LOS PADRES FORESTWATCH
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March 25, 2005

VIA EMAIL

Project Leader, Frazier Mountain Project
Mount Pinos Ranger District
34580 Lockwood Valley Road
Frazier Park, CA 93225

Re: Scoping Comments – Frazier Mountain Project

Dear Project Leader:

Los Padres ForestWatch is a non-profit 501(c)(3) organization dedicated to protecting and restoring the natural and cultural heritage of the Los Padres National Forest through law, science, education, and community involvement. We support efforts to improve ecosystem health and protect communities from wildfires, and work to ensure that fuel management activities are undertaken with minimal impacts to water supplies, sensitive species, and other forest resources.

We would like to submit the following comments on the Frazier Mountain Project ("Project"). Please respond to these substantive comments in the preparation of an Environmental Assessment (EA) for this Project. In the event that the agency decides not to prepare an EA, please address the issues raised in this letter in any Decision Memo to avoid a finding that the agency's decision is arbitrary and capricious.

In addition, we request that the Forest Service send us any further decisional documentation for this Project, including a Decision Memo, Environmental Assessment, and/or Decision Notice as soon as they are available.

I. The Forest Service Cannot Claim a Categorical Exclusion, and Must Instead Prepare an Environmental Assessment.

According to the scoping letter, the Forest Service is currently analyzing this Project as a categorical exclusion (CE). The National Environmental Policy Act (NEPA) defines CEs as "a category of actions which do not individually or cumulatively have a significant effect on the human environment…and for which, therefore, neither an environmental assessment nor an environmental impact statement is required." 40 C.F.R. § 1508.4. The Forest Service has determined that, under certain circumstances, fuel management activities are categorically excluded from NEPA review. However, the Project does not qualify for this CE, and even if it did, the presence of several "extraordinary circumstances" requires the preparation of an EA.

First, the Forest Service has identified several types of activities that qualify for a CE. For this project, the following CE applies:

> 10. Hazardous fuels reduction activities using prescribed fire, not to exceed 4,500 acres, and mechanical methods for crushing, piling, thinning, pruning, cutting, chipping, mulching, and mowing, **not to exceed 1,000 acres**. Such activities:
>
> a. Shall be limited to areas:
>
> (1) In the **wildland-urban interface**; or
>
> (2) Condition Classes 2 or 3 in Fire Regime Groups I, II, or III, outside the wildland-urban interface

Forest Service Handbook § 1909.15.31.2.10. This Project does not qualify for this CE, nor any other CE for that matter. First, the Project totals 1,741 acres across a 2,903-acre project area, greatly exceeding the 1,000-acre threshold.[1] Nor is the project limited to the areas specified in the CE; it is not in the "wildland-urban interface" and is not in any of the specified condition classes and fire regime groups. Thus, the Forest Service cannot legally claim that this project is categorically excluded, and must instead prepare an Environmental Assessment.

In addition, the Forest Service may only claim a CE for this Project if there are no "extraordinary circumstances." Specifically, the Forest Service Handbook states that "[a] proposed action may be categorically excluded from further analysis and documentation…only if there are no extraordinary circumstances related to the proposed action." Forest Service Handbook 1909.15.30.3.1; *see also* 40 C.F.R. § 1508.4 (requiring agencies to "provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect.") Under the handbook,

> Resource conditions that should be considered in determining whether extraordinary circumstances related to the proposed action warrant further analysis and documentation in an EA or an EIS are:
>
> **a. Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species.**
>
> b. Flood plains, wetlands, or **municipal watersheds**.
>
> c. Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas.
>
> d. Inventoried roadless areas.
>
> e. Research natural areas.
>
> f. American Indians and Alaska Native religious or **cultural sites**.
>
> g. Archaeological sites, or historic properties or areas.

[1] Even if the Forest Service breaks down the individual activities of this Project, it still exceeds the 1,000-acre threshold. Specifically, the Project proposes 370 acres of "Cultural Treatments, Including Thinning" plus 1,019 acres of "Thinning in Natural Stands" for a total of 1,389 acres. In addition, it is important to note that the Forest Service may not legally claim multiple CEs for a single project.

Forest Service Handbook 1909.15.30.3.2. The presence of, and potential impacts to, the following species constitutes an extraordinary circumstance: *Mt. Pinos blue grouse, Mt. Pinos lodgepole chipmunk, California spotted owl, California Condor*. In addition, the project area contains the headwaters of several municipal watersheds and several cultural sites. Due to these extraordinary circumstances, the Forest Service must prepare an EA to assess the degree of the potential effect of the Project on these resource conditions.

We recognize that many elements of the Project will benefit forest health. However, we also note that NEPA applies to *all* significant effects, even beneficial ones. Specifically, the regulations implementing NEPA state that "effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial." 40 C.F.R. § 1508.8. Thus, even though this Project may result in some beneficial effects, this does not absolve the Forest Service of its obligation to undertake a legally adequate environmental review.

