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April 5, 2013

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Subject: Boulder Creek Fuels Restoration Project Preliminary Environmental Assessment
Comments for Sequoia ForestKeeper & Sierra Club

Sequoia ForestKeeper (SFK), the Kern Kaweah Chapter of the Sierra Club, as well as the Sequoia Task Force of the Sierra Club (the Club) thank you for the opportunity to comment on the Preliminary Environmental Assessment (PEA) for the Boulder Creek Fuels Restoration Project (Boulder Burn). Please consider these comments.

Again, SFK and the Club would like to thank the Forest Service for finally moving forward with a project that uses fire as the primary management tool in the Monument and in giant sequoia groves. Our impression of the project remains positive in response to the field trip, but we have concerns about the application of the tree felling criteria from the Giant Sequoia National Monument (GSNM) Plan.

SFK and the Club would like to work through these concerns before the Forest Service proceeds with a final decision for the Boulder Burn project. We are ready to meet and discuss specific actions and criteria that could resolve these concerns and would like to do so at the earliest possible time so there is no unnecessary delay of this important project.

COMMENTS

1. New Concerns About Tree Felling Not Previously Disclosed or Considered During Scoping

Initially, we believed that most of our concerns were addressed during the field trip and in response to our comments in the PEA. Since that time, however, the Forest Service has issued its Record of Decision for the GSNM Plan, which includes a decision tree and a set of tree felling criteria that have now been applied to the Boulder Burn.

Tree felling was not an issue during scoping because we were told that there were no plans to fell and/or remove trees from the Boulder Burn project area. The PEA, however, states clearly that the Forest Service plans to fell trees to protect giant sequoias, other objects of interest, and for worker safety prior to, during, and after implementation of the burn. See PEA, p. 14 (“hand treatments, including chainsaw use outside of the Wilderness, to cut brush or fell

trees, will likely be needed during project implementation to protect firefighters, and protect some of the objects of interest”).

During the field trip, we were assured that trails used as fire breaks and any new fire breaks would be “minimally disturbed.” The subject of tree felling for safety of restoration workers, however, was never raised by the Forest Service before this PEA. In our supplemental scoping comments, we urged the Forest Service to provide more detail about this, including a detailed description of how much clearing and what type will be done to the historic trails in the area and where, how wide, and what will be entailed in the construction of new fire breaks. Unfortunately, that detail is lacking with respect to tree felling.

2. Concerns about Tree Felling Criteria, As Expressed in SFK’s and Sierra Club’s GSNM Plan Appeal

a. Tree Felling Criteria Fail to Comply with GSNM Proclamation

i. Criteria for tree felling are inadequate and incomplete to comply with “clearly needed” requirement.

Because the PEA states that criteria F1 and F3 for tree felling will not be applied to this project,¹ we will focus our comments on the application of criteria F2, F4, and F5.

The Proclamation’s “clearly needed” language suggests a strong presumption against felling, and that most trees should remain standing, whether live, dead, or killed, as much as

¹ Appendix C of the PEA at C-3 states: “Criteria F1 and F3 will not be applied in determining tree felling that may be necessary for the Boulder Creek Project but, following implementation, it is expected that stands will be more resilient to forest stressors, that there will be some regeneration in the giant sequoia groves and other forested areas, and that heterogeneity will be improved in forested areas.”

In our appeal of the GSNM Plan, we responded to Criteria F1 and F3 as follows:

The first criterion, “F1 – Resiliency,” allows felling “if maintaining one or more standing trees on a site would deplete moisture, light, or nutritional resources critical to the health and survival of the plant community or forest.” GSNM Plan, p. 79-80. Initially, it is unclear how the agency will determine if the retention of a single tree would somehow deplete moisture, light, or nutritional resources for the plant community or forest at any level. Moreover, “how will the Forest Service determine whether a single tree will meet this criterion and what does tree or forest health really mean?” DellaSala Report (Exhibit A), p. 35. This criterion invites abuse by managers eager to fell and then remove trees. The Forest Service cannot legitimately make this kind of determination. For that reason, this criterion should be removed in its entirety.

