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Subject: Pine Ridge Project Fuels Reduction Project EA Comments for Sequoia ForestKeeper & Kern-Kaweah Chapter of the Sierra Club

Thank you for the opportunity to comment on the proposed Pine Ridge Project EA. Sequoia ForestKeeper (SFK) and the Kern-Kaweah Chapter of the Sierra Club (the Club) are generally supportive of efforts to restore previously logged areas and plantations to more natural conditions for the purpose of managing for biological diversity and habitat values for imperiled wildlife species, so long as the management activities do not also degrade the habitat values necessary for those species.

Pine Ridge Project Background and Purpose per Cover Letter

"*In the Pine Ridge area, the Highway Fire of 2001 scorched trees up to 50 feet off the ground and eventually killed trees up to 20 inches in diameter. Many fallen trees have added to the brush kill and pine needle litter. There is a need to reduce the amount of dead brush, dead trees, and ladder fuels that have built up since the Highway Fire. This high fuel load has compromised the effectiveness of fire suppression efforts in the defense and threat zones of the wildland urban intermix (WUI). There is also a need to continue to re-establish a more natural fire return interval in the project area. "*

"*The purpose of this project is to reduce the amount of surface and ladder fuels which have accumulated in the Pine Ridge area since the 2001 Highway Fire. The goal is to restore and maintain the natural fire cycle and minimize the damage to planted trees and the reforestation investment they represent from an unwanted wildfire. The existing vegetation consists of a mixture of pine plantations, natural conifer stands, combinations of conifers and oaks, and areas of natural chaparral. The excessive vegetation poses a high risk of stand-replacing wildfires or loss of stands due to insect or disease infestations.*"

"*The Forest Service proposes to treat approximately 2,039 acres using a combination of prescribed fire and mechanical treatments on National Forest System lands in the vicinity of Pine Ridge that was affected by the 2001 Highway Fire*." "*Up to an estimated 706 acres would be treated mechanically using an excavator with grinding head or masticator, and then burned if necessary to reduce fuel loads*."

"*Alternative B is the proposed action to meet the project purpose and need and the preferred alternative. This alternative would use mechanical treatment and prescribed burning to reduce fuel and vegetation densities. In the Pine Ridge area, mechanical treatments would use an excavator with a masticating attachment to grind up large surface fuel, standing brush, and small trees (under 10 inches in diameter) and leave the larger diameter conifer and oaks. No trees would be commercially logged or removed from the site. Portions of the Pine Ridge area, both mechanically treated and untreated, would be prescribed burned to begin restoring the natural fire cycle. The burning would reduce the surface and ladder fuels, which would serve to protect the larger trees from stand-replacing wildfires. The stands in the southern portion of Pine Ridge project area contain young trees which are more susceptible to damage from prescribed burning. Therefore, only mastication is proposed for these stands at this time. "*

"*Alternative C responds to the issue to consider an alternative that uses only hand thinning treatments and prescribed fire without heavy equipment to reduce fuel and vegetation densities. No tracked or wheeled machinery would be used; all work would be performed by hand methods and burning. Alternative C treats the same acres as Alternative B. Hand treatments would cut, and pile or scatter brush and small trees (under 10 inches diameter) and leave the larger conifers and oaks. No trees would be commercially logged or removed from the site. Portions of Pine Ridge project area, both hand-treated and untreated, would be prescribed burned to begin restoring the natural fire cycle. The burning would reduce the surface and ladder fuels, which would serve to protect the larger trees from stand-replacing wildfire. The stands in the southern portion of Pine Ridge project area contain young trees which are more susceptible to damage from prescribed burning. Therefore, only hand treatments with some pile burning is proposed for these stands at this time*."

Concern about Pine Ridge Projects Responses to Comments

There is no need for fuels reduction beyond 200 ft. of manmade structures (Cohen, 1999). Response to comment 5 states, "*This project is not within a housing development, but adjacent to and/or downslope of scattered rural residences. The risk of a fire start is mainly to the wildlands surrounding the private property*." Treating areas for thousands of feet down slope of rural residences will only cause unnecessary changes in the wildlands and not protect the rural residences from the wildfire that could start in the wildland area, because the treatments would not be applied to the area within 200 feet of structures (Cohen 1999).

The EA bases its treatments on the fact that the project area is in the WUI (Wildland Urban Intermix) area, so the project design is excessively treating the wildlands because

there are structures in the area. "*Inside of urban wildland intermix (WUI) zone, this average would be reduced to 2 snags/acre for firefighter safety*." The EA also bases its treatments public safety it claims would be a benefit of the project. "*Without fuel reduction or the re-establishment of fire within the project area, the area burned by the Highway Fire which makes up the majority of the project area would continue to have high fuel loadings with species and structural configurations more susceptible to wildfire. This would cause an increased risk for loss or damage to public safety, private property, and plantation investments to unwanted wildfire*." But treating miles from the structures and not treating the 200 feet immediately surrounding the structures will not prevent flying embers from igniting the structures. Thus the proposed fuel treatments beyond 200 feet immediately surrounding structures will not reduce "*risk for loss or damage to public safety, private property*" as the EA claims.

Concerns about Removing Trees up to 10 inches in Diameter

The EA discusses the treatments on 706 acres, "*Treatments would consist of masticating the brush and small trees (under 10 inches in diameter) and leaving the larger oaks and conifers.*"

We are concerned with this treatment because there is a need to retain some small diameter recruitment trees throughout the treatment area to replace the larger trees when they die. If all of the small diameter trees are removed from the treatment area, there will be no small diameter trees available, which will eventually render the project area unsuitable.

