

René Voss – Attorney at Law

15 Alderney Road
San Anselmo, CA 94960
Tel: 415-446-9027
renepvoss@gmail.com

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Sent to:
comments-pacificsouthwest-sequoia@fs.fed.us

Eric LaPrice – District Ranger
George Powell – Project Planner
Western Divide Ranger District
32588 Hwy 190
Springville, CA 93265

**cc: Ara Marderosian
Alison Sheehey
Kevin Elliott, Joe Fontaine
Barbara X. Johnston
Stephen Montgomery**

Subject: Comments re: Trail of 100 Giants Proposed Hazard Tree Mitigation Project in the Long Meadow Giant Sequoia Grove

Sequoia ForestKeeper and the Kern-Kaweah Chapter of the Sierra Club provide the following comments.

BACKGROUND

On October 20, 2015, we learned from a Fresno Bee article that the Forest Service had closed the Trail of 100 Giants “because dead and dying trees could fall across the trail and hurt or kill a visitor.” See <http://www.fresnobee.com/news/local/article40524456.html>. The Trail of 100 Giants is located in the Long Meadow Giant Sequoia Grove. Not long thereafter, Sequoia ForestKeeper Programs Director, Alison Sheehey, learned that the Forest Service was planning a hazard tree mitigation project and contacted Eric LaPrice, District Ranger at the Western Divide Ranger District. Alison left a message requesting more information and requested a site visit to inspect the hazard trees. On October 29, 2015, Alison received a call back from Mr. LaPrice who left a phone message confirming the project, but that he thought it unnecessary for us to inspect the trees because “we have you know resource professionals that are trained in hazard tree identification and silviculture that identified what hazard trees were according to established protocols. Plus there’s a danger in the area, that we can’t let non-forest service personnel in the area.” Voicemail from LaPrice to Sheehey.

After learning of this exchange, I contacted Eric LaPrice on November 30, 2015. During our phone conversation, Mr. LaPrice informed me about some of the aspects of the project. According to Mr. LaPrice, no scoping notice had been issued and only a press statement had been release, informing the public about the trail closure. He said they had identified about 120 hazard trees (mostly firs) that the district intends to fell to mitigate the hazard. He told me that some of the smaller trees would be chipped and left on site but stated that most of the larger trees were to be removed from the grove and be made available as firewood.

Mr. LaPrice said that the action would be categorically-excluded (CE’d) from any NEPA analysis and that his plan was to issue a decision without issuing a formal written scoping notice because he thought the rules did not require it. He claimed that this type of project only requires a decision letter to the file rather than a Decision Memo, although it was unclear from the our

conversation which CE authorization he could use to take this action. He considers the hazards to be imminent and the situation to be an emergency, even though the area is closed to the public. I also requested access to the area to inspect the hazard trees, but Mr. LaPrice said he could not allow it because he had closed the area due to safety concerns. In the message he left Ms. Sheehey, he stated that he was “looking at possibly accommodating some media requests so that from a safe location they can observe a hazard tree being felled.” During my call, I requested that the Mr. LaPrice provide us with the filled-out Region 5 Hazard Tree Evaluation forms for the identified trees, and I followed the request up by e-mail to Mr. LaPrice and George Powell at the Western Divide Ranger District. Also, Mr. LaPrice informed me that hazard trees in the adjacent Redwood Meadow Campground had been felled without public notice, without posting the project on the SOPA, and that the contractor hired by the concessionaire (CLM) was allowed to remove many of the felled trees under his personal firewood permit.

By November 5, 2015, I had not yet received the Hazard Tree Evaluation forms, and I sent a follow-up message by e-mail. In that message, I also requested that Mr. LaPrice provide me and Sequoia ForestKeeper with any information or data about the quantity of large down woody material in the Trail of 100 Giants area to meet the Monument Plan standard of 10-20 tons/acre. On November 6, 2015, Chris Sanders with the Western Divide RD e-mailed scanned copies of the R5 Hazard Tree Evaluation forms to us, which identified 117 (actually 116) trees for removal. In his second e-mail response to me Chris Sanders told me that he knew of no information or data about the quantity of large down wood material in the Trail of 100 Giants area. Later that same day, Eric LaPrice e-mailed us a press release describing the proposed action; however, there is still no scoping letter associated with this project.

