February 4, 2016

David Myers
USDA Forest Service
Shasta McCloud Management Unit
3544 Avtech Parkway
Redding, CA 96002

Re: Elk LSR Timber Sale DEIS

Dear Timber Planners,

Thank you for accepting these scoping comments on behalf of the Klamath Siskiyou Wildlands Center, the Klamath Forest Alliance and the Environmental Protection Information Center. Contact information for our organizations may be found at the conclusion of this document. **Please send hard copies of all forthcoming documents regarding this project to our mailing addresses.**

In many fire-suppressed dry forest stands our organizations have supported Forest Service plantation thinning and understory thinning of encroaching white-fir. We also have supported Forest Service efforts to utilize prescribed fire in many instances. Unfortunately, the Shasta-Trinity National Forest in general, and the McCloud Ranger District in particular, are making it harder and harder for us to support Forest Service management activities in the Late Successional Reserve (LSR) system. Large tree removal, new road construction, group selection logging, riparian reserve logging, and machine piling are all activities that directly harm forest health and late-successional ecosystems. Simply put, the reserve land use allocations, and the Northwest Forest Plan, lose all meaning if native forest stands are logged in order to prevent, rather than facilitate, natural forest succession processes. The agency's refusal to consider an upper diameter limit for logging and its proposal to log throughout critical habitat, late successional and riparian reserves runs counter to the standards and intent of the Northwest Forest Plan.

Natural Disturbance Creates Habitat and Bolsters Biodiversity

It appears that much of the large tree, machine piling and road construction proposed in the Elk LSR timber sale is based on the belief that management (logging) induced tree mortality in a Late Successional Reserve is ecologically preferable to tree mortality that is the result of natural processes. This premise is incorrect. We recognize that continuing Forest Service fire suppression, logging and road construction policies have altered the

species and seral composition of some forest stands in the LSR, but we dispute that *additional* large tree-removal, road construction, machine piling will therefore aid forest health.

The authors of the Northwest Forest Plan accounted for large-scale disturbance in the design (and function) of the LSR system. As stated in Dr. Jerry Franklin's comments regarding the proposed Biscuit Fire Salvage timber sale within Late Successional Reserves on the Rogue River-Siskiyou National Forest:

> *The LSR network was designed to accommodate large, intense natural disturbances and allow for natural recovery processes. This is one reason that the FEMAT report and PNW Forest Plan provide for conservative direction with regards to salvage in LSRs and direct that activities should enhance or at least not interfere with natural recovery processes. Chapter and verse are cited in the text of these comments.*
>
> *Salvage logging of large snags and down boles does not contribute to recovery of late-successional forest habitat; in fact, the only activity more antithetical to the recovery process would be removal of surviving green trees from burned sites. Large snags and logs of decay resistant species, such as Douglas-fir and cedars, are critical as early and late successional wildlife habitat as well as for sustaining key ecological processes associated with nutrient, hydrologic, and energy cycles.*

Specifically, in the Elk LSR project Forest Service timber planners are proposing the removal of large snags and live conifers that "are critical as early and late successional wildlife as well as for sustaining key ecological processes associated with nutrient, hydrological, and energy cycles" in the Late Successional Reserve rather than recognizing that the LSR network "was designed to accommodate large, intense disturbances and allow for natural recovery processes."

The ecological differences between biologically rich stands that result from natural disturbance and stands that are subject to logging, skid trail establishment, machine piling and road construction are well known and pronounced:

> *Early-successional forest ecosystems that develop after stand-replacing or partial disturbances are diverse in species, processes, and structure. Post-disturbance ecosystems are also often rich in biological legacies, including surviving organisms and organically derived structures, such as woody debris. These legacies and post-disturbance plant communities provide resources that attract and sustain high species diversity, including numerous early-successional obligates, such as certain woodpeckers and anthropods. Early succession is the only period when tree canopies do not dominate the forest site, and so this stage can be characterized by high productivity of plant species (including herbs and shrubs), complex food webs, large nutrient fluxes, and high structural and spatial complexity. Different disturbances contrast markedly in term s of biological legacies, and this will influence the resultant physical and biological conditions, thus affecting successional pathways. Management activities, such as post-disturbance logging and dense tree planting, can reduce the richness within and the duration of early-successional ecosystems. Where maintenance of biodiversity is an objective, the importance and value of these natural early-successional ecosystems are underappreciated.*
> *-Swanson et al, The Forgotten Stage of Forest Succession: Early-Successional Ecosystems on Forest Sites. 2010. Frontiers in Ecology and the Environment.*

The Forest Service proposal to log native forest stands, conduct group selection logging, establish skid trails, establish new log landings, construct new logging roads, and conduct machine piling largely ignores the existing science regarding stand development processes including biological legacies and recovery periods in creating stand complexity and biodiversity.

> *Foresters use natural disturbances and stand development processes as models for silvicultural practices in broad conceptual ways. Incorporating an understanding of natural disturbance and stand development processes more fully into silvicultural practice is the basis for an ecological forestry approach. Such an approach must include 1) understanding the importance of biological legacies created by a tree regenerating disturbance and incorporating legacy management into harvesting prescriptions; 2) recognizing the role of stand development processes, particularly individual tree mortality, in generating structural and compositional heterogeneity in stands and implementing thinning prescriptions that enhance this heterogeneity; and 3) appreciating the role of recovery periods between disturbance events in the development of stand complexity. We label these concepts, when incorporated into a comprehensive silvicultural approach, the "three-legged stool" of ecological forestry. Our goal in this report is to review the scientific basis for the three-legged stool of ecological forestry to provide a conceptual foundation for its wide implementation.*
> *-Franklin et al, Natural Disturbance and Stand Development Principles for Ecological Forestry. USDA Forest Service Northern Research Station. General Technical Report NRS-19. 2007.*

Please note that page 20 of the Elk LSR DEIS acknowledges that:

> *Many of the natural stands in the Elk Flat LSR contain elements of late-successional habitat and provide stand structural conditions suitable as either reproductive or foraging habitat for northern spotted owl, northern goshawk or fisher habitat.*

Yet the proposed LSR logging units are located primarily within these native forest stands that currently contain the habitat elements that the land use allocation is intended to provide. Further, the proposed logging will remove many of these desired habitat elements through activities that will degrade and downgrade habitat for late successional associated wildlife. This runs afoul of the intent of the NW Forest Plan concerning LSR management.

Logging Larger Trees

We believe that retaining large diameter trees and snags where they still exist would benefit the project in a number of ways.

Large trees are a primary element of late successional habitat function, which this project seeks to retain.

