



P.O. Box 697  
Cedar Ridge, CA 95924  
Tel: 530-273-9290  
Fax: 530-273-9260

---

May 27, 2013

Marianne Emmendorfer, Acting District Ranger  
Hume Lake Ranger District  
Sequoia National Forest  
Giant Sequoia National Monument

Dear Ms. Emmendorfer,

At the request of René Voss and the Sequoia ForestKeeper, I have reviewed the Preliminary Environmental Assessment (PEA) for the proposed “Hume Hazard Tree Project” on particular issues pertaining, in particular, to the ecology of downed logs. I am a forest ecologist with a Ph.D. in Ecology from the University of California at Davis. My review is below, followed by a scientific references section, and my CV.

The Proposed Action, Alternative B, would fell, and remove, hazard trees along 49 miles of roadway in the Giant Sequoia National Monument. The PEA (p. 6) states that the purpose of this is to ensure public safety by preventing hazard trees, or limbs from hazard trees, from falling on roads or campsites. However, I can find in the PEA no ecological rationale as to why the removal of these trees, once felled, is “clearly needed for ecological restoration”—the standard under the Giant Sequoia National Monument Proclamation and Management Plan. Once hazard trees are felled they, of course, no longer present a hazard of falling. Thus, removal of such trees, after they have been felled, cannot be justified for public safety. While the PEA does consider an alternative (Alternative C) that would leave felled hazard trees on the ground for wildlife habitat and soil replenishment, the Proposed Action is Alternative B. Therefore, I focus my comments on the Proposed Action.

The PEA (pp. 29-30) states that there are currently 7.68 tons per acre of large downed logs in the project area, which is less than the 10-20 tons per acre required by the standards from the 2001 Sierra Nevada Forest Plan Amendment (incorporated into the Giant Sequoia National Monument Management Plan) in order to adequately provide habitat for the many wildlife species that depend upon large downed logs, including small mammals, amphibians and reptiles. Leaving felled hazard trees on the ground for wildlife habitat would bring the currently deficient levels of large downed logs much closer to the minimums prescribed in order to maintain healthy wildlife habitat, and would likely bring the levels to 10 tons per acre or above in some locations.

A particular concern of mine with regard to the Forest Service’s proposal to remove larger, felled hazard trees is the adverse impacts on the prey base of the Pacific fisher, an extremely rare and imperiled mink-like forest mammal strongly associated with mature/old-growth forests and the habitat structures inherent in such forests, including downed logs. The fisher is a Forest Service Sensitive Species, and is a Candidate Species for listing under the federal Endangered Species Act. The Final Environmental Impact Statement for the 2001 Sierra Nevada Forest Plan Amendment (Vol. 3, Chpt. 3, part 4.4, pp. 2-3) states that the habitat needed by the Pacific fisher

consists of mature and old-growth forest with high canopy cover, large trees and snags, and an abundance of large downed logs (fallen trees). One of the key reasons why adequate levels of large downed logs are important for fishers is that such logs provide habitat for fisher's small mammal prey base (Lofroth et al. 2010). In the southern Sierra Nevada, fishers prey predominantly on small mammals (Zielinski et al. 1999), and these small mammals live in the natural cavities and crevices in large downed logs (Smith 2000). Purcell et al. (2009) found that fishers were positively associated with significantly higher levels of large downed logs, consistent with other research (Lofroth et al. 2010). Thus, the felled hazard trees in the Hume project area would substantially enhance fisher habitat by creating structures in which an abundance of small mammals would live, and would radiate outward into the forest to find food, thus making themselves available as prey to Pacific fishers. Conversely, removal of such felled trees would adversely affect fisher populations by diminishing habitat for their prey, and thus reducing their food availability—particularly in an area that is currently somewhat low with regard to downed logs.

In the course of attempting to justify removal of felled hazard trees, the PEA, Appendix A (p. A-2) makes several erroneous and irrational statements that are directly contradicted by the scientific evidence, as well as by the PEA itself. First, the PEA (p. A-2) claims that large downed logs could present a fire hazard if left on the ground. This is contradicted not only by the 2001 Sierra Nevada Forest Plan Amendment, which recommends higher levels of downed logs than currently exist in the project area, but also by the Forest Service's own fire science, which clearly indicates that large downed logs represent no significant contribution to fire intensity due to the very low ratio of surface area to log volume (Brown et al. 2003). This is a very simple principle—one that everyone who has ever built a campfire understands: it is the small material, or kindling, that drives fires. Logs over about 10 inches in diameter do not significantly influence fire behavior or intensity (Brown et al. 2003). Indeed, the PEA itself (p. 9) admits the following: "In the event of a wildfire, fire behavior characteristics would be the same across all alternatives", including Alternative C, which would leave felled trees on the ground. Second, the PEA (p. A-2) claims that felled trees would be vectors for annosus root disease. However, the PEA (p. 16) clearly states that stumps would be treated with a borax-based fungicide, which eliminates this problem. There is simply no reason whatsoever that the butt of the log could not also be treated with the fungicide. Third, the PEA (p. A-2) claims that downed logs could be used by bark beetles. However, the PEA fails to mention that these beetles are native species in the Giant Sequoia National Monument, and are essential prey of many woodpecker species native to the Monument. Moreover, bark beetles are associated with standing dead trees, not downed logs. Fourth, the PEA (p. A-2) claims that removing the logs would "prevent...hiding cover for wildlife". I am not aware of any legitimate ecological goal which seeks to reduce wildlife habitat. Moreover, nothing in the way of evidence is offered in the PEA to support this bizarre statement, and the statement would be equally true applied to standing, non-hazard old-growth trees near roads, or to existing downed logs, yet the agency is not proposing to remove these trees, which also provide cover for wildlife. Finally, the PEA (p. A-2) claims that removing the large logs by selling them as commercial timber would offset the costs of the project, and would be good for the Forest Service's budget. This, however, is not an authorized purpose/rationale for removal of trees in the Monument (for trees that are no longer hazards—i.e., felled trees—removal is only allowed if clearly needed for ecological restoration).

