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PROTECTING NATURAL RESOURCES

June 13, 2018

cc: Ara Marderosian
Stephen Montgomery
Brien Chartier

Tiera Arbogast
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3801 Pegasus Drive
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Via: blm_ca_case_mtn@blm.gov, tarbogast@blm.gov, and bchartie@blm.gov

Subject: Case Mountain Vegetation Management and Forest Health Plan Scoping Comments from Sequoia ForestKeeper

Ms. Arbogast,

Sequoia ForestKeeper and the Kern-Kaweah Chapter of the Sierra Club thank you for the opportunity to provide the BLM with the following comments regarding the agency's Environmental Assessment and Draft FONSI for the Case Mountain Vegetation Management and Forest Health Plan.

Thank you for engaging in a dialog about the project and consequences. Thanks also to Brien Chartier for his helpful feedback and his offer to assist with a site visit.

Observations

Initially, the proposal aimed to implement a vegetation management and forest health strategy to prevent high intensity wildfires on approximately 444 acres. Since that time, the project has increased to now propose treatments on approximately 1,632 acres.

The project consists of hazard tree felling up to 200 feet from the edge of the various roads in the area, tree thinning within Giant Sequoia Groves, as well as other fuel treatments. The BLM proposes to remove vegetation for biomass utilization using both ground- and cable-based extraction, for firewood along area roads, and by pile, lop-and-scatter, or understory burning.

Comments

1. **Inconsistencies in the EA with regard to Diameter Limits between the Proposed Action and Project Design Features/Environmental Mitigation Measures for California Spotted Owls and Pacific Fisher**

We are pleased to see strict limitations placed on habitat modification to protect owls and fishers as detailed in the Project Design Features/Environmental Mitigation Measures section. Specifically, on EA page 20, the BLM prescribes the following limits on tree cutting:

> Managing habitat to support populations of California spotted owl and Pacific fisher should include:
>
> 1) Retain all live trees and snags greater than 12 inches dbh;
> 2) Maintain high canopy cover; ….

These and the other enumerated design features are consistent with the goals expressed in the BLM's Kaweah Area of Critical Environmental Concern (ACEC – AC11), which is managed primarily for conservation with an objective of supporting populations of rare wildlife and plant species to:

> **[Goal]** Provide suitable habitat for sensitive species and protection for various natural processes, geologic formations, and cultural resources.
>
> **[Objective]** Protect the Case Mountain giant sequoia groves, limestone caves and other karst features, riparian areas, and cultural resources. Manage habitat to support populations of California spotted owl, Pacific fisher, and Kaweah monkey flower

BLM Bakersfield RMP, p. 130 (available at https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=70273). Together, these limitations are consistent with our scoping comments, which suggest that management activities, such as fuel reduction treatments and removal of ladder fuels, should focus only on small trees, and should not remove any canopy cover, larger trees, large snags, large down logs, and any other activities with the goal of protecting Pacific fisher and California spotted owl habitat.

The Proposed Action on page 8, however, is inconsistent with the owl and fisher limitations proposed above and includes the felling and potential removal of hazard trees without limits.

Moreover, in proposing the "Thinning of the Sequoia Groves," the action is also inconsistent with the owl and fisher limitations and states:

> Young and mid-sized stands (<21 inches average dbh) would be thinned more to accelerate the growth of these smaller trees since these areas need to develop into structurally diverse, more open stands dominated by large trees that are resilient to fire, insects, disease, wind, etc. Post-treatment canopy closure of young and mid-sized stands would be greater than 40%. Mature sized stands that are greater than 21 inches dbh would be lightly thinned to protect the large overstory tree layer from stand replacing fire. Post-treatment canopy closure of mature sized stands would be greater than 60%.

While we don't object to felling and leaving hazard trees over 12 inches dbh for safety along roads, so long as they are not removed, the felling and removal of mid-sized trees is not supported by the wildlife limitations. Nor is it consistent with scientific studies, which clearly state that logging trees under 10-12 inches dbh effectively mitigates fire risk (see next section).

Moreover, leaving only 60% canopy closure treated stands is inconsistent with the owl and fisher design criteria to maintain canopy cover or at least a minimum canopy cover of 70% for owls per Verner et al (1992). Also, retaining a percentage of dense shrub understory throughout the treatment area would be consistent with optimal habitat for owl and fisher foraging.

We urge to BLM to clarify its EA and FONSI and place a firm upper limit of 12 inches dbh on the felling of any live or dead trees, unless a tree poses an imminent safety hazard along the roads.

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

This is a restatement of our scoping comments with regard to the diameters of trees above which thinning no longer helps mitigate 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. 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 Scoping Summary 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 extremely unlikely to be effective in any tangible or meaningful way for fuels/fire management.

3. **The Poor Economics of Tree Removal and Contribution to Adverse Effects on Climate Change and Air Quality Suggest On-site Treatments**

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.

<u>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</u>.

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

Sincerely,

René Voss – Attorney at Law