It is our contention that because the area is currently closed to the public, there is no emergency and a normal public scoping process should commence. Furthermore, there is no rush to implement a project now because weather conditions are already to the point where public road access to the area is already limited and is likely to be completely unavailable due to imminent snow accumulation. We believe it would be best to thoroughly engage the public in the planning process, given the distrust and history of felling and removal of hazard trees in the Trail of 100 Giants in the past. Recent national media coverage regarding the fall of two large giant sequoias across a segment of the trail counsels that there is great public interest in making sure the resources in the grove receive adequate attention, thereby suggesting greater public involvement. Moreover, delaying the proposed project until after the winter season, and allowing storms to help mitigate some of the hazard trees, naturally, may be a more efficient way to deal with these hazards. As is customary, before campgrounds and major administrative sites, like the Trail of 100 Giants, are reopened in the spring, the Forest Service can assess the sites and take appropriate action to clean them up and mitigate any remaining hazards. Unfortunately, this did not happen with the recent Redwood Meadow Campground action, but we expect full public involvement with regard to mitigating hazards in the Trail of 100 Giants.

From an ecological standpoint, we are concerned that the area is already deficient of snags and large down woody material required by wildlife, including resident California spotted owls, Northern goshawks, and Pacific fishers that reside in or actively use the Long Meadow Grove area. Moreover, retaining sufficient snags and large down woody material is a Monument Plan standard that must be met for soils and wildlife habitat before any trees are planned for removal.

COMMENTS

1. We urge the Forest Service to first publish the Trail of 100 Giants Project on the SOPA and then issue a formal written scoping notice seeking public comments.

Just like the adjacent Redwoods Meadow Campground hazard mitigation action, the Forest Service has not published the Trail of 100 Giants hazard tree project on the Schedule of Proposed Actions (SOPA), as required by Forest Service NEPA regulations, even if it could potentially be categorically-excluded from a detailed environmental analysis. *See* 36 C.F.R. § 220.4(d) & (e). Because there may be extraordinary circumstances, “Scoping is required for all Forest Service proposed actions, including those that would appear to be categorically excluded from further analysis and documentation in an EA or an EIS.” 36 C.F.R. § 220.4(e)(1). Furthermore, “The SOPA shall not be used as the sole scoping mechanism for a proposed action.” *Id.* at § 220.4(e)(3).

2. The Trail of 100 Giants hazard mitigation action does not fit within one of the categories established under 36 C.F.R. § 220.6(d) or (e), and therefore the Forest Service should prepare an Environmental Assessment (EA).

The NEPA regulations at 36 C.F.R. § 220.6(a) state that a project may be categorically excluded from further analysis only if it falls into one of the categories listed in 36 C.F.R. § 220.6(d) or (e).

Here, presumably, because the trail is a recreation site, the Forest Service would likely consider CE #5 “Repair and maintenance of recreation sites and facilities” under § 220.6(d) for which a project or case file and decision memo are not required. However, the examples provided in that CE do not come close to matching the felling and removal of 116 trees, some very large, from the trail area. The examples given in that CE are much more limited and benign, including:

- (i) Applying registered herbicides to control poison ivy on infested sites in a campground;
- (ii) Applying registered insecticides by compressed air sprayer to control insects at a recreation site complex;
- (iii) Repaving a parking lot; and
- (iv) Applying registered pesticides for rodent or vegetation control.

And while the project is more akin to a small salvage CE #13 or timber stand or habitat improvement that involves tree felling under CE #6 of § 220.6(e), neither of these are a good match either. Therefore, under the NEPA regulations, the Forest service should prepare an EA.

3. There are extraordinary circumstances that preclude the use of a categorical exclusion.

The NEPA regulations at 36 C.F.R. § 220.6(a) also preclude use of a CE if there are extraordinary circumstances related to the proposed action. The Forest Service must consider certain resource conditions, including “Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species....” 36 C.F.R. § 220.6(b)(1)(i) (emphasis added).

“If the responsible official determines, based on scoping, that it is uncertain whether the proposed action may have a significant effect on the environment, prepare an EA.” 36 C.F.R. § 220.6(c) (emphasis added).

