

Aerial Detection Survey, Pacific Southwest Region Northeastern CA Preliminary Report, August 2023

Objective: The objective of this survey is to detect and record recently dead and damaged trees. Most of the mortality and damage is caused by insects and diseases.

Surveyors: J. Moore, N. Stevens, G. Mayer

Methodology: Recent tree damage and mortality was recorded using Digital Mobile Sketch Mapping systems. When dead or damaged trees were observed surveyors drew a polygon around the trees on a map and recorded the percent of that area that was dead or damaged, tree species, and suspected causal agent. It is likely that other pathogens are contributing to damage and mortality, however, this is difficult to assess from the air; therefore, only the likely primary damage causal agent is typically recorded during the aerial survey. Severity of mortality and damage within each polygon was rated as follows: very light (1-3% of mapped area affected), light (4-10%), moderate (11-29%), severe (30-50%) and very severe (>50%). Small groups of trees were recorded as point data and have no acreage assigned until later processing.

Survey Highlights: This report presents preliminary findings in and around the Tahoe, Plumas, Lassen, Modoc, portions of the Humboldt-Toiyabe National Forests, and the Lake Tahoe Basin Management Unit. Large fire footprints within the last three years were mostly avoided, reducing the overall acreage covered. For 2023, the Northeastern California service area has experienced approximately 1 million acres with mortality, which is greater than the five-year annual average of 690,000 acres. It should be noted that previous year's acreage estimates include converted point data, while the current year point data have yet to be converted and that all 2023 data is still in draft form and subject to changes.

- White and California red fir mortality was detected across 880,000 acres. Mortality in red fir was generally more intense, often at moderate to very severe intensities. Mortality was detected throughout most of the area but was particularly extensive and intense in the Tahoe NF. Topkill in fir was less pronounced than it was in 2022.
- Jeffrey and ponderosa pine mortality was detected across ~100,000 acres with over half of observations recorded at moderate to very severe intensities. Mortality was widespread throughout their respective ranges.
- Douglas-fir mortality was detected across approximately 7,400 acres, typically at moderate intensity and often found along drainages of western facing slopes along the Sierras. Large pockets of moderate intensity Douglas-fir mortality were detected northeast of Chico, Butte County California, accounting for about half of the total mortality.
- High elevation five-needle pine (western white pine and whitebark pine) was detected across 5,300 acres at moderate intensity in northern and southern areas of the Warner Mountains and around Lake Tahoe.
- Lodgepole pine mortality was detected across ~3,800 acres at very light to moderate intensity mostly near Medicine Lake on the Modoc National Forest. Additional pockets of mortality throughout the Lassen National Forest and southern Warner Mountains were also detected.
- White fir defoliation attributed to Douglas-fir tussock moth was detected across approximately 10,000 acres, mostly west of Quincy, near Bucks Lake on the Plumas NF with an additional ~600 acres of unverified defoliation on the Warner mountains.
- Aspen defoliation was not observed in 2023.

Preliminary Summary (numbers may change)