EA failed to include a Comparison of each Alternative with respect to GHG Emissions.

Response to comments 9 states, "*The estimated emissions were evaluated and are discussed in the environmental consequences section of this document.*" However, while the EA mentions GHG's, a comprehensive comparison was not presented. The analysis only considered Alternative A, the No Action Alternative, if the project area under burning up in a stand replacing fire. "*Under Alternative A there could be measurable negative impacts on the health and safety in the project area in the event of a stand-replacing wildfire*." But Alternatives B and C were not subject to the same stand-replacing wildfire conditions in the comparison.

The analysis considers only air pollution from the incineration of the woody material and not the killing of the root systems that release carbon into the atmosphere from the removal (by this project) of trees up to ten inches in diameter. The analysis also does not consider the microorganisms in the soil that would be impacted from tree removal and would also die and release CO2 into the atmosphere.

Because all fuel treatments release global greenhouse gasses (GHG), the Sequoia NF, per current policy, must include a comparison of each alternative with respect to GHG emissions. The EA states, "The estimated emissions were evaluated and are discussed in the environmental consequences section of this document."

"7. The degree to which the effects on the human environment are likely to be highly controversial - Scoping surfaced no scientific controversy regarding the magnitude or nature of effects of the action alternatives. However, during the scoping period respondents raised the concern that mechanical treatments would damage soils and/or wildlife in the project area. Alternative C was developed to address this concern. The effects analysis discussed in this document display that there are few minor differences between the action alternatives in terms of soils and wildlife."

The US Forest Service *Climate Change Considerations in Project Level NEPA Analysis* dated January 13, 2009 states, "The carbon stored in live biomass, dead plant material, and soil represents the balance between CO2 absorbed from the atmosphere and its release through respiration, decomposition, and burning." But the Pine Ridge Project EA fails to provide a detailed and complete analysis of the impacts to the forest soils because the treatments of Alternates B and C would both kill tree roots and therefore negatively impact the carbon stored in the soil.

The EA does consider soil movement "*Applicable BMPs have been identified to maintain water quality and reduce potential for soil movement resulting from mastication and/or thinning, piling and burning and underburning within the project area (See table 4).*" And the EA considers soil erosion "*To protect soils on steeper slopes (generally over 40%) equipment limitations and water quality and soil erosion concerns would limit treatments to prescribed burning, in these areas, only low to moderate intensity prescribed burning is planned*." And the EA considers terrain and vegetation conditions "*Surveys were conducted to protocol for plants, wildlife, archaeology, and soil resources as applicable to the terrain and vegetation conditions*." And the EA considers soil disturbance for preventing invasive species "*Where possible, actions would be taken to minimize the mechanical soil disturbance to avoid creating new seedbeds for noxious weeds.*" And the EA considers "*productive condition of soil; how standards for soil cover, soil porosity, and organic matter would be met*." And the EA considers "*Soil Moisture Limitations for Tractor Operations*." And the EA considers soil compaction "*Preventing the soils in the Pine Ridge Fuels Reduction Project area from detrimental compaction should not be difficult under either action alternative, given the best management practices*."

However, the EA envisions the "release" of soil nutrients to be a good thing instead of an impact to climate change "*Habitat quality for both Madera linanthus and slender-stalked monkeyflower would probably improve following underburning, due to the creation of openings and release of soil nutrients.*" The EA fails entirely to consider that loss of soil nutrients is an impact that increases climate change and fails to provide a detailed and complete analysis of the impacts to the forest soils from the treatments proposed by

Alternatives B and C, which would both kill tree roots and, therefore, the EA fails to consider the negative impact to the carbon stored in the soil.

Concerns about Relying on Questionable conclusions of North et al 2009 PSW-GTR-220

Judge Breyer ruled, "In the interim, and until the Forest Service issues a new Management Plan, the Monument shall be managed consistent with the Monument Proclamation of April 15,
2000, and in accordance with direction from the 1988 Sequoia National Forest Land and Resource Management Plan, as amended by the 1990 Mediated Settlement Agreement and the 2001 Sierra Nevada Forest Plan Amendment." The Proclamation states, "Unique scientific and ecological issues are involved in management of giant sequoia groves, including groves located in nearby and adjacent lands managed by the Bureau of Land Management and the National Park Service. The Secretary, in consultation with the National Academy of Sciences, shall appoint a Scientific Advisory Board to provide scientific guidance during the development of the initial management plan. Board membership shall represent a range of scientific disciplines pertaining to the objects to be protected, including, but not necessarily limited to, the physical, biological, and social sciences." The focus on science being the basis for management of the resources in the Monument is clear in the Proclamation. Judge Breyer wanted the same scientific basis to prevail for projects implemented in the interim while a management plan is being developed.

The EA states, "Alternative B initiates a shift toward reducing densities in pine and oak stands, and is in line with scientifically based recommendations to address predicted climate change effects (North et al. 2009)."

North et al (PSW-GTR-220) presents many good concepts. However, PSW-GTR-220 fails to consider all the available fire science, makes some un-cited claims, and fails to discuss the gaps in science that remain, which if filled could clarify some remaining questions.

PSW-GTR-220 fails to clearly justify the conclusions it reaches that enable mechanical treatments (logging or thinning) without providing citations to science to support its conclusions.
PSW-GTR-220 is not a peer-reviewed scientific publication, and the analysis' heavy reliance on this mechanical treatments (logging or thinning) strategy is misplaced.