II. Consistency With Forest Plan

Ensure that the Forest Plan is consistent with all applicable management standards and guidelines of the current Forest Plan. We hope the agency pays particular attention to the following provisions:

- Best Management Practices – 4.3.2.5.2 ("Methods and techniques for applying the BMP will be identified during project level environmental analysis and incorporated into the associated implementation documents.");

- Cumulative Impact Watershed Assessments – 4.3.2.5.3 ("Excessive surface disturbance of watersheds and resulting on-site and off-site soil and water deterioration will be precluded by conducting cumulative watershed impact assessments on Order III and greater drainages at the time the project environmental analysis is prepared and documented in appropriate project records.");

- Soil Productivity – 4.3.2.5.5 ("Soil productivity will be maintained during vegetation type conversions by conducting such conversions on areas with stable slopes under 40%, moderate to high soil productivity, high soil stability and low rockiness, as defined in the Forest Soil Resource Inventory or on-site evaluations.");

- Prescribed Burns – 4.3.2.5.6 ("The quantity of vegetation to be retained during prescribed burns will be specified in the project environmental analysis. Soil erosion hazard and slope stability hazard will be two of the primary factors evaluated.");

- Sensitive Plant Species – 4.3.2.6.3,4,5 ("Plan vegetation management practices to protector enhance populations of Sensitive or Special Emphasis plant species," and "Emphasize Sensitive and Special Emphasis plant species habitat protection and improvement in resource management and fire suppression activities," and "Prevent the destruction or adverse modification of habitat determined to be essential for Sensitive or Special Emphasis plant species.");

- Riparian Areas – 4.3.2.7.3 ("Vegetation management shall be restricted to no more than 30% reduction in the riparian ground cover that would naturally occur at any given time within the project area.");

- Perennial/Intermittent Streams – 4.3.2.7.11 ("Perennial and intermittent streams will be protected by limiting management activities within the Streamside Management Zone.");

- Snags Per Acre – 4.3.2.10.3 ("An average of at least 1.5 snags per acre will be retained throughout treated compartments in the conifer forest type (of these, 1.2 snags per acre should be 15-24 inches dbh and greater than 20 feet tall; 0.3 snags per acre greater than 24 inches dbh and greater than 20 feet tall.");

- Woody Debris – 4.3.2.10.4 ("Maintain down logs and woody debris for wildlife. An average of 5 or more down logs per acre at least 13 inches in diameter and 20 feet in length should be retained in forested areas.");

- Spotted Owl – 4.3.2.10.15 ("Protect all Spotted Owl territories: a. All identified Spotted Owl nest sites will be protected with a buffer zone around each and excluding activities within this zone which would cause destruction of their nesting habitat (tree canopy)…. b. In known Spotted Owl and raptor nesting and roosting core areas retain more than 60% over-story canopy closure and 60 to 80% closure in the mid-story; and, c. Retain at least 40% over-story canopy closure in foraging areas.");

- Sensitive Species – 4.3.2.10.16 ("Identify essential habitat for all Sensitive and Special Emphasis species and prescribe measures to prevent the destruction or adverse modification of such habitat. Apply management prescriptions (Habitat Management Plans) which will provide high and medium capability habitat sufficient to maintain or enhance the above species.");

- Cultural Resources – 4.3.2.15.3 ("All project impact areas will be inventoried prior to implementation to allow identification, protection, and mitigation of any significant cultural properties. The consultation process mandated by Federal regulations (36 CFR 800) will be completed early in the planning for individual projects.");

- Road Obliteration – 4.3.2.18.5 ("Obliterate any Forest Development Roads that become unnecessary for the protection and management of the Forest. Such roads are returned to a near-natural appearing condition compatible with the surrounding terrain."); and

- All Management Guidelines and Management Standards that apply to all relevant Management Areas in the project area.

In addition, explain *how* the Project is consistent with the Forest Plan in any environmental document prepared for the Project.

III. Inadequacy of Project Description in Scoping Letter

The scoping letter for the Project does not contain the level of detail required by NEPA and Forest Service directives implementing NEPA. Because of this lack of detail, interested agencies and the public cannot formulate meaningful comments on this proposal.

First, NEPA requires scoping to be an "early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action." 40 C.F.R. § 1501.7. Forest Service directives emphasize the importance of scoping in achieving NEPA compliance, stating that:

> The *most important* element of the scoping process is to *correctly identify and describe* the proposed action. Elements of the proposed action include the nature, characteristics, and scope of the proposed action, the purpose and need for the proposed action, and the decision to be made.

Forest Service Handbook 1909.15.11.2 (emphasis added). An adequate project description assists the public and interested agencies in identifying issues and providing meaningful comments. To this end, the General Counsel of the Council on Environmental Quality has concluded that

> Scoping cannot be useful until the agency knows enough about the proposed action to identify most of the affected parties, and to present a *coherent proposal* and a suggested initial list of environmental issues *and alternatives*. Until that time there is no way to explain to the public or other agencies what you want them to get involved in.

Council on Environmental Quality, *Memorandum for General Counsels, NEPA Liaisons and Participants in Scoping*, dated April 30, 1981, pp. 4-5.

The scoping letter for this Project fails to present such a "coherent proposal." Instead, the proposed action is described in vague terms. For example, the letter proposes selective thinning and understory thinning, but fails to adequately define these activities and the exact locations where each activity will occur. The letter proposes to reduce tree densities to "desired" density or species mixtures but fails to quantify and describe the desired density and species diversity to be achieved by this project. Thus, the public cannot comment on whether the desired conditions are appropriate and whether the Project contains adequate and appropriate methods to attain these desired conditions. Moreover, the letter fails to specify the duration of the project and at what time of year it will be implemented. Finally, the letter uses vague terms such as "where needed," "youngest," and "smallest" without defining these terms.