The Trail of 100 Giants is habitat for the northern goshawk, the California spotted owl (both sensitive species), and the Pacific fisher, which has been proposed for Federal listing as a threatened or endangered species under the ESA.

The Biological Assessment for the Long Meadow Restoration Project, dated 6 March 2013, states: “One northern goshawk PAC occurs south of the Long Meadow Restoration project site within Long Meadow Grove at the Trail of 100 Giants. This pair has been consistently recorded there since its discovery in 1990 ... The goshawk pair at the Trail of 100 Giants is monitored frequently, with five separate nest locations identified within the PAC. The most recent nest site was documented in 2011, approximately 200 yards north east of the Trail of 100 Giants.” See attached as Exhibit A.

Also, a California spotted owl PAC is located within Long Meadow Grove at Trail of 100 Giants. Forest or vegetation management and recreational activities have a potential to disrupt spotted owl nesting efforts and reproductive success when located close to the nest tree. Review of field data show consistent documentation of “pair occupancy” at this site over the last decade and a half. The latest survey in which reproduction was confirmed was conducted in 2009 with a nest and young located just uphill from the Trail of 100 Giants. Young fledged from the nest by early June. An additional “historic visit” survey was conducted in 2011 for wildlife crew training purposes. “Pair occupancy” was again detected in the same vicinity as in 2009.

Finally, the Long Meadow Grove and Trail of 100 Giants are within habitat for the Pacific fisher. Snags and downed logs are some of the most important habitat elements for Pacific fishers. Zielinski et al. (2006 [Table 2]) found that fishers selected sites with 15.4 large snags (over 38.1 cm in diameter, or over 15 inches in diameter) on average per 0.5 hectares, or about 12.5 large snags per acre, within Sierra and Sequoia National Forests, including within the Giant Sequoia National Monument. Using the U.S. Forest Service’s own Forest Inventory and Analysis (FIA) fixed plots to determine the average snag density across the forested landscape within the fisher’s range in Sequoia and Sierra National Forests, Zielinski et al. (2006) found that there were only about 8.7 large snags per acre on average—well below the level selected by fishers.

The proposed removal of most of the large snags and felled logs from the Trail of 100 Giants area would eliminate the very habitat elements that fishers need over the long term. Any analysis must first determine whether an area meets the levels selected by fishers, or whether those levels may currently be lower than optimal. Given the importance of medium/large snag basal area to fishers, this must be carefully analyzed.

With regard to large down logs, Zielinski et al. (2006) found that fishers selected sites with 65 large downed logs (over 25.4 cm in diameter) per hectare, or about 26 logs over 10 inches in diameter per acre. Using the U.S. Forest Service’s own Forest Inventory and Analysis (FIA) fixed plots to determine the average large downed log density across the forested landscape

within the fisher's range in Sequoia and Sierra National Forests, Zielinski et al. (2006) found that there were only about 19 large downed logs per acre on average within the fisher's range—well below the level selected by fishers. Zielinski et al. (2006) also found that fishers selected sites with 169 cubic meters of large down logs per hectare (2,427 cubic feet per acre), relative to only 118 cubic meters per hectare at FIA plots in general (1,690 cubic feet per acre).

These same fisher habitat elements are also important for the California spotted owls and Northern goshawks, which benefit from and prefer a closed canopy and an abundance of large snags and downed logs.

Because the proposed felling and removal of hazard trees is in an area with known occupation of goshawks and owls, and an area that provides habitat for the Pacific fisher, removal of these important habitat elements is an extraordinary circumstance that precludes the use of a CE.

4. The Forest Service must meet the Giant Sequoia National Monument (GSNM) standards for snags.

The GSNM Plan includes standards that require the Forest Service to protect or maintain important habitat elements, including snags, when considering any type of vegetation management project:

“Prior to vegetation treatments, identify important wildlife structures, such as large diameter snags and coarse woody material within the treatment unit.” GSNM Plan, p. 91.

“Maintain structural features important to late forest species including: multiple layers of vegetation, snags, down woody debris and dense canopy cover.” GSNM Plan, p. 52.

