

Aerial Detection Survey Update

Background: Annual aerial detection surveys for tree mortality and injury have been conducted annually since 1994. This is an update of survey status for the 2014 season.

Objective: Detect and map tree mortality and damage in California / USFS Region 5.

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Date: July 16th and 17th, 2014

Methodology: Recently dead and damaged trees (still retaining dead foliage) were mapped visually by surveyors using digital aerial sketch-mapping systems, flying in a light fixed-wing aircraft approximately 1,500 feet above ground level. Surveyors record the number and species of affected trees and type of damage (mortality, defoliation, etc.) at each mapped location.

Details:

- About 2.7 million acres were surveyed in Southern California, including the Angeles, Cleveland and San Bernardino National Forests. See Figure 1.
- Mortality of pine was the main type of tree damage mapped in southern California this year. California five-spined Ips has been observed from the ground killing trees in several locations in southern California and was the likely agent of most of the pine mortality mapped in Southern California. Overall, mortality was still relatively light, except on the Angeles National Forest, where a few off-site plantations appeared to have up to 100% mortality. About 4,000 acres with pine mortality were mapped, about ten times the amount recorded in 2013.
- Unlike the Los Padres National Forest, only small areas of pinyon mortality were seen on the rest of the southern California Forests.
- Although the Channel Islands were not covered during this survey, elevated tree mortality likely extends to the islands as well. Pine (probably native bishop pine) mortality was already visible in aerial imagery of Santa Cruz Island from 2013. Figure 3.
- The ongoing drought seems to be causing increased mortality and damage to hardwoods as well. About 2,000 acres with hardwood mortality and defoliation likely due to drought was mapped, up from about 300 acres in 2013. The southern portion of the Angeles National Forest and the western portions of the Cleveland National Forest seemed to have the most damage. Figure 4.
- On the Cleveland National Forest, gold-spotted oak borer (GSOB) was the primary agent of tree mortality, causing mortality on 2,600 acres. See Figure 5. No obvious signs of oak mortality were observed in the Idylwild area, which is the location of an outlying infestation of GSOB inside the San Bernardino National Forest.
- Damage to sycamore from polyphagous shot hole borer (PSHB) was observed on a few trees on a golf course on the Sycuan Indian Reservation. Other areas known to have PSHB in Southern California were not surveyed.