An appropriate scoping letter contains "a brief information packet consisting of a description of the proposal, an initial list of impacts and alternatives, maps, drawings, and any other material or references that can help the interested public to understand what is being proposed." *Id*. at 5. This Project's scoping letter falls far short of this guidance. For example, the letter is missing an initial list of impacts and alternatives. Thus, the public does not know

what the main issues are surrounding this proposal, and thus cannot frame appropriate comments.

We urge the Forest Service to re-issue a scoping letter that complies with NEPA and Forest Service directives. This will enable the public to participate meaningfully in the scoping process.

IV. The Forest Service Must Initiate Formal Consultation to Fulfill its Responsibilities Under § 7 of the Endangered Species Act.

The Endangered Species Act (ESA), 16 U.S.C. §§ 1531 *et seq*., requires the Forest Service to consult with the U.S. Fish and Wildlife Service (FWS) to insure that the Project "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat." 16 U.S.C. § 1536(a)(2).

Due to the possibility of the California condor being present in the Project area, we hope that the Forest Service initiates informal or formal consultation with FWS to determine whether the Project will impact condors or their roosting habitat or flight patterns and whether any particular mitigation measures should be adopted.

V. The Forest Service Should Analyze the Following Issues in Determining Whether the Project Will Result in Significant Impacts

A. **Cumulative Impacts** – Analyze all impacts of the Project, including cumulative effects. *See* 40 C.F.R. §§ 1508.9(b), 1508.8. A cumulative impact is defined under NEPA regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. Please analyze the following related past, present, and reasonably foreseeable future projects that, combined with this Project, may result in significant cumulative impacts:

- Figueroa Mountain Vegetation Management;
- Brazil Ranch Vegetation/Fuels Management;
- Defensible Fuels Profile Zones, Monterey Ranger District;
- Santa Cruz Prescribed Burn;
- Ojai Community Defense Zone;
- Alamo Mountain Prescribed Burn Project;
- Pine Mountain Club Defensible Fuels Profile Zone;
- Pine Mountain Club Vegetation Management;
- Laguna Fuels Project;
- Painted Cave Prescribed Burn;
- Rice-Willis Prescribed Burn;
- Routine vegetation clearing along Forest Service roads; and

- Other projects.

B. **Fire Hazards –** We support the use of prescribed fire, and, if necessary, careful thinning and removal of small diameter material and flammable brush in ecologically appropriate locations in order to help restore fire regimes. We urge the agency to avoid road building and prioritize such activities in the wildland-urban interface.

We support efforts to limit the initiation and spread of crown fires through the reduction of fine surface fuels and (partial) treatment of ladder fuels to increase the crown base height, but we oppose efforts to heavily thin the overstory canopy in an effort control crown-to-crown fire spread. The most significant effect of this type of heavy thinning is to increase the warming and drying of ground fuels and to increase the growth of ladder fuels, both of which significantly detract of the risk reduction objectives and are expensive to treat. The analysis must address the complex effects of thinning including tendencies to reduce and increase fire hazard.

The analysis should also address the fact that there is very little scientific support for aggressive thinning to reduce fire hazard. A report prepared for Congress stated: "We do not presume that there is a broad scientific consensus surrounding appropriate methods or techniques for dealing with fuel build-up or agreement on the size of areas where, and the time frames when, such methods or techniques should be applied" (US GAO RCED-99-65. 1999:56). A research report by Omi and Martinson (2002:1) stated: "Evidence of fuel treatment efficacy for reducing wildfire damages is largely restricted to anecdotal observations and simulations."

In fact, there is some scientific evidence that thinning can make the fuel hazard worse instead of better. Science still has a long way to go to be able to confidently predict the consequences of various combinations of thinning and other treatments. "Detailed site-specific data on anything beyond basic forest structure and fuel properties are rare, limiting our analytical capability to prescribe management actions to achieve desired conditions for altering fuels and fire hazard." Graham, Russell T.; McCaffrey, Sarah; Jain, Theresa B.(tech. eds.) 2004. Science basis for changing forest structure to modify wildfire behavior and severity. Gen. Tech. Rep. RMRS-GTR-120. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 43 p.http://www.fs.fed.us/rm/pubs/rmrs_gtr120.html

> Thinning opens stands to greater solar radiation and wind movement, resulting in warmer temperatures and drier fuels throughout the fire season. [T]his openness can encourage a surface fire to spread, …

USDA Forest Service; Influence of Forest Structure on Wildfire Behavior and the Severity of Its Effects, November 2003.
http://www.fs.fed.us/projects/hfi/2003/november/documents/forest-structure-wildfire.pdf

> Opening up closed forests through selective logging can accelerate the spread of fire through them because a physical principle of combustion is that reducing the bulk density of potential fuel increases the velocity of the combustion reaction. Wind can flow more rapidly through the flaming zone. Thinned stands have more sun exposure in the understory, and a warmer microclimate, which facilitates fire (Countryman 1955).

…

[F]uel reduction activities – particularly mechanized treatments – inevitably function to disturb soils and promote the invasion and establishment of non-native species. Pile burned areas associated with the treatments are also prone to invasion (Korb et al. 2004). Annual grasses can invade treated areas if light levels are high enough, leading to increased likelihood of ignition, and more rapid spread of fire, which can further favor annual grasses (Mack and D'Antonio 1998). This type of feedback loop following the establishment of non-native plants may result in an altered fire regime for an impacted region, requiring extensive (and expensive) remedial action by land managers (Brooks et al. 2004).