“Manage snag levels for ecological restoration. Within green forests, design projects to provide a sustainable population of medium- and large-diameter snags. Existing medium- and large-diameter snags, as well as medium- and large-diameter living trees that exhibit form and/or decay characteristics regarded as important wildlife habitat (e.g., have substantial wood defect, teakettle branches, broken tops, large cavities in the bole, etc.), will form the backbone snag network over large landscapes.” GSNM Plan, p. 87.

Before felling any of the large snags in the Trail of 100 Giants, the Forest Service must analyze the impact of these actions, according these GSNM Plan standards.

“Worrying about hazards has resulted in the unnecessary removal of many trees. Although the problem of hazard trees needs to be addressed by every landowner and land manager, removal should be an act of last resort. Instead, some technical knowledge and a lot of common sense are the keys to preventing injuries, property damage and lawsuits due to unsafe trees.”

http://www.na.fs.fed.us/spfo/pubs/uf/sotuf/chapter_3/appendix_b/appendixb.htm.

“By some estimates the removal of dead material from forests can mean a loss of habitat for up to one-fifth of the animals in the ecosystem. . . . Don't remove any more of a dying

or damaged tree than is required for safety reasons. Even a high stump can support a lot of wildlife action, compared to a clean cut made at ground level, or worse, a ground-out stump.”

<http://awaytogarden.com/snags-wildlife-trees-cultivate-dont-cart-away-dead-dying-hazard-trees/>; *see also* <http://wdfw.wa.gov/living/snags/snags.pdf>

5. The Forest Service must meet the Giant Sequoia National Monument standard for large down logs, which we believe are lacking in the hazard tree area.

The GSNM Plan also includes specific requirements for large down or course woody material. In fact, the plan requires the Forest Service to maintain a minimum of 10-20 tons/acre of large down logs after any vegetation management project, which specifically includes hazard tree projects in administrative sites. The Plan standards require the Forest Service to first determine the existing levels of large down logs (course woody material) in the Trail of 100 Giants hazard mitigation area:

“Prior to vegetation treatments, identify important wildlife structures, such as large diameter snags and coarse woody material within the treatment unit.” GSNM Plan, p. 91.

When asked to provide information or data about down log levels, Chris Sanders of the Western Divide RD stated: “Regarding the down woody material component, I have no data or information at this time.” November 6, 2015 email to René Voss.

Only after the Forest Service gathers the data or information about down woody material can it determine whether or not it will meet the GSNM Plan standards, which state:

“Fall and remove hazard trees ... within or immediately adjacent (tree falling distance) to administrative sites. ... Retain felled trees, where needed, to meet down woody material standards.” GSNM Plan, p. 82.

“Retain felled trees on the ground, where needed, to achieve down woody material standards of 10 to 20 tons per acre in logs greater than 12 inches diameter at midpoint.” GSNM Plan, p. 85 & 87.

Please provide us with the current levels of down woody materials that contribute to meeting this standard, and also provide us with calculations that show how the Forest Service will achieve this standard, considering the hazard trees it plans to fell. Until this analysis is completed, no trees should be considered for removal from the Trail of 100 Giants area.

6. Failure Impact (Target) is overstated on the Hazard Tree Evaluation forms

Most hazard trees on the Hazard Tree Evaluation forms have been assigned the full 3 points for a failure impact. Trees along a paved trail such as the Trail of 100 Giants, however, should only receive 2 points, according to the R5 Hazard Tree Guidelines:

2 points = Medium failure impact: moderate damage is expected if failure occurs.

Probability of impacting a target (exposure time) is moderate (e.g., daytime or intermittent exposure only); defective tree or tree parts is sufficient size to cause moderate damage; target is of moderate value. Examples include moderately used paved trails, picnic and other day use areas, interpretive sites such as amphitheaters and kiosks. Moderate to high-use road networks within campgrounds, roadside attractions, such as vista points or historic stops, information stations, visitor centers, fee collection portals, high use daytime parking areas, designated trailhead parking areas, plazas, staging areas and commercial sites, roads and intersections with moderate to high traffic volume, haul routes during periods of commercial use, and active projects along roads where work is stationary (such as culvert replacement and bridge construction).