The third criterion, “F3 – Heterogeneity” allows tree felling “if maintaining one or more standing trees on a site would adversely affect the desired diversity or structure of a stand or forest.” GSNM Plan, p. 80. Again, “how will the Forest Service determine whether a single tree will meet this criterion and at what scale (canopy gap, stand, landscape)?” DellaSala Report (Exhibit A), p. 35. This criterion also invites abuse by managers eager to fell and then remove trees because the criterion does not define what “desired diversity or structure of a stand or forest” means. Moreover, as discussed below, heterogeneity is best accomplished by reintroducing and promoting natural process, including fire, insects, and disease. Fire, in particular, with its patchiness effect can provide heterogeneity better than any plan for mechanical treatment.

possible. Criteria in the GSNM Plan for tree felling have been written to be permissive when they should be restrictive.

The tree felling criteria are too vague and amount to unenforceable standards, which would allow for their arbitrary application to projects, such as the Boulder Burn. *See* DellaSala Report (Exhibit A), pp. 35-36. The vagueness of these criteria, rather than restrictive, make them permissive and subject to abuse, so that managers can easily fell trees when they should instead be either left standing, as is, limbed from below to mitigate against fire reaching the forest canopy, or turned into snags to assist with ecological restoration. All of these latter options should be explored first before the Forest Service considers any tree felling in the Boulder Burn project.

As it applies to most of the felling criteria, other options have not been considered or included in the criteria, including killing any trees by girdling, especially larger trees. These standing dead trees will serve as valuable future snags for wildlife needs and will no longer use moisture or nutritional resources when dead. As Dr. Chad Hanson explained in his declaration in support of Sierra Club's GSNM DEIS comments with regard to both felling and removal:

There is currently a pervasive deficiency of large snags in California's forests, with less than 2 large snags per acre presently existing in every region, including the Sierra Nevada, according to a comprehensive analysis conducted by Forest Service scientists in a recently-released report (Christensen et al. 2008).

Nowhere does the DEIS explain why, ecologically, a 19-inch-diameter tree, for example, would need to be "removed" from the ecosystem, as opposed to being converted into a large snag or large downed log. Nowhere does the DEIS explain why, ecologically, a 19-inch-diameter stump would be more ecologically valuable than a 19-inch-diameter live tree, snag, or downed log; or, stated differently, why a 19-inch-diameter tree would be more ecologically valuable to the GSNM forest ecosystem on the bed of a log truck headed for the timber mill than it would be as a live tree contributing to canopy cover for fishers, or a large snag providing prey habitat for fishers and spotted owls or nesting habitat for Black-backed woodpeckers.

Dr. Hanson Declaration (Exhibit B), ¶ 10.

Criterion F2 – Regeneration

The second criterion, "F2 – Regeneration" allows felling "if maintaining one or more standing trees on a site would adversely affect the regeneration, longevity, or growth of giant sequoias and other desired species." GSNM Plan, p. 80. Again, "how will the Forest Service determine whether a single tree will meet this criterion?" DellaSala Report (Exhibit A), p. 35. This criterion also invites abuse by managers eager to fell and then remove trees. This criterion should be reworked to only address "regeneration" of giant sequoias and remove the language "and other desired species" because the GSNM Proclamation only proscribes this goal because it

does not include other tree species in the statement that “a century of fire suppression has led to an unprecedented failure in sequoia reproduction in otherwise undisturbed groves.”

Moreover, there can be no legitimate basis that agency managers could actually influence “longevity, or growth of giant sequoias.” This language should be eliminated from the criterion. Giant sequoias can live up to 3000 years and their longevity is only influenced by their ability to remain standing. Logging (including felling ladder fuels) that opens the canopy, roads, and heavy equipment all influence longevity by providing a vector for windstorms to blow over the trees or weaken their root systems to make them more susceptible to falling. Giant sequoia growth can be accomplished through killing (girdling) other species of trees that may influence sequoia growth by depleting moisture, light, or nutritional resources.

