



United States
Department of Agriculture

Forest Service

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Route To:

Subject: Evaluation of pine mortality (FHP Rept. No. N04-05)

To: Ranger, Goosenest RD

Dan Blessing asked about the cause and prognosis for ponderosa pine mortality occurring in T 45 N, R 2 W, S 7. Dave Schultz, Dan Blessing, Rick Svilich and Laura Allen visited the area on July 6, 2004.

The area is located southeast of Ball Mountain. The area appears to be a low site based on the presence of western juniper, mountain mahogany and abundant surface rock. Some areas had less than 10 percent crown cover of trees.

The area that had considerable tree mortality was a natural ponderosa pine stand. Increment cores taken from a few trees indicated an age of approximately 105 years. Although the stand had been pre-commercially thinned about 10 years ago, there were still a large number of stems per acre. The growth rate of the pines showed no release from the thinning. There were small numbers of white fir, Douglas-fir and incense-cedar in the stand.

The area of pine mortality did not show any common diseases of ponderosa pine. The dead and dying pine trees had evidence of numerous attacks by western pine beetle, *Dendroctonus brevicomis*, and red turpentine beetle, *Dendroctonus valens*. The most reasonable explanation was dense stocking, combined with low precipitation during several recent years. The idea that low precipitation is a factor is supported by the fact that every conifer species present on the site was experiencing some recent mortality.

According to the Silvicultural Practices Handbook a desired basal area for a Dunning Site 4 of this age would be approximately 135 square feet per acre. After walking through parts of the stand, we concluded that the stand should be minimally stocked if all of the dead and dying trees were removed and the trees with few visible beetle attacks were left.

A few precautions may be necessary during fuel treatment to keep the residual trees alive and relatively healthy. A high percentage of the residual trees will be white fir. If these trees are wounded, they are likely to become infected with annosus root disease, *Heterobasidion annosum*. This will act as a root and butt rot. It will cause cull in the butt log and may predispose the tree to beetle attack during periods of drought.

It would also help the survival of the residual pines if any burning could be delayed until the year following the harvest. There is currently a high population of red turpentine beetle in the



stand and any additional stress could cause the trees to be very susceptible to attack.

Both the fir and the pine strains of annosus root disease are known to be present in the area. As a preventive measure, the stumps over 14 inches diameter should be treated with Sporax. If the wood is sound enough to be removed as a product and if a fresh cut is made, then you should assume that the larger stumps should be treated.

Dave Schultz
Entomologist

cc: Dan Blessing
Rick Svlich