Comments on specific citations from PSW-GTR-220:

1) p. 1 says: to provide managers of Sierran forests with a summary of "the best available science." THE PROBLEM IS THAT RESEARCH NOT SUPPORTING MIGHT NOT BE PRESENTED. For instance, the fire science of Jack Cohen (Jack D. Cohen, Research Physical Scientist, Fire Sciences Laboratory, PO Box 8089, Missoula,

MT 59807 406-329-4821 (fax) 406-329-4825 jcohen@fs.fed.us) has not been considered. In a personal communication dated March 17, 2003, Jack Cohen said, “We know that fuel breaks don't stop spotting--that is why I suggest making the community the fuel break.” (Exhibit A 100316-8.COHEN) However, North et.al. endorses the strategic placement of fuel treatments across forest landscapes despite the science that fuel breaks do not stop spotting and fails to evaluate ecosystem responses to treatments or address how forests might be ecologically restored or wildlife habitat enhanced by the treatments.

2) p. 1 says: we do not specifically address the issues of water yield and quality in this paper. SCIENCE OF WATER IS IMPORTANT AND THE PAPER IS NOT PROVIDING A FULL BASIS OF SCIENCE...

3) p. 2 says: Although our focus is on forest conditions, the suggested management practices may also make forest more resilient…. THE PROBLEM IS THAT IT MAY NOT.

4) p. 2 says: Management practices that help restore the forest headwaters of Sierran watersheds will benefit water production and quality for downstream users. THE PROBLEM IS THAT ON P. 1 IT SAYS WATER WILL NOT BE CONSIDERED, SO THERE IS NO SCIENTIFIC BASIS FOR THIS CONCLUSION.

5) p. 2 says: Fire scientists have developed effective models for the strategic placement of these fuel treatments. JACK COHEN NOT LISTED AND IS NOT CONSIDERED IN THIS PAPER. North et.al. endorses the strategic placement of fuel treatments across forest landscapes despite the science that fuel breaks do not stop spotting and fails to evaluate ecosystem responses to treatments or address how forests might be ecologically restored or wildlife habitat enhanced by the treatments.

6) p. 3 says: …using modeling software to understand how the load of different fuel sizes and weather conditions affect predicted fire intensity. THE PROBLEM IS MODELS ARE NOT PERFECT, WE MUST KEEP IN MIND THE ADAGE, GARBAGE IN GARBAGE OUT.

7) p. 6 says: By itself prescribed fire will be difficult to apply in some forests owing to fuel accumulations, changes in stand structure, and operational limitations on its use. THIS IS AN EXCUSE FOR MECHANICAL AND LOGGING. The report must be specific about the results of prescribed fire that it considers “difficult.”

8) p. 7 says: An analysis of fire severity and size in California has found an increase in both, along with a regional rise in temperature. TEMPERATURE HAS RISEN VERY LITTLE IN THE LAST FEW DECADES. SO MIGHT FIRE SEVERITY AND SIZE INCREASES REALLY BE TIED TO MAJOR CLEARCUTTING IN THE LAST FEW DECADES?

9) p. 9 says: frequently burned forests had very low tree densities. THIS MAKES SENSE, EXCEPT WHERE FIRE DID NOT BURN IN THE MOSAIC, THERE WERE

CLUSTERS AND EVEN LARGER AREAS OF DENSE CANOPY THAT WOULD HAVE SUPPORTED WHITE FIR AND INCENSE CEDAR. MUIR NOTED LARGE STANDS OF SUCH TREES (SEE MUIR NOTES FROM HIS BOOK THE MOUNTAINS OF CALIFORNIA.

10) p. 9 says: …understory thinning followed by prescribed fire produced the greatest reduction in potential wildfire severity without severely reducing carbon stocks (North, et al., in press) WE NEED TO SEE THIS PAPER. As climate changes, managing the process or behavior of fire (i.e., manipulating fuels to influence burn intensity) may produce more resistant and resilient forests than managing for a desired number and size of trees. VERY INTERESTING.

11) p. 9 says: …in areas of wildland fire and prescribed burning, forest structure and composition are allowed to reestablish to modern dynamic equilibrium by adapting to fire that occurs under current climate and ignition conditions. SO FIRE SHOULD BE THE MAIN TOOL TO USE.

12) p. 9 says: This suggests that free-burning fires, over time, can regulate fire-induced effects across the landscape. FIRE SHOULD BE THE ONLY TOOL USED.

13) p. 10 says: Large decadent trees are less common in the Sierra Nevada than they once were and providing for this structure requires protecting existing large trees, managing for their future development, and reducing major threats (i.e., high-severity fire and pest mortality). THIS SOUNDS GOOD, BUT HOT FIRE AND PEST MORTALITY MUST HAVE A ROLE TOO.

14) p. 11 says: A cautious strategy would be emulating patterns created by natural disturbance to provide a heterogeneous mix of forest habitat across a management landscape. WHY NOT LET FIRE GO WILD? EMULATING MIGHT MEAN LOGGING. THIS IS AN EXCUSE TO ENABLE LOGGING.

15) p 11 says: Retaining these large snags and logs may increase fire hazard…. THIS IS NOT A GOOD ATTITUDE. FIRE IS NEEDED.

16) p. 12 says: (this goes on from p. 11 re Pacific fisher) - We do not yet have a good understanding of how best to distribute potential rest sites or how many are needed. THIS IS AN EXCUSE FOR LOGGING AS PLANNERS WILL DECIDE WHAT TO LEAVE, PERHAPS MINIMALLY, FOR THE FISHER. First, do no harm.

