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PROTECTING NATURAL RESOURCES

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by selecting "Comment on Document"

Mr. Jerome E. Perez
California State Director
Bureau of Land Management

cc: Ara Marderosian
Steve Montgomery
Chad Hanson
Justin Augustine

Subject: **Comments on behalf of Sequoia ForestKeeper and Sierra Club re: Hazard Removal and Vegetation Management Programmatic Environmental Assessment (pEA)**

Sequoia ForestKeeper (SFK) and the Kern-Kaweah Chapter of the Sierra Club (SC) thank you for the opportunity to comment.

Background and Introduction

Please consider these introductory sections as a part of our comments.

BLM proposes to fell and remove dead and dying hazard trees as well as remove live green trees to treat fuels within 200 feet of critical infrastructure on BLM-managed public lands for the purpose of removing hazards to people and critical infrastructure associated with falling dead and dying trees and excess fuel loading. The proposal would authorize treatments within conifer forests and oak woodlands (excluding pinyon and juniper woodlands) across approximately 551,000 acres in central and northern California over a 10-year period.

Dead trees would be cut down within the distance of one tree height (at a minimum based on trees present at that site) away from critical infrastructure, which includes roads, energy infrastructure, recreation areas, water facilities, communication towers, weather stations, historic features, and private property. BLM states that it would retain down wood to meet key wildlife habitat values when possible and would only remove excess wood to prevent fuel loading.

Moreover, BLM proposes to treat live trees within critical infrastructure to reduce fuel loading through removal and/or prescribed fire. Treatments could include both manual and mechanical methods, meaning the use of heavy equipment.

In order to facilitate the removal of wood products (e.g., logs, firewood, biomass), BLM would also authorize temporary road construction and log landings.

Issues and Comments

1. **Only small diameter trees need to be treated to reduce fire risk.**

Scientific studies have found that pre-commercial thinning of only sapling and pole-sized trees (up to 8-10 inches in diameter) effectively reduces fire severity. See, for example:

a) Omi, P.N., and E.J. Martinson. 2002/2004. Effects of fuels treatment on wildfire severity. Final report. Joint Fire Science Program Governing Board, Western Forest Fire Research Center, Colorado State University, Fort Collins, CO. Available from http://www.cnr.colostate.edu/frws/research/westfire/finalreport.pdf (found that precommercial thinning of trees under 8 to 10 inches in diameter reduced potential for severe fire (email communication with the authors confirmed that trees removed were of this small size class)). More specifically, the Omi and Martinson (2002) study, found that precommercial thinning reduced stand damage (a measure of fire severity generally related to stand mortality) in both of the two thinned study sites, Cerro Grande and Hi Meadow (the authors reported that the Hi Meadow site was marginally significant, $p<.1$, perhaps due to small sample size), each with several plots.

b) Martinson, E.J., and P.N. Omi. 2003. Performance of fuel treatments subjected to wildfires. USDA Forest Service Proceedings RMRS-P-29 (found that non-commercial thinning of submerchantable-sized trees, generally followed by slash burning or removal, in several areas across the western U.S. greatly reduced fire severity, and that this result held true regardless of post-thinning basal area density).

c) Strom, B.A., and P.Z. Fule. 2007. Pre-wildfire fuel treatments affect long-term ponderosa pine forest dynamics. International Journal of Wildland Fire **16**: 128-138 (non-commercial thinning of very small trees under 20 cm dbh (8 inches dbh) in seven different sites dramatically reduced fire severity, resulting in post-fire basal area mortality of only about 28% (low severity) in non-commercially thinned areas versus post-fire basal area mortality of about 86% in untreated areas).

The preliminary EA suggests that thinning, as proposed, will reduce potential for severe fire. There is ample evidence to contradict this claim. Research that Dr. Hanson recently conducted in the Sierra Nevada found contradictory evidence to the claim in the scoping summary. *See* Hanson and Odion 2006. In their study, an area of the Eldorado National Forest that was mechanically thinned very shortly before the fire, and was masticated (material <10" diameter) mere months before the fire, had higher combined mortality from thinning and fire than the adjacent unthinned area (Hanson and Odion 2006). Another recent study found the following:

> Compared with the original conditions, a closed canopy would result in a 10 percent reduction in the area of high or extreme fireline intensity. In contrast, an open canopy [from fuel treatments] has the opposite effect, increasing the area exposed to high or extreme fireline intensity by 36 percent. Though it may appear counterintuitive, when all else is equal open canopies lead to reduced fuel

moisture and increased midflame windspeed, which increase potential fireline intensity.