Odion, Dennis. 2004. Declaration in NWEA v. Forest Service. c*iting* Countryman, C. M. 1955. Old-growth conversion also converts fire climate. U.S. Forest Service Fire Control Notes 17: 15-19.

Theoretically, fuel treatments have the potential to exacerbate fire behavior. Crown fuel reduction exposes surface fuels to increased solar radiation, which would be expected to lower fuel moisture content and promote production of fine herbaceous fuels. Surface fuels may also be exposed to intensified wind fields, accelerating both desiccation and heat transfer. Treatments that include prescribed burning will increase nutrient availability and further stimulate production of fuels with high surface-area-to-volume ratios. All these factors facilitate the combustion process, increase rates of heat release, and intensify surface fire behavior.

…

Thus, treatments that reduce canopy fuels increase and decrease fire hazard simultaneously. With little empirical evidence and an infant crown fire theory, fuel treatment practitioners have gambled that a reduction in crown fuels outweighs any increase in surface fire hazard….

Omi, P.N., and Martinson, E. J. 2002. Effect of fuels treatment on wildfire severity. Final report. Western Forest Fire Research Center. Submitted to the Joint Fire Science Program Governing Board http://www.cnr.colostate.edu/frws/research/westfire/FinalReport.pdf

The Forest Trust conducted a thorough literature review and found that:

- Although the assertion is frequently made that simply reducing tree density can reduce wildfire hazard, the scientific literature provides tenuous support for this hypothesis.
- The literature leaves little doubt, however, that fuel treatments can modify fire behavior. Thus**, factors other than tree density, such as the distance from the ground to the base of the tree crown, surface vegetation and dead materials play a key role. Research has not yet fully developed the relationship among these factors in changing fire behavior.**
- The specifics of how treatments are to be carried out and the relative effectiveness of alternative prescriptions in changing wildfire behavior are not supported by a significant consensus of scientific research at this point in time.
- Substantial evidence **supports the effectiveness of prescribed fire**, a treatment that addresses all of the factors mentioned above. Significantly, several empirical studies demonstrated the effectiveness of prescribed fire in altering wildfire behavior.

- By contrast, we found a limited number of papers on the effects of mechanical thinning alone on wildfire behavior. The most extensive research involved mathematical simulation of the impact of mechanical thinning on wildfire behavior. However, the results of this research are highly variable.
- A more limited number of studies addressed the effectiveness of a **combination of thinning and burning** in moderating wildfire behavior. The impacts varied, depending on the treatment of thinning slash prior to burning. Again, **crown base height appeared as important a factor as tree density. The research community is still building a scientific basis for this combination of treatments.**
- **The proposal that commercial logging can reduce the incidence of canopy fire was untested in the scientific literature. Commercial logging focuses on large diameter trees and does not address crown base height – the branches, seedlings and saplings which contribute so significantly to the "ladder effect" in wildfire behavior.**
- Much of the research on the effectiveness of fuel treatments uses dramatically different methodology, making a comparison of results difficult. To provide a basis for analysis, we structured our review of the literature into four general groupings: observations, case studies, simulation models and empirical studies. Empirical studies provide the strongest basis for evaluating treatments whereas personal observations are the least reliable.
- **We found the fewest studies in the most reliable class – empirical research. We found the greatest number of studies in the least reliable class of research – reports of personal observation. Several other reviews of the literature confirm this finding, stating that the evidence of the efficacy of fuel treatment for reducing wildfire damage is largely anecdotal.**
- The **results of simulation studies are highly variable**, in terms of such factors as fire spread, intensity and the occurrence of spotting and crowning.
- Scientists recognize **that large scale prescribed burning and mechanical thinning are still experimental and may yet reveal unanticipated effects on biodiversity, wildlife populations and ecosystem function.**

Henry Carey and Martha Schumann. Modifying WildFire Behavior – The Effectiveness of Fuel Treatments — The Status of Our Knowledge. April 2003; http://www.theforesttrust.org/images/swcenter/pdf/WorkingPaper2.pdf

Duke University issued an "expert advisory" May 24, 2004 with Professor Norm Christensen saying that the "Loss of canopy increases wind speed and air temperatures and decreases humidity in the forest," Christensen notes. "As a result, ground fuel fires that break out can spread faster and farther than they would normally." http://www.ascribe.org/cgi-bin/spew4th.pl?ascribeid=20040524.081406

The proposed action fails to acknowledge the paucity of scientific support for logging to reduce fuels and reduce fire effects and fails to recognize that logging often increases fine fuel loads while removing the large logs that are relatively less prone to burn. Thinning also increases wind and light penetration of the canopy and causes fuels to dry out which make them more prone to burn and increases the time it takes woody material to decompose. Removing medium and large trees also removes shade and resource competition that helps suppress the growth of small trees and brush known as "ladder fuels."

C. Soils & Slopes

No heavily machinery should be used. To avoid many of the impacts associated with this activity, we believe that the Forest Service should rely solely on hand-thinning. Soil compaction caused by heavy machinery significantly reduces an area's growth and regrowth capabilities.

