and thus places unwarranted emphasis on "horizontal fuel loading" that it says would occur in the absence of logging. It is true that when snags fall to the ground their relative flammability increases, but the time required for snags to fall is directly proportional to their size. It may take as long as 20 years for burned ponderosa pine trees between six and nine inches in diameter to fall, and Forest Service research suggests that larger ponderosa pines can remain standing up to 80 years after burning (Everett 1995, Harrod et al. 1998)."

RESPONSE: The objective of post-fire logging, in the case of this proposal, is to salvage fire-killed trees to meet the need for commercially valuable timber from the Winter Fire. This is not to say that all "large-diameter, commercially valuable trees" will be logged. The criteria defining trees that would be salvaged is clearly described in the EA, and does not include green trees or trees having a reasonable chance of survival.

Certainly there is a point at which a large dead tree (or trees) would be highly unlikely to provide a significant contribution to fuel loading when they fall to the ground, nor be a significant contributor to future extreme fire behavior. And in fact, under either action

alternative, existing large down logs (primarily a result of suppression activity) will be retained on site, and many large trees will be falling to the ground over several decades, even in areas where commercial salvage would occur. Snag retention clumps, approximately 1 to 2 acres in size, containing 20-40 snags, would occur in commercial salvage units, every 5 to 10 acres. Additionally, ponderosa pine trees greater than 30 inches dbh with any green crown remaining will be retained in the harvest units. The EA attributes no significant increased danger of future extreme fire behavior to this arrangement.

However, large woody fuels (can) "contribute to development of large fires and high fire severity. Fire persistence, resistance to control and burnout time (which affects soil heating) are significantly influenced by loading, size, and decay state of large woody fuel. Torching, crowning, and spotting, which contribute to large fire growth, are greater where large woody fuels have accumulated under a forest canopy and can contribute to surface fire heat release." (Brown, 2003). Rothermel found: "Personal observations of severe fires has shown the important contribution made to fire intensity by accumulations of large sizes of dead and downed fuel."…. "Standard fuel models, with addition of large fuels in some cases, can adequately describe the energy release of the surface fuels."….. "Albini's model predicts that, even for situations with heavy accumulations of large fuels, there is a period of major heat release near the fire front. This is followed by a long period of slowly changing heat release as the large fuels burn out."…. "The burning of decayed logs will increase the heat per unit area significantly" Rothermel, R 1991, pages 10 and 37).

In regard to the comment "the Forest Service exaggerates snag fall rates", the statement in the Fuels section of the EA that: "over the next 10-20 years the snags will fall down and pile up..", is not meant to predict that all the snags will have fallen in that time frame, rather it is recognizing that under Alternative 1 (no action) fire-killed trees will be falling and accumulating over the next 10-20 years, thereby increasing the horizontal fuel loadings. Snag fall is also discussed in the wildlife section of the EA, recognizing that "large diameter snags can be expected to last 20-30 years (DecAid 2002, Park 1999, Harrod 1998)".

Everett's snag fall report (1999) that was generated from studies on the east slope of the Cascades in Washington State, properly cautions that snag longevity is area-specific. Everett further states that "large diameter ponderosa pine snags occurred too infrequently on sampled burns (10 out of 26 burns) and in too few numbers for statistical comparison with other species, but 79% were present on the two burns that were greater than 60 years of age" (Everett 1999).

Decaying down logs can also contribute to extended periods of resident heating, which affects both soils and the potential for extending wildfire behavior: "The burning of decayed logs will increase the heat per unit area significantly" (Rothermel, 1991). "Accumulations of large dead woody fuel, especially containing larger diameter decayed pieces, can hold smoldering fire on a site for extended periods." While "large woody

fuels have little influence on spread and intensity of the initiating surface fire", "they can contribute to development of large fires and high fire severity" (Brown J.K. 2003).

It's true that large standing snags are generally not the problem. An evaluation of current and predicted fuel conditions/fire behavior under a harvest/no harvest scenario, found that removing commercial size timber (>10 inches) would have a minor benefit on reducing the difficulty suppression resources would encounter containing a fire in the area (EA page 18). The proposals are based on the assumption that standing dead trees will fall, beginning in the next several years and in time produce heavy accumulations of down fuel (above historical, pre-settlement, sustainable norms) that include both large and small material.

6) COMMENT: ***Most of the project area does not currently meet Forest Plan standards for down wood densities (EA p.42). The action alternatives would not meet Forest Plan standards because only about four snags per acre would remain after post-fire logging (p. 42), which is inadequate to replenish the missing habitat. The areas proposed for salvage are especially critical because nearly one-third of the project area is composed of young plantations (or what were plantations before the fire), in which snag and large down log habitat is lacking (p.42). Post-fire logging and snag removal would eliminate future recruitment of large down logs, with significant cumulative adverse impacts on habitat availability and fire behavior.***

RESPONSE: The statement on page 42 of the EA is not intended to convey that the alternatives would be retaining the minimum Forest Plan standard of 4 snags per acre. The statement on page 42 of the EA "Current snag levels within the project area are approximately 7 to 11 times greater than the Forest Plan standard and guideline of four snags per acre" is intended to describe the post-fire condition in the proposed salvage area. The proposed action would retain snags in excess of Forest Plan standards by about 75% (7 snags/acre) and will additionally retain all ponderosa pine trees that exceed 30 inches in diameter and have any green crown remaining (EA pages 45-46). These large snags will eventually fall, providing for recruitment of additional large down wood in the future. All trees having a reasonable chance of survival will be retained and will contribute to recruitment of large down logs in the long-term future.

Thorough consideration of snags and large down wood is provided for in the EA on pages 41, 42, 44, 45, 46, 47 and 48. Both action alternatives are designed to meet Forest Plan standards and guidelines for down wood requirements, though it's acknowledged that existing conditions in many areas, determined through field reconnaissance, are characterized by deficient down wood levels. In all alternatives, snag levels would exceed Forest Plan standards and guidelines, as amended by the Regional Forester's Amendment #2. Snags retained would provide quantities of future down wood that will greatly exceed Forest Plan standards and guidelines, as amended by the Regional Forester's Amendment #2, in the long term.

While the young plantations that resulted from the 1962 fire are lacking in snag and large down log habitat, across the landscape, within the area of the Winter Fire (approximately

34,000 acres) there are literally thousands of acres that will not be salvage logged and contain an abundance of large fire-killed trees that will eventually provide down wood levels greatly exceeding standards and historical levels.

7) ***COMMENT: On a landscape scale, wildfires create patches of highly attractive habitat for a distinct array of wildlife species (Hutto 1995). Increased abundance of certain insects in burned stands attracts insectivorous birds. One consequence of changes in food composition and breeding habitat is that burned forests support different bird communities, with many species dependent on stand-replacement fires (McIver and Starr 2000). Indeed, the Winter Fire created "optimal habitat for black-backed woodpecker and Lewis' woodpecker, both of which are Management Indicator Species under the Forest Plan. Post-fire logging changes bird species composition in burned forests, reflecting effects of large woody debris removal on foraging and nesting habitat of cavity-nesting species. For example, black-backed woodpecker and three-toed woodpecker have consistently shown negative responses to post-fire logging, with significantly more nests found in unlogged sites (Canton 1996, Hejl and McFadzen 1998, Hitchcox 1996, Hutto 1995, Saab and Dudley 1998).***

Rather than assessing the effects of post-fire logging on population levels of snag dependent species in the project area, the EA only asserts that Forest Plan minimum standards will be met. This issue is especially important because the Toolbox EIS proposes a truly massive post-fire logging project in similar habitat just over Winter Ridge, and the potential for cumulative effects is great.