Platt et al. 2006 (Annals of the Assoc. Amer. Geographers 96: 455-470). The EA must analyze this type of evidence from actual wildland fires burning through thinned areas rather than rely upon modeling results, which are based upon assumptions that may not reflect actual real-world fire behavior. Increased fire severity could result from: a) increased mid-flame windspeeds due to a reduction in the buffering effect of mature tree boles; b) slash debris (even if you make efforts to reduce slash, this is never totally effective, and much slash remains—enough to perhaps increase overall surface fuels relative to current levels, which the current analysis does not adequately discuss); c) accelerated brush growth due to increased sun exposure; and d) desiccation of surface fuels due to increased sun and wind exposure.

Moreover, recent research provides evidence that seriously questions the very basis for thinning and its assumed effectiveness. Rhodes and Baker (2008) found that, based upon the fire rotation interval for high severity fire, and assuming an effectiveness period of 20 years for a mechanically-thinned area (i.e., before it would need to be treated again to maintain effectiveness from a fire/fuels perspective), the probability of a thinned area encountering a high severity fire patch during the 20-year effectiveness period (assuming for the sake of argument that the thinning actually does reduce fire severity during this period) is only about 3.3% in California's forests. It would be less than 2% if an 11-year thinning effectiveness period is assumed (Rhodes and Baker 2008). This means that, in order to have a 50% chance of having the thinned area reduce the severity of a fire patch that would have otherwise been high severity, the thinned area would have to be re-thinned every 20 years for about 300 years (see Rhodes and Baker 2008).

Please fully analyze the implications of this new data, and please also fully divulge whether you intend to re-thin this area over and over again every couple of decades or so for the next three centuries or so in order to have a reasonable probability of having the thinning area actually prevent high severity fire from occurring in the thinned area. If so, please fully analyze the cumulative environmental impacts on wildlife, soils, and watersheds from such repeated mechanical activities on this site. If not, please divulge the fact that the probability that the thinned area will NOT encounter a high severity fire area is about 97% or greater, and that your thinning activities are <u>extremely unlikely</u> to be effective in any tangible or meaningful way for fuels/fire management.

2. **<u>The Poor Economics of Tree Removal and Contribution to Adverse Effects on Climate Change and Air Quality Suggest On-site Treatments</u>**

Based on our experience with the management of the Sequoia National Forest, the removal of trees for biomass utilization is extremely expensive, unnecessary, and counters to the goal of reducing CO_2 emissions. The costs of hauling biomass materials out of the forest for power utilization exceeds – sometimes greatly – the price the material will fetch at the biomass plant. Moreover, the small live trees and larger hazard trees have little value, and the cost of hauling them out of the forest exceeds their economic value for either timber or biomass. Instead, logs should left on the ground unburned as logs, and the smaller material should be lopped-and-scattered, and pile- or understory-burned, as already proposed.

Removing the materials off-site will only add greenhouse gasses (GHG) from the use of vehicles to haul the material to a biomass facility. This exacerbates the contribution of GHG from the burning, which would immediately put many tons of CO_2 into the atmosphere.

Burning biomass is not efficient nor is it carbon-neutral:

Despite assertions to the contrary, scientific studies have found that burning biomass for power generation is not carbon-neutral, and will even add more GHG for the next few decades or even centuries than re-growth can absorb.

GHG emissions of biomass are actually greater even than those of coal, and can be triple the emissions of natural gas. This is because biomass has a lower energy density than fossil fuels, and is inefficient because it is generally high moisture content, which requires that energy be expended to evaporate water before useful energy can be obtained. Also, because wood burns at a lower temperature than fossil fuels, the efficiency of electricity production is significantly lower. This means that, in practice, burning biomass emits 1.5 times the carbon dioxide of coal, and 3 to 4 times the CO_2 of natural gas, per kilowatt-hour of electricity generated. *See* Attachment A – CBD Power Point, PDF p. 2.

The atmosphere can't tell the difference between biogenic and fossil CO_2. So, at the smokestack, biomass is clearly not carbon-neutral.

> Treatment of bioenergy as 'low carbon' or carbon neutral often assumes fuels are agricultural or forestry residues that will decompose and emit CO_2 if not burned for energy. However, for 'low carbon' assumptions about residues to be reasonable, two conditions must be met: biomass must genuinely be material left over from some other process; and cumulative net emissions, the additional CO_2 emitted by burning biomass compared to its alternative fate, must be low or negligible in a timeframe meaningful for climate mitigation.
>
> For plants burning locally sourced wood residues, from 41% (extremely rapid decomposition) to 95% (very slow decomposition) of cumulative direct emissions should be counted as contributing to atmospheric carbon loading by year 10. Even by year 50 and beyond, the model shows that net emissions are a significant proportion of direct emissions for many fuels.