Retaining large trees in the project would greatly reduce the scientific and social controversy regarding the harvest prescriptions.

Large trees provide disproportionate hydrological benefits to these watersheds. The crowns of such trees help moderate peak flow events via canopy cover. Large live and trees are the primary source of future large down wood, which also helps to filter and moderate water flow throughout the year.

Also, please note that in the Thom Seider timber sale FEIS (page 343) your colleagues in both the Klamath National Forest and the Environmental Protection Agency acknowledge that the diameter of conifer trees acts as a "measure of resistance to fire." Hence the forest health and fire resiliency goals of the Elk LSR timber sale project may be best achieved by retaining such trees where they still exist in the watershed. That federal agency analysis contained in that FEIS may be viewed at: http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=16796

We are perplexed by the agency's insistence on logging large trees within the Late Successional Reserve land use allocation. Many LSR projects in California (and throughout the range of the northern spotted owl) have developed and implemented action alternatives that retain (rather than log) large-diameter trees. Hence it is reasonable to consider and develop such an action alternative.

Large tree retention in LSR and riparian reserve land use allocations that serve as designated critical habitat for listed species is an acknowledged "key issue" for the project. See DEIS page 148. Yet every action alternative developed by the Forest Service would reduce the large tree component both now and in the future. Indeed, page 132 of the DEIS indicates that the Forest Service intends to remove 20%-23% of the existing large diameter trees in proposed logging units. In the short term "it is clear that thinning will reduce the number of trees per acre over 24" DBH from current levels." DEIS page 132. In the long term "modeling indicates that unthinned stands would have notably higher levels of trees greater than 24" DBH at year 20 than thinned stands." The project purpose and need, as well as the management intent for the LSR, would be inhibited in both the short and long term by the proposed extensive removal of the very habitat element that is supposed to be emphasized in the Reserve.

The proposed removal of large trees/structural legacies will runs counter to the management goals for dry forest LSR restoration. As noted on page 165 of the DEIS:

> *In dry forest landscapes, retaining structural legacies (large trees that tend to be fire tolerant, snags and down wood created through stand development or disturbance events) is important to maintaining habitat and connectivity. These structural legacies serve valuable functions, including reproductive structure, cooler microclimates, pretty and forage base, or help maintain or improve connectivity.*

Additionally, at B9 and B10 of the DEIS the Forest Service states:

> *We recognize the importance of large trees on the landscape for a variety of reasons including fire resiliency, various species habitat needs (including northern spotted owl, northern goshawk, fisher and pacific marten and stand structural legacies) particularly in Late Successional Reserves."*

Yet rather than retain large trees for the management benefits that are acknowledged above, the Elk Project contains no substantive protections whatsoever for large trees within the LSR. Indeed, while over 20% of the large trees will be logged, the DEIS fails to disclose or quantify the location or number of large trees >24" DBH to be removed from the LSR. The conclusions presented in the DEIS are not supported by any data or numbers at all. Instead, an undisclosed number of large trees will be removed from undisclosed locations within LSR logging units.

At B-10 the DEIS indicates that large tree removal may "primarily" focus on white-fir encroachment. The term "primarily" fails to quantify impacts or inform the reader. Does primarily mean 51%? How many large pines will be removed? Our observations of the recent Pilgrim and Mayflower timber sales in the SMMU indicated that large fire-resilient pines are generally targeted for removal throughout the District.

The analysis contained in the DEIS regarding the effects of large tree logging on wildlife species of concern is misleading and incorrect. On page 175 of the wildlife analysis in the DEIS the Forest Service claims that implementation of logging Alternative 1 will benefit spotted owls and pacific fisher because that alternative facilitates the "most acreage towards…larger trees classes." In fact, as disclosed on page 132 of the DEIS, the LSR logging project will in fact reduce the number of large trees in both the short and long term.

While project planners arbitrarily refused to develop and consider a reasonable alternative that included a diameter limit for logging in the LSR and CHU (as has been implemented on other dry forest LSRs in the NW Forest Plan area), page E-24 of the DEIS reveals that the ID Team discussed the need for "diameter limits in critical habitat" associated with oak release treatments. Hence diameter limits are reasonable and should have been developed and considered in at least one logging action alternative in the Elk LSR DEIS.

Findings of the Watershed Analysis

Please note that at E-20, The Northwest Forest Plan requires that:

> *[The Watershed Analysis] will serve as the basis for developing project-specific proposals, and determining monitoring and restoration needs for a watershed. Some analysis of issues or resources may be included in broader scale analyses because of their scope. The information from the watershed analyses will contribute to decision making at all levels. Project-specific NEPA planning will use information developed from watershed analysis. For example, if watershed analysis shows that restoring certain resources within a watershed could contribute to achieving landscape or ecosystem management objectives, then subsequent decisions will need to address that information.*

Hence the following findings of the McCloud Flats Ecosystem Analysis should have been addressed in project development and implementation. The italicized commentary is an attempt by our organizations to link the Forest Service findings to our concerns regarding project design:

- Distribution of snags and deadwood is spotty because large areas of plantations have almost no deadwood or snags. This reduces the average below forest minimums. Page 22. *Yet the project calls for removing large trees that would become snags and reducing large trees per acre as well as felling snags for OSHA purposes and to facilitate yarding, road construction and landing establishment.*

- [Habitat] connectivity among the LSR's and MLSA's will be a continuing problem. Page 61. *Yet the project calls for reducing canopy connectivity in the LSR, constructing logging roads and landings, and equivalent roaded acres (ERA).*

- Goshawks populations are in a similar situation to the spotted owls, limited by lack of habitat and harassed by human activity. Page 62. *The project will log Goshawk habitat and downgrade 98 acres of suitable habitat.*

- In Late-Successional Reserves and Managed Late Successional Areas, late successional forest stands are to maintain health and diversity components through the use of prescribed fire and thinning from below. Patches of dead trees are scattered throughout the landscape. Page 66. *In this project the Forest Service refused to consider a "thin from below" alternative that retained large trees and snags in the project area.*

- A possible relationship between soil disturbance and black stain incidence has been reported. Disease incidence appears to be higher adjacent to recently constructed roads and old railroad beds. Page 67. *Yet the Forest Service is proposing extensive road construction, landing construction, tractor yarding and machine piling.*

- Roads have altered groundwater flowpaths in riparian meadows. Page 81. *Additional road and landing construction will not remedy this problem and my increase it.*

- Four priority areas have been identified for road closures. They are in the Elk Flat LSR… Page 86. *The project calls for closing no Forest Service system roads in the LSR.*

- Continue nesting and occupancy surveys for goshawks. Coordinate monitoring with Klamath NF. Page 87. *No quantitative wildlife data is presented in the DEIS.*