RESPONSE: The Fremont National Forest substitutes the black-backed woodpecker for the three-toed woodpecker as the management indicator species for snag dependent species because the Fremont is considered to be outside the range of three-toed woodpeckers. Lewis' woodpecker is not a management indicator species, but is listed by the US Fish and Wildlife Service as a bird of conservation concern.

Consider on a landscape scale, there are 23,915 acres of National Forest within the 34,000 acres burned in the Winter Fire, and this project is considering salvage of fire-killed trees on about 3,000 acres. More than 20,000 acres of the burned National Forest lands, primarily in Management Area 9 - Semi-Primitive Motorized Recreation, are not under consideration for salvage, and will continue to provide habitat for snag dependent species.

In the EA it is recognized that the Winter Fire created optimal habitat for black-backed and Lewis' woodpeckers (EA pg. 108-109). It is also recognized on EA page 109 that "Black-backed woodpeckers have consistently selected unlogged conditions of high snag densities for both nesting and foraging habitat in burned forests (Canton 1996, Hitchcox 1996, Hoffman 1997, Hutto 1995, Kreisel and Stein 1999, Saab et al. 2002)" and "Lewis' woodpeckers were most abundant in partially logged burned forests and relatively rare in unlogged units of western Idaho (Saab and Dudley 1998)". Saab et al. 2002, reports, "Managing for a range of post-fire habitat conditions, characteristic of black-backed and

Lewis' woodpeckers, would likely incorporate habitat features necessary for nest occurrence of other cavity-nesting birds."

Recognizing these optimal habitat conditions and the suggestion that developing salvage logging prescriptions that maintain habitat characteristics for both black-backed and Lewis' woodpeckers, while considering both the microhabitat and landscape scale, would likely retain habitat for the entire assemblage of cavity-nesting birds, the initial proposed action and Alternative 2 include a snag strategy designed to: 1) Stratify potential key habitat areas for black-backed and Lewis' woodpeckers, 2) Designate specific key habitat areas that would be preferred by black-backed and Lewis' woodpeckers, and 3) Retain all snags within selected retention areas while also providing at least the minimum requirements of the Forest Plan standards within the remaining portions of harvest areas.

Both action alternatives would retain snag habitat in excess of the Forest Plan minimum standards (EA pages 45-46).

An assessment of the effects of post-fire logging, and related activities contained in the alternatives, on population levels of snag dependent wildlife (including black-backed and Lewis' woodpeckers) is provided in the EA on pages 44-48 and 108-111. Population levels of primary excavators/neotropical migratory birds are addressed on pages 111-112 of the EA.

The woodpecker snag retention design of Alternative 2 of the Winter Fire Salvage Project is unlike previous snag retention strategies developed for past fire salvage projects on the Fremont National Forest. The northeast zone Wildlife Biologist has developed a monitoring study to test the effectiveness of the project prescriptions that are designed to maintain habitat for sensitive woodpeckers including black-backed and Lewis' woodpeckers in the Winter and Toolbox fire areas.

The monitoring study began in 2003 with nest searching and monitoring, following Dudley and Saab's protocols (2003), conducted within areas proposed for salvage in Toolbox. The following table displays the total number of nests and the total number of fledglings for each species:

Results of the Woodpecker Surveys Conducted in 2003

Species	Total Number of Nests Found within the Identified Optimal Black-backed Woodpecker Areas (1,120 acres)	Total Number of Nests Found within the Identified Optimal Lewis's Woodpecker Areas (143 acres)	Total Number of Nests Found within the Areas Proposed for Salvage (589 acres)	Total Number of Active Nests Found	Total Number of Young Fledged
Black-backed Woodpecker	25	5	3	33	79
Lewis's Woodpecker	0	0	0	0	0
White-headed Woodpecker	6	0	1	7	17

No Lewis's woodpecker nests were located. This is consistent with Saab and Dudley research in which Lewis's woodpecker nests were most abundant on 2-4 year old burns (1998) and Bock who suggests that Lewis's woodpeckers are generally not found in burned forests until 10-30 years after the fire (1970). This delayed response of Lewis's woodpecker nesting in post-fire conditions is likely due to the increase in shrubby understories, more open snag conditions, and the more advanced decay stages of snags that begin to occur 2+ years after the fire. Although no statistical analysis has been performed, it appears as though black-backed woodpecker and white-headed woodpecker nest abundance is higher in the identified optimal black-backed woodpecker areas than those selected for salvage logging.

8) COMMENT: ***The EA paints a grim picture of the no-action alternative, arguing that if left unsalvaged and unplanted, the whole area will convert to brush fields whereas salvage and planting will accelerate the development of desired older ponderosa pine forest structure. In fact, untreated logging slash may inhibit plant growth, and logging operations may virtually eliminate shrub species. Inadequate shrub regeneration would lead to extinctions of species that restore site productivity after fire. Furthermore, inhibited shrub regeneration would preclude burned slope stabilization and result in greater loss of topsoil and increased sedimentation in aquatic network than would occur in the absence of post-fire logging.***

The EA does not address the role of early-successional vegetation in post-fire ecosystem recovery or the loss of soil productivity as a consequence of logging activities, as is documented to have occurred elsewhere (e.g., USDA 1994). Loss of site productivity is a costly impact of post-fire logging because of its deleterious effect on nitrogen and carbon cycling and on future forest growth (DellaSala et al. 1995). Loss of soil productivity caused by inhibited shrub regeneration and loss of topsoil is a long-term adverse impact. Recovery would not occur for decades because it would take that long for the ecosystem to replenish organic matter removed by salvage logging that otherwise would decompose in situ. The effect of organic matter loss on long-term site productivity is not well understood for lack of research (McIver & Starr 2000). The EA does not acknowledge this uncertainty or unknown risk.

If the Forest Service strongly believes its statement that planting pine seedlings alone would trigger the third development pathway it describes, then a decision to just plant and not salvage would best address uncertainty regarding effects of post-fire logging and slash loading on site productivity. Even planting seems unnecessary, however, given the EA's statement that natural regeneration will occur without intervention.

RESPONSE: Both action alternatives are designed to utilize helicopter-logging systems on the majority of the areas considered for salvage logging. Eighty-five percent of the area considered for post-fire logging in Alternative 2 and eighty-seven percent in Alternative 3 would utilize helicopter systems. Ground-based logging will be accomplished by use of designated skidtrails. This will result in minimal impacts to the soils and ground vegetation making it unlikely that "logging operations may virtually eliminate shrub species".

It has been about a year and a half since the Winter Fire event and much of the ground vegetation has begun to re-establish in the area. The silviculturist reported that grass and shrub response was observed in October 2002 and summer 2003 within the high fire severity area, indicating that the fire did not destroy the pre-fire existing seed bank and /or the below ground regeneration mechanisms (EA page 49). While the slash that will result from logging operations may inhibit growth of some individual plants, it is not likely to affect the overall abundance of the brush and shrub component that will develop.

