Forest Health Protection
Pacific Southwest Region

Date: October 11, 2005
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To: Lassen College Board

Subject: Dwarf Mistletoe Infestation in Ponderosa Pine on the College Forest (FHP Evaluation NE05-11)

At the request of Ed Mincher, biology professor Lassen Community College, Bill Woodruff, USDA Forest Service plant pathologist visited the College forest on October 7th with Mr. Mincher. The purpose of the visit was to evaluate the dwarf mistletoe infestation in the ponderosa pine.

The College forest is an uneven-aged 160 acre mixed conifer forest composed of ponderosa pine (estimated 70% cover), incense cedar (20%), white fir (9%) and sugar pine (1%). About 15% of the overstory trees are conifers about 220 years old; most with diameters at breast height (DBH) ranging between 20 inches and 30 inches, with heights up to about 120 feet. The remaining overstory trees are conifers about 90 years old; most with DBHs ranging between 12 and 24 inches. The understory is composed mostly of incense cedar and ponderosa pine under 40 years old.

The forest was recently thinned from below to basal areas ranging from 40 sq. ft. to 130 sq. ft., averaging about 110 sq. ft. Stump ring growth indicated that the trees have been suppressed for the past 75 years, or more. The crowns of most of the trees appear healthy. Live crown ratios often exceed 60%, so the residual trees should eventually respond with increased growth to last year's thinning.

Dwarf mistletoe is infecting many of the ponderosa pine on an estimated 10 acres. Severity of dwarf mistletoe in conifers is traditionally given a "dwarf mistletoe rating" (DMR) ranging from 0 (no infection) to 6 (heaviest infection). A DMR of 3 or less is considered "light", and doesn't significantly affect tree growth. The infections in the

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overstory ponderosa pine on the College forest generally have a DMR 2, with the infections mostly present in the lower one-third of the crowns. Infected understory trees have DMRs ranging from 0 to5. A few of the heaviest infected understory trees have thinning, unhealthy-appearing crowns.

On the 10 infested acres, it appears that over half the ponderosa pine are infected with dwarf mistletoe. Most infections have a DMR of 3 or less. The estimated average DMR for the 10 acres is between 1 and 2. Most of the infected trees are out-growing the advancement of the dwarf mistletoe in the crowns. Therefore, growth is not significantly affected. Also the spread of the dwarf mistletoe is limited by non-hosts (incense cedar, white fir and sugar pine) growing among the pine. The main concern for this dwarf mistletoe infestation is the impact it will have on the future generation of ponderosa pine, a century or more into the future. Most naturally regenerated trees will probably become heavily infected from above and never grow to maturity. Until that happens, the forest can be periodically thinned, every 10 years or so to maintain tree vigor, selecting for removal the trees most impacted by the dwarf mistletoe. At some point in the distant future, the infected overstory can be completely removed, and healthy seedlings planted.

There are other options for managing dwarf mistletoe infestations. Please refer to the attached General Technical Report RM-225, ***You Can Save Your Trees From Dwarf Mistletoe***. The report describes dwarf mistletoe and lists some management tools to control infections. However, the report does not list prescribed underburning, which may economically kill some dwarf mistletoe near the ground, while protecting the treated areas from future wildfire which could destroy many trees. If prescribed fire is used to clean up the fuels from the forest floor, it would be wise to rake the accumulated duff away from the large trees so that those trees are protected from excess heat at their bases. The duff has accumulated around the old trees during the many years fire has been kept out of the forest.

Generally, there is no urgency to treat the dwarf mistletoe. However, as opportunity presents itself to prune infected branches, remove heavily infected trees, or underburn the forest, it would be wise to do so. If you wish further assistance, please call Bill Woodruff, 252-6680.

/s/ Bill Woodruff

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Enclosure: GTR RM-225 - *You Can Save Your Trees From Dwarf Mistletoe*