Figure 1. Flown area and mapped tree mortality and damage

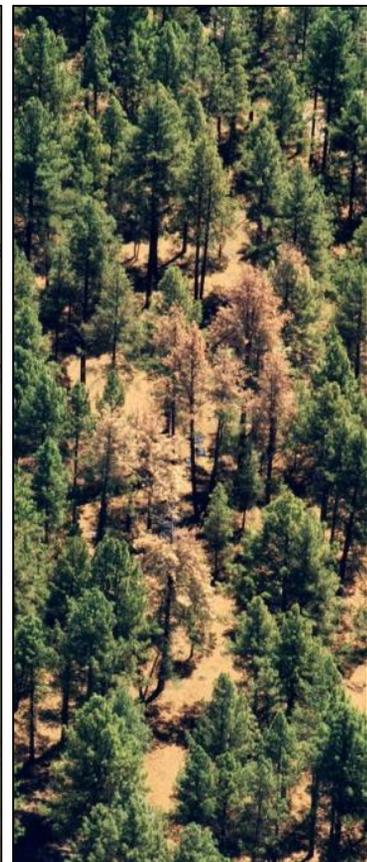
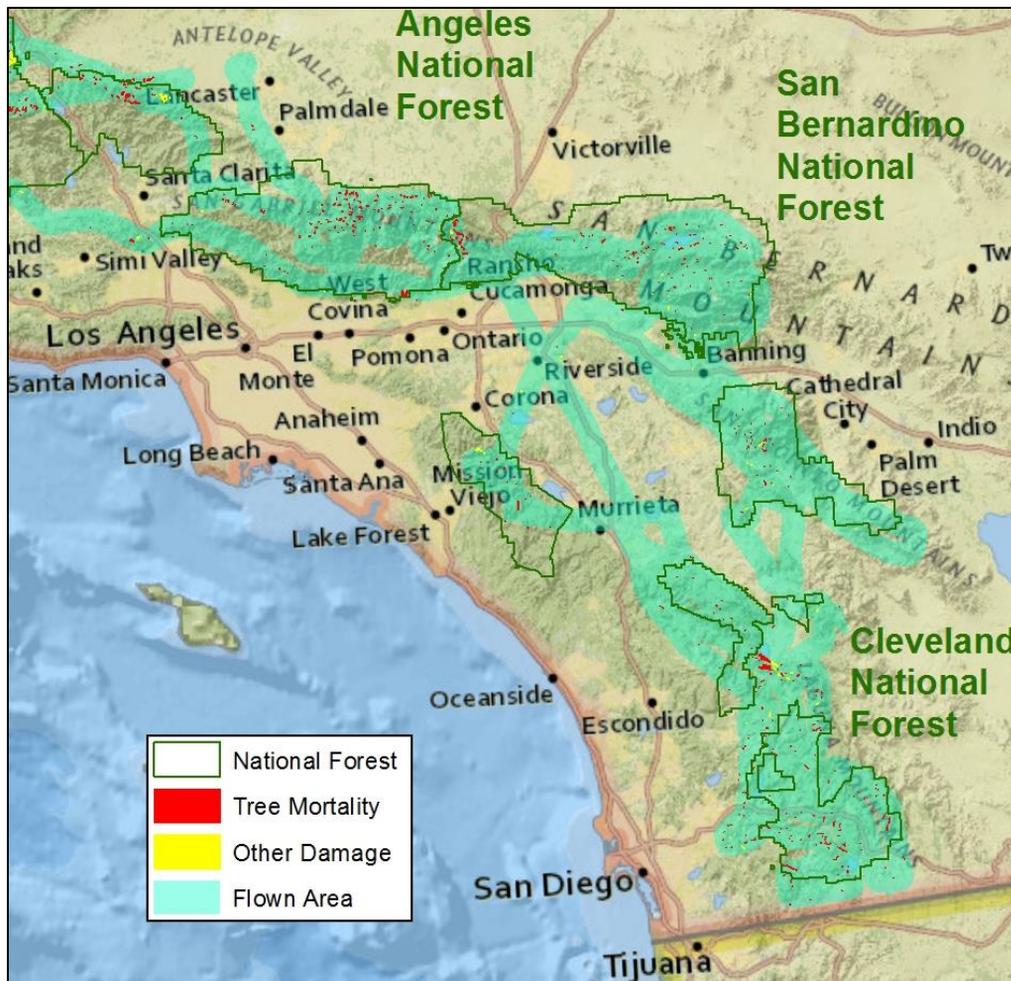


Figure 2. Coulter pine mortality near Mount Thomas, San Bernardino N. F.

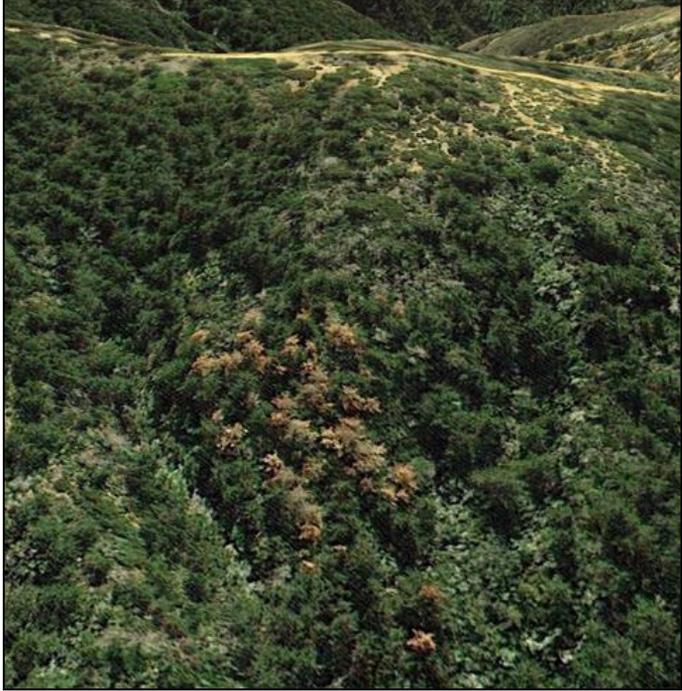


Figure 3. Bishop pine mortality on Santa Cruz Island. From Google Earth, imagery date 4/8/2013.



Figure 5. Recent and older live oak mortality on the Cleveland National Forest, likely from GSOB.



Figure 4. Jeffrey pine mortality and black oak color change on the Cleveland National Forest, near Lake Henshaw.

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