Booth, Mary S. (2018). Not carbon neutral: Assessing the net emissions impact of residues burned for bioenergy. Environmental Research letters. 21 Feb 2018. *See* Attachment B.

The timing of when and how long GHG is emitted is critical, and has huge implications for the climate impacts. Climate mitigation requires emissions to peak then decline within two decades. Biomass energy production with large upfront GHG emission that won't be paid back for decades is a major concern in achieving the near-term reductions that we know are absolutely critical to meeting our climate mitigation goals. *See* Figure 4. CBD Power Point, PDF p. 6.

Moreover, the assumption that biomass is better than decomposition ignores the fact that combustion is immediate whereas decay can take decades. Even in the case of cut trees, decay of the down logs and debris can take years and decades, as compared to the tree's carbon released all at once in a biomass plant. And in the case of standing dead trees—snags, snag forests, post-fire burns areas, beetle-killed trees, and so on—the decay can take decades.

Bioenergy is highly uneconomic without major subsidies, meaning that ratepayers are forced to pay for expensive, dirty, climate-polluting biomass energy as a subsidy to forest thinning projects. The costs of biomass electricity versus true renewable electricity, such as from solar or wind—when compared with current "renewable market" price at roughly $40/MWh—is $199.72/MWh or nearly five times that of renewables.

Also, the assumption that biomass energy substitutes for fossil fuels with higher GHG emissions is flawed for two reasons: (1) because the emissions from biomass are so much greater than any other source (especially natural gas, which is the main power plant fuel currently used in California), and (2) because of the mechanism we're using to subsidize biomass mostly serves to displace renewables like solar and wind.

There is also the concern regarding the loss of forest carbon. Every ton of carbon you pull out of the forest for biomass reduces the in-situ, in-forest carbon stocks. Numerous studies have looked at this issue at various scales and found that increasing in-forest carbon stocks through afforestation and lengthened harvest cycles have the greatest carbon benefits. And these benefits are undermined by bioenergy use of forest residues, as opposed to leaving residues onsite.

Other considerations are that biomass plants emit more conventional pollutants (in lbs/MWh) than coal plants (except for SO2). *See* Figure, CBD Power Point, PDF p. 13.

For these reasons, we urge the BLM to abandon its attempts to remove material from the area for biomass utilization and instead leave, process, or treat it all on-site.

3. **The proposal will likely adversely and significantly affect Pacific Fishers, California spotted owls, Northern goshawks, American marten, mountain yellow-legged frogs, California condors, three bat species, and other species.**

Most wildlife species continue to use the patchwork of burned and dead forest areas for various habitat needs, including nesting, denning, sheltering, and foraging.

But there are potential adverse effects of hazard tree logging, which is proposed along roads that likely cut through California spotted owl (CSO) PACs and HRCAs, as well as Pacific fisher habitat. The adverse effects on the owls' and fishers' habitat must be discussed in the NEPA analysis. These adverse effects have the potential to be significant, which requires a full analysis in an Environmental Impact Statement (EIS).

Because CSOs don't just abandon their habitat after a fire and use all burn severities for nesting, roosting, and foraging due to their propensity for high site fidelity [*see* Bond et al. (2009) and Hanson and Odion (2016)], the BLM must determine whether the owls persist in the project area.

This will require surveys of presence (or absence) according to established protocols, which must occur before completion of the NEPA analysis.

Moreover, BLM must maintain a limited operating period (LOP), prohibiting vegetation or fuel reductions treatments within approximately ¼ mile of a CSO activity center during the breeding season (March 1 through August 15), unless surveys confirm that California spotted owls are not nesting.

For the same reasons, the project may adversely affect Pacific fishers and American marten, which include fire areas and areas of dead and dying trees in their range of habitat needs. It is likely that the project area still contains low-severity or unburned areas, and areas with sufficient green tree cover, those areas will likely function as marten and fisher denning habitat. *See* Hanson and Odion (2016).

Where applicable, to protect unknown maternity den sites for American marten from disturbance during vegetation treatments in areas of suitable habitat during the reproductive season, the BLM should implement standard protocols and follow a limited operating period (LOP), similar to those the Forest Service uses, to curtail operations between May 1 through July 31. And to protect fisher den site buffers from disturbance the BLM should also follow established protocols, which implement a LOP from March 1 through June 30 for vegetation treatments.