- Minimize soil disturbance during thinning operations. Page 88. *Thinning operations include extensive whole tree yarding, landing establishment, road construction, tractor yarding and machine piling.*

- Youngest stands have the highest priority for silvicultural treatment. Page 101. *The project contains no substantive protections for old and larger trees in the LSR.*

- Reduce road density. Page 102. *No reductions of Forest Service system roads is proposed or contemplated. Only existing user created routes are under consideration for decommissioning.*

- No silvicultural activities should be undertaken in current or recently active goshawk nesting territories. Page 102. *It is unclear if this recommendation was carried forward in the DEIS.*

Transportation Management

Please note that the DEIS indicates that the Forest Service is proposing: (1) Temporary road construction; (2) Landing construction; (3) Gap creation logging; (4) Ground-based yarding activities and (5) Machine Piling; all of which will increase (rather than decrease) the hydrological and terrestrial impacts of the equivalent roaded acres in the planning area.

We urge the Forest Service to propose and implement a vegetation management project that implements the ACS of the Northwest Forest Plan and the findings and recommendations of the Watershed Analysis by:

- Avoiding and deferring new road construction;
- Minimizing new landing construction; and
- Decommissioning unneeded *system* roads in addition to user-created routes.

This reasonable alternative has been implemented in numerous LSR projects throughout the Northwest Forest Plan. The Forest Service refusal to develop and consider such an alternative is arbitrary and capricious.

While every proposed action alternative in the DEIS calls for new "temporary" road construction and none of the action alternatives call for a reduction in Forest Service system roads, the DEIS fails to quantify or disclose the site-specific impacts of its proposals to construct roads and landings. How many trees will be removed to facilitate these actions? What will be the site-specific impacts to soils? Rather than analyze and disclose the impacts of new road construction, at page 221 the DEIS simply discounts the impacts of new road and landing construction that the agency claims "will have a short-term impact to the soil resource." This claim is not credible. During the scoping process for this LSR timber sale our organization submitted several literature attachments and referenced peer-reviewed publications establishing the long-term impacts of so-called "temporary" road construction. Indeed, on page 221 of the DEIS the Forest Service acknowledges that road decommissioning "cannot restore the roadbed to natural conditions [and rather] rehabilitation efforts initiate a long term recovery process." Hence the conclusion in the next paragraph that impacts to soils from road and landing construction are "short term" and need not be analyzed or disclosed by the agency is in error.

Cumulative Impacts

The DEIS fails to provide a thorough cumulative impacts analysis of the proposed logging in combination with other federal logging and private logging activities. Private timberlands interspersed throughout the McCloud Ranger District have been managed exclusively for short-rotation timber production. It appears that much of the LSR and surrounding Forest Service lands have been subjected to logging, road construction and fire exclusion. We have also observed implementation of regeneration logging, large tree logging, large snag logging, tractor yarding and machine piling activities in the matrix land use allocation in the Pilgrim and Mayflower timber sales on the McCloud District. These prescriptions have turned public forestlands into compacted dirt fields largely devoid of vegetation as evidenced in the photos that were attached to our scoping comments. The cumulative impacts of these practices are severe and significant, yet the DEIS largely neglected to quantify the cumulative impacts of widespread and ongoing logging in the area.

A proper consideration of the cumulative impacts of a project requires "some quantified or detailed information;…[g]eneral statements about some possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." Neighbors of Cuddy Mountain v. United States Forest Serv., 137 F3d 1372, 1379-80 (9th Cir. 1998)). The analysis "must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present and future projects." *Id*.

The many severe cumulative impacts from timber sale activities, road construction, fire suppression, and machine piling for this planning area must meet the requirements of NEPA such that:

> *A proper consideration of the cumulative impacts of a project requires "some quantified or detailed information;…general statements about possible effects and some risk do not constitute a hard look absent a justifications regarding why more definitive information could not be provided." Ocean Advocates, 361 F.3d at 1128 (quoting Neighbors of Cuddy Mountain v. US Forest Service, 137 F.3d 1372, 1379-80 (9th Cir. 1998)). The analysis "must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects." Id.*
> *-KS Wild v. BLM 387 F 3d. 15269 (9th Cir. 2004).*

As discussed in the Ninth Circuit's July 24, 2007 decision regarding cumulative effects NEPA analysis:

> *One of the specific requirements under NEPA is that an agency must consider the effects of the proposed action in the context of all relevant circumstances, such that where "several actions have a cumulative…environmental effect, this consequence must be considered in an EIS." Neighbors of Cutty Mountain v. US Forest Service., 137 F3d 1372, 1378 (9th Cir. 1998) quoting City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir. 1990)). A cumulative effect is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or persons undertakes such other actions." 40 CFR § 1508.7.*

Our cases firmly establish that a cumulative effects analysis "must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects." Klamath Siskiyou Wildlands Center v. BLM, 387, F.3d 989, 993 (9th Cir. 2004). To this end, we have recently noted two critical features of a cumulative effects analysis. First, it must not only describe related projects but also enumerate the environmental effects of those projects. See Lands Council v. Powell, 395 F.3d 1019, 1028 (9th Cir. 2005) (holding a cumulative effects analysis violated NEPA because it failed to provide adequate data of the time, place, and scale" and did not explain in detail "how different project plans and harvest methods affects the environment"). Second, it must consider the interaction of multiple activities and cannot focus exclusively on the environmental impacts of an individual project. See Klamath Siskiyou Wildlands Center, 387 F 3d at 996 (finding a cumulative effects analysis inadequate when "it only considers the effects of the very project at issue" and does not "take into account the combined effects that can be expected as a result of undertaking" multiple projects).

-Oregon Natural Resources Council et al. v. Brong. 9th Circuit. July 24, 2007.

Given the repeated acknowledgements in the watershed analysis regarding the impacts of past logging and road activities on the hydrological and terrestrial health of the project area, it is vital that the Forest Service analyze and disclose the cumulative impacts of past activities and its future plans.

Northern Goshawks

The DEIS fails to fully address the impacts of the proposed logging and road construction on Goshawks. A peer-reviewed survey of Goshawk habitat use suggests that current management of the bird's habitat may be inadequate to provide for its persistence in viable populations. Greenwald et al, *A review of northern goshawk habitat selection in the home range and implications for forest management in the western United States*. Wildlife Society Bulletin 2005, 33(1): 120-129.