Impacts of the proposed post-fire logging on soil productivity are addressed in the EA on pages 74 -85. The Forests Soil Scientist conducted a thorough site-specific analysis of the conditions in the project area and the potential effects of the activities included in the alternatives. Biological soil conditions have been considered along with the physical soil conditions. "Prior to the 2002 wildfire, for various reasons there was a decline in forest patches and ground fire disturbance that shapes local semi-arid forest. The crown fire has in a dramatic way initiated mollisol soil succession processes in a variety of sites" (EA page 82). From EA page 84: "Bacterial and fungi populations and their influences on forest productivity are not likely to be impacted by the tractor logging. Pacific Southwest Soil Microbial Ecologist, Matt Busse, characterizes the seim-arid forests as more bacterial than fungal, yet some plants have some mycorrhizal fungi association to aid in water and phosphorous uptake. …mycorrhizal fungi tend to be more resilient than flowering and non-flowering plants to disturbances. …ground-based logging would have minimal to no impact on ground vegetation." Given the previous history and experience of ground-based logging in the project area on a wide variety of soil types similar to those involved with this project, the use of ground-based or helicopter logging systems to salvage harvest fire-killed trees is not likely to significantly disturb the soil surface. The proposed activities would not lead to loss of soil productivity.

In regard to the above reference of McIver & Starr (2000), no reference could be found in the document to the identified uncertainty and lack of research about the effects of organic matter loss on long-term site productivity. As pointed out in comment 3 above, the project is designed to provide for retention of organic matter to address concerns for soil protection.

The EA on pages 50 and 51 describes the potential successsional pathways of vegetation development under the no action alternative, depending upon factors such as fire severity, future fire or drought, availability of seed, seedbed condition, seed caching and soil disturbance. All of these describe an extended regeneration period where conifer trees slowly become established, however species composition would shift from ponderosa pine to white fir. This would not meet a purpose of the proposed action to: "rapidly regain a ponderosa pine forest". This particular "purpose" responds to the desire to develop old ponderosa pine dominated forest conditions, consistent with Regional Forester's Amendment #2.

9) COMMENT: ***The Forest Plan rates a significant portion of the project area as "unsuitable" for commercial timber production. Even if it is not a technical violation of NFMA to conduct post-fire logging on lands rated unsuitable, an EIS is required because the Forest Plan EIS did not anticipate logging in areas identified as "unsuitable" for commercial timber production. The proposed action is outside the scope of effects disclosed by the Forest Plan EIS.***

RESPONSE: The Forest Plan FEIS, page IV-31 and 32, discusses unsuitable timberlands as a separate suitability component. These lands were identified as producing less than 20 cubic feet of volume per acre per year and thus not normally considered to be capable of supporting regulated timber yields. They were addressed by incorporating management of them into various alternatives. In alternative B they were scheduled and managed for programmed harvest. Harvest on these lands was also addressed in benchmarks calculations displayed in Appendix B, Table B-12, in the FEIS. Thus, logging in unsuitable lands was fully addressed in the FEIS for the Forest Plan. The focus of this analysis was whether or not and to what extent these lands should be incorporated into the sustainable timber sale program for the Forest. These would be lands contributing to the allowable sale quantity (ASQ) for the Forest.

The Record of Decision, page 10, identified alternative F, with some modifications, as the selected alternative. The analysis described in the FEIS, page IV-31, found that, under the constraints incorporated in alternative F, these lands would not be economical to manage for regulated timber production.

Management Area 1 (mule deer winter and transition range) is managed to produce habitat capable of supporting a wintering mule deer population (ROD, page 13). Timber management for that purpose is permitted without restriction as to whether that management is on suitable or unsuitable timberlands. The FEIS and ROD reached similar conclusions about timber management in Management Area 5. This is clearly stated in the proposed action document that was distributed for public comment: " In lands emphasizing timber, range or big game management, Management Areas (MA) 1 or 5, regulated timber management and/or salvage activities are allowed as tools to recover utilizable volume while meeting either old growth or habitat objectives. " (page 89). The Forest is not proposing regulated timber management on unsuitable timberlands; however, it is proposing salvage harvest on some unsuitable timberlands.

The ROD states: "The nonchargeable salvage component of the total timber volume offered under this Forest Plan has been reduced from 10.8 MMBF to 4.0 MMBF. This estimate is in recognition of public concerns about the feasibility of offering and economically harvesting the scattered salvage timber." (ROD, page 22, volumes on an average annual basis). This "nonchargeable salvage component" includes salvage volume removed from unsuitable timberlands as proposed in this project. Thus, it is clear that the harvest of salvage timber from unsuitable timberlands was addressed in the Forest Plan FEIS and it was anticipated that some of this timber would be salvaged.

10) COMMENT: ***The EA does not acknowledge that post-fire logging could adversely affect lynx denning, forage and travel habitat. The Forest Service cannot rely on regional lynx habitat maps because those were not subject to NEPA analysis. This project-specific analysis is the appropriate place to discuss lynx because the animal historically used this portion of the Fremont National Forest.***

RESPONSE: Canada lynx is addressed in the EA at the bottom of page 92 and at the top of page 93. The assessment of potential effects to lynx is based upon the site-specific conditions in this project area and does not rely on regional habitat maps. A biological assessment has been completed for Threatened, Endangered, Proposed and Candidate wildlife species, including Canada lynx. The Fremont National Forest has some of the components of Canada lynx habitat (none within adjacent areas of this project), but not in sufficient quantities to sustain viable populations. Based upon current knowledge, the Forest does not have plant associations that can be developed into sufficient suitable habitat. Both the biological assessment prepared by the project Wildlife Biologist and the April 17, 2003 letter of concurrence on the biological assessment from the United States Department of the Interior-Fish and Wildlife Service (USDI-USFWS) determined that the project will have "no effect" to Canada lynx.

11) COMMENT: ***The EA does not disclose the locations of proposed road activities (2.6 miles of reconstruction) or landings, so it is not possible to tell if they occur in or near any riparian zones. We learned from field visits to the project area that road work would indeed intercept riparian zones. This information must be in the EA along with an assessment of likely effects on the aquatic environment. The EA does not show how much of the proposed haul routes would pass through riparian zones, a fatal deficiency.***

RESPONSE: All proposed road activities are shown in EA Appendix D on Map Figure 2-6, and stream reaches (riparian zones) are shown on Map Figure 3-1. The alternatives do not include any new road construction. The proposed minor roadwork includes widening on corners, spot rocking and some drainage improvements on four existing system roads in the area.

All roads that would be used as haul routes are existing system roads used historically to access various portions of the project area. Road use with the project would occur under standard Timber Sale contract provisions, which require the purchaser to perform preventative drainage maintenance and conduct operations to minimize soil erosion. Roads BMPs, Timber Sale BMPs (EA Appendix B) and Fremont National Forest Soil Productivity guidelines would apply to all timber sale related roadwork.

Currently, roads that are a part of the existing transportation system do intercept riparian zones in some areas of the project. In the EA (page 56) it is reported that there are 2.54 miles of roads within 300 feet of streams in the project area. Efforts have been made to minimize the potential erosion and sedimentation that roads can contribute to the stream systems. Through the BAER activities, many road treatments were completed that will minimize sedimentation to nearby streams and prevent catastrophic failure of road fills.