In the Boulder Burn PEA, the Forest Service states:

- There may be trees that serve as ladder fuels that need to be felled and moved away from the base of trees to protect giant sequoias from crown fires (Monument Plan, page 45, Strategy #s 6, and 9).

PEA at Appendix C, p. C-3. While this may be a valid approach, the Forest Service has not considered whether limbing any trees that may serve as ladder fuels will avert the need to fell that particular tree. Before felling is authorized, limbing (removing lower branches) must be considered, authorized, and implemented, so the public and the decisionmaker can be able to observe the results of the ladder fuel removal project to assess the success of that treatment before felling is even considered or authorized and implemented. There is no specific information provided regarding which individual trees may need to be considered for limbing under this criteria so that SFK or Sierra Club can verify whether or not the Forest Service needs to take this drastic action or should instead just allow the fire to burn and achieve a random burn pattern that leaves behind replacement trees. Moreover, there is no specific information provided regarding which individual trees may need to be considered for felling under this criteria so that SFK or Sierra Club can verify whether or not the Forest Service needs to take this drastic action. If felling is “clearly needed,” then there should be a mechanism for the public to verify this on the ground.

Criterion F4 – Public Safety

The fourth criterion, “F4 – Public Safety” allows tree felling “if maintaining one or more standing trees on site would create a public safety hazard.” While this would appear to be a legitimate reason for felling, the criterion is incomplete and the entire Hazard Tree program for the GSNM needs to be revisited, as we discussed in our DEIS comments and as discussed further in Subsection 2.b. below.

In the Boulder Burn PEA, the Forest Service states:

- There may be some trees that are safety hazards for the firefighters that need to be felled before a fire can be ignited.

- Mortality may occur in some trees after prescribed burning operations are complete. Trees which pose a hazard to firefighters working to repair any damage to trails or roads will need to be felled.

PEA at Appendix C, p. C-3. Yet there is nothing more about which trees may currently pose a hazard. And there is no criteria provided or referenced to determine which trees after the fire would pose a hazard to firefighters or workers repairing any damage to trails or roads.

Criterion F5 – Recreation and Administrative Sites

Finally, the fifth criterion, “F5 – Recreation and Administrative Sites” allows tree felling for “recreation or administrative site development and maintenance, scenic vistas, and road access and parking for these sites.” We believe that this criterion is likely to be rarely used because any recreation or administrative sites, including any new roads or trails, can only be built “to further the purposes of the monument,” and those purposes include the protection of the objects of interest. Failure to protect the objects of interest in the monument by felling trees (which are objects of interest) for recreation or administrative sites (which are not objects of interest) would therefore violate the GSNM proclamation.

The Boulder Burn PEA, however, applies this criterion and states:

- There may be trees that need to be felled because they present a hazard to Monument objects of interest such as cultural resource sites, recreation sites, wildlife trees, and caves.

PEA at Appendix C, p. C-3. No further information is provided with regard to which specific cultural resources sites, recreation sites, wildlife trees, or caves may be affected by this criterion. The PEA needs to disclose these. Moreover, with respect to a recreation site that is not an “object of interest,” the hierarchy for determining whether a tree should be felled must also consider moving the structure or other recreation site target. Identification of these potential recreation site targets in the PEA could also be used to mitigate effects from burning by planning fire breaks around these areas, thereby avoiding the hazard tree issue altogether.

As far as cultural resources sites and hazard trees, we are encouraged by the following mitigation measure at PEA, p. 22:

- g) Trees which may impact at-risk historic properties should they fall on site features and smolder can be directionally felled away from and left in the vicinity of properties prior to ignition, or prevented from burning by wrapping in fire shelter fabric or treating with fire retardant or wetting agents.