The Agency Must Quantitatively Disclose Future Snag Reductions and How this Will Impact Wildlife, Especially Woodpeckers and Cavity Nesters

Large numbers of mature trees and snags will be removed from proposed logging units. All of these trees would have died and created snags and down wood for wildlife. What is the reduction in large snag/down wood supply over time (beginning with this logging project)? Since many of these trees are over 100 years old, the reduced snag supply may persist for at least several hundred years.

Snags are an essential element of forest health, forest structure, and late-successional habitat. Thomas et al (1990) and the Fish and Wildlife Service (1990) defined Spotted Owl (old-growth) habitat as including "numerous large snags." Similarly, the Shasta-Trinity National Forest LRMP directs the agency to "protect and enhance late-successional characteristics" in LSRs. Large snags are a key late-successional characteristic. Hence snags should be retained as essential habitat elements in a Late Successional Reserve. The LRMP also encourages the agency to use prescribed fire and thinning from below, focus on

younger stands, and accelerate development of late-successional characteristics in the LSR. None of these objectives will be furthered by reducing large snag habitat on over 1,500 acres of the LSR.

How Many Trees of What Diameter Classes Will Be Removed?

C-13 of the NW Forest Plan requires that timber sales designed to reduce risk in the LSR land use allocation "should generally focus on young stands." This direction has been ignored in the Elk LSR timber sale that instead primarily focuses logging in mid-seral stands and includes no substantive protections for larger trees while significantly reducing current and future trees greater than 24" DBH in proposed logging units. Hence it is essential that that public and the decision maker be informed via NEPA of the number and size of trees to be logged prior to a decision being made to implement the timber sale. This is particularly relevant for older trees >30"dbh. The DEIS fails estimate the number mature trees (20-30" dbh) and the number of "old growth" trees >30" dbh that would be logged from each unit. The most informative way of disclosing this data would be to report the pre-logging number of trees in these size classes and the post-logging number and size of trees in these size classes. We have previously reviewed modeled results of these data for other timber sales thus the data is available for NEPA purposes and the Forest Service is required to disclose for comment and analysis *prior* to issuing the decision to implement the project. The proposed action must demonstrate that this standard is being met for each unit logged.

Neotropical Migratory Birds

The regional decline of migratory birds is a significant issue for this project. Numerous studies have reported local and regional trends in breeding and migratory bird populations throughout North America (e.g., DeGraaf and Rappole 1995, Sauer et al. 2004). These studies suggest geographically widespread population declines that have provoked conservation concern for birds, particularly neotropical migrants (Askins 1993, Terborgh 1989.)

The DEIS for this project fails to fully analyze and disclose the potential impacts of conifer thinning operations and brush removal on neotropical bird population trends.

The cumulative effects analysis on migratory birds should not rely exclusively on Wilderness, Riparian Reserves and LSRs to provide for species viability into the future, because many Forest Service and BLM Districts are actively logging those land use allocations, regardless of the effects on migratory birds, despite their reserve status. We refer you to this very timber sale as one of many examples.

Simply concluding that the scale of the project is small, relative to the size of the nation, hence migratory bird populations will not be affected does not suffice. As you know, the

Spotted Owl was driven into threatened status by lots of "little clearcuts" that individually were insignificant, but cumulatively resulted in extensive habitat loss.

Please develop and implement seasonal operational restrictions to avoid project impacts while land birds are nesting in the project area. It appears that the limited operating periods for burning in Elk Flat Meadow and for logging in the Ash Creek riparian reserve contemplated on page 90 of the DEIS are discretionary. Hence the public and the decision maker cannot know if they will in fact be implemented. The "resource protection measures" relied upon at B-40 of the DEIS are not binding and may not occur during project implementation.

Coarse Woody Material

Coarse woody material densities should support the natural range of biota for the site. Snags and down logs build soil and provide habitat for a variety of organisms critical to ecosystem recovery after natural disturbance. The adaptive management direction of the NFP encourages site-specific research and planning for CWM retention.

Soils

As noted on page 211 of the DEIS the Forest Plan calls for retaining *at least* 90% of the total soil porosity found under undisturbed or natural conditions. Many acres in the project area already fail to meet this standard due to past Forest Service actions. Hence the agency may not incrementally add to existing soil compaction in logging units.

Page 215 of the DEIS acknowledges that:

> *Skid trails are the longest lasting detrimental disturbance, where many machines travel over the same route and compact the soil. Available water hold capacity is compromised as well by compaction since less water infiltrates to be held for plan growth on many soil types.*

Yet tractor yarding and machine piling are proposed both in meadow "restoration" units and in forest stands in which soils are already compacted. Indeed, page 215 of the DEIS indicates that the Forest Service is aware that approximately 15% of the project area is currently "highly disturbed as topsoil [is] displaced or [as] skid trails." The project cannot legally exacerbate this condition. Units 162, 164, 166 and 206 already exceed Forest Plan soil quality standard thresholds.

Soil integrity is a key issue for this timber sale. Please address soil chemistry, productivity, hydrology, and biological integrity on a site-specific (*i.e.*, unit-by-unit) basis. The DEIS does not contain field reconnaissance data and soil maps.

The Forest Service may only yard timber if the activity will be "carried out in a manner consistent with the protection of soil." 16 USC §1604(g)(3)(F)(v); 36 CFR §219.27(c)(6). Management plans and projects must "insure that timber will be harvested from National

Forest System lands only where-"soil, slope, or other watershed conditions will not be irreversibly damaged." 16 USC § 1604(g)(3)(E)(i). By enacting this section, Congress intended that the Forest Service "provide empirical guarantees that timber harvesting will not damage soils, water conditions, and fish habitats."

Please note that ground-based logging causes higher incidences of root damage and scarring of residual trees (compared to skyline systems).

Soil loss with respect to method of harvest is directly related to the amount of soil disturbed and bared by harvest activity, especially the density of skid trails and roads required to access the timber. Megahan (1981) found tractor logging on granitics to result in 28 percent of the soil disturbed, ground cables with 23 percent, suspended cables with five percent and helicopter logging with two percent. Similarly, Swanston and Dyrness (1973) found tractor yarding in granitics to result in 35.1 percent bare soil, hi-lead in 14.8 percent and skyline in 12.8 percent. In a Trinity County study on mixed soil types, skid trails averaged four to eight percent (6-12 km/sq.km) for clearcut areas (Scott et al., 1980).
http://www.krisweb.com/biblio/klamath_srcd_sommarstrometal_1990.pdf

Machine Piling

Please note that recently your colleagues in the Six Rivers National Forest recently concluded:

> *"Machine piling/burn piles would increase ground disturbance and soil displacement when the machine turns."*
> *-Little Doe and Low Gulch Timber Sale DEIS p 110.*