Sincerely,

Chad Hanson, Ph.D., Staff Ecologist and Director  
John Muir Project  
P.O. Box 697  
Cedar Ridge, CA 95924  
530-273-9290

## References

Brown, J.K., E.D. Reinhardt, and K.A. Kramer. 2003. Coarse woody debris: managing benefits and fire hazard in the recovering forest. U.S. Forest Service General Technical Report RMRS-GTR-105.

Lofroth, E.C., C.M. Raley, J.M. Higley, R.L. Truex, J.S. Yaeger, J.C. Lewis, P.J. Happe, L.L. Finley, R.H. Naney, L.J. Hale, A.L. Krause, S.A. Livingston, A.M. Myers, and R.N. Brown. 2010. Conservation of fishers (*Martes pennanti*) in south-central British Columbia, western Washington, western Oregon, and California—Volume I: Conservation Assessment. USDI Bureau of Land Management, Denver, Colorado, USA.

Purcell, K.L., A.K. Mazzoni, S.R. Mori, and B.B. Boroski. 2009. Resting structures and resting habitat of fishers in the southern Sierra Nevada, California. *Forest Ecology and Management* 258: 2696-2706.

Smith, J.K., ed. 2000. Wildland fire in ecosystems: effects on fire on fauna. U.S. Forest Service General Technical Report RMRS-GTR-42. Volume 1. U.S. Forest Service, Rocky Mountain Research Station, Missoula, MT, USA, 83 p.

USDA. 2001. Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement. U.S. Forest Service, Pacific Southwest Region, Vallejo, CA.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990. California's wildlife, Vol. III, Mammals. California Department of Fish and Game, Sacramento, CA.

Zielinski, W.J., N.P. Duncan, E.C. Farmer, R.L. Truex, A.P. Clevenger, and R.H. Barrett. 1999. Diet of fishers (*Martes pennanti*) at the southernmost extent of their range. *Journal of Mammalogy* 80: 961-971.

Curriculum Vitae of Chad T. Hanson, Ph.D.  
P.O. Box 697, Cedar Ridge, CA 95924 (530) 273-9290

EDUCATION

University of California at Davis, Ph.D., Ecology, June 2007, focusing research on forest and fire ecology.

University of California at Los Angeles, Bachelor of Science, 1990

RESEARCH PUBLICATIONS

Hanson, C.T., D.C. Odion, D.A. DellaSala, and W.L. Baker. 2010. More-comprehensive recovery actions for Northern Spotted Owls in dry forests: Reply to Spies et al. *Conservation Biology* **24**: 334-337.

Hanson, C.T., and M.P. North. 2009. Post-fire survival and flushing in three Sierra Nevada conifers with high initial crown scorch. *International Journal of Wildland Fire* **18**: 857-864.

Bond, M.L., D.E. Lee, C.M. Bradley, and C.T. Hanson. 2009. Influence of pre-fire mortality from insects and drought on burn severity in conifer forests of the San Bernardino Mountains, California. *The Open Forest Science Journal* **2**: 41-47.

Hanson, C.T., D.C. Odion, D.A. DellaSala, and W.L. Baker. 2009. Overestimation of fire risk in the Northern Spotted Owl Recovery Plan. *Conservation Biology* **23**: 1314-1319.

Hanson, C.T., and M.P. North. 2008. Postfire woodpecker foraging in salvage-logged and unlogged forests of the Sierra Nevada. *The Condor* **110**: 777-782.

Odion, D.C., and C.T. Hanson. 2008. Fire severity in the Sierra Nevada revisited: conclusions robust to further analysis. *Ecosystems* **11**: 12-15.

Hanson, C.T. 2007. Post-fire management of snag forest habitat in the Sierra Nevada. Ph.D. dissertation, University of California at Davis. Davis, CA.

Hanson, C.T., and M.P. North. 2006. Post-fire epicormic branching in Sierra Nevada *Abies concolor* (white fir). *International Journal of Wildland Fire* **15**: 31-35.

Odion, D.C., and C.T. Hanson. 2006. Fire severity in conifer forests of the Sierra Nevada, California. *Ecosystems* **9**: 1177-1189.

Hanson, C.T., Odion, D.C. 2006. Fire Severity in mechanically thinned versus unthinned forests of the Sierra Nevada, California. In: *Proceedings of the 3<sup>rd</sup> International Fire Ecology and Management Congress*, November 13-17, 2006, San Diego, CA.