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Subject: Dollar Bend Hazard Trees (FPM Report N00-5)

To: Forest Supervisor, Six Rivers National Forest

On May 31, 2000, Pete Angwin and Dave Schultz from Forest Pest Management accompanied Monte Satern, Mark Smith and Kitty Robliski to evaluate the hazard tree situation along the Dollar Bend area of Highway 199 in the Smith River NRA. Dollar Bend is the popular name for a flat bench that lies adjacent to the Middle Fork of the Smith River, between mileposts 24.08 and 24.85 of California State Highway 199. Management of timber in this zone allows for tree removal only when necessary for the protection of human health and safety and to improve wildlife habitat. The forest stand in the area consists mainly of Douglas-fir, with occasional Port-Orford-cedar. An understory hardwood component of dogwood, tanoak and big leaf maple is also present. Overstory stand age is approximately 200-300-years. The Douglas-fir in this area is exceptionally tall, reaching up to 250 feet. Many lean toward the highway and, in the event of tree failure, are tall enough to reach the road.

Failure of the trees in the Dollar Bend area has been an ongoing concern. Because of past tree mortality, and the current age, height and lean of the remaining trees, a threat to human health and safety exists. To date, management of the hazard has consisted of periodic continued salvage of dead and dying trees and the removal of clearly hazardous trees. While such an approach may help in the short-term, treatment aimed at the long-term health of the stand is warranted.

In general, the stand is overstocked and declining. Flattened tops and reduced tree rings on tree cores taken with an increment borer indicate that overall tree growth is slowing. This decline has been occurring for some time now. Two major disease situations were noted. Red ring rot (*Phellinus pini*) is widespread in the Douglas-fir, as indicated by the presence of fruiting bodies (conks) on the boles of the trees. Presence of the conks indicates decay within, which can lead to breakage of affected trees. Decay is typically present 8-16-feet above and below an individual conk, while multiple conks on a single tree indicates more extensive decay. Conks and associated stem breakage have been noted previously by Monte Satern. An additional disease problem was noted while inspecting the stumps of cut Douglas-firs and the roots and butt of downed Douglas-firs. Almost all of these stumps and trees had extensive brown cubical rot, which was associated with fire scars. These symptoms indicate the presence of Schweinitzii butt rot, caused by the fungus *Phaeolus schweinitzii*. Although fruiting bodies of the fungus were not found (they are produced annually from the roots or butt of infected trees), the association of brown cubical decay with fire scars in Douglas-fir leaves little doubt as to the identity of the fungus. *P. schweinitzii* decay is usually limited to the roots and butt of the host. Although *P. schweinitzii* is not normally regarded as a particularly aggressive decay fungus, the Douglas-firs in the Dollar Bend area are stressed enough that extensive decay can easily develop, resulting in mortality, breakage at the base and windthrow. Most of the downfall in the area appeared to be associated with Schweinitzii butt rot, rather than by red ring rot.



Several management alternatives are possible:

1. Do nothing. This will result in the loss of overstory trees as the stand continues to unravel. The potential for injury, loss of life or property damage will increase.
2. Continue the salvage of dead, dying and immediately hazardous trees. While this approach will result in the removal of obvious hazard trees, overall hazard potential due to *P. schweinitzii* would remain high. In addition, the stand will continue to unravel, resulting in additional hazard and overstory loss, eventually degrading the wildlife habitat potential and riparian value of the area.
3. Selectively thin the stand. Under this alternative, management actions would be initiated to maintain about half of the the dominant and codominant trees that are present in the stand. Only the healthiest trees will be chosen for retention. Top priority for removal will include trees with unnatural lean (not self-corrected) that are within reach of the highway or where people congregate, Douglas-firs with large fire scars (and are thus likely to be infected with *P. schweinitzii*), and trees that are heavily infected with red ring rot and are within the reach of the highway or where people congregate. In addition, because *P. schweinitzii* is also capable of spreading from tree to tree via root contacts, Douglas-firs that are within or adjacent to clusters of previous mortality that show brown cubical rot should also be removed. Additional removals will leave only the best-formed, healthiest overstory trees and clear out most intermediate and understory trees. Opening up the stand in this fashion should provide additional resources to the remaining overstory trees, increasing their vigor and providing additional resiliency to insect and disease attack.

As noted above, the hazard tree situation at Dollar Bend calls for immediate long-term action. Because the stand is beyond its prime, the best that can be done is to maintain the health of a few of the best-formed trees. Alternative 3, in which about half of the largest, healthiest trees are retained, takes steps to achieve long-term stand resilience and reduce the need to continually enter the area to remove new hazard trees. While thinning will not completely eliminate the Schweinitzii butt rot or red ring rot, it will increase the tolerance of the remaining trees enough to allow the attainment of some of the management objectives.

If you have any further questions regarding the suggestions in this report or need further assistance, feel free to contact Dave Schultz or me.

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