Hazard Tree Guidelines For Forest Service Facilities and Roads in the Pacific Southwest Region, p. 19 (attached as Exhibit B). On the other hand, the guidelines only allocate the full 3 points if “extensive damage is expected if failure occurs... Examples include campsites, lodges, hotels, dormitories, residences and 24-hour visitor service and restroom facilities.” *Id.*

The Trail of 100 Giants is a paved moderate-use trail, which fits under the 2-point category. Therefore the area does not qualify under the 3-point category. The failure impact numbers should be adjusted downward accordingly, which may lead to a different result for some of the trees. For example, for trees #24, 38, and 63, the total hazard rating would be lowered to 5, in which case the R5 guidelines only call for monitoring or mitigating rather than tree removal.

7. Alternatives to the proposed action, short of tree felling and/or removal, must be considered with regard to the target as a whole and on a tree-by-tree basis.

The R5 Hazard Tree Guidelines suggest that various alternatives to tree removal should be considered. But the current proposal prescribes that all of the identified hazard trees should be removed, regardless of other suggested alternatives. Because there are other ways to mitigate these hazards, as suggested by the R5 guidelines, such as topping, moving the targets, or even permanently closing the site, these suggested alternatives to tree removal must be formally considered. Moreover, because these are high-value trees for wildlife in a giant sequoia grove, mitigation should be considered on a tree-by-tree basis rather than the “one-size-fits all” approach of tree removal. After a hazard rating score has been calculated, the R5 guidelines contemplate alternatives to tree removal:

4. Determine a corrective action. Corrective actions may address either the defective tree or the target. Depending on the circumstances, these may include moving the target or removing the tree.

R5 Hazard Tree Guidelines, p. 7. Also,

Five types of action are generally available to reduce tree hazard potential:

- Target removal
- Tree removal
- Topping
- Pruning

- Specialized Actions

Target Removal

In certain situations removal of the target from the area of hazard is the easiest and least costly alternative. Moving picnic tables, fire grates, and portable toilets can easily be done. Redirecting the use pattern with barriers and access relocation may also be done. However, the number and distribution of tree hazards in some public use areas may require permanent closure and relocation of the facilities.

R5 Hazard Tree Guidelines, p. 21.

Based on these guidelines, the Forest Service should consider alternatives for the Trail of 100 Giants, including:

- a. Top trees so the remaining snags won't reach the trail if they fall
- b. Fell the trees away from the trail, leave the tree boles as down woody material, and only chip the limbs and tops
- c. Relocate the trail (target) away from most hazards and mitigate the rest
- d. Close the trail, permanently

All of these options must be considered either on a tree-by-tree basis or with respect to the area as a whole. The area is currently closed to the public, and therefore a permanent closure is also an option that must be seriously explored. This is a viable alternative, and because it must be explored, it is likely to be controversial, which is another reason why this project should be analyzed by environmental assessment and not with a CE. Moreover, there is currently no CE for the closure of paved trails.

8. Tree #10 should receive “no action” as the “Recommended Action”

The arbitrary assignment of “tree removal” is illustrated by tree # 10 on the Hazard Tree Evaluation forms. There, the inspectors assigned a value of “3” as the total Hazard Rating but still recommended tree removal. The R5 Hazard Tree Guidelines, however, suggest “no action or monitor” if trees receive a total Hazard Rating of 1-3. *See* R5 Hazard Tree Guidelines, p. 20. At the very most, since the form indicates a live tree with only a 20% dead top with needles, the tree should be topped rather than removed.

9. The Forest Service’s history of hazard tree logging in the Trail of 100 Giants highlights our concerns that these trees may be removed from the Monument in the future

Past and even recent actions by Sequoia National Forest managers and the Western Divide Ranger District show that the Forest Service should move forward carefully with full public involvement and a thorough environmental analysis rather than a course that short-cuts this process.

The current process is uncannily similar to one for a project in the Trail of 100 Giants in 2004.