17) p. 12 says: In many areas, hardwoods are in decline because they have become overtopped and shaded by conifers. NO REFERENCE CITATION IS GIVEN FOR THIS IDEA. HOW MUCH LIGHT DO OAKS REALLY NEED FOR RECRUITMENT? While plan direction already calls for protecting oaks, loggers in the Revised Ice timber Sale units felled oaks up to 18 inch diameter when they are directed to protect all oaks.

18) p. 12 says: Provisions are needed to create open areas within stands to facilitate hardwood recruitment. THIS IS JUSTIFICATION TO REMOVE SOME TIMBER FIRST AND THEN HOPE HARDWOODS COME IN. WHAT CITATION PROVES THIS CONCLUSION? While plan direction already calls for protecting oaks, loggers in the Revised Ice timber Sale units felled oaks up to 18 inch diameter when they are directed to protect all oaks.

19) p. 14 says: Forest management practice have sometimes removed decadent, broken-topped, or malformed trees that are actually some of the most important features of habitat for wildlife species…. These defect trees are some of the rarest structures in current forest conditions. MANY ARE REMOVED AS HAZARD TREES ALONG ROADS. THEY OBVIOUSLY ARE NOT THAT DEFECTIVE, AS MANY GO TO THE MILL AS SAWTIMBER.

20) p. 14 says: (of a guide to identify defect trees for the Klamath Mountains) - Developing a similar guide for Sierra forests would be extremely useful. What scientific guides will Sequoia National Forest use? North et.al did not evaluate Sequoia's guidelines.

21) p. 16 says: At the stand level, vertical heterogeneity can still be provided by separating groups of trees by their canopy strata (fig. 5). For example, a group of intermediate-size trees that could serve as ladder fuels might be thinned or removed if they are growing under large overstory trees. HERE A MANAGEMENT ACTIVITY WOULD TAKE THE INTERMEDIATE-SIZED TREES. THERE IS NO CITATION. THIS IS AN EXCUSE FOR LOGGING THAT SIZE CLASS THAT OTHERWISE MIGHT GROW TO BECOME LARGE TREES AND SUSEQUENTLY DEFECT TREES AND SNAGS.

22) p. 16 says: To increase horizontal heterogeneity, we suggest using microtopography as a template (Sherlock 2007) (fig. 6). WE NEED TO READ SHERLOCK (2007) TO SEE THAT EXPLAINED.

23) p. 20 says: We suggest creating landscape heterogeneity in the Sierra Nevada by mimicking the forest conditions that would be created by the fire behavior and return interval associated with differences in slope position, aspect, and slope steepness (Sherlock 2007). MIMICKING SEEMS TO IMPLY MECHANICAL TREATMENTS AND ANOTHER EXCUSE FOR LOGGING.

24) p. 20 says: In general, stem density and canopy cover would be highest in drainages and riparian areas, and then decrease over the midslope and become lowest near and on ridgetops (fig.10). HOW CAN THIS BE TRUE IN ALL AREAS? WHERE IS THE CITATION FOR THIS CONCLUSION?

25) p. 24 says: If trees larger than 10 to 16 inches in d.b.h. are thinned, it is important to provide reasons other than for ladder-fuel treatment. THIS IS ANOTHER EXCUSE TO USE ALL OF THE OLD REASONS USED TO JUSTIFY CUTTING TREES,

INCLUDING HELPING PAY FOR THE WORK. NOTHING IS CHANGED. There are reports showing changes in fire behavior from removing trees up to 9 and 10 inch diameter and trees up to 16 inch diameter. But science shows the importance of small diameter trees for songbirds and reports indicate that bushes and the smallest diameter trees up to 3 and 4 inches in diameter represent the greatest fire danger. There is a need to study the effects of treatments that would be limited to removing only small diameter materials in the ranges up to 3 and 4 inch, 5 and 6 inch, and 7 and 8 inch in diameter before concluding that taking larger trees is the best way to change fire behavior.

26) pp. 24-25 asks: Under what conditions could intermediate trees be thinned? THIS IS ANOTHER EXCUSE FOR LOGGING.

27) p. 26 says: Trees are harvested and timber is an output, but the silvicultural system's focus is on retained stand structures, not what is removed for harvest. MAINTAINING BIODIVERSITY AND ECOSYSTEM SERVICES SHOULD BE THE PRIMARY FOCUS, NOT REVOVAL OF ANYTHING FROM THE FOREST.

28) p. 26 says: This silvicultural revision will, however, require a new research project to adapt the MultiAge Stocking Assessment Model (MASAM) to Sierra Nevada mixed-conifer. THIS CONCEPT IS POORLY EXPLAINED IN THE PAPER. THE RESULTS OF THE PILOT PROJECT WILL NOT BE AVAILABLE FOR A HUNDRED YEARS.

In March 2010, I requested a response to my concerns about GTR-220 from Malcolm North and the moderator of the Sawmill Collaborative sponsored by the Kern River Ranger District. I asked for citations to the conclusions reached by PSW-GTR-220, and the revised paper. But to date no response from North has been provided and we have not been informed that PSW-GTR-220 has been peer reviewed. So we cannot accept PSW-GTR-220 as the science that the Proclamation required as a basis for actions proposed or taken in the Monument.

EA Fails to Develop a 5 Inch Diameter Limit Alternative

In addition to the proposed action, the project should analyze a 5 inch diameter limit alternative. Scientific data suggests that such a diameter limit may be adequate to achieve the goal of fuels reduction, and the Forest Service has the ability to run such an alternative through its Forest Vegetation Simulator (FVS) (Brown et al. (2003) (USDA Forest Service Gen. Tech. Rep. RMRS-GTR-105) suggests that diameter limits that are smaller than 10 may be able to reduce fuels adequately).