This measure, however, should be restated giving priority to preventing the tree from burning before felling is even considered. For example, it could instead recognize the importance of the “clearly needed” criteria and provide a hierarchy for felling as follows:

g) Prior to ignition, trees which may impact at-risk historic properties should they fall on site features and smolder should be prevented from burning by wrapping in fire shelter fabric or treating with fire retardant or wetting agents. Prevention from ignition must be attempted before a tree is felled. If felling the tree is clearly needed, it should be directionally felled away from and left in the vicinity of properties.

Similar mitigation measures should be considered for protecting other objects of interest, including giant sequoias where limbing a fire ladder or preventing its ignition should first be considered before felling is considered. For example, the following mitigation measure for giant sequoias should be considered:

Prior to ignition, trees which may be considered fire ladders that may impact large giant sequoias should be limbed to an appropriate height to prevent fire from moving into the crown of the large giant sequoia or prevented from burning by wrapping in fire shelter fabric or treating with fire retardant or wetting agents. Limbing or prevention from ignition must be attempted before a tree is felled. If felling the tree is clearly needed, it should be directionally felled away from and left in the vicinity of the giant sequoia.

ii. Felling criteria and their application to the Boulder Burn project do not include adequate priorities or hierarchies for first leaving trees standing before felling them.

There is no consideration or discussion in the PEA for the Boulder Burn project that other measures, such as limbing instead of felling, and the PEA does not consider or provide a hierarchy for tree felling decisions.

While the GSNM Plan now includes a decision tree for site-specific projects (GSNM Plan, p. 81, Figure 4), there is no equivalent decision tree or hierarchy for tree felling that prioritizes retention of trees under the “clearly needed” requirement.

First, if the reason for the project is to restore fire or to reduce fuels, the Forest Service must initially determine whether it can safely reintroduce fire without felling ladder fuel trees and instead “limb” these trees up to the desired level, so that flames will not travel into the canopy.

Next, before a tree is felled for ecological restoration, whether for resiliency, regeneration, or heterogeneity, the Forest Service must also determine whether the tree is better left standing as a snag for wildlife. In our comments on the DEIS, we stressed the need for leaving trees standing as snags for wildlife and thus for ecological restoration. *See* Sierra Club DEIS Comments, pp. 110-112. There is a pervasive deficiency of large snags in the Sierra Nevada, and as previously discussed, it would be ecologically preferable to create a snag instead of felling a tree over 15 inches in diameter. As Dr. Chad Hanson explains:

The scientific literature indicates that California spotted owls should have at least 20 square feet per acre of large snag (>15 inches in diameter) basal area per acre, which equates to about 6-8 large snags per acre at least (Verner et al. 1992). The

scientific literature indicates that Pacific fishers select areas with 31 square feet of medium/large snag basal area per acre (two and a half times higher than the snag basal area at random sites), and that medium/large snag basal area is one of the two most important factors in predicting occupancy at fisher rest sites (Purcell et al. 2009).

Indeed, page 573 of Appendix I of Volume 2 of the DEIS provides data on current snag density in the giant sequoia groves alone within the GSNM (these groves comprise only a minor portion of the total area of the GSNM), and shows that the current snag basal area in the sequoia groves is only 17 square feet per acre—and that includes basal area from small snags (generally less than 10 inches in diameter) that are little used by imperiled wildlife species or their prey.

Dr. Hanson Declaration (Exhibit B), ¶ 12. The Boulder Burn proposal must consider and analyze limbing and a hierarchy of decision-making before a felling decision is made.

b. Lack of Hazard Tree Felling Criteria

The Boulder Burn PEA includes no criteria for what might be considered a hazardous tree to the public, firefighters, or other workers, leaving tree felling decisions to the arbitrary decision of individual managers, firefighters, or even restoration workers. *See* PEA Appx. C, C-3. Nor can the Forest Service point to the GSNM Plan for guidance or standards regarding hazard tree felling in compliance with the GSNM Proclamation.