Use of existing system roads in the project area, as timber haul routes, would be consistent with current road management objectives. Following INFISH operational standards and BMPs (EA Appendix B, page 16, BMP T-10), landing locations will not occur in riparian zones.

Consideration of the potential effects on the aquatic environment from road related activities are addressed in the EA on pages 61, 62, 124 and 125. The proposed roadwork will serve to accelerate attainment of RMOs and are fully consistent with the goals and applicable INFISH standards and guidelines, particularly, RF2 of INFISH (EA page 62).

12) COMMENT: ***The EA failed to identify any scientific information that supports its "reburn" hypothesis. If prevention of reburn will be used as a justification for post-fire logging, carefully document the rationale and provide references to published scientific studies. Explain whether logging will increase or decrease the risk of reburn in terms of the fuel profiles that will exist over time, ignition sources, etc.***

Additionally, we note that the EA failed to acknowledge the lack of scientific support for its contention that logging burned forest stands would reduce the intensity of future wildfires. Beschta and others (1995) reported,

> ***We are aware of no evidence supporting the contention that leaving large dead woody material significantly increases the probability of reburn. There is a regional need for retrospective analysis concerning the probability and effects of 'reburn' … This analysis must precede any management recommendation based on the probability of reburning.***

RESPONSE: The needs and purposes for the project are not focused on the "reburn" hypothesis. No claim has been made that the proposed project would decrease the probability of reburn.

The analysis in the Fuels section of the EA focuses on the fact that in absence of salvage logging the horizontal fuel loading will increase over time as the fire-killed trees decay and fall to the ground. The analysis makes recognition of the fact that harvesting some of the fire-killed trees, will in the long term, reduce the fuel loading of the large woody material that tends to burn longer, with slightly greater intensity and is receptive to spotting. This reduction in large fuels is likely to reduce fire intensity and severity and associated effects to firefighter safety and resistance to control in the event of future fire. This conclusion is supported by the science referenced earlier in response to comments 3 and 5.

As noted earlier, "reburn" is a question that is not yet resolved in any definite way (see "Ottmar in Duncan 2002 in response to comment 3). However, both in the analysis documented in the EA, regarding expected fuel loadings and in responses to previous comments, it's clear there is scientific support for the phenomenon of large dead trees eventually falling and influencing subsequent fire behavior.

13) COMMENT: ***Active fire suppression operations occurred in the project area, but the EA makes no mention of these activities, their direct or indirect environmental impacts,***

or their cumulative effects when considered together with the proposed action. The public and the decision maker cannot learn from this EA whether all of these factors combined might result in significant cumulative adverse effects.

RESPONSE: Fire suppression operations are recognized in the EA on pages 35, 37 (Table 3-0) 55, and 85. The BAER Report assessed the impacts of the fire and suppression activities on the resources in the Winter Fire area. Based upon the recommendations of the BAER Team, many rehabilitation actions were implemented. All of the activities in the action alternatives have been designed and analyzed from the starting point of current condition, which by definition is the result of all past activity, including the fires of 2002. Both fire suppression activities and subsequent rehabilitation became a part of the baseline from which the effects of the proposed activities are considered. When analyzing potential direct, indirect and cumulative effects of the actions included in the alternatives, resource specialists considered conditions in the area resulting from the fire, suppression activities, subsequent BAER treatments, and other past, on-going and likely future activities. The analysis did not identify any significant cumulative adverse effects.

14) COMMENT: ***The Forest Service must assess the direct and indirect effects of private land salvage on the key resources and issues described in the EA to determine if significant adverse cumulative effects would occur.***

RESPONSE: All of the activities in the action alternatives have been designed and analyzed from the starting point of current condition, which by definition is the result of all past activity, including the fires of 2002. The direct and indirect effects of the Winter Fire Salvage Project have been thoroughly analyzed. Salvage harvest is listed in Table 3-0, on page 37 of the EA as both past and foreseeable future activities, and has been considered for their cumulative effects on all the resources and issues described in the EA. This is documented at, for example, page 47 (cavity dependent species), 48 (snags and down wood), 62 (water quality), 85 (soils), 92 (vegetation), 94 (bald eagles), 96 (bufflehead), 98 (peregrine falcon), 102 (northern leopard frog), 104 (western pond turtle), 111 (black-backed and Lewis' woodpeckers), and 122 (golden eagle). The commenter did not identify any specific direct or indirect affect that was not addressed.

15) COMMENT: ***The EA asserts no reasonably foreseeable federal actions could cumulatively affect the environment along with the proposed action. The Toolbox EIS covers portions of the Winter Fire area. Given the landscape-scale significance of increased slash loading and new plantation establishment on wildfire intensity, rate of spread, and difficulty of control, the Forest Service must analyze these similar actions with common timing and geography together.***

RESPONSE: The Winter Fire occurred on the other side of a major watershed divide (Winter Ridge) from the Toolbox Complex, and currently proposed salvage activity within the Winter Fire is (at it's closest point) 3 miles south of any proposed Toolbox activity. The Winter Fire Salvage Project is within the Summer Lake Watershed. The project occurs in closed basin landscapes below Winter Rim and above Summer Lake

Playa, quite different than the geographic landscape of the Toolbox project. The Toolbox EIS is not proposing activities in this watershed.

Potential cumulative effects on connectivity, fragmentation and dispersal to wildlife species, relative to activities in the Toolbox project have been addressed throughout the EA. For example, page 94 (bald eagle), 97 (bufflehead), 98 (peregrine falcon), 99 (gray flycatcher), 101 (wolverine), 102 (fisher), 107 (mule deer), 111 (black-backed woodpecker), 114 (primary excavators, neotropical bird and song birds), 117 (goshawk), 119 (marten), and 122 (golden eagle).

Doug Heiken – Oregon Natural Resources Council (ONRC)

16) COMMENT: ***We want to see the fire area recover as a diverse and complex forest, but salvage logging will remove too much of the large tree structure that makes future forests complex and diverse.***

RESPONSE: The Winter Fire area consists of approximately 34,000 acres. The Forest Service has proposed to salvage fire-killed trees from about 3,000 acres of the 23,915 acres of National Forest lands within the fire area. Significant portions of the fire area will not be entered for salvage logging, but left to recover through natural processes.

Removal of large dead trees in this project area is in response to the underlying need for the proposed action: "…to meet the need for commercially valuable timber from the Winter Fire." and the purpose of supporting jobs in the local area. It is the larger fire-killed trees that deteriorate the slowest and retain their merchantable value the longest. This is not to say that all large trees will be removed from the salvage areas. It is the intent of the prescriptions that all trees having a reasonable chance of survival be retained. Ponderosa pine trees greater than 30 inches dbh with any green crown remaining will not be removed, but will remain within harvest units as potential seed sources and future snags (EA page 20). Various levels of large dead trees would be retained in the salvage areas as part of the snag component in the action alternatives. Alternative 2 would retain approximately 12,000 snags larger than 15 inches dbh, while Alternative 3 would retain approximately 7,000 snags larger than 15 inches dbh.