The EA states, "*The 10 inch diameter size recommended is the maximum anticipated size of tree to be removed through prescribed burning, mastication or hand thinning under the action alternatives to reduce ladder fuels. This does not mean that the largest trees would be sought out for cutting; instead, only those trees that are creating a fuel ladder would be felled. The size of material to be treated in the project area is dependent on the*

size of the brush and trees creating fuel accumulations. They may be no larger than 4 or 6 inches diameter simply because that is the material necessary to treat for fuels reduction. Creating additional alternatives with smaller diameter limits would not sharply define an issue or a clear basis for choice for achieving the purpose and need for fuels reduction and re-establishing fire in the project area." "Creating additional alternatives with smaller diameter limits would not sharply define an issue or a clear basis for choice for achieving the purpose and need for fuels reduction and re-establishing fire in the project area."

This excuse that "*an alternative with smaller diameter limits would not sharply define an issue or a clear basis for choice*" fails to consider the need to retain replacement trees of all sizes in the treatment area and to retain sufficient cover for Pacific fisher to continue to forage in the treatment area without threat from predators would be two reasons to select an alternative with a smaller diameter limit for achieving the fuel reduction and re-establishing fire in the project are.

Concern about Snag Removal

The EA states, "*The Pine Ridge Fuel Reduction and Maintenance Project is not a salvage project. Snags would only be removed from burned forest for safety reasons. This could potentially reduce the number of medium and large snags per acre in the affected area. The change in number of available snags would depend on the specific location of safety hazards.*
The direct and indirect effects of the alternatives in the Pine Ridge Fuel Reduction and Maintenance Project would result in a possible reduction in medium (15-30 inches dbh) snags and large (greater than 30 inches dbh) snags per acre within burned forest created by stand-replacing fire if snags are removed for safety reasons. Since this is likely to affect only a small percentage of the burned area in the region, this plan would not alter the existing trend in snags, nor would it lead to a change in the distribution of black-backed woodpeckers across the Sierra Nevada bioregion."

The proposed action alternatives could considerably reduce the number of snags in the 706-acre treatment area, which would make the effect of the project simulate a salvage project.

Concern about Inconsistent Areas used for Comparison by the EA

The EA justifies the impacts of the proposed treatments by making comparisons of the size of the treatment area to multiple watersheds or the entire fire area of the Highway Fire, which minimizes the effects analysis because it minimizes the impacts of the project.

"*It is anticipated that implementation of the Pine Ridge project, in combination with the Mckenzie Ranch project, would reduce canopy cover and small down woody debris on a maximum of 3014 acres. Therefore the cumulative effects of the action alternatives of the*

Pine Ridge Project, in combination with past present, and reasonable foreseeable actions would lead to short-term reduction of canopy cover and small downed woody debris on less than 2% of the existing habitat in the affected watersheds."

Analyses that make treatments seem insignificant compared to the size of the universe demonstrate the lack of accuracy of the agency's analysis.

The environmental analysis must also discuss how the Pine Ridge project will potentially emit CO2 that may contribute to climate change or what efforts will be taken to mitigate these emissions.

A recent article by Mitchell et al. (2009) (attached as Exhibit A) describes tradeoffs for managing for carbon storage (a valid goal in any forest management action) versus fuels reduction. That study suggests that, with the exception of some xeric ecosystems (not present in the current project area), "fuel reduction treatments should be forgone if forest ecosystems are to provide maximal amelioration of atmospheric CO2 over the next 100 years." *Id.* at 653. For that reason, each alternative should discuss and analyze carbon emissions from implementation, but the no-action alternative should also provide information about the potential for carbon storage from foregoing project implementation.[1]

Moreover, Mitchell et al. (2009) found the amount of net carbon released into the atmosphere, on an acreage basis with small diameter thinning for fuel reduction (if used for biomass), puts more carbon into the atmosphere than an average fire, on an acreage basis:

> Our simulations indicate that fuel reduction treatments in these ecosystems consistently reduced fire severity. However, reducing the fraction by which C is lost in a wildfire requires the removal of a much greater amount of C, since most of the C stored in forest biomass (stem wood, branches, coarse woody debris) remains unconsumed even by high-severity wildfires. For this reason, all of the fuel reduction treatments simulated for the west Cascades and Coast Range ecosystems as well as most of the treatments simulated for the east Cascades resulted in a reduced mean stand C storage. One suggested method of compensating for such losses in C storage is to utilize C harvested in fuel reduction treatments as biofuels. Our analysis indicates that this will not be an effective strategy in the west Cascades and Coast Range over the next 100 years.

Mitchell et al., 2009 abstract.

[1] Depro et al., 2007, found that eliminating logging would result in massive increases in Carbon sequestration. "Our analysis found that a "no timber harvest" scenario eliminating harvests on public lands would result in an annual increase of 17–29 million metric tonnes of carbon (MMTC) per year between 2010 and 2050—as much as a 43% increase over current sequestration levels on public timberlands and would offset up to 1.5% of total U.S. GHG emissions." (Depro et al., 2007 abstract)

In any case, the EA must disclose the emissions from fuel reduction treatments, associated slash treatments, and biomass burning or prescribed burning for each action alternative. For this, the Chief's office of the Forest Service has generated specific direction on how to discuss climate change effects in a NEPA analysis. *See* Climate Change Considerations in Project Level NEPA Analysis (Jan. 13, 2009) (attached as Exhibit B). That document specifically mentions fuel reduction projects in the types of projects that should disclose direct effects on climate change:

- **The effect of a proposed project on climate change** (GHG emissions and carbon cycling). Examples include: short-term GHG emissions and alteration to the carbon cycle caused by hazardous fuels reduction projects, GHG emissions from oil and gas field development, and avoiding large GHG emissions pulses and effects to the carbon cycle by thinning overstocked stands to increase forest resilience and decrease the potential for large scale wildfire.