The 2004 project also involved hazard trees in the Trail of 100 Giants. Then, the district decided to fell and remove hazard trees along the trail to a log deck, and told the public that those trees would not be sold or removed from the Monument. See Exhibit C hereto. The trail was posted and closed for many months during implementation of the project. During implementation, the Forest Service placed 67 of the felled hazard trees in the log deck. It later declared that “[t]he resulting log deck constitutes an attractive nuisance, thereby creating a safety hazard for the public” and authorized their removal without notice to me or the public. See Exhibit D, hereto. Subsequently, the Forest Service sold the felled trees from the log deck as a separate project – the Parker Deck Hazard Salvage Sale. See Exhibit E, hereto. Ara Marderosian of Sequoia ForestKeeper explained the circumstances as follows:

On April of 2004, the Forest Service met in the parking lot of the Trail of 100 Giants and stated their intention to fell “hazard” trees along the Trail of 100 Giants. I later learned that this project would be done by Categorical Exclusion, and there would be no Environmental Assessment. I was told, verbally, that the project would fell all of the designated “hazard” trees, predominantly dead trees (88 were designated and 11 were previously cut to open the southern end of the trail). Hand crews were to limb and buck up the large pieces and chip and scatter the chips around the base of the large sequoias. Some of the larger trees were to be transported by helicopter out of the grove to a landing to be distributed elsewhere in the GSNM, but they were not to be sold in a timber sale.

There was nothing distributed to the public in writing regarding this hazard tree project: no formal written public notice; no written announcement; and no invitation to submit written comments. Also, there was no Environmental Assessment or Environmental Impact Statement, no decision memo, and no administrative appeal period. I did not know that the trees were being cut until I visited the Trail of 100 Giants in 2005 and saw the trees on the ground.

After the trees were felled in the Trail of 100 Giants, we discovered that the Forest Service had removed 67 live, green trees that they declared to be hazards, and piled the live and dead trees in a log deck at a landing area. This felling also occurred within an occupied California spotted owl nest site, and included removal of many large live trees and snags, which are important habitat components for the owl.

After the project was completed we requested and received a document titled “Project File for Monument Proclamation Hazard Tree Felling,” stating that “hazard” trees would be felled on the Trail of 100 Giants, and that it would be categorically excluded from environmental analysis and documentation under the rubric of routine road/trail maintenance.

Later, we also received a letter, dated November 8, 2004, signed by Acting District Ranger Nancy C. Ruthenbeck, which was titled “100 Giants Hazard Tree Felling Project – Log Deck Treatment.” The letter stated: “The file stated that the felled trees which were removed from the trail area by helicopter would be taken to a landing and piled. The resulting log deck constitutes an attractive nuisance, thereby creating a safety hazard for the public. The log deck needs to be removed. The treatments in the project area are consistent with the Giant Sequoia National Monument management plan.” No memo in the Forest Service

file indicated that the cut trees were to be sold as a “means of removal.” Yet, on November 17, 2004, the log deck was offered as a commercial timber sale. On July 26, 2005, these trees were sold to the timber industry: Jess Witten and Sierra Forest Products.

Declaration of Ara Marderosian in *SFK v. Tidwell*, 1:11-cv-00679-LJO –DLB, pp. 3-5 (E.D. Cal. Nov. 8, 2011) (paragraph numbers 10-14 suppressed; attached as Exhibit F).

What is just as troubling is that something similar happened again as recently as the last two months. According to Eric LaPrice on November 6, 2015, the Western Divide RD proposed a hazard tree project in the Redwood Meadow Campground, directly across the road from the Trail of 100 Giants. In fact, the hazard tree project has already been fully implemented by the concessionaire, CLM, using a contractor. But there was no public notice provided. Moreover, nothing was included on the Schedule of Proposed Actions (SOPA), even though Mr. LaPrice stated that this was an oversight by one of his staff. It is still unclear how many trees were felled and how many were removed from the Monument. What is perhaps most troubling here is that the contractor who felled and removed some of the trees from the campground was allowed to remove these trees from the Monument under his personal firewood permit.

According to Mr. LaPrice, there is a decision letter to file, R5 Hazard Evaluation Forms, and a clear need analysis. We have requested those documents, but as of the date of this comment letter, we have not yet received those documents.

These patterns show a disregard for public involvement in tree felling and removal projects in the Monument, which should be corrected. As we have previously requested, Sequoia ForestKeeper and Sierra Club would like to be notified of any and all tree felling and/or removal proposal in the Monument.

10. Other Issues

Concerns about chipping

According to the press release, some of the trees will be “chipped and spread on the ground as cover to protect the shallow root systems of the giant sequoias. Some will be cut up, moved to an area, and made available as firewood; and some will be piled and burned.”