17) COMMENT: ***Unroaded areas will be logged and degraded without NEPA analysis. Roadless areas greater than about 1000 acres, whether they have been inventoried or not provide valuable resource attributes that must be protected. These include: water quality; healthy soils; fish and wildlife refugia; center for dispersal, recolonization, and restoration of adjacent disturbed sites; reference sites for research; non-motorized, low-impact recreation; carbon sequestration; refugia that are relatively less at-risk from noxious weeds and other invasive non-native species, and many other significant values. See Forest Service Roadless Area Conservation FEIS, November 2000. Please review the recent decision of the 9th Circuit on the Lolo Salvage (Sierra Club v. Austin), and Smith v. U.S. Forest Service, 33 F.3d 1072, 1075 (9th Cir. 1994).***

RESPONSE: The Department of Agriculture's *Roadless Area Conservation Final Rule* is currently under a court injunction. There are no inventoried roadless areas in the Winter Fire Salvage Project analysis area.

The map ONRC submitted for consideration identified almost the entire project area as "roadless", and this is simply not the case here (EA Appendix D, Map Figures 2-1, 2-2 and 2-6). The Forest Service agrees with ONRC that the resource attributes described are often in, and characterize, undeveloped landscapes (including roadless areas and other areas without roads). Effects of the alternatives on resources in undeveloped lands are fully considered in the analysis and described in the Environmental Consequences section in Chapter 3 of the EA. The following paragraphs relate to the characteristics the commenter associates with unroaded areas.

The Winter Fire resulted in less than desirable watershed conditions that can have negative effects on water quality, including potential increases in stream temperatures and delivery of fine sediment to streams located in the lower basins of Winter Ridge. The proposed action would move toward improving conditions that serve to maintain water quality by implementing road drainage improvements and closures, planting conifers in the uplands and providing for natural recruitment of large wood in RHCAs. Any project-generated sediment would be short-term in nature, and at an immeasurable, negligible level. No significant increases in water yield or sedimentation are expected.

The project is within depositional landscapes with stony soil surfaces that limit catchment development. The Winter Fire increased the potential of runoff, erosion, and sediment flow in the area by burning most of the ground vegetation and woody debris that help to hold and protect soils. Salvage logging approximately 3,000 acres by use of helicopter systems (85%) and ground-based systems (15%), not building any new system roads or temporary roads and providing for small woody debris and sufficient quantities of large down wood will minimize soil disturbance within the project area. With the BAER treatments in affect, recovering ground vegetation and minimal effects expected from the proposed activities, there would be no significant adverse effects to soils.

With 34,000 acres burned by the Winter Fire event, fish and wildlife habitat has been significantly altered. Salvage will not occur in RHCAs and is not expected to cause measurable changes in stream flows or sedimentation. Harvesting dead trees reduces habitat for cavity dependent species, however this project action affects 2,647 acres out of the 23,915 acres of National Forest in the total burned area (11%), and, even within the areas to be salvage logged, Forest Plan standards for snags and large down wood will be exceeded in the short to mid-term (about 30 years). In the long-term however, regardless of the alternative selected, the number of standing snags would become limited and large woody debris will increase as the trees decay and fall to the ground.

The proposed project is located within the 34,000 acre Winter Fire area, below the escarpment known as Winter Rim and above Summer Lake Playa. Within the smaller areas considered for salvage 80% or greater of the trees were killed by the fire or died within a year of the fire and almost 100% of the ground vegetation was burned. It is

unlikely the area could serve as a center for dispersal or recolonization and restoration of adjacent disturbed sites.

While areas without roads can serve as reference sites for research in an unburned forest, wildfire areas, including undeveloped lands can also be utilized as reference sites for research. None of the alternatives would prevent the use of post-fire areas as research sites.

Non-motorized, low-impact recreation opportunities are available in undeveloped areas between and adjacent to existing roads in the project area. Implementation of the project would result in a short-term interruption in solitude as logging activities are occurring. Sawed off stumps would be created by the logging activity rather than broken off stumps or root wads created by natural processes, and in the long-term fewer down logs will accumulate. The areas that are logged will allow somewhat easier passage for recreationists as there will be fewer down logs and root wads than in untreated areas.

The fire resulted in large releases of carbon. The dead trees that remain will continue to release carbon as they degrade though natural processes. Trees that are harvested will, to some extent, go to uses such as lumber production that will sequester carbon during the period that lumber is in use. As the area is reforested, carbon will be increasingly sequestered in growing trees and other biomass. The proposed action includes planting within harvest units that will hasten reforestation and facilitate the process of sequestering carbon in trees.

The potential risks of noxious weeds and other invasive non-native species within the areas that do not contain developed roads would not differ from those described under the Noxious Weed section in the EA. Salvage logging would be accomplished with helicopter systems that minimize the potential for spreading noxious weeds and other invasive non-native species.

Overall, the action will have a beneficial effect upon the characteristics the commenter associates with unroaded areas. The only adverse effect would be the appearance of human activity in the form of sawed stumps over a part of the area. In time, these stumps will degrade and no longer be apparent as sawed. There will be many more stumps, as well as root wads, in the fire area resulting from falling snags over time. In time there will be no observable difference between these stumps, thus the effect is not significant or irreversible.

Recovery of merchantable value in undeveloped areas by timber harvest, following a fire, is unacceptable to some interested members of the public. However, commercially valuable timber from the Winter Fire is the underlying need for the project, is consistent with the Forest Plan and with the regulatory and legal framework that guided the development and analysis of the project.

18) COMMENT: ***Dead trees are given no consideration as valuable cover for Mule Deer. Just because the dead trees do not hide 90% of a deer at 200 feet, the EA fails to recognize that the dead trees do provide some value to deer and cutting them down will remove valuable big game cover. The EA falsely implies that both the action and no action alternatives have the same effect on deer. (p 3-45)***

RESPONSE: Within the Summer Lake watershed, the Winter Fire of 2002 resulted in cover-limited areas of approximately 10,000 acres in winter range, and about 6,000 acres in summer/transition range. The fire burned in a mosaic pattern, which modified the pre-existing cover and forage habitat conditions. Currently, plantations, riparian areas, and dense stands that burned with light intensity are continuing to provide hiding, thermal, and fawning cover where they provided them pre-fire.

Additional field surveys performed in 2003 addressed the question of cover potential in relation to stands of dead trees. In essence, plots were taken in stands that were extremely dense with snags. It was found that such areas did not meet the Forest Plan definition of cover and therefore it was not mapped as cover or used in Habitat Effectiveness calculations. This data is referred to in the EA on pages 44 and 104-105.

From page 44 of the EA, "The boles of the dead standing trees do not provide hiding cover which is defined as vegetation capable of hiding 90% of a deer at 200 feet (Fremont FEIS Glossary (1989); Thomas et al. (1979), but can provide some limited screening of deer (an average of 22% of a mule deer at 200 feet, see Mule Deer Screening Report in project file)." Under Alternative 1 (no-action) the EA (page 45 and 105) explains, "Existing snag densities would continue to contribute limited screening for mule deer." The cover-limited areas would not change. Hiding cover would increase naturally over time as shrubs species and conifers are re-established through natural regeneration. Under Alternatives 2 and 3, retained snags would continue to contribute limited screening for mule deer. Alternative 2 would retain more snags, including the large blocks retained for woodpeckers, which can contribute additional screening (not cover) for mule deer than Alternative 3. It is expected that reforestation included in Alternatives 2 and 3 would accelerate development of hiding cover (EA page 47 and 106).