Moreover, should a goshawk nest be detected through any phase of the project, the BLM should delineate a PAC and implement a limited operating period (LOP) prohibiting vegetation treatments within approximately ¼ mile of the nest site during the breeding season (February 15 through September 15).

Finally, BLM must also analyze adverse effects from the proposed project on Townsend's big-eared bats, Pallid bats, Fringed myotis bats, MYLFs, California condors, Relictual (Green Mtn.) slender salamander, and other rare and sensitive species that may be present.

We aver that the proposed roadside hazard logging, as proposed, will significantly and adversely affect all of the mentioned species and that the analysis requires an EIS.

4. **<u>The use of feller-bunchers will adversely and significantly affect soil and aquatic resources, especially in burned areas</u>.**

Post-fire soils are highly fragile and potentially erosive and even more so when mechanical equipment is placed on them. If BLM authorizes the use of feller-bunchers to fell and remove trees in the project area, the project will adversely and significantly affect soil and aquatic resources.

"Forest ecosystems are especially vulnerable to postfire management practices because such practices may influence forest dynamics and aquatic systems for decades to centuries…. The following practices are generally inconsistent with efforts to restore ecosystem functions after fire: … *ground-based postfire logging*, removal of large trees, and road construction." Beschta et al. (2004) (emphasis added).

With regard to ground-based post-fire logging, the science synthesis in Beschta et al. (2004) states that "abundant scientific evidence suggests that commonly applied postfire treatments may compound ecological stresses. For example, soil exposure and the compaction of ground-based yarding equipment may substantially increase erosion following postfire salvage logging." *Id.*, p. 959. "[U]se of ground-based logging equipment will cause additional site disturbance and soil compaction. Decreased infiltrations, increased overland flow, and accelerated sedimentation following ground-based logging not only degrade forest soils…but can also affect aquatic systems, including survival of salmonids and other aquatic species." *Id.*, p. 960 (internal citations omitted).

In fact, "soil disturbance during ground-based logging that is severe enough to 'mix' or break through soil layers would also cause significant compaction, contributing to accelerated surface erosion and long-term reductions in soil productivity." *Id.* "Soil compaction can persist for 50-80 years in many forest soils … and even longer in areas with high clay content, which is substantially longer than the negative influence on soils that may be associated with fire… Because soils and soil productivity are irreplaceable in human time scales, postfire management practices that compact soils, reduce soil productivity, or accelerate erosion should not be undertaken or allowed to continue." *Id.*¸ p. 961 (internal citations omitted).

The Beschta study recommends that "the most critical step in undertaking ecological restoration in the postfire environment is to forgo those activities and land uses that either cause additional damage or prevent reestablishment of native species, ecosystem processes, or plant succession…." *Id.*, p. 959.

But if the Forest Service does proceed with using ground-based equipment such as feller bunchers, it must recognize and analyze these significant adverse effects on soils and aquatic resources, which are likely to result from the use of mechanical equipment in the Spear Creek project area.

5. <u>Due to the size, scope, and duration of the project, BLM should prepare a full Environmental Impact Statement (EIS) and consider additional alternatives.</u>

Due to the size of the project (551,000 acres), its large geographic scope (most of California), and the duration of the project's life (over 10 years), BLM should prepare a full EIS. An EIS is necessary because the potential adverse effects could be significant within the context and intensity of the proposed actions. NEPA Regulations provide the following definition for significance of proposed actions:

> *Significantly*. This term includes both context and intensity: (a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short and long term effects are relevant. (b) Intensity. This refers to the severity of impact.

> Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity: (1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. (2) The degree to which the proposed action affects public health or safety. (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial. (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. (10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. (40 CFR 1508.27) (11) Special Expertise. . . . statutory responsibility, agency mission, or related program experience. (40 CFR 1508.26)

The programmatic nature of this proposal would provide the only regional context, since future more site-specific actions would not be able to analyze the larger picture of potentially adverse or beneficial environmental effects over the large area over a 10-year period. The context and intensity of over a half-million treatment acres across the state could be significant in that it could potentially adversely affect threatened, endangered, or other rare species that may be sensitive to the proposed removal of many acres of their habitats.