Avoid increased mortality of residual trees due to pathogens and mechanical damage to boles and roots. (Filip 1994, Hagle & Schmitz 1993). Avoid damage to soil integrity through increased erosion, compaction, and loss of litter layer. (Harvey et al. 1994, Meurisse & Geist 1994). In addition, please address soil compaction mitigation and true soil restoration immediately after activities are completed.

Identify steepness of all slopes in the Project area. Explain how thinning will differ to account for differences in slope incline. Prohibit thinning and other disturbance on steep slopes and in riparian areas.

Unless treated, soil compaction and disturbance resulting from thinning can disrupt soil structure, harming tree growth and regeneration. Evaluate soil loss associated with the Project.

Pile burning may cause patches of extreme soil heating to the point where soil characteristics are changed. What is the extent of these patches across the Project area. Piles result in heavy, localized impacts to soil quality.

D. Cultural Resources

No activities should occur on the 20 heritage sites located in the Project area, especially activities using heavy equipment. Retain monitoring by a certified archaeologist during all Project activities. Consult with the State Historic Preservation Officer in accordance with the National Historic Preservation Act.

E. Water Quality

The State Water Resources Control Board has identified vegetation removal as one of the main causes of water pollution in the national forest. Reduce creation of sediment that may eventually be delivered to streams and harm fish. (Grant & Wolff 1991, Beschta 1978). Identify all perennial and intermittent streams in the Project area. Document impacts to water quality and channel stabilization. Avoid or restore skid trails, which tend to channelize runoff and contribute to erosion, sedimentation, and gullying. Identify specific measures the agency will take to comply with Best Management Practices. Analyze whether thinning and clearing will actually increase erosion, and evaluate how long before any long-term water quality benefits are seen.

F. Plant & Wildlife Species

Identify and survey for all endangered, threatened, rare, sensitive, and at-risk species and all other species of concern. Identify other wildlife species that occupy or use the Project area.

Retain sufficient densities of large trees and woody debris to sustain viable populations of cavity-nesting and woody debris dependent species. (DellaSala et al. 1996). Maintain habitat quality for sensitive species associated with closed canopy forests. (FEMAT 1993, Thomas et al. 1993).

The agency should focus the NEPA analysis on species that are most likely to be adversely affected by thinning and clearing — in most cases that is wildlife associated with relatively dense, closed-canopy forest conditions and those associated with snags and dead wood.

Logging almost always opens up the forest canopy, reduces vegetation cover, and reduces the current and future abundance of dead standing trees and down wood. Adverse effects are therefore likely to occur for species associated with these habitat conditions.

- Bull, E.L. 2002. The value of coarse woody debris to vertebrates in the Pacific Northwest.
- Machmer, M. 2002. Effects of ecosystem restoration treatments on cavity-nesting birds, their habitat, and their insectivorous prey in fire-maintained forests of southeastern British Columbia.
- Maguire, C.C. 2002. Dead wood and the richness of small terrestrial vertebrates in southwestern Oregon.

All in: Laudenslayer, W.F., P.J. Shea, B.E. Valentine, P.C. Weatherspoon and T.E. Lisle, tech. coords. Proceedings of the symposium on the ecology and management of dead wood in western forests. 1999 Nov 2-4, Reno, NV. US Department of Agriculture, Pacific Southwest Research Station, Gen. Tech. Rep. PSW-GTR-181, Albany, CA.
http://www.fs.fed.us/psw/publications/documents/gtr-181/

Consider and disclose the effects of thinning on birds associated with late successional forests. The Southern Oregon University research by SOU's Stewart Janes revealed that "many birds declined" after the thinning and "the species suffering the most were red-breasted nuthatches, chestnut-backed chickadees, Pacific-slope flycatchers and hermit warblers," all species associated with late-succession forests." The ornithologists found the declines "surprising" and said the results are "directly applicable to the kind of forestry practices they're talking about now," i.e. increasing thinning to reduce fuels.
http://www.mailtribune.com/archive/2003/0917/local/stories/18local.htm

G. Tree Size

Thinning should focus on the smallest trees that have established due to recent planting or fire suppression and leave a healthy canopy of medium and large trees that are so valuable for wildlife habitat and as future sources of large snags and large down wood.

Identify and avoid all old-growth trees in the project area. Survey for California spotted owl sites and establish appropriate buffer zones.

Recent fuel reduction modeling done by researchers at the University of Washington and published by the Rural Technology Institute provides some important principles regarding fuel reduction efforts, including:

1. **Thinning trees smaller than 12 inches can help reduce fire risk.** In stands that currently have moderate-to-high fire risk due to fire suppression, removing half the basal area by thinning from below resulted in greatly reduced fire risk. On typical stands in the Fremont NF, this treatment removed trees no larger than 12 inches (RTI Table 4.1, page 24).
2. **The ingrowth must be treated in order to retain the fuel reduction benefits of the original thinning**. If ingrowth is not treated, the model clearly showed that thinning is worse than doing nothing at all. This is because thinning stimulates ingrowth of vegetation that can act as ladder fuels. The bottom line is that the agency NEPA analysis must:
    a. Disclose whether and how ingrowth will be treated;
    b. Disclose the cumulative effects of such treatments;
    c. Disclose the uncertainties of future funding and the consequences if the ingrowth is not treated;
3. **Removing trees over 12 inches can actually make fire risk worse than doing nothing at all.** In stands starting with moderate and high fire risk, removing trees over 12 inches and leaving trees under 12 inches resulted in much higher fire risk in 20 years. While this is not a typical treatment on federal forest lands, the point is that large trees should be retained, because they are fire resistant and they help suppress ladder fuels, and maintain more favorable fuel conditions below the canopy (e.g., moist, cool, less windy).