In response to a request from the timber industry (AFRC) to allow machine piling in federal logging units the Medford District BLM responded as follows:

> *Comment 4: We asked that BLM provide some flexibility in how fuels would be treated by focusing on the desired goals. The BLM has restricted fuels treatments to handpiling and burning. Contractors could use light weight equipment to treat fuels without detrimentally compacting soils.*
>
> *Response: The commenter has not provided details on methodology or supporting science that would support the claim that machine piling could be done without detrimentally compacting soils in excess of RMP standards for percent area compacted by current activities.*
>
> *Resource management plans call for limiting compaction in harvested areas in order to minimize soil productivity losses. Therefore, no additional use of mechanical equipment for fuels reduction was proposed, as ground-based logging would compact up to 12 percent of the harvest units. This is particularly important in the Cottonwood planning area as the majority of soils contain high rock content. It was identified that ripping the soils in this area would bring rocks and cobbles to the surface. The priority was given to*

minimizing the soil area compacted instead of trying to mitigate the effects. Additionally, the harvest prescription resulting in relatively few trees per acre being cut minimizes the slash, and consequently, also reduces the need for mechanical fuel treatment.

Medford BLM Cottonwood Project EA Appendix A, Response to Comments. Page 3-2

Shasta Trinity National Forest timber planners refuse to acknowledge the significant (and avoidable) impacts of tractor piling. Indeed, the recent statements above by Forest Service and BLM timber planners are simply ignored in the Elk LSR DEIS.

While the DEIS ignores the findings of other federal timber planners, it nevertheless erroneously cites (at DEIS 120) two SMMU machine piling soils reports to support the contention that additional soil damage from machine piling in this project area will not violate Forest Plan standards and guidelines. In fact page 1 of the April 2015 Report acknowledges that during recent machine piling on the District "when soils were moist, compaction levels on fine-textured soils were exceeded over the 15% ST-LRMP aerial extent." The same page indicates that porosity standards were not met because "post-timber harvest compaction had a 10.8% decrease in porosity" such that 20% of the area "is at the ST-LRMP compaction threshold." The attempt at page 5 of the Report to claim that new machine piling compaction in previously compacted logging units is not "cumulative" to soil resources due to a "different footprint" ignores the clear requirements and language of the LRMP.

At B-7 the Forest Service responds to public scoping concerns regarding cumulative soil impacts from tractor yarding by indicating that "where possible" skidding will be limited to existing skid trails, no attempt is made to disclose or limit the location of machine piling within logging units. Indeed, on previously machine piled logging units in the District machine piling occurred on virtually every acre. Photos submitted to the Administrative Record for this project establish that contrary to Forest Service contentions at B-26 treated areas did not maintain duff levels in logging units on the District that were machine piled.

Page 83 of the DEIS indicates that the Forest Service intends to conduct machine piling within designated riparian reserves in order to facilitate logging activities designed to reduce shade within the reserves. We know of no other District within the NW Forest Plan that has proposed such an activity as it is a clear violation of the Aquatic Conservation Strategy. The location and impacts of riparian reserve tractor piling and tractor yarding are not disclosed or analyzed in the DEIS.

Manual piling is a reasonable alternative to the avoidable impacts associated with machine piling while mechanical piling is universally recognized as an outdated practice that has disproportionately harmful impacts on watershed and soil resources.

Please see:

Evelyn Bull et al. Trees and Logs Important to Wildlife in the Interior Columbia River Basin PNW-GTR-391 (1977).

BLM, USGS, Biological Soil Crusts: Ecology and Management (Technical Reference 1730-2 (2001) (Available from BLM Publication Management Distribution Service, Bldg 41, E-16 (BC-650B) Denver, CO 80255

We further encourage the agency to examine the soil compaction monitoring reports from 1985 through 1997 on the Payette National Forest. While the Payette contains different ecotypes and soil types than does the Trout Creek project area, the monitoring reports clearly show long-lasting and significant soil damage from tractor piling activities. Similar monitoring in the Idaho Panhandle (Jerry Niehoff) and the Kootenai National Forest (Lou Kuennen) demonstrate significant impacts to soils.

We also encourage the agency to review the findings of Geppert, R.R., Lorenz, C.W., and Larson, A.G., 1984. Cumulative Effects of Forest Practices on the Environment: A State of the Knowledge. Wash. For. Practices Board Proj. No. 0130, Dept. of Natural Resources, Olympia, Wash.

Our organizations remain convinced that manual piling is far preferable to tractor piling. Manual piling has none of the negative impacts to soils associated with tractor piling, provides an increased opportunity for local employment and significantly reduces long-term damage to soil health and productivity. Hence manual piling would better achieve the stated forest health purpose and need for the project.

Please further note that the proposed machine piling violates NFMA requirements that a given logging system cannot be chosen because of dollar value alone. There is no other justification for implementing the proposed tractor piling provided in the administrative record other than economic considerations and many reasons why the use such systems is not appropriate.

Page 217 of the DEIS indicates that 703 acres proposed for machine piling currently meet soil quality standards. Hence the Forest Service intends to compound soil violations on at least 241 acres and perhaps up to 758 acres depending on whether it conducts 944 or 1,461 acres of machine piling. Please note that the decision maker and the public cannot actually know how much machine piling will be authorized by the Record of Decision since the agency has refused to quantify the exact amount and location of the proposed piling.

Additional Road Construction in this LSR Will Harm Forest Health

We are extremely concerned about construction of additional logging roads in the planning area. Please note that while the new road construction may described as either "temporary" or "permanent" that all road construction results in long-term impacts to soil health and productivity. Further, once trees are removed from the roadway, they cannot be put back. Please note that the joint BLM and USFS Biscuit Fire Recovery Project DEIS found that ***"Creation of temporary logging roads is an irreversible commitment of the soil resource, as such areas rarely regain their former productivity."***

We bring to your attention the following findings in the USFS Rogue River-Siskiyou National Forest 2012 Bybee Timber Sale Environmental Assessment:

Construction of temporary roads (and their associated landings) detrimentally compacts soils and contributes to erosion by allowing water to run overland rather than naturally infiltrating at the point of raindrop impact. Roads are an example of detrimental soil compaction with adverse indirect impacts on water movement pathways. Properly desgned and constructed roads (including temporary roads) require structures for channeling this now-redirected water flow to desired locations.

Temporary roads and landings are expected to have an irretrievable reduction in soil productivity since they are bladed (soil is mixed and displaced) and compacted. Once rehabilitated, the hydrologic function of the soil profile may be re-established, but the soil profile in relation to organics and nutrient cycling is modified to a degree that may take many decades to return to the productive state of the undisturbed forest soils adjacent to it.

