

Aerial Detection Survey, Pacific Southwest Region Northeastern CA Preliminary Report, November 2021

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.

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Methodology: Recent tree mortality was mapped using Digital Mobile Sketch Mapping systems. Surveyors drew polygons and annotated percent of forested area affected along with damage type, tree species, and causal agent. The five-class rating system is: Very Light (1-3%), Light (4 -10%), Moderate (11-30%), Severe (31-50%), and Very Severe (>50%).

Small groups of trees were typically recorded as point data and have no acreage assigned until later processing. The Northeast area had a high incidence of point data that is not tabulated in this report but is depicted on the map at an exaggerated scale.

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.

NOTE: Most areas within the extensive fire footprints from 2020 and 2021 were not flown, particularly on the Plumas and southern Lassen NFs; however, a few observations may have been made while ferrying through those areas.

- White and California red fir mortality was detected across approximately 177,000 acres. Approximately 45% of the mortality area was recorded as moderate to very severe intensity. Mortality was detected throughout most of the area but was particularly extensive and more intense in the Warner Mountains and in southern portions of the Tahoe NF. In addition, topkill noted during the 2019 survey was likely part of the recent whole tree mortality recorded this year.
- Jeffrey, Washoe, and ponderosa pine mortality was detected across 88,000 acres with approximately 40% recorded as moderate to very severe intensity. Mortality became generally more intense from north to south .
- Whitebark pine mortality was detected across 2,500 acres at moderate to severe intensities, particularly northeast of Lake Tahoe and in the far northern and southern Warner Mountains.
- Lodgepole pine mortality was detected across 900 acres, typically at light intensity. Mortality was detected west of Medicine Lake on the Modoc National Forest and northwest of Lake Tahoe. Areas of previous activity, such as Lassen Volcanic National Park were not surveyed due to the Dixie fire.
- Gray pine mortality was recorded across 600 acres; however, most gray pine mortality was recorded as point data and associated acres are not included in this report. Mortality was most notable northeast of Chico.
- Aspen defoliation was not common in 2021. This may be because the survey was flown later than usual. However, areas of severe defoliation were detected east of Lake Tahoe.
- Drought-induced oak defoliation was common but not well captured by the survey as it was ubiquitous , especially in more southern areas.

Preliminary Summary (numbers may change)

Area surveyed: 6.1 million acres

Acres with mortality: 270,790 acres

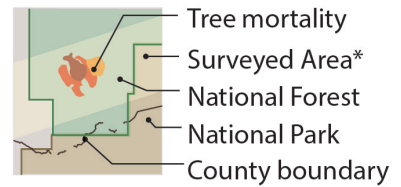
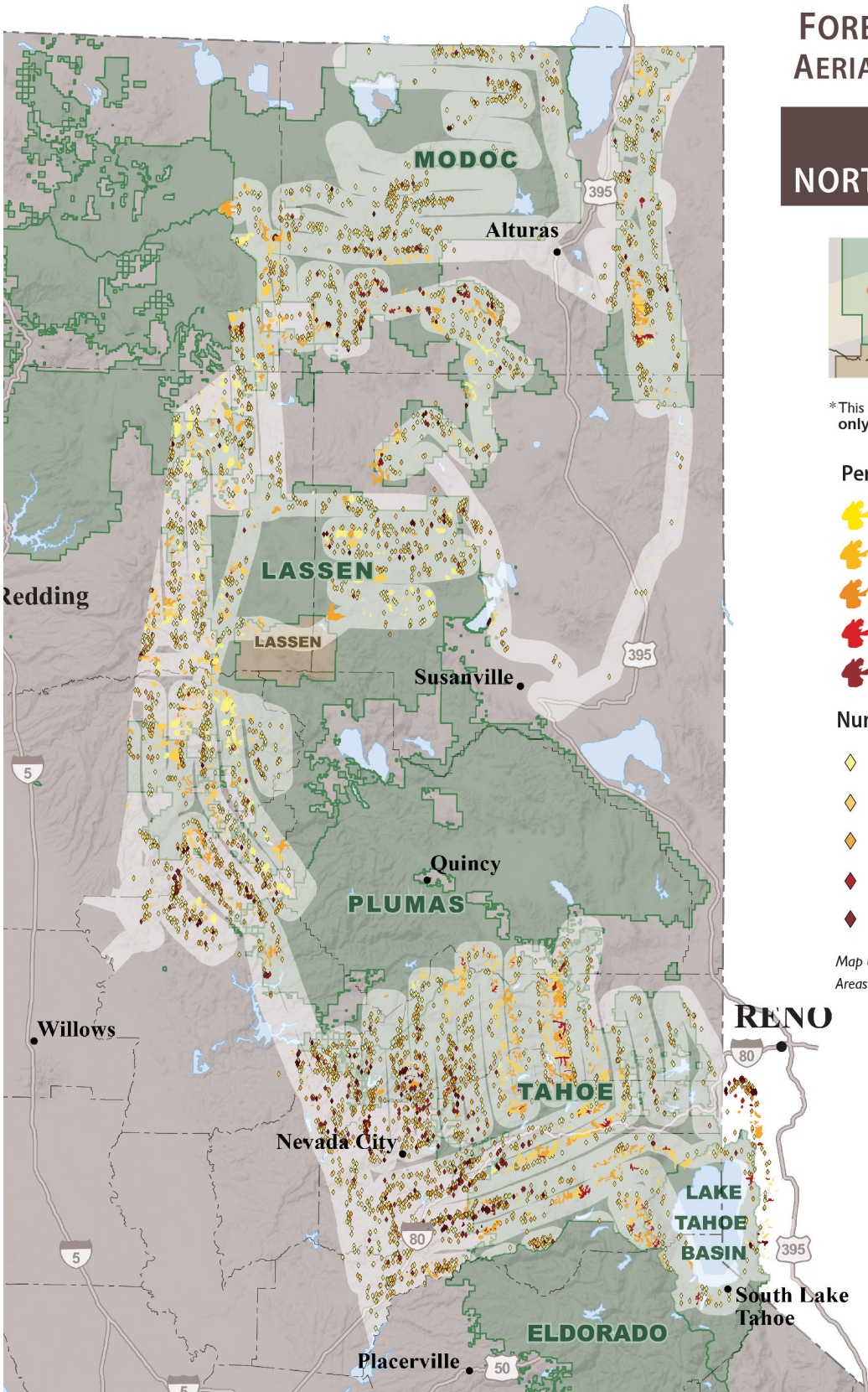
Tree Species Affected	Acres with Mortality
CA red, Shasta red, and white fir	177,000
Ponderosa, Washoe, and Jeffrey pine	88,000
Whitebark pine	2,500
Lodgepole pine	900
Knobcone pine	700
Gray or CA foothill pine	600
Oak	400
Douglas-fir	300
Sugar pine	300
Juniper	90
Total	270,790



Pockets of often intense white fir mortality were common along and east of the crest of the Warner Mountains, Modoc NF.

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*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 2021.
Areas of tree mortality are for visualization purposes only.