C. Larry Mason, Kevin Ceder, Heather Rogers, Thomas Bloxton, Jeffrey Comnick, Bruce Lippke, James McCarter, Kevin Zobrist, Investigation of Alternative Strategies for Design, Layout and Administration of Fuel Removal Projects; Rural Technology Initiative; July 2003; http://www.ruraltech.org/pubs/reports/fuel_removal/ See especially RTI Appendix pages B-13, 14.

Please place a diameter limit on trees to be cut. We suggest a 12 inch maximum diameter cap. The best available information indicates fire hazard can actually be increased by the removal of trees that form the canopy (generally over 12 inches in diameter). The best available information indicates that the existence of brush and trees under 12 inches tend to contribute most to fire hazard (by increasing ground and ladder fuels) whereas retention of trees over 12 inches dbh can actually reduce fire hazard. This is because brush and small diameter trees tend to have their canopies (i.e. flashy fuels) close to the ground where it can carry flames into the canopy, while trees larger than about 12 inches tend to have fire resistant bark, greater "ground to crown" distances, and the canopy of the larger trees provides shade which maintains fuel moisture, reduces wind speed, and suppresses the growth of ladder fuels, which results in reduced fuel hazard and reduced costs of maintaining favorable fuel conditions. See C. Larry Mason, Kevin Ceder, Heather Rogers, Thomas Bloxton, Jeffrey Comnick, Bruce Lippke, James McCarter, Kevin Zobrist, Investigation of Alternative Strategies for Design, Layout and Administration of Fuel Removal Projects; Rural Technology Initiative; July 2003; http://www.ruraltech.org/pubs/reports/fuel_removal/ . Please provide a sound scientific basis for a different diameter limit if one is selected. Absent a sound justification the agency risks making an arbitrary and capricious decision.

Thinning for fuel reduction results on a U-shaped response curve.

- A little thinning (removing small trees (<8" dbh) and brush from the ladder fuel and surface fuel zones) almost always reduces fire hazard and (as long as activity fuels are treated) rarely increases fire hazard,
- With a little more thinning the fire hazard benefit flattens out. Removing trees <8" dbh up to 12-14" dbh eliminates some small fuels (which has a positive effect on fire hazard) but also reduces the canopy (which has a negative effect on fire hazard because it creates more slash, reduces fuel moisture, increases wind speed, and stimulates the growth of ladder fuels),
- Then at some point any more canopy removal (thinning trees over ~12" dbh) actually increases fire hazard in direct conflict with the National Fire Plan, the HFI, the HFRA, and the purpose and need of this project.

Where does this project fall on the U-shaped curve? The NEPA analysis must disclose this.

The State of Oregon recognizes the following concerns associated with fuel reduction treatments. The NEPA analysis must address these concerns.

Table 3: Principles of Fire-Resilient Forests (from Agee 2002.)

Principle	Effect	Advantage	Concerns
Reduce surface fuels	Reduces potential flame length	Control easier, less torching	**Surface disturbance, less with fire than with other techniques**
Increase height to live crown	Requires longer flame length to begin torching	Less torching	**Opens understory, may allow surface wind to increase**
Decrease crown density	Makes tree-to-tree crown fires less probable	Reduces crown fire potential	**Surface wind may increase and surface fuels may be drier**
Keep larger trees	Thicker bark and taller crowns	Increases tree survivability	**Removing smaller trees is economically less profitable**

Institute for Natural Resources. 2004. REPORT OF THE FOREST FUELS AND HAZARD MITIGATION COMMITTEE TO THE OREGON DEPARTMENT OF FORESTRY OREGON FIRE PROGRAM REVIEW. December 10, 2004. Oregon State Universityhttp://inr.oregonstate.edu/download/white_paper_final.pdf
citing Agee, J. 2002. Fire behavior and fire-resilient forests in S.A. Fitzgerald (ed.), Fire in Oregon's Forest: Risks, Effects, and Treatment Options. A synthesis of current issues and scientific literature. Special Report for the Oregon Forest Resources Institute, Portland, OR. Pp. 119-126.

H. Natural Range of Variability

Swanson et al. (1994) contend that managing an ecosystem within its range of variability is appropriate to maintain diverse, resilient, productive, and healthy ecosystems for viable

populations of native species. Using the historical range of variability, they believe, is the most scientifically defensible way to meet society's objective of sustaining habitat and maintaining forest health. Patrick Daigle and Rick Dawson, Extension Note 07; Management Concepts for Landscape Ecology (Part 1 of 7). October 1996. http://www.for.gov.bc.ca/hfd/pubs/docs/en/en07.pdf; citing Swanson, F. J.; Jones, J. A.; Wallin, D. O.; Cissel, J. H. 1994. Natural variability--implications for ecosystem management. In: Jensen, M. E.; Bourgeron, P. S., tech. eds. Eastside Forest Ecosystem Health Assessment--Volume II: Ecosystem management: principles and applications. Gen. Tech. Rep. PNW-GTR-318. Portland, OR: U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station: pp 89-106.