Instead, the GSNM Plan provides a huge loophole, allowing the felling (and removal) of any size hazard tree to deviate from all vegetation management standards and guidelines. *See* GSNM Plan, p. 82, S&G 3. (“Incidental removal of trees that present safety hazards may deviate from vegetation management standards and guidelines.”). This is unconscionable and violates the GSNM Proclamations’ stricture under the “clearly needed” strictures because it appears to discard all the previous criteria for tree felling (and removal).

S&G 3. makes no distinction with regard to whether these trees would better serve as snags for wildlife, and does not invoke any particular procedure or criteria for whether a particular tree actually presents a hazard.

As we discussed in our GSNM DEIS comments, the Forest Service needs to craft new hazard tree procedures that take the special circumstances of the GSNM into consideration, and should not apply the general and outdated Sequoia National Forest “Hazard Tree Procedures for Forest Plan Compliance” (HTPFPC) used in the past in the Monument. *See* Exhibit C (HTPFPC); *see also* FEIS, Appx. L, p. 547 (“the established procedures for hazard tree abatement for the Sequoia National Forest and the Monument are included to comply with current management direction.”).

The Forest Service has not addressed or even responded to our concerns about the special considerations for hazard trees. *See* Sierra Club DEIS Comments, pp. 115-118. Here are some of the highlights of our comments:

The felling of hazard trees is of special concern because these are likely to be the largest trees that may be cut in the Monument. Clearly, there will always be a need to avert dangers to the public and structures (targets) from hazards, including large trees, that may harm persons, buildings, recreation sites, or administrative sites. Therefore, hazard trees should be felled if it has been determined that the target cannot be moved.

Large trees, and especially large snags, are so important to the restoration of wildlife that they deserve special scrutiny before they are felled, and every alternative should be considered, including road closure, to preserve these large trees for wildlife needs.

Other options should also be explored, if the Forest Service concludes that part of the felled hazard tree would leave unwanted small fuels from limbs or tops of trees on the ground.... [A]ny concerns about hazardous fuels can be averted by removing those limbs or tops because the large tree bole is not considered a fuel risk. In addition, the Forest Service can design a hazard tree criterion that doesn't cut the entire tree, but only tops or branches that present a potential hazard.

Id., p. 115. Thereafter, we provided specific Hazard Tree Felling Standards that were a part of our Citizens' Park Alternative that we believe include the minimum necessary to meet the "clearly needed" requirements from the GSNM Proclamation and to protect wildlife Objects of Interest. We repeat those suggested standards here:

Hazard Tree Felling Standards

Because there is no diameter limit for felling hazard trees, the agency shall scrutinize the felling of each individual tree. Many times, these trees are large snags or will become large snags, which are extremely important for wildlife, and these should be left standing.

A hazard tree shall not be felled or topped or limbed unless it has a structural defect that would likely cause it to imminently fall upon a target. A dead tree without a structural defect is not a hazard tree. A target is defined as a structure, a recreation site, or an administrative site. Roads or trails are not targets.

The first priority will be to determine whether a structure can be moved to avoid cutting a large hazard tree, and that target shall be moved to avoid cutting the hazard tree. If a structure, recreation, or administrative site cannot be moved, any hazard tree that must be felled to avert the hazard will be subject to the tree removal standards and priorities stated above. This means that there must be a determination that removal of an individual tree is "clearly needed" for ecological restoration and maintenance or public safety.

NOTE: Large or very large tree boles are very important for wildlife needs, especially Pacific fishers, and these trees will likely be moved back from the target or moved elsewhere in the Monument for their benefits. Moreover, if it is absolutely necessary to fell a “hazard tree,” the tops or branches of that tree can be removed to avert any potential fuel hazards.

Sierra Club GSNM DEIS Comments, pp. 116-117 (footnote omitted).

Some of these considerations also apply to trees that may impose hazards during burn administration or post-burn restoration and must be considered under the “clearly needed” requirement.

But none of these options are currently a part of the GSNM Plan or the HTPFPC. They are also missing from the Boulder Burn PEA.

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

A handwritten signature in blue ink, appearing to read 'René Voss', with a stylized flourish at the end.

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