Id. at 2. To assist in disclosing these effects, the Forest Service provides tools that can help managers determine the direct contributions of GHG emissions from project burning or treatments. *Id.* at 5 (*FOFEM 5.5*, *Consume 3.0*, and the *Forest Vegetation Simulator*). Because the Forest Service has tools or models to effectively calculate emissions, it must disclose these emissions for each of the action alternatives. In addition, the guidance document suggests that the NEPA document include a qualitative effects analysis. *Id.* Such an analysis should include the cumulative effects, quantified in an "individual, regional, national, global" context. *Id.* at 6.

Finally, the guidance suggests that NEPA provides direction on how managers should respond to comments raised during project analysis regarding climate change:

1. Modify alternatives including the proposed action.
2. Develop and evaluate alternatives not previously given serious consideration by the Agency.
3. Supplement, improve, or modify the analysis.
4. Make factual corrections.
5. Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the Agency's position and, if appropriate, indicate those circumstances that would trigger agency reappraisal or further response.

Id. at 8. At the very least, because this project includes fuel reduction treatments and burning that will contribute GHG emissions, the EA must include an acknowledgment of carbon emissions and must provide a response to this issue.

Moreover, the analysis should account for and quantify (as part of the cumulative effects analysis) not only the emission from prescribed burning on-site and the emissions from any biomass that is removed from the project area and later burned off-site, but also the contribution of emissions from transporting this material for off-site burning, and the

contribution of emissions from planning and implementing the project by a contractor and by the Forest Service.

This holistic approach to account for GHG emission is necessary to provide managers and the public with the kind of information under NEPA to make informed choices between alternatives and to mitigate for climate change, and to consider and assess the larger picture of GHG contributions from all projects on the national forests that may contribute GHG emissions.

Concern about Canopy Cover Reduction

The EA states that canopy cover will be reduced by both action alternatives. "*In Alternative B a combination of prescribed fire only, mastication only, and mastication followed by prescribed fire would break-up the multi-layered canopy and disrupt the dead and down fuel loading. Under Alternative C, the dead and downed fuels and multi-layered canopy would be broken up by hand thinning and debris piling followed by pile burning or underburning only.*" And "*It is anticipated that implementation of the Pine Ridge project, in combination with the Mckenzie Ranch project, would reduce canopy cover and small down woody debris on a maximum of 3014 acres*." And "*All the action alternatives may reduce the quality of foraging habitat in the short-term by reducing canopy cover and down woody debris. However, in the long-term habitat would be expected to improve as trees mature following thinning*." And "*The action alternatives of the Pine Ridge Fuel Reduction and Maintenance Project would result in a reduction in hardwood canopy cover on less than one percent of oak-associated hardwood and hardwood/conifer habitat*" And "*In the Pine Ridge Fuel Reduction and Maintenance project area; there are approximately 33 acres of late seral closed canopy coniferous forest habitats. The 33 acres of late seral closed canopy coniferous forest habitat in the project area is less than 1% of the approximately 10,107 acres of late seral closed canopy coniferous forest habitat within the HUC5 watersheds. The direct and indirect effects of the action alternatives in the Pine Ridge Fuel Reduction and Maintenance Project would result in only small changes (on a maximum of 33 acres) in canopy closure, and possibly a small change in the average large snags per acre, this project is unlikely to alter the existing trend in the habitat or lead to a change in the distribution of California spotted owls, American martens, or the Northern flying squirrel across the Sierra Nevada bioregion*."

But the project will intensely reduce the lower canopy component of the multi-layered canopy cover where Pacific fisher forage in the project area where treatments would remove trees up to 10-inch diameter trees from their habitat. So the project will remove this canopy component and damage and harm the Pacific fisher habitat.

The Forest Service is cutting out trees 10-inch diameter and smaller along roads, possibly including roads that are not used, leaving rows of evenly spaced poles and dramatically reducing and fragmenting habitat for a variety of species without any Monument guidelines.

The EA is implying that the small-diameter trees that this project would remove from the Monument would be replaced in a few years. *"All the action alternatives may reduce the quality of foraging habitat in the short-term by reducing canopy cover and down woody debris. However, in the long-term habitat would be expected to improve as trees mature following thinning.*" On many harsh growing sites, such as those found on Sequoia National Forest and the Monument, a so called "small" tree of 10-inch diameter can be over 100 years old. There can be up to 10 annual growth rings per inch of tree diameter. USGS scientist, Nate Stephenson Ph.D., found seven one-inch diameter sequoia trees that were 100 years old, which proves that the western slopes of the Sierra Nevada can be dry enough to suppress growth to the point where an apparently young tree can actually be very old. Therefore, arbitrarily removing trees of small diameter and presuming that they will grow back in a short period of time, as the EA proposes and presumes, may be incorrect.

In addition, if you remove all the small diameter trees, there will be no small diameter trees available in that area to replace the large trees in the forest when they die. The forest cannot sustain continual removal of small trees because they are not soon replaced.