Landings also, with their likely deep compaction, and soil mixing from construction and recurrent disturbance, are expected to cause an irretrievable decrease in soil productivity.

http://www.fs.fed.us/nepa/fs-usda-pop.php/?project=33406

Attached to our scoping comments was a peer-reviewed article by Trombulack and Frissell (2000) detailing some of the negative impacts of road construction and use on Terrestrial and Aquatic ecosystems. The Forest Service must address and avoid the harmful impacts detailed in this study. The abstract for the article reads as follows:

Roads are a widespread and increasing feature of most landscapes. We reviewed the scientific literature on the ecological effects of roads and found support for the general conclusion that they are associated with negative effects on biotic integrity in both terrestrial and aquatic ecosystems. Roads of all kinds have seven general effects: mortality from road construction, mortality from collision with vehicles, modification of animal behavior, alteration of the physical environment, alternative of the chemical environment, spread of exotics, and increased use of areas by humans. Road construction kills sessile and slow-moving organisms, injures organisms adjacent to a road, and alters physical conditions beneath a road. Vehicle collisions affect the demography of many species, both vertebrates and invertebrates; mitigation measures to reduce roadkill have been only partly successful. Roads alter animal behavior by causing changes in home ranges, movement, reproductive success, escape response, and physiological state. Roads change soil density, temperature, soil water content, light levels, dust, surface waters, patterns of runoff, and sedimentation, as well as adding heavy metals (especially lead), salts, organic molecules, ozone, and nutrients to roadside environments. Roads promote the dispersal of exotic species by altering habitats, stressing native species, and providing movement corridors. Roads also promote increased hunting, fishing, passive harassment of animals, and landscape modifications. Not all species and ecosystems are equally affected by roads, but overall the presence of roads is highly correlated with changes in species composition, population sizes, and hydrologic and geomorphic processes that shape aquatic and riparian systems. More experimental research is needed to complement post-hoc correlative studies. Our review underscores the importance to conservation of avoiding construction of new roads in roadless or sparsely roaded areas and of removal or restoration of existing roads to benefit both terrestrial and aquatic biota.

-Trombulack, S.C. and C.A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. Conservation Biology 14(1): 18-30.

"Various studies (e.g., Ortega and Capen 1999; Marsh and Beckman 2004) show that the negative impacts of roads to wildlife habitat are not limited to the road prism –there is a zone of influence that extends into the adjacent habitat. For example, Marsh and Blackman (2004) found that some terrestrial salamanders decreased in abundance up to 80 meters from the edge of a forest road due to soil dessication for the edge effects. Ortega and Capen (1999) found that ovenbird (a forest-interior species) nesting density was reduced within 150 meters of forest roads. This study suggests that even narrow forest roads fragment habitat and exert negative effects on the quality of habitat for forest-interior species."

-Deadman's Palm EA III-110, Ashland Resource Area, Medford BLM.

The Ortega and Capen (1999) and the Marsh and Beckman (2004) articles referenced by the Ashland Resource Area were submitted to the Administrative Record for this project.

The DEIS lacks analysis or disclosure of the significant impacts of new road construction in this LSR. While 2.9 miles of new "temporary" road construction is proposed, the site-specific impacts to soils, forest connectivity and stand structure are ignored. Please note that page 221 of the DEIS acknowledges that decommissioning of roads after they have been built "cannot restore the roadbed to natural conditions [and rather] rehabilitation efforts initiate a long term recovery process." The timing and efficacy of this process is not disclosed or analyzed. Instead the Forest Service incorrectly assumes that the impacts of new roads and landings simply disappear after the project is completed.

Aquatic Conservation

The Forest Service is proposing logging activities within designated riparian reserves. Aquatic conservation is therefore a significant issue for this action. Our scoping comments requested site-specific information regarding proposed logging, yarding and machine piling within the riparian reserves that was not responded to in the DEIS. The public and the decision maker have not been informed as to how many large trees will be removed, how many snags will be felled, how many skid trails will be utilized for tractor yarding, or how many riparian reserve acres will be subject to machine piling.

Please note that while every other riparian reserve project we have observed in over 20 years of NW Forest Plan implementation attempts to increase shade cover of riparian features, the Elk timber sale intends to reduce riparian shade in direct contravention of the objectives of the Aquatic Conservation Strategy.

Information contained in a National Marine Fisheries Service memorandum dated July 23, 2010 indicates that the proposed riparian reserve thinning would not achieve aquatic conservation objectives. All stream channels must receive a minimum 150 ft no cut buffer.

We provided a copy of the National Marine Fisheries Service 84 page memo (NMFS 2010) to the Administrative Record to support our contention that commercial thinning the

riparian reserve is not appropriate and is likely harmful for achieving aquatic conservation objectives. NMFS 2010 p. 8 states that "In examining forest thinning proposals designed to accelerate the development of late-successional forest conditions and restore instream fish habitat, NMFS is finding that, in many cases, they are likely to do neither. NMFS 2010: 31 states "our results suggest that the thinning regimes proposed by the Siuslaw National Forest will delay the development of key structural elements of forest and stream habitat by more than a century. The delay in stream habitat recovery can be minimized by creating a no cut buffer of 150 feet or more in width between streams and any forest thinning operations." The NMFS 2010: 4 states that "[t]he tradeoff of getting a few more large standing live trees sooner at the expense of a continuous supply of both large and small trees over the long term period always needs to be considered."

With regard to "large wood" (EA p. 50), NMFS 2010:9 states that "[a]lthough NMFS included this [24 inch diameter] value in NMFS (1996), and did not advocate changing the value during negotiations on the AP document, we recognize now that (1) it does not provide a target that is based on reference conditions for Westside forests, (2) this target is not sensitive to site-specific conditions (e.g., stream size and power), and (3) use of this target exclusively results in analyses that do not adequately address other sizes of wood that provide important ecological functions in streams" Thus the size standards used for the desired condition are not appropriate because all sizes wood entering small streams would improve channel function. NMFS 2010 p.6 states: "[a]ll wood and other organic material, whether large or small, is important to the proper functioning of streams; none of it is unimportant." NMFS further states that "[o]f particular note is that large wood that cannot singly form pools will form pools in combination with other pieces of wood and other obstructions by forming "wood jams." The NMFS 2010:4 state: "[w]hile thinning increases tree diameters, it does not increase tree heights; thus, it will not increase the length of tree boles entering streams."

Please acknowledge the following recommendations made in NMFS 2010:10

-The USFS and BLM should include all sizes of wood in describing environmental baseline conditions and in analyzing the effects of its proposed actions, not just pieces of wood that are greater than 24 inches in diameter and greater than 50 ft in length.