Area surveyed: 8.1 million acres
Acres with mortality: 997,240 acres

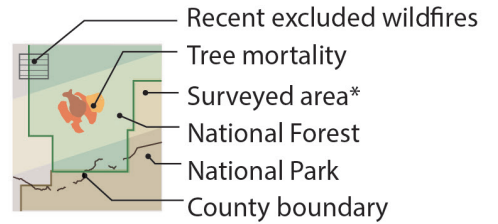
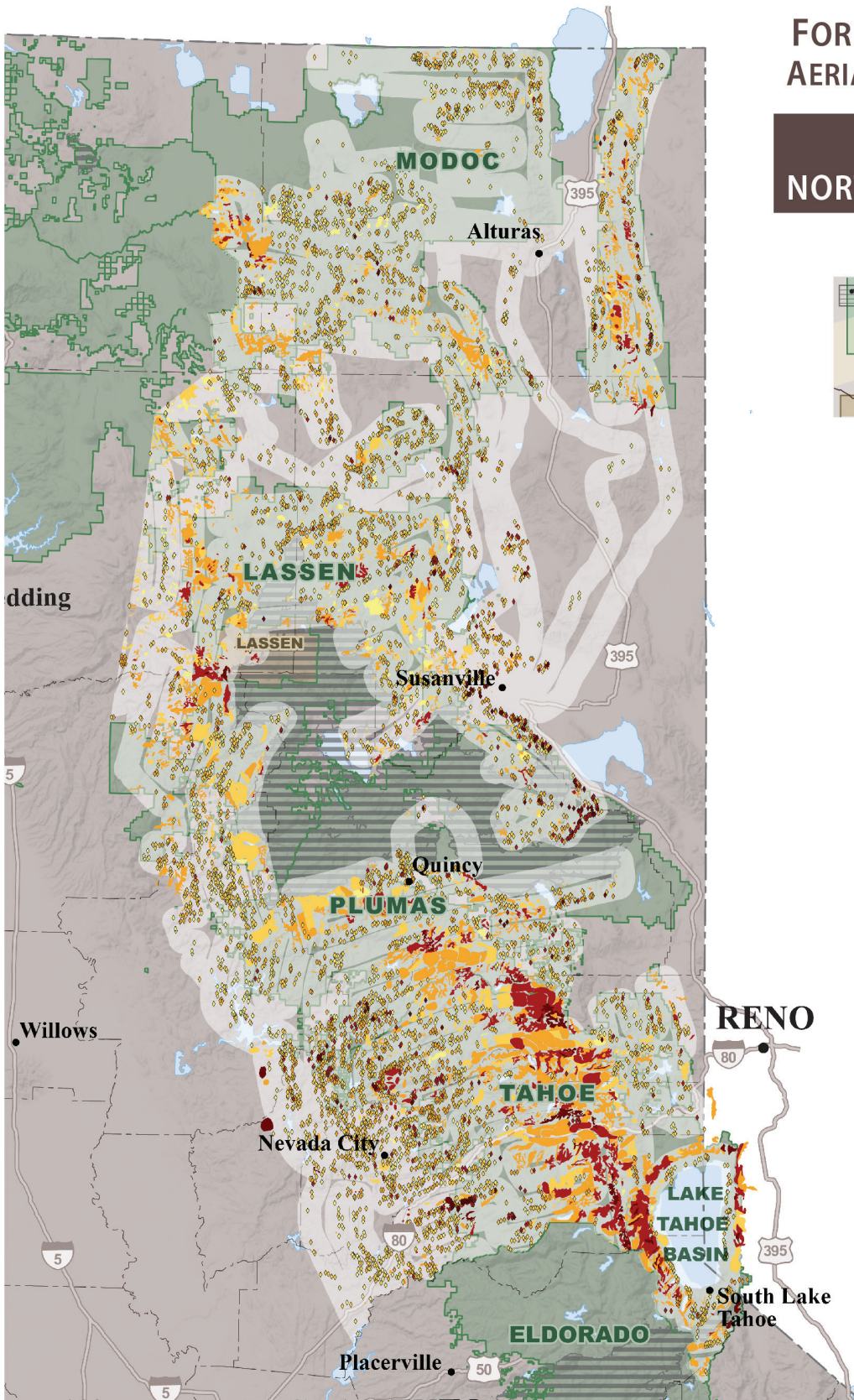
Tree Species Affected	Acres with Mortality
Fir (white, California red, Shasta)	880,000
yellow pine (ponderosa, Jeffrey)	100,000
Douglas-fir	7,400
high elevation 5-needle (whitebark, western white)	5,300
Lodgepole pine	3,800
incense-cedar	380
other pine (sugar, knob-cone)	360
Total	997,240
defoliation (white fir)	10,000
aspen defoliation	0



Severe White fir mortality north of Bald Mountain (Warners), Modoc NF.

FOREST HEALTH PROTECTION AERIAL DETECTION MONITORING

2023 SURVEY NORTHEASTERN CALIFORNIA



* This map depicts tree mortality only within the surveyed area.

Percent Trees Affected

- Very Light (1-3%)
- Light (4-10%)
- Moderate (11-29%)
- Severe (30-50%)
- Very Severe (>50%)

Number of Trees Affected (points)

- Very Light (1 tree)
- Light (2 - 5 trees)
- Moderate (6 - 15 trees)
- Severe (16 - 30 trees)
- Very Severe (>30 trees)

Map only depicts dead trees surveyed in 2023.
Areas of tree mortality are for visualization purposes only.