The project is also likely to be significant because effects on the human environment are likely to highly uncertain or involve unique or unknown risks, since their effectiveness of providing adequate public safety, in light of the last few fire seasons, can be seriously questioned. On the other hand, the potential beneficial effects with regard to safety could also be significant. Both require that the BLM prepare an EIS.

We request that BLM fully analyze the following additional alternatives in this EIS:

a. *Cut and Leave Alternative with Removal of Smaller Fuels* – Fell and leave tree boles as large down woody material, and remove or burn only the tops, limbs, and slash to avert fuel loading and fire risk. This alternative is distinguished from the "Dead/Dying Tree

Felling Only" alternative described in Appendix A of the pEA in that the more combustible tops, limbs, and slash would be removed or burned rather than left untreated. This is a common practice on National Forests in the region, which leave the larger and less-flammable tree boles as essential wildlife habitat.

b. *Reduced Distance from Road Prism Alternative to 100 feet* – BLM should study an alternative that uses a 100 ft distance from the road prism as the default distance. If BLM needs specific exceptions for individual trees on steep upslope areas from the road, it could include guidelines for those exceptions in this alternative to make it more feasible.

c. *Road Closure Alternative* – BLM should explore an alternative that closes un-needed roads in the project area as a viable alternative.

6. <u>Potential Adverse Effects from Project-Created Edge Effects are Potentially Significant and require Analysis in an EIS</u>

The PEA acknowledges serious concerns and potential impacts from edge effects, and implies that there is significant potential for increased ignitions from proposed hazard and fuel reduction activities:

> While linear features such as temporary access roads and trails would potentially create more edges and openings for invasive species and unauthorized access, disturbed access areas would be decompacted and reseeded with native vegetation, where feasible, following treatments (see ME-18, RL-13, VEG-3, VRM-8). These areas would be managed to promote the growth of native species rather than invasive species and noxious weeds. <u>This edge effect often results in a dense growth of early successional species and increased fuel loads that allow fire to spread rapidly to interior forest and wildlands, particularly if these areas do not receive regular stand density management.</u> Thus, recent tree mortality in these areas has led to even greater fuel loads and ignition risk close to human activity and critical infrastructure. One study showed that 60% of wildfires in the conterminous US occurred within 200 meters (656 feet) of a road (Morrison 2007). Human-induced fires near roadways can be ignited in a variety of ways including cigarettes, sparks from electrical lines, dragging tow chains, broken catalytic converters, and vehicle collisions. Another study found that a positive correlation exists between lightning fire frequency and road density due to increased availability of flammable fine fuels near roads (The Wilderness Society 2018). With this in mind, the outer fringes of these communities can serve as potential wildfire ignition sources and allow fire to spread further into the interior canopy.

PEA, p. 3-5 (emphasis added).

The project not only proposes new temporary roads, which will increase edge effects that may increase dense growth and increased fuel loads, but also prescribes project activities in the form of tree removal and fuel treatments that will also result in similar edge effects. This will result in

potentially significant effects with respect to public safety by increasing fuels and fire risk from the dense growth of early successional species after implementing project activities. Because these effects are potentially significant, they should be analyzed in an EIS.

In addition, Rhodes and Baker (2008) found that, assuming an average effectiveness period for a mechanically-thinned area, an area would need to be treated again in 20 years to maintain effectiveness from a fire/fuels perspective. Yet, there is no discussion in the PEA about the need to periodically re-treat these areas in the future. And there is no analysis with respect to the potential to increase fuel loading, and thus future fire risk, from the proposed activities in the future. Thus, the analysis fails to disclose reasonably foreseeable future effects and must be updated to not only account for these effects, but to discuss how BLM will deal with them in the future.

7. **A 200 ft distance from the road cannot be justified on the downslope side of the road, and, instead, 100 ft should be maximum downslope distance.**

Most roads proposed for treatments are roughly built along contours where there is an upslope and downslope side of the road. The proposal, however, makes no distinction between these areas and has proposed a 100 ft distance for tree felling on both sides of the road, based on 1.5 times the height of the tallest trees.

However, when a 100 ft tall tree falls toward the road on its downslope side, gravity prevents them from traveling any further upslope, and there the 1.5 times distance in the guidelines is meaningless. Therefore, to institute a 200 ft distance on the downslope side of the road for safety is illogical and unnecessary.

We therefore urge that the proposal specifically limit tree felling to no more than 100 feet on the downslope side of each of the road segments proposed for treatments.

8. **Additional Concerns with the Programmatic Environmental Assessment (PEA).**

9. **Scientific studies indicate that thinning does not increase forest carbon storage.**

The PEA and the Forest Carbon Plan upon which it relies, endorse actions that are scientifically unfounded, likely to reduce forest carbon storage, and likely to cause substantial harm to California's forest ecosystems.