-The USFS and BLM should adjust their tree diameter targets based on stream size. Database curves are available for both functional-sized and key pieces of wood (e.g., Fox and Bolton 2007).

-The USFS and BLM should leave more thinned trees on the ground in riparian areas, particularly close to streams, on floodplains, and on steep sideslopes where some trees are likely to slide down into streams, than are required to meet wildlife needs.

-In order to better portray environmental baseline conditions and to understand the likely effects of thinning proposals, the USFS and BLM should develop stand data separately for riparian and upland forests.

Rather than incorporate the NMFS recommendations cited above (and included in our scoping comments), the Forest contends in Appendix B that because salmonids do not occur in the project area it need not consider opposing science, implement the NMFS recommendations or implement the Aquatic Conservation Strategy of the NW Forest Plan. These assertions are in error.

Please note that at 202 and 203 of the DEIS the Forest Service does acknowledge that due to the combination of road construction, landing establishment, tractor yarding and machine piling "results from the ERA analysis at the sub-drainage scale shows a general increase in disturbance for 6 of the 7 sub-drainages from the project." This result indicates that the timber sale will trend the project area away from obtaining the objectives of the Aquatic Conservation Strategy (ACS) in violation of the NW Forest Plan.

The meadow, aspen and riparian restoration objectives of the Elk Project, and attainment of ACS objectives, are directly inhibited by the agency's refusal to address adverse aquatic impacts from its grazing program in this planning effort. It is counterproductive to engage in road construction and logging activities to restore these features in the LSR while continuing and facilitating the significant underlying damage from grazing. Page 198 of the DEIS acknowledges:

> *The project area lies within the Battle Grazing Allotment. The meadows and riparian areas attract livestock and receive livestock use. Trailing is evident along both sides of Ash Creek. Livestock congregate along Ash Creek near the junction of U41N96A and U41N97A where the area is trampled and bare of vegetation from livestock use.*

Page 202 of the DEIS discloses that:

> *Because the area is in an active cattle allotment and livestock graze within the project area and riparian reserves, riparian plant community improvement will be influenced by livestock grazing as managed by the grazing permit.*

Unfortunately, while the Forest Service is committed to logging, road construction, landing construction, tractor yarding, machine piling and yarding in the LSR, the Elk Project does nothing to actually address the primary source of damage to aquatic ecosystems- namely inappropriate cattle grazing.

Attached to these DEIS comments is a peer-reviewed study indicating that termination of grazing, as opposed to sporadic grazing regulation, more than doubles aspen recruitment.

Pine Beetles and Logging

There is very little evidence that logging can control insects. Cronin (et al 1999) states:

"*Even more striking is the paucity of studies that have examined the consequences of human intervention on pest movement patterns. In fact, we know of no studies that have experimentally evaluated the effects of management strategies on the dispersal of insect pests in forest systems*."

As in the Elk project, logging is often recommended to control outbreaks of bark beetles but there is little direct evidence that this works. Much relies on the assumption that as tree vigor increases the trees are able to ward of infestation by insects. Some scientists have suggested caution in using thinning to control bark beetles as geographic and climactic variables may alter the effect. (Hindmarch and Reid 2001). Hindmarch and Reid (2001) found that thinned stands exhibited a higher attraction rate of mates by males of *Ips pini*, while females had longer egg galleries, more eggs per gallery and higher egg densities. Warmer temperatures in thinned stands also contributed to a higher reproduction rate. The number of males and females setting on logs was also higher in thinned stands. However, pine engravers in Arizona responded differently to thinning (*see* Villa-Castillo and Wagner 1996).

There is even less evidence that we can control insects once an outbreak starts. Citing several sources Hughes and Drever (2001) assert that the weight of opinion seems to be that most control efforts to date have had little effect on the final size of outbreaks, although they may have slowed beetle progress and prolonged outbreaks in some cases.

Bark beetles are always widespread and quite common. Even if an agency can control them in a stand of trees it is likely to have little impact on infestation on a landscape scale. According to Wilson and Celaya (1998), removal of infested trees may provide some protection to surrounding trees, but these insects [Western pine beetle] are very common, so removal of a few infested trees is not a guarantee of protection.

Wickman (1990) detailed the effort to control the Mountain pine beetle (Dendroctonus ponderosae) at Crater Lake National Park from 1925 to 1934. Although he did not calculated how many trees in the areas were treated (cut down and then burned) in the nine year period, over 48,000 were treated in a three year period alone.

The main lesson learned was that once a mountain pine beetle population erupts over a large area of susceptible forest type, and as long as environmental conditions remain favorable, there really is no way to stop it until almost all the susceptible trees are either killed or removed by logging. Treating trees perhaps slows the progress of the outbreak, but the outcome is inevitable. (Pg 38) Wickman (1990)

The report goes on to state "Perhaps the cold winter in 1932-33 helped, but most importantly, the depletion of susceptible trees ended the outbreak rather than the annual control efforts for 10 years." Wickman (1990)

In 1984, lodgepole pine stands in central Oregon were once again infested with mountain pine beetle. By 1985 a severe outbreak covered thousands of acres and extended south nearly to the park boundary. In 1986, beetle-killed trees were found in the northern end of the park (Wickman 1990). In the end the control methods did not work.

Although the Forest Service often asserts that the most effective means of reducing losses to the western pine beetle is by risk rating trees with subsequent removal of those that are high-risk. There is no evidence that this works to protect trees in a diverse forest.

In some situations, removal of infested trees prior to emergence of brood is recommended in an attempt to protect surrounding trees. However, the overall effectiveness of this strategy is unproven (Wilson and Celaya 1998). Further, in most forest situations, it is not feasible to locate and remove all trees prior to emergence. (Wilson and Celaya 1998)

A recent report by the Xerces Society includes a summary of relevant studies on the importance of insects to forest function and the methods used to control forest "pest" insects, and a compilation of summaries of over 150 scientific papers and Forest Service documents. The report may be downloaded in .pdf format from http://www.xerces.org/Forest_Pest_Myths/Logging_to_Control_Insects.htm

See Black, S.H. 2005. *Logging to Control Insects: The Science and Myths Behind Managing Forest Insect "Pests."* A Synthesis of Independently Reviewed Research. The Xerces Society for Invertebrate Conservation, Portland, OR.

Key findings in the report include:

· Native forest pests have been part of our forests for millennia and function as nutrient recyclers; agents of disturbance; members of food chains; and regulators of productivity, diversity, and density.

· Fire suppression and logging have led to simplified forests that may increase the risk of insect outbreaks.