Cover on winter range would not meet Forest Plan standards for some time into the future under any of the alternatives due to the effects of the Winter Fire.

19) COMMENT: ***Salvage logging will cause future violations of snag and down wood requirements. The Forest Service makes erroneous and unsupported conclusions that both the salvage and no salvage alternatives will retain enough snags for 30 years. The EA makes a misleading statement that "snags would be present" for 30 years after salvage, but the EA fails to disclose that these snag levels would not meet species or LRMP requirements.***

RESPONSE: It is disclosed in the EA on page 46 under effects of Alternative 2 and 3 that: "As described in Alternative 1, most of the snags left inside and outside of the

project area will fall to the ground within the next 15-30 years. While it would be desirable to provide snag habitat over the long-term, the resulting stand conditions following the fire have made this goal difficult. Recognizing that regardless of the alternative selected, the number of standing snags would become limited in time, and meeting the Forest Plan direction beyond the stand initiation phase would be best met by replanting and restoring replacement trees for future snag recruitment." Over time, large down wood levels will greatly exceed Forest Plan Standards across the project area.

20) COMMENT: ***The EA p 3-46 makes an unsupported conclusion that long-term snag retention is best provided by rapid reforestation rather than retaining large snags. Both the quality of future habitat and the effect of discount rates indicate otherwise.***

RESPONSE: Reforestation will not help retain existing snags. Reforestation will create the opportunity for snags several decades in the future; many years after all of the present snags have fallen to the ground. Without reforestation, similar opportunities will develop, but they will be fewer and more distant in the future.

See above response to comment 19.

Snag fall rates are a function of snag size, tree species, cause of mortality, season of mortality, and the micro-environment (Everett et al. 1999). Morrison and Raphael found that snags created by fire decayed rapidly and fell more quickly than those on unburned forests, and that larger snags had greater longevity than smaller snags (1993). Bull found that the average rate of fall of ponderosa pine snags 10 to 20" dbh was 23% and of snags greater than 20" dbh was 3% (1980). Keen (1929) reports that, 7 years following fire, 42% of ponderosa pine 10-18 inches dbh were standing compared to 57% for those 20-28 inches dbh (Everett et al. 1999). Similarly, Dahms (1949) reports that 75% of ponderosa pine snags 8-20 inches dbh fell within a 10 year post-fire period compared to 35% for 20-30 inch dbh snags and 15% for 30-42 inch dbh snags (Everett et al. 1999). However, differences in fall rates for ponderosa pine snags between studies suggests that snag longevity is area-specific (Everett et al. 1999). Everett also suggests that the recruitment period for ponderosa pine and lodgepole pine > 23 cm dbh (9 inches dbh) exceeds snag longevity for these species and an on-site gap in soft snag availability could occur within portions of stand-replacement burns (1999). Established management practices including artificial regeneration to accelerate establishment, silvicultural procedures to enhance growth rates, and induced regeneration tree mortality are available to reduce the potential of on-site gaps following continuous stand-replacement fires (Everett et al. 1999).

Thousands of large snags would be retained under any of the alternatives; however, regardless of the alternative selected the majority of the snags would not persist beyond about 30 years. To provide for some long-term persistence of snag habitat, large ponderosa pine (greater than 30 inches dbh) with any green crown remaining would be retained.

21) COMMENT: ***Logging related disturbance and removal of large logs will set back vegetation recovery that has already occurred and lead to loss of soil cover, reduced recruitment of large woody debris in streams, accelerated erosion, and sedimentation, and violations on INFISH.***

RESPONSE: None of the affected subwatersheds is an INFISH priority watershed. Infish buffers are included in the design of the alternatives. No salvage activities or road construction would occur within any RHCA. Proposed road improvements and closures will serve to accelerate attainment of Riparian Management Objectives (RMOs) and are fully consistent with the goals and applicable INFISH standards and guidelines, particularly TM-1 and RF-2

RMOs for INFISH include measures related to: pool frequency, large woody debris, water temperature, and width to depth ratio, as well as a requirement that there be no significant harm to native fish and their habitats in the long-term. The EA analysis focuses on all of the above RMO elements. None of the alternatives would hinder or retard the attainment of INFISH RMOs for any factor. Retard is defined within INFISH as: to slow the rate of recovery below the near natural rate of recovery if no additional human caused disturbance was placed on the system.

See response to comment 8 in regard to vegetation recovery and soil loss. The expected effects related to loss of soil cover are discussed in both the Water Quality and Soils sections of Chapter 3 in the EA.

22) COMMENT: ***Unsuitable soils will be logged making regeneration slower and more difficult.***

RESPONSE: Logging will not occur on unsuitable soils. In order to address soil concerns, site-specific investigation was conducted of the harvest units contained in the alternatives to insure that harvest activities, ground-based and helicopter, would only be occurring on soils suitable for those activities.

Field investigation by the Forest Soil Scientist determined there are gentle slopes or benches appropriate for ground-based logging existing within several of the soil map units shown in the SRI as 16 to 40 percent slope (EA pages 76-78).

Richard Hart, Consulting Ecologist, conducted an independent survey of the proposed ground-based logging units for the Lake County Resources Initiative group (Letter of May 20, 2003 to Jim Walls, Executive Director, Lake County Resources Initiative). Hart concluded that: "The Units with prescribed tractor logging will be subject to low or insignificant soil disturbance and transport due to the presence of effective ground cover, be it grasses or rock. Grasses are very durable to compaction, since they function from a bacteria-based soil ecology. Rock will wear equipment out before it gives in." Hart further concluded, "The mechanical disturbance does not pose a significant threat to the soil base within any of proposed tractor units." This is consistent with the analysis presented in the EA related to soils and ground-based logging.

23) COMMENT: ***The Forest Service failed to consider the full implications of a study conducted by Timothy Sexton on the adjacent Winema NF which found that post-fire salvage logging caused:***

- ***a. Reduced vegetation biomass***
- ***b. Reduced plant species richness***
- ***c. Reduced plant species diversity***
- ***d. Reduced survival of planted seedlings***
- ***e. Reduced growth of planted seedlings***

These effects will cause violations of the INFISH retard standard, retard recovery of cover and forage for big game, and generally undermine the Forest Service unsupported claims that salvage is benign or even beneficial.