The scale of determining the historic range of variability is critical. At small scales, the amount of old forest varied from zero to 100 percent depending on how recently the site was disturbed by intense fire, flood, volcanism, etc. But at very large scales, the condition of vegetation is a mosaic that reflects the effects of fires and other disturbances. At these larger scales, the historic range of variability begins to approach the amounts of young and old forest expected based on the fire return interval for stand replacing fires.

I. Benefits of Insects & Disease

Consider the beneficial effects of insects and disease, for example: the value of mistletoe brooms as wildlife structures; the value of root rot in creating pockets of down woody debris, enhancing biodiversity, and creating gaps with complex canopy architecture; the value of bark beetles as food sources for diverse wildlife and as vectors of sapwood decay fungi rendering the tree more suitable for wildlife habitation.

Native insects work to thin trees, control crowding, reduce stress and lessen competition for water and nutrients, the researchers found. Some levels of insect herbivory, or plant-eating, may even be good for trees and forests, and in the long run produce as much or more tree growth.

According to Scott Black of the Xerces Society (pers. comm. March 15, 2005):

> [T]hese insects are native and are very important. Bark beetles help decompose and recycle nutrients, build soils, maintain genetic diversity within tree species, generate snags and down logs required by wildlife, and provide food to birds and small mammals. By feeding upon dead or dying trees, wood borers and bark beetles provide food to insect gleaning species of birds (such as woodpeckers), create snags that may be utilized by cavity nesting birds in the future and overall are invaluable catalysts in forest evolution.
>
> There is very little evidence (or no) real evidence that logging can control insects. There are very few peer reviewed studies that have looked at this. Cronin (et al 1999), had notable quote: "*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*"

Thinning is often recommended to control outbreaks of bark beetles but there is little direct evidence that this works. Most of this is based on the fact the tree vigor increases and 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).

Bark beetles are always widespread and quite common. Even if we 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. See Cronin, J.T., P. Turchin, J.L. Hayes and C.A. Steiner. 1999. Area-wide efficacy of a localized forest pest management practice. *Environmental Entomology* 28(3): 496-504. Hindmarch, T.D. and M.L. Reid. 2001. Forest thinning affects re production in pine engravers (Coleoptera: Scolytidae) breeding in felled lodgepole pine trees. *Environmental Entomology* 30(5): 919-924. Hughes, J. and R. Drever. 2001. Salvaging solutions: science-based management of British Columbia's pine beetle outbreak. Report commissioned by The David Suzuki Foundation, Vancouver, B.C. Wilson Jill, and Celaya, Bob. 1998. Bark Beetles Biology, Prevention and Control. http://www.for.nau.edu/usfs/r3_fpm/bbpaper.html

Thinning could ultimately attract beetles to the area through the release of terpenes from fresh wood chips, slash, or wounded green trees. If insect attack is a concern, the agency must consider and disclose the factors that tend to attract insects and determine whether thinning will make things better or worse. Since logging is likely to have lots of adverse impacts on soil water and wildlife habitat, and since is not likely to have much beneficial effects on insect pests, we urge the agency to the stated purpose of this project to control insects.

J. Consider a True Forest Health Alternative

The proposed action relies on a worst-case scenario of catastrophic fire. The document lacks any recognition that during favorable conditions of weather and fuel moisture a low-severity or mixed-severity fire could occur in the project area and such as fire would likely accomplish much of what this project is attempting to accomplish without all the adverse consequences from ground disturbance.

Consider a scenario involving favorable fire weather: relatively high fuel moisture, relatively low wind speed, relatively low humidity, relatively low air temperature, etc. If the agency describes the effects of extreme fire behavior they must disclose that even the treated stands will likely experience stand replacing fire during extreme fire weather conditions (hot dry, windy).

The agency must also disclose that logging will at least temporarily increase some forms of hazardous fuels.

We ask that you include a forest health alternative in the EA. This alternative would consider other methods for thinning, including by hand and done over a longer period of time, the obliteration of unused or defunct roads that are no longer needed for forest management, and removal of invasive plants. Such an alternative would truly address forest health issues without the incidental, yet serious, damage caused by an intensive thinning and clearing operation. Also consider performing a controlled prescribed burn at the right time of year without thinning.

K. Frequency of Treatments

Does the agency plan to reenter these stands at some point in the future? What is the temporal scale of this Project? What is the trigger mechanism that would require reentry and re-thinning? Please provide specific thresholds that would require the Project to be reinitiated in the future. If this Project is indefinitely continuous, please analyze how that continual disturbance will affect landslide risk, erosion, habitat, water quality, and recreation opportunities.