· Forests with diverse tree species and age classes are less likely to develop large insect outbreaks.

· There is no evidence that logging can control bark beetles or forest defoliators once an outbreak has started.

· Although thinning has been touted as a long-term solution to controlling bark beetles, the evidence is mixed as to its effectiveness. The report also outlines general guidelines to follow when considering pest insects and forest management.

"The findings are very clear," said Scott Hoffman Black, executive director of the Xerces Society for Invertebrate Conservation and author of the report. "A review of over three hundred papers on the subject reveals that logging is not the solution to forest insect outbreaks and in the long run could increase the likelihood of epidemics."

While the Forest Service should examine, incorporate and respond to all of the relevant peer-reviewed citations regarding insects and disease contained in the Xerces Report, we hereby especially highlight four papers for your consideration.

Schowater, T.D. 1990. Consequences of insects. In *Symposium Proceedings. Forests –Wild and Managed: Differences and Consequences.* January 19-20, 1990, pp. 91-106. University of British Columbia, Vancouver, BC.

Summary: Forest insects and pathogens do not threaten forest resources unless changes in forest conditions facilitate population growth. Healthy trees in diverse forests are protected from potential pests by defensive compounds that kill or deter plant-feeding pests, and by the abundance of non-hosts that increase the distance between hosts and chemically hide host trees. Contrary to numerous assertions, old-growth forests are highly productive and remarkably resistant to potential pests.

Aber, J., N. Christensen, I. Fernandez, J. Franklin, L. Hidinger, M. Hunter, J. MacMahan, D. Mladenoff, J. Pastor, D. Perry, R. Slangen, and H. van Miegroet. 2000. Applying ecological principles to management of U.S. national forests. *Issues in Ecology No. 6.* Ecological Society of America, Washington, D.C.

Summary: The authors identify major ecological considerations that should be incorporated into sound forest management policy and their potential impacts on current practice. There is no evidence to support the view that natural forests or reserves are more vulnerable to disturbances such as wildfire, windthrow, and pests than are intensively managed forests. Indeed, there is evidence natural systems may be more resistant in many cases. The spread of native and exotic pests and pathogens in many forest systems can be linked to the simplification and fragmentation of the forest. From an ecological standpoint, the strategy with the greatest probability of long-term success in protecting forests against pests and pathogens is one that encourages the maintenance of a diverse set of controls, such as occurs in nature.

Franklin, J.F., D.A. Perry, T.D. Schowalter, M.E. Harmon, A. McKee, and T.A. Spies. 1989. Importance of ecological diversity in maintaining long-term site productivity. In *Maintaining the Long-Term Productivity of Pacific Northwest Forest Ecosystems*, ed. By D.A. Perry, pp 82-97. Timber Press, Portland Or.

Summary: Disease and insect problems may be worse in managed stands than in natural stands. The authors suggest that old-growth forests have greater diversity of insect predators, which may in turn limit pest insect populations. They also suggest that damage by herbivorous insects could increase as the area of old-growth forests diminishes.

Schowater, T.D. 1995. Canopy arthropod communities in relation to forest age and alternative harvest practices in western Oregon. *Forest Ecology and Management* 78: 115-25.

Summary: The author compared arthropod community structure in replicate Douglas-fir and western hemlock canopies in intact old-growth stands; natural, mature stands; and regenerating plantations in western Oregon. Species diversity and abundance for several taxa, especially predators and detritivores, were significantly lower in plantations than

older forests. Old-growth stands had less variability (tighter clustered) arthropod diversity and abundance than partially harvested stands. The data suggest that Douglas-fir canopies may largely recover old-growth structure by 150 years. The author concludes that the recent conversion of large portions of old-growth and mature forests to young plantations (in Oregon's Willamette National Forest) likely has reduced regional populations of many predator and detritivore species. Reduced predator diversity increases the probability that herbivores will escape regulation by predators, which could lead to a greater likelihood of pest outbreaks.

Forest Pathogens

> *We recognize that insects and disease are important components of [the] LSR, and that activities intending to reduce large scale risk can in fact contribute to changes in existing pathogens. –Elk Flat DEIS page B-6*

Please consider the following findings from your colleagues in the Rogue River Siskiyou National Forest contained in the 2012 Bybee timber sale EA indicating that proposed logging activities in the LSR may increase the impacts of existing pathogens:

A-15: Armillaria Root Disease "is often associated with trees under stress or where human caused disturbance is evident."

A-15: Annosus Root Disease "fungus can be found fruiting in scuffed white fir and western hemlock stumps…infection and mortality are much greater in true fir stands that have been entered more than once than in stands that have not been entered…"

A-16: Black Stain Root Disease is "associated with roadsides, skid trails, landings, [and] with trees on compacted soils, recently cut thinning stumps and slash."

A-17: Pine engravers are associated with logging slash and windthrow material."

The Elk LSR timber sale will result in all of the disease vectors identified above. The timber sale will disturb forest structure and individual trees, will scuff leave trees and create stumps, will facilitate multiple logging entries, will establish new roads, skid trails and landings, will compact soils and will create logging slash. Individually and cumulatively these factors inhibit, rather than contribute to, attainment of the project purpose and need concerning risk reduction.

As stated at B-7 of the Elk LSR DEIS "[l]ogging can create tree scars, which become potential infection sites for disease, and insects can be attracted to the wounds."

Northern Spotted Owl Habitat

Page 106 of the DEIS indicates that the Forest Service intends to downgrade approximately 98 acres of NSO foraging habitat in the LSR. Page 107 reveals that the proposed action is

"likely to adversely affect" designated NSO critical habitat located within the LSR. Habitat downgrading of critical habitat is antithetical to the management objectives of both the LSR and the critical habitat unit. Please note that implementation of Alternative 3 would not likely adversely affect NSO critical habitat in the LSR. Hence the Alternative better meets the intent of the land use allocation and the NSO Recovery Plan.

Salvage Logging

The DEIS (at pages 58-60) indicates that the Forest Service may or may not authorize up to 811 acres of salvage logging (that could include regeneration-style logging) of pine stands in the LSR. No attempt is made to analyze or disclose the impacts of salvage logging within these stands. Indeed, the public and decision maker are left to guess as to whether the logging will actually occur or not. The purpose of NEPA is to inform the public and decision maker of the environmental consequences of agency actions before they are conducted and to foster informed decision making.

Conclusion

This project has the air of inevitability associated with it. We are skeptical that substantive comments or scientific controversy will have any impact on project layout and implementation. The last thing this Late Successional Reserve needs is more large tree removal, road construction, canopy removal, tractor yarding and machine piling.

Best regards,

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