RESPONSE: The comment does not mention that this was a two-year study. Sampling of burn and salvage effects began in 1993-1994 as a master's thesis project in the 1992 Lone Pine Fire, a 30,000-acre stand-replacing fire located just east of Chiloquin, Oregon (Sexton, 1998). Sexton described a two-year benefit in species richness and density for shrubs and herbaceous vegetation in non-salvaged versus salvaged plots. Plots were monitored again in 1999 as a Forest botany project (Malaby, 2002) and again in 2003 as a zone ecology project. The re-measurement data shows that the differences between the salvaged and non-salvaged plots are becoming less significant for both abundance and species richness. The table below documents some of the 1999 findings:

Fire and Salvage Effects in Logged Units Compared to Control Units in 1994 and 1999

Time (interval)	1994 (2 year)	1999 (5year)
Biomass		
graminoid	reduced by 43%	reduced by 30%
forb	reduced by 83%	not significant
Relative abundance		
forb	reduced by 38%	not significant
graminoid	increased by 75%	not significant
western needlegrass	increased by 74%	increased by 35%
Biodiversity		
species richness	reduced by 30%	not significant
species evenness	reduced by 15%	reduced by 3%
Shannon Diversity Index	reduced by 24%	reduced by 7%
tree height	reduced 12%	reduced by 15%
tree density	not significant	not significant
bitterbrush height	not significant	not significant
bitterbrush density	reduced by 50%	reduced by 35%
bitterbrush line intercept	not measured	not significant

Now, ten years following the fire, the burn is characterized by extensive needlegrass and progress in the shrub habitat component.

Nonetheless, the Sexton study on the Winema took place in an area of course sand pumice and ash terrain. The Winter Fire Salvage Project occurs in the Winter Rim fault-block range composed of basalts, andesite, and breccias rocks overlaying tuff sediments. The comment does not cite an applicable study location area for comparing effects in a meaningful analysis.

24) COMMENT: ***The Forest Service has not used the best available science to address the needs of cavity dependent species and provide for 100% population levels of these species. The Forest Service must meet at least the 80% tolerance level from the DecAID advisor over the long-term (i.e., accounting to snag recruitment and snag fall over time).***

RESPONSE: Regional Forester's Eastside Forest Plan Amendment #2 requires that all sale activities, including salvage, maintain snags at 100 percent population potential levels of primary cavity excavators, and "this should be determined using the best available data on species requirements as applied through current snag models or other documented procedures". There is no requirement to meet or use specific tolerance levels from the DecAid advisor.

In designing the snag retention strategy of Alternative 2, the data available in DecAid, and work conducted by Victoria Saab and others was consulted in determining optimal habitat for black-backed woodpeckers and Lewis' woodpeckers (EA pages 107-109). Managing for a range of post-fire habitat conditions, characteristic of black-backed and Lewis' woodpeckers, would likely incorporate habitat features necessary for nest occurrence of other cavity-nesting birds (Saab et al. 2002). This suggests that developing salvage logging prescriptions that maintain habitat characteristics for both black-backed and Lewis' woodpeckers, while considering both the microhabitat and landscape scale, would likely retain habitat for the entire assemblage of cavity-nesting birds.

25) COMMENT: ***4 snags per acre in the short-term, results in how many snags per acre in the long-term? The EA must disclose this.***

RESPONSE: All alternatives retain more than 4 snags per acre in the harvest area. See responses to comments 6, 7, 19 and 20 above.

26) COMMENT: ***The EA fails to recognize the importance of protecting all live trees; including dying trees for future snag recruitment, for current live tree habitat, and as refugia for beneficial soil organisms.***

RESPONSE: It is the intent of the prescriptions that all trees having a reasonable chance of survival be retained in the salvage harvest units. Ponderosa pine trees greater than 30 inches dbh with any green crown remaining will not be removed, but will remain within harvest units as potential seed sources and future snags (EA page 20).

The reserve of remaining live trees, as well as the native vegetation response and a fairly rapid planting of ponderosa pine will all contribute to the maintenance of refugia for soil organisms.

Also see response to Comment 8.

27) COMMENT: ***The water quality discussion (p 3-59) does not disclose the mechanisms by which logging disturbance and roadwork causes erosion and sedimentation.***

RESPONSE: The extent to which logging exacerbates soil, sediment, and hydrological problems in post-fire landscapes will depend on site characteristics, site preparations, logging method, and whether new roads are needed. The effect of post-fire logging on sediment production also depends on logging system type and the extent to which logging residue remains on a site. Although logging (particularly ground-based) can have significant effects on sediment yields in post fire watersheds, logging residue can mitigate some of these effects (McIver & Starr, 2000).

Thorough consideration of the local post-fire environment in this project area is provided throughout the analysis and in the design of the alternatives. Helicopter logging systems will be utilized on about 85 percent (2,562 acres) of the harvest area. Ground-based systems would be used to harvest approximately 15% (435 acres) of the harvest area. Only spotty water-repellant soil conditions were found, concentrated under lodgepole pine thickets on the sandy ash soils above Winter Rim and outside the project area. Many of the soils have a high rock content that reduces mechanical damage and potential compaction of the soils. The soils are generally deep and well drained with a relatively low drainage density. There are large areas of rock talus that capture water and feed it to springs that provide constant channel flow rather than flashy runoff. Residual treetops from the logging would be retained on site, dispersed across the harvest units, to act as barriers to soil migration and displacement on the land surface. No new roads are planned under any alternative and current open road densitiy is a low 1.4 miles per square mile in the project area. Soil disturbance would be limited in ground-based logging units by use of designated skidtrails. Waterbars would be constructed on skidtrails to provide adequate cross drainage that will serve to reduce erosion, dissipate sediment and help to keep water and sediment within upland areas.

The potential for erosion and sedimentation specifically related to roads is described on page 56 of the EA. The logging activities and related roadwork included in the alternatives have been considered for their potential to contribute to erosion and sedimentation with the potential effects described in the Water-Quality and Riparian Habitat section (pages 59-62), Soils section (pages 82-85), and Threatened, Endangered, Proposed, Candidate, and Sensitive Fish Species, Redband Trout (pages 123-125).

28) COMMENT: ***The EA fails to explain how their sediment model applies to post-fire situations.***

RESPONSE: Following a fire, sediment yields decline in a year or two, as ground vegetation recovers. The observed recovery patterns that have taken place in the Alder Ridge Fire (1996) provide a local time line recovery reference. The 1996 Alder Ridge Fire, which was partially salvage logged in 1997, now has well developed ground vegetation and grass recovery. This example helps to frame erosion recovery scenarios by case studies.

Water Erosion Prediction Project technology (WEPP, 2001) was used to generate sediment values for two cases, representing the ground-based logging units, at five plausible checkpoints of recovery and treatment using a local climate record for 50 years to include high intensity storm events. Live cover values are based on grass and shrub cover values from plant associations (Hopkins, 1979) and likely recovery rates. The checkpoint live cover values used in Table 3-4 of the EA (page 61) are less than the default 85 percent cover in WEPP for a low severity fire, but they provide relative differences for estimating recovering conditions with the WEPP technology.

Site soil erosion and sediment transport scenarios were run for two cases, based on eco-class, soil type, and slope patterns and cases that track the post-fire conditions. More specifically, the estimates provide context for the effect of skid trails that are developed and used in a post-fire logging scenario, two years into live ground cover recovery.

29) COMMENT: ***Reliance on RHCAs to mitigation for upland logging disturbance is not appropriate when the RHCAs have burned and are less able to filter sediment that may be mobilized by logging and roads.***

RESPONSE: Lack of vegetation in RHCAs as a result of the Winter Fire is acknowledged in the EA (pages 57, 58). While RHCA buffers have been identified and no salvage related activities would occur in the buffers, there is no reliance on RHCAs to mitigate in the manner suggested by the comment.