- Please provide specific information about what the Forest Service plans to leave after implementation <u>for each unit</u> <u>by action alternative</u>, including:
    - tree density
    - the range of tree sizes and basal area
    - % of canopy cover after thinning
    - the number and size of snags (here's an opportunity to increase the number of snags by girdling trees rather than felling or removing them)
    - the number or size of large down logs (>12 inch at midpoint) (here's also an opportunity to increase the number of large down logs rather than removing them)
    - information about the understory for each unit, such as the % of area with shrub cover or in montane chaparral patches after thinning

- The scoping map does not show where the California spotted owl or Pacific fisher habitat is located. Please provide information about any such habitat in the treatment units or in areas adjacent to treatment units.

Concern about failure to protect Pacific Fishers

Studies suggest surveys done in the southern Sierra Nevada forests, for various reasons, are insufficient to define which area Pacific fisher use and that more widespread and comprehensive surveys are required in the southern sierra forests:

> In contrast, fisher detections in the southern Sierra region were associated with satellite-derived estimates of dense cover, but were not strongly associated with topography, forest composition, or structure. This pattern may partly reflect

> undersampling of lower elevations in the southern Sierra region. The survey grid may not have spanned a sufficient range of climatic, topographic, and vegetation conditions to allow fisher habitat preferences to be discriminated. Campbell (2004).
> . . .
> Another circumstance that may be responsible for the unique set of predictors associated with fisher occurrence in the southern Sierra is the fisher's diverse diet in this region. Zielinski et al. (1999) found that the diet of fishers in the southern Sierra Nevada includes prey items from both forest and non-forest habitats. Porcupines and snowshoe hares, which are staples of fisher diets elsewhere, do not occur in the southern Sierra Nevada, where fishers eat lizards, birds, and insects in addition to mammal prey (Zielinski et al. 1999). This suggests that fishers may be foraging across a wide range of montane habitats in the southern Sierra.
> . . .
> We can say little about the relative roles of environment vs. movement behavior in the distribution of fishers in the southern Sierra Nevada." Id. "Monitoring of the survey localities over a longer term and expansion of the survey to lower elevations are necessary to better understand the environmental, behavioral, and demographic controls on the species' distribution in this region.

Davis et al. (2007) – Regional variation in home-range-scale habitat models for fisher (Martes pennanti) in California Author: Davis, Frank W., Seo, Changwan, Zielinski, William J. Publication Date: 12-01-2007 http://www.escholarship.org/uc/item/9955n6gj).

In addition to other relevant fisher studies, the newly-released Purcell et al. (2009) study on Pacific fisher resting structures should be analyzed in the Pine Ridge project. The project area is within the Southern Sierra Fisher Conservation Area (SSFCA) as designated by the 2001 Sierra Nevada Forest Plan Amendment FEIS and Record of Decision (SNFPA). The direction within the SSFCA is to manage habitat to maintain or restore old forest habitat characteristics.

In the Purcell study, the authors state that "Retaining trees with defects and decadence should be considered in thinning and fuels reduction activities." Purcell et al. (2009) at 10. Moreover,

> Canopy cover requirements of fishers are one of the most problematic issues facing land managers in western forests where fishers occur. Ongoing and proposed management activities aimed at reducing the wildfire risk and restoring forests to historical conditions through uneven-aged management typically involve thinning trees, consequently reducing canopy cover. Clearly, reducing the risk of wildfire through fuels treatments and restoring forests to historical conditions is a desirable goal as long as we can concurrently maintain healthy fisher populations.

Id. It recommended the following:

> Management practices that support the growth and retention of greater numbers of large trees and snags, while maintaining a minimum of 61% (based on moosehorn) or 56% (generated via Forest Vegetation Simulator) canopy cover and a complex horizontal and vertical forest structure, can improve and provide for future fisher habitat.

Id. at 1.

At the very least, the Pine Ridge project is in Pacific fisher foraging habitat or habitat that may be used for fisher dispersal.

If applicable, the Forest Service must adjust the project to retain minimum canopy cover for fishers as recommended by the Purcell study.

As discussed above, Purcell et al. (2009) found that the two most important variables in predicting fisher resting sites were high canopy cover and a high basal area of snags over 12" dbh. Purcell et al. (2009) recommended retention of AT LEAST 61% canopy cover (based on the moosehorn method, equivalent to 56% canopy cover based upon Forest Vegetation Simulator), and management that maintains an abundance of large snags. The mean density of large snags (over 12" dbh) in resting sites in Purcell et al. (2009) was about 31 square feet of basal area per acre (converted from metric), and this density of large snags was important not only for resting structures but also likely for the maintenance of an adequate small mammal prey base in and around rest sites (Purcell et al. 2009). The results indicated that fishers responded in a positive linear fashion to increased large snag basal area, indicating that densities higher than 31 square feet per acre would be even better (Purcell et al. 2009). The basal area density of snags over 12" dbh at rest sites was about 2.5 times higher than at random sites (Purcell et al. 2009). Purcell et al. (2009) found that the two most important variables in fisher rest site selection were canopy cover and basal area of snags. A key question is whether current basal area density of snags over 12" dbh in the potential Pine Ridge project area is over 31 square feet per acre, and how any project in that area would affect future large snag basal area. Currently, there is a major deficit of large snags in all forested regions of California, according to a U.S. Forest Service analysis of thousands of fixed plots statewide (Christensen et al. 2008). The authors concluded that the current large snag deficits could threaten some native cavity-nesting wildlife species (Christensen et al. 2008). Another key question pertains to the current canopy cover levels, and how any potential project would affect canopy cover.