Massive increases in thinning/logging paired with burning of woody biomass in bioenergy facilities — will reduce (not increase) overall forest carbon storage and lead to higher greenhouse gas emissions in the state.

Harvest of live trees from the forest not only reduces current standing carbon stocks, but also reduces the forest's future rate of carbon sequestration and its future carbon storage capacity by removing trees that otherwise would have continued to grow and remove CO2 from the atmosphere. Numerous studies, which were not mentioned by the Plan, indicate that protection from logging increases forest carbon storage, while thinning forests to reduce fire activity

decreases forest carbon stocks and results in increased carbon emissions to the atmosphere that can persist for decades.

10. Studies show economic benefits in investing in defensible space for wildfire safety, but show that biomass extraction is uneconomical.

Labor Impacts of Investments in Wildfire Safety, an economics study by Natural Resource Economics, Inc. (Attachment C, and available at http://nreconomics.com/reports/2018-04-28_EnvNow_Report.pdf) shows that fuels reduction activities focused on creating fire-safe conditions in the defensable space immediately around houses (~100 feet) rather than large-scale forest alteration has at least 3 advantages:

- Forest Service researcher Jack Cohen's studies showed that the zone ~100 feet from houses determines whether the structure ignites even with intense fires. Trying to modify fire intensity though "fuels reduction" beyond 100-200 feet is largely irrelevant to home safety. Treating beyond 100 feet from structures ignores the science-based "Home Ignition Zone," which found that treating the home and the 200 feet immediately surrounding the structure (the home ignition zone) can protect the structure from wildfire. (Reducing the wildland fire threat to homes: Where and how much? Author: Cohen, Jack D. 1999 http://www.treesearch.fs.fed.us/pubs/5603). Thinning farther from the structure than 200feet causes unnecessary resource damage and can actually increase fire danger. We recommend prescribed fire to reduce understory fuels beyond 200 feet from structures.
- Defensible space work is on a much smaller scale and involves more manageable task, which do not produce the big volume of cut materials associated with fuels reduction projects. Less cut material means less of an issue with what to do with the cut material (biomass). This strategy means that no new biomass facilities are needed. Instead, smaller scale portable devices can turn the smaller amount of cut material into wood chips/mulch that can be used locally by the landowner.
- Defensible space work also has economic benefits for the community. As the Natural Resource Economics report referenced above concludes, "In sum, investment in defensible-space activities can provide not just wildfire-safety benefits but also significant job-creation benefits for rural communities in California. Moreover, the information currently available indicates that, in many circumstances, the same level of spending likely will yield more jobs and wages for local workers under the defensible-space approach than under the forest-altering approach." Attachment C.

Included in this comment letter, in its entirety, by reference are the following relevant comments on similar vegetation treatment proposals by agencies operation in California:

- The attached comment letter [Center for Biological Diversity et al Forest Carbon Plan Comments.pdf] discusses the failures of the California Forest Carbon Plan, on which this PEA relies. Attachment D (also available at

http://www.sequoiaforestkeeper.org/pdfs/comment_letters/CenterforBiologicalDiversityetalForestCarbonPlanComments.pdf),

- The 15 March 2017 and 25 May 2016 comments by Sequoia ForestKeeper regarding the California Board of Forestry and Fire Protection's California Forest Carbon Plan Draft Jan 2017 and Vegetation Treatment Program. Attachment E (also available at http://www.sequoiaforestkeeper.org/pdfs/comment_letters/SFK_Comment_final_California_Forest_Carbon_Plan_Draft_Jan_2017.pdf), Attachment F (also available at http://www.sequoiaforestkeeper.org/pdfs/comment_letters/160525-5_CalFire_Vegetation_Treatment_Program_EIR_comment_FINAL.pdf),
- 17 July 2018 comments by John Muir Project et. al. regarding the Rim Fire area supplemental EIS issue being considered for funding by the Sierra Nevada Conservancy Board. Attachment G.
- 25 August 2016 comments by Sierra Forest Legacy et. al. regarding the Draft Environmental Impact Statement for Revision of the Inyo, Sequoia, and Sierra National Forests Land Management Plans. Attachment H.

For Sequoia ForestKeeper and the Kern-Kaweah Chapter of the Sierra Club,

René Voss – Attorney at Law

Attachments

A-H and Scientific Reports (sent in separate submissions)