Minimal erosion is expected from logging in the uplands. If any project-generated sediment were to reach fish bearing streams, it is expected that it would be short-term in nature, and at an immeasurable, negligible level. The use of timber and road BMPs, close adherence to the Soil Productivity Guide, and avoidance of RHCAs would prevent most sediment from reaching stream channels.

30) COMMENT: ***Logging will actually increase available fuels loads in the short term and could harm resources that the Forest Service claims to be protecting. This undermines the purpose and need and requires more careful consideration in the EA.***

RESPONSE: Fuel loadings and fire hazard has been addressed in Comments 3, 4 and 5. The purposes of and needs for the Winter Fire Salvage Project are not focused on decreasing fuel loadings.

31) COMMENT: ***The Forest Service dying tree criteria fail to recognize that large trees are more resilient than smaller trees.***

RESPONSE: In developing guidelines and criteria for salvage, the Silviculturist reviewed the information presented in Entomological Concerns Regarding Burn Characteristics and Fire Effects on Tree Species During Prescribed Landscape Burns: Burn severity guidelines and mitigation measures to minimize fire injuries 12/12/96, from Donald W. Scott and others on the Wallowa-Whitman National Forest. This report contains a review of information from many studies that have been conducted over the years, some older and some more recent, all determining similar findings, (Miller and Keen 1960, Wagener 1961, Furniss 1965, Rundel 1973, Ryan 1988, Ryan and Reinhardt 1988, Sutherland and others 1991, Agee 1993). The Wallowa-Whitman National Forest first developed "burn-severity guidelines" in 1988-89 and has been modifying them over the years based upon monitoring and more recent research. A monitoring study from the Quick Fire (1994) on the Chiloquin Ranger District provided a local perspective of post-fire mortality rates (Moore 1995). Information from both of the studies estimated mortality would result when 70-80% of a trees crown volume had been scorched. Tree size was a variable taken into account in several of the studies referenced.

However, in an effort to be responsive to public comments and concerns expressed, all ponderosa pine trees larger than 30 inches dbh and having any green crown remaining are being retained as potential seed sources and future snags.

Mary Jo Hedrick – Oregon Department of Fish and Wildlife (ODFW)

32) COMMENT: ***ODFW recommends the following modifications to Alternative 2. No planting within two crown widths of green trees greater than 21 inches dbh. To promote forage production across the landscape, ODFW recommends no conifer planting in openings less than 5 acres in size created by the fire. To promote the development of deciduous vegetation habitats, ODFW recommends no planting within 150 feet of willows, alders and mahogany.***

RESPONSE: The silvicultural prescriptions prepared for this project are responsive to this comment by providing for no planting within 35 feet of live green conifers, 50 feet from aspen, and 100 feet from the edge of meadows in specific units where these conditions would occur. Areas that are below stocking level, but within 100 feet of a seed wall (200 feet across) can be allowed to naturally regenerate, rather than be planted.

33) COMMENT: ***ODFW offers the following corrections and clarifications to the EA:***

Page 105, paragraph 3 – "Wintering deer in 2002 for the Silver Lake Unit were estimated at about <u>70%</u> of a management objective of <u>10,300</u>."

Page 119, paragraph 6, under heading "Rocky Mountain Elk" – "<u>The area of the proposed project is within the Silver Lake herd summer range.</u>" Delete the following portion of the sentence: "however, there is no resident herd in the area." The Silver Lake herd does use this area but they are at low numbers and move in and out of the area.

Page 120, paragraph 1 – "Based on the lack of elk and elk use in the area…", - this should read, "<u>based on the low number of elk and minimal use of the area</u>…"

RESPONSE: These corrections and clarifications will be incorporated in the final EA document.

34) COMMENT: ***Page 107, paragraph two of the EA says it is expected that additional conifer planting will occur throughout the Winter Fire area, including the plantation from the 1962 fire. It is ODFW's understanding that the 1962 plantations would not be planted.***

RESPONSE: Additional conifer planting, including the plantations from the 1962 fire were considered as reasonably foreseeable future actions in analyzing cumulative effects of this project. This project only includes planting within salvage harvest units. Additional planting, including the plantations from the 1962 fire, would be given consideration in the future through development of a proposed action and subsequent analysis.

Gary Johnson – Fremont Sawmill

35) COMMENT: ***There is no need to set aside special areas for Black-backed and Lewis' woodpeckers considering the habitat immediately adjacent and within the project area under Alternative 3. Providing the additional woodpecker habitat will result in loss of timber value and jobs.***

RESPONSE: For management indicator species such as the black-backed woodpecker, there is a requirement to provide sufficient habitat quality, quantity, and diversity to maintain self-sustaining populations across the Forest. Regional Forester's Eastside Forest Plan Amendment #2 requires that all sale activities, including salvage, maintain snags at 100 percent population potential levels of primary cavity excavators, and "this should be determined using the best available data on species requirements as applied through current snag models or other documented procedures". Research indicates that black-backed and Lewis' woodpeckers prefer slightly different habitat than that which would be provided under the Forest Plan standards to provide for 100% of potential population levels (EA page 109). Alternative 2 best implements our understanding of optimal habitat for black-backed and Lewis' woodpeckers in a post-fire environment. Recent science, represented by DecAid (or the "Decayed Wood Advisor for Managing Snags, Partially Dead Trees, and Down Wood for Biodiversity in Washington and

Oregon" Mellen, 2002), and work conducted by Victoria Saab and others was used to design the specific woodpecker habitat retention areas of Alternative 2.

While the woodpecker retention areas will limit the current entry and extraction of timber products, alternatives were designed to reflect a difference in approaches for snag retention while trying to achieve a balance with recovery of timber from the burned area to meet the purposes and needs of the project. In designating areas of suitable habitat for these species, the interdisciplinary team also focused on mapping retention areas where non-commercial forestlands matched with available woodpecker habitat, and in taking this approach the overall impact to the loss of commercial forestland and future timber management options was minimized.

36) COMMENT: ***I object to the proposed Forest Plan Amendment, dealing with the Old Growth issue, which would result in a net loss of 303 acres from the timber production base of the Fremont National Forest. Coupled with the past and potential future reductions, i.e. stream buffers, etc.; it accumulates to a sizable reduction in potential timber output.***

RESPONSE: The Forest Plan, on pages 139 and 197, states "Salvage operations will take place only when catastrophic events occur (such as wildfire, insect infestations, windthrow, etc.) and the affected old growth stand is no longer considered suitable old growth habitat. A new old growth stand should be delineated to replace the original habitat." The decision was already made in the Forest Plan to relocate non-functional old-growth stands, with the effects analyzed in its supporting FEIS. The decision here goes beyond the Forest Plan requirement to delineate replacement acres and implements the land allocation change for these lands by amending the Forest Plan. Implementation of Alternative 2 provides for consistency with the Forest Plan by designating replacement habitat for old-growth stands that were burned during the Winter Fire.

The overall change in the suitable land base managed for timber production would be a net loss of 303 acres. This level of loss equates to only 0.1% of the Lakeview Federal Sustained Yield Unit, and 0.04% of the entire Fremont National Forest timber production land base. Since the harvest levels for the Forest are currently limited by funding, and they are well below the growth rates for the Forest, there would be no direct or indirect effects on the future Fremont National Forest annual sell volume.