Though land managers generally assume that wildland fire has wholly negative effects on Pacific fishers, this assumption has not been tested scientifically. The unpublished Spencer et al. (2008) report, commissioned by the Forest Service, looked at numerous habitat variables to predict fisher presence. However, though that report used past burned areas as one of the spatial variables, many if not most of these burned areas (near the fisher detection stations) had been salvage logged after the fires. The Spencer et al. (2008) report did not include wildland fire alone (i.e., no salvage logging) in the

modeling. In addition, the Spencer et al. (2008) report modeled fisher presence at the scale of only 5 square km, which is smaller than the smallest average fisher territory size recorded in the scientific literature. Any analysis of the role of wildland fire in fisher ecology would have to be conducted at a much larger scale in order to account for potential indirect effects and interactions. For example, most of the fisher prey species in the southern Sierra Nevada (Zielinski et al. 1999) are associated with the sort of habitat conditions created by high-severity fire (with no salvage logging), such as abundant montane chaparral, large snags, large downed logs, and pockets of dense natural conifer regeneration. Thus, whether or not fishers are directly foraging within unlogged moderate- and high-severity burn patches, it may be important to have some such habitat areas distributed within fisher home ranges, and adjacent to fisher home ranges, to provide an ample supply of prey. So, while it may be an appropriate goal to ensure that wildland fires burn in a heterogeneous manner within fisher habitat, we cannot assume that elimination of high-severity patches would be beneficial to fishers at the landscape scale. Moreover, the intensive and repeated landscape-level habitat degradation that would be implemented in order to prevent high-severity fire patches at the landscape scale would cause serious harm to fishers.

Concern about Forest Service Failure to Fund the SNAMP Study

The Forest Service failed to fund the SNAMP Fisher research the Forest Service committed to funding in the 2004 Framework Appeal decision. The Frog Timber Sale proposes canopy cover reductions to 40% in accordance with the 2004 Framework throughout the project area, which is in the Southern Sierra Fisher Conservation Area. The SNAMP Fisher research would presumably have determined if thinning in the Fisher habitat could benefit the fisher. But because the Forest Service is no longer going to do the research, there will be no research conclusion on the benefits or harms of thinning in fisher habitat, and there is no proof that thinning in fisher habitat is at all beneficial or not harmful to fisher survival. Therefore, thinning should not proceed in fisher habitat until and unless the research is completed and concludes that thinning in fisher habitat can benefit fisher survival.

Concern about Removal of so-called "Hazard Trees" along Logging Roads in the Monument without a Monument Travel Management Plan

The Forest Service is proceeding with a project in the Pine Ridge area where "*The goal is to restore and maintain the natural fire cycle and minimize the damage to planted trees and the reforestation investment they represent from an unwanted wildfire.*" This project is to be implemented without any Monument plan or strategy for restoring plantations. It would log along miles of logging roads to 'fire proof' them when there is no Plan to indicate those roads should or should not be restored –obliterated and returned to natural.

Removing "hazard trees" along roads that are to be obliterated and returned to natural would be unnecessary and harmful to the objects of interest in the Monument.

In the twelve years since Proclamation there has been no plan, but projects continue to 'restore' plantations (driving masticators over all the natural species reseeding with the pine that had replaced the original fir), logging along logging roads removing trees, planning to 'restore' an already damaged area with no Plan for how to do it and no ecologists to guide. The Forest Service uses Regional Plans (that apply to lands in the timberbase) as their basis for management.

Judge Breyer ruled, "In the interim, and until the Forest Service issues a new Management Plan, the Monument shall be managed consistent with the Monument Proclamation of April 15,
2000, and in accordance with direction from the 1988 Sequoia National Forest Land and Resource Management Plan, as amended by the 1990 Mediated Settlement Agreement and the 2001 Sierra Nevada Forest Plan Amendment."

In addition, the Forest Service is cutting out trees 10-inch diameter and smaller along roads, possibly including roads that are not used, leaving rows of evenly spaced poles and dramatically reducing and fragmenting habitat for a variety of species without any Monument guidelines. A 10-inch diameter tree could be 100 years old. It is not uncommon to find trees in the Monument that have 10 annual growth rings per inch – evidence of the harsh growing sites of this area.

The Forest Service must use the "best available science" standard

Current Forest Service regulations require that projects that implement forest plans consider the best available science in their analysis. 36 C.F.R. § 219.35(a), (d) (2000); 69 Fed. Reg. 58055 (Sept. 29, 2004). To correctly apply this standard, the Forest Service "should seek out and consider all existing scientific evidence relevant to the decision and it cannot ignore existing data. . . . The Forest Service must determine which data are the most accurate, reliable, and relevant, and that will be reviewed deferentially, but it still must be good science-that is reliable, peer reviewed, or otherwise complying with valid scientific methods." *Ecology Center v. U.S. Forest Service*, 451 F.3d 1183, 1194, n. 4 (10th Cir. 2006).

This also means that, in the final analysis, the Forest Service must disclose and discuss any science that it rejected as less accurate, reliable, or relevant than the science it actually applied to the project.

Given all of these significant inadequacies of the Pine Ridge Project Fuels Reduction Project EA, Sequoia ForestKeeper & Kern-Kaweah Chapter of the Sierra Club recommend that an EIS be created that take into account these significant deficiencies.

Sequoia ForestKeeper and the Kern-Kaweah Chapter of the Sierra Club thank you for the opportunity to comment. Please keep us on the contact list for all stages of this project and for all actions in your district.

Respectfully submitted,

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