The State of Oregon has proposed the following methods to determine the frequency of future fuel reduction treatments:

> A key element in prioritizing areas for retreatment is having managers specify *desired* fire behavior (e.g. flame length, rate of spread) for a given set of fuel moisture and weather conditions, such as "average worst fire condition", by geographic regions of the state. Average worst fire condition is defined as the number of days during the fire season in which seasonal dryness and wind exceed the 90th percentile for cumulative weather observations for the past decade. In other words, this would be the point where fire conditions are classified as "very high." Naturally, this would vary across the state due to differences in prevailing climate. For example, this may range from as little as 7 days in the Coast Range to 47 days in eastern Oregon.
>
> Thus, managers might specify a desired flame length in treated areas of 2-3 feet under the average worst fire conditions. When fuel conditions change over time enough to support flame lengths greater than 3 feet, retreatment is triggered and the site is prioritized for re-treatment. The retreatment trigger point can be estimated using existing fire behavior models. For areas adjacent to the WUI, the maximum desired flame length should be less than 4 feet because greater flame lengths are too intense for direct attack by firefighters with hand tools (Schmidt et al. 2002).
>
> Fuel accumulation rates and the length of time to reach the trigger point vary by plant association group, so it can be difficult to pinpoint the number of years before re-treatment is necessary. The Forest Vegetation Simulator (FVS, Stage 1973; Wykoff et al. 1982) can be used to project stand development and fuel accumulation following fuels treatments, and model output can be fed into a

> variety of fire behavior subroutines (e.g., Fire and Fuel Extension to FVS (Reinhardt and Crookston 2003)) to provide managers with an estimate of when re-treatment would be necessary. After specifying desired fire behavior, several model runs can be conducted for various plant association groups (ponderosa pine, lodgepole pine, mixed conifer) and for different desired fire behavior parameters.

Institute for Natural Resources. 2004. REPORT OF THE FOREST FUELS AND HAZARD MITIGATION COMMITTEE TO THE OREGON DEPARTMENT OF FORESTRY OREGON FIRE PROGRAM REVIEW. December 10, 2004. Oregon State Universityhttp://inr.oregonstate.edu/download/white_paper_final.pdf

The agency must estimate the frequency, extent and intensity of future treatments to maintain the alleged benefits fuel reduction and disclose the effects on soil, water, and wildlife habitat.

L. Maintain Sufficient Canopy Structure

Retaining more canopy can result in cooler ground temperatures and increased soil moisture. Responsible opposing experts say that reducing ground fuels and ladder fuels should be the first priority and reducing canopy fuels a lesser priority. (e.g. Jim Agee. Risk Assessment for Decision-making Related to Uncharacteristic Wildfire, Conference Portland, Oregon Nov 17-20, 2003 http://outreach.cof.orst.edu/riskassessment/presentations/ageej_files/v3_document.htm

Mark Finney and Warren Cohen also emphasize the three-step approach to fuel reduction that places reduced emphasis on canopy fuel reduction.

> Thus, Van Wagner's (1977) relationships suggest that fuel management prescriptions can limit crown fire activity by first reducing surface fuels to limit fireline intensity, then thinning the smallest trees or pruning to elevate the base of aerial fuels from the ground surface. A final measure may involve crown thinning (removal of some canopy level trees) to make difficult the transition to active crowning.

Finney and Cohen. 2003. Expectation and Evaluation of Fuel Management Objectives. USDA Forest Service Proceedings RMRS-P-29.
http://www.fs.fed.us/rm/pubs/rmrs_p029/rmrs_p029_351_366.pdf

Modeling shows that canopy fuel reduction is accomplished at the expense of increasing surface fire intensity.

> Modifying canopy fuels as prescribed in this method may lead to increased surface fire intensity and spread rate under the same environmental conditions, even if surface fuels are the same before and after canopy treatment. Reducing CBD to preclude crown fire leads to increases in the wind adjustment factor (the proportion of 20-ft windspeed that reaches midflame height). Also, a more open canopy may lead to lower fine dead fuel moisture content. These factors increase

> surface fire intensity and spread rate. Therefore, canopy fuel treatments reduce the potential for crown fire at the expense of slightly increased surface fire spread rate and intensity.

Scott, Joe. 2003. Canopy Fuel Treatment Standards for the Wildland-Urban Interface. USDA Forest Service Proceedings RMRS-P-29. 2003.
http://www.fs.fed.us/rm/pubs/rmrs_p029/rmrs_p029_029_038.pdf

If canopy coverage is decreased through thinning, evaluate whether the understory will receive too much sun and dry out. If so, how would this change vegetation types and distribution on the forest floor, and would these conditions actually result in an increased fire risk. Define "over-crowding."

M. Transporting Logs, Slash, Vegetation, and Equipment

Evaluate the frequency and duration of impacts caused by the movement of equipment, materials, employees, and vegetative matter to and from the Project area. Assess and mitigate impacts to water quality, recreation, species, and soils.

N. Contracting

Will the Forest Service be contracting out any portion of the implementation of this project? If so, please establish monitoring criteria and standards and guidelines to ensure compliance with the Decision Memo, environmental documents, Forest Plan provisions, and federal laws.

O. Current Conditions

What is the current tree density in the Project area? How many snags per acre? This information is valuable to determine the extent of the agency's proposed activities from current conditions. The public needs to know what the current conditions are in order to determine how the proposed action attempts to change them.

P. Invasive Species

Describe the measures to be taken to mitigate the entrance of invasive species. What are the invasive species the agency is most concerned with in this area? Consider removal of invasive species already present as part of the Project.

VI. Conclusion

Thank you for considering these comments. Due to the size of this Project, along with the presence of extraordinary circumstances, we believe that the Forest Service should proceed with the preparation of an EA. This will ensure compliance with NEPA and will provide the public with an adequate analysis of impacts, mitigation measures, and alternatives.

Sincerely,

/s/

Jeff Kuyper
Executive Director