

Old-Growth Tree Mortality, Crown, and Fuel Changes Following the 2003 Canoe Fire

Stephen W. Underwood, P.O. Box 823, Hydesville, CA 95547-0823; (707) 768-1942;
unde@suddenlink.net

Steven P. Norman, Eastern Forest Environmental Threat Assessment Center, Asheville NC;

Jason Teraoka, Redwood National Park, Orick CA

The Canoe Fire burned more than 5,000 acres of old-growth redwood forest in 2003. Four plots (two on alluvial flats (redwood) and two on upland (redwood/Douglas-fir) were measured before the fire's arrival and again immediately following the fire's passage and periodically thereafter. Fuel loadings, height to the bottom of the live crown, and mortality of trees greater than 24" DBH (old-growth trees) were tracked.

Fine fuel loads decreased dramatically. The average distance to the bottom of the live crown in old-growth trees increased on alluvial flats from 46 feet to 55 feet and on upland plots from 44 feet to 51 feet. One old-growth tree fell in the alluvial plots, however, basal area nearly matched pre-burn levels ten years after the fire. Seven old-growth trees failed in the upland plots (two tanoaks, two redwoods, two Douglas-fir and one Pacific madrone).

Since only four plots (two alluvial and two upland) were installed the ability to conduct statistical analysis is limited. However, the results from the four plots appear to be representative of the fire effects of the Canoe Fire as a whole and suggest that the potential for crown fire in alluvial flats and upland areas was reduced due to the increased distance to the bottom of the live crown (effect lasted at least 10 years) and the reduced fuel load (effect lasted at least 5 years).