In addition to previously stated concerns, we know that scattering chips prevents sequoia seeds from reaching the ground. Sequoia seeds need bare mineral soils to germinate. Moreover, fire effects under certain conditions following chipping and scattering, similar to mastication, can fry the roots of trees or cause significant adverse fire effects to the remaining trees.

In 2008, the Forest Service published a paper about the effects of the American River Complex fire on forest stands in the Tahoe National Forest resulting from various treatments. One of the main findings of this study was that mastication without the subsequent treatment of fine fuels could have severe effects that may result in 100% mortality of the remaining trees in a subsequent fire. It explained:

Mastication does not remove fuels from the site, but redistributes them (Figure 19). By design, mastication reduces the ladder fuel effect but increases surface fuels. Until the masticated fuels decompose, they are also much drier and more easily ignited than live fuels. The American River Complex burned early in the fire season, and primarily under moderate weather conditions, when fuel moistures were still relatively high. As a result, live shrubs and hardwoods were resistant to burning, and even masticated units may have provided some resistance to fire (although this was probably at least partly due to the shrubby live fuels on site). However, under the more severe fire weather conditions encountered on July 9, masticated fuels proved no barrier to fire spread and tree mortality in the masticated stands was 100%. The fact that these masticated units performed so poorly under early season conditions suggests that caution should be used in their implementation, especially in areas of long summer drought like the Sierra Nevada. It is recommended that readers consult Stephens and Moghaddas (2005, *For. Ecol & Mgt.*, vol. 215:21-36) and Knapp et al. (2008, Final Report, Joint Fire Science Program Project 05-2-1-20) for results of scientific trials and fire modeling which call into question the advisability of using masticated treatments alone (i.e., without further treatment) in Sierra Nevada mixed conifer forest. In the Stephens and Moghaddas (2005) study, a comparison of different treatment techniques showed that masticated treatments supported the highest rates of spread, fireline intensities, flame lengths, and levels of tree mortality (even higher than or equal to the untreated control) under 80th and 90th percentile weather conditions. In the Knapp et al. (2008) study, modeled wildfire in 10 different masticated units in northern California resulted in >95% tree mortality under only 80th percentile weather conditions.

Safford et al. (2008) at 20.

Therefore we suggest that trees should not be chipped and scattered, especially below giant sequoia trees. Instead, any felled trees should be left on site as down woody material.

Loss of Forest Soil Carbon

Removing the many trees from the area, as proposed, will cause a loss of carbon stocks:

Our observations on the dynamics of carbon stocks in forest soils following conventional harvests can be explained by several processes. In forests, leaf and wood litterfall is, at best, quantitatively low during the first few years following the removal of standing trees. This reduced flux of organic carbon from aboveground tree biomass to the forest floor has a negative effect on the forest floor stocks. Subsequently, as trees grow, litterfall production increases and enables the recovery of carbon stocks in the forest floor. Besides the changes in litterfall production, an increase in organic matter decomposition is also expected to occur and to negatively impact SOC [soil organic carbon] storage. Decomposition rates generally increase in the superficial part of soils immediately

after harvests due to soil disturbance and changes in microclimatic conditions (increased solar radiation and, thereby, soil temperature) until canopy closure.

Achat et al. (2015) – Forest soil carbon is threatened by intensive biomass harvesting
David L. Achat, Mathieu Fortin, Guy Landmann, Bruno Ringeval & Laurent Augusto (Available at <http://www.nature.com/articles/srep15991>).

For those reasons, any felled trees should be retained on site to maintain forest soil carbon stocks.

11. Request for a Site Visit with Forest Service Personnel.

In the past, we have found errors in the evaluations of tree hazards, which can be easily overcome by site visits with Forest Service personnel. We should be allowed to see the 116 trees to determine if our judgment agrees with the Forest Service about these trees. We understand the risks involved in entering the Trail of 100 Giants area, which we believe to be the same as any other area currently in the Sequoia National Forest due to the drought and associated mortality. We would like special permission to enter the area and are willing to do so with Forest Service personnel and hard hats. Please contact me to arrange a date and time to schedule such a visit.

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



René Voss – Attorney at Law
renepvoss@gmail.com