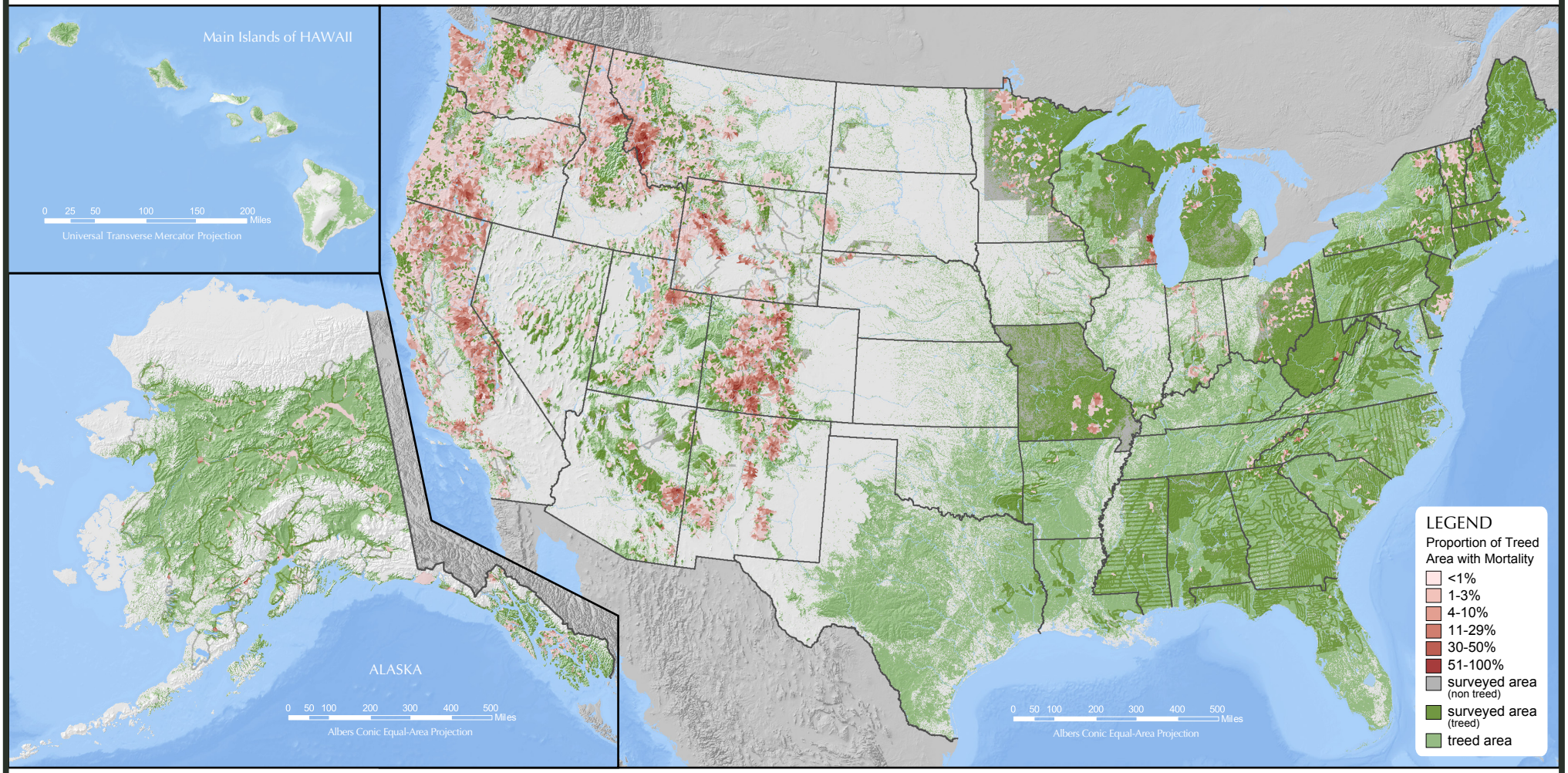
FOREST HEALTH PROTECTION

2014 Insect and Disease Survey by Subwatersheds (6th Level HUCs)

Approximate Footprint Acres with Mortality: 4.7 million*



*Acres are summarized from current year's observations only and are not cumulative.
The "footprint" total represents the affected area on the ground with no multiple counting of acres affected by multiple mortality agents.

March 2015

2014 Forest Health Damage Detection Surveys – Acres with Mortality

Detection and Aerial Survey Overview

Aerial detection surveys are an efficient and economical method of collecting and reporting data on forest insects, diseases, and other disturbances. Aerial sketchmapping is the primary data-collection method: data are collected by aerial observers from the Forest Service and other cooperating state and federal agencies. Areas of damage are captured as polygons on hardcopy 1:100,000 scale maps or through a Digital Aerial Sketchmapping System (D-ASM). The D-ASM uses a moving map display, GPS tracking, and touch screen technology to create a digital version of the data on-the-fly in the aircraft. Regardless of the method, it is important to note that sketchmapping is a valuable but subjective endeavor with inherent spatial and attribute inaccuracies.

Polygons are coded to identify the damage agent, damage type, and other attributes. Reporting the number of dead trees or dead trees per acre is required for areas with mortality. In large areas where mortality is widely scattered, other attributes may be used to capture the pattern of damage, but are not required. In all cases, mortality may be continuous or discontinuous; therefore, acres are reported as acres "with" mortality.

Areas with mortality are summarized on this map by 12-digit or 6th-level USGS subwatersheds. These 10,000 to 40,000 acres units are consistent with those in the Forest Service Watershed Condition Framework (Potyondy and Geier 2011). At the national scale, watershed summarization makes it easier to visualize mortality information. It especially helps highlight areas where activity consists of small and sparsely located polygons as is the case with some key species like southern pine beetle and emerald ash borer.

Resources:

A Guide to Conducting Aerial Sketchmapping Surveys. McConnell, T.J., Johnson, E.W., and Burns, B., USDA Forest Service Publication, FHTET 00-01, March 2000.

Digital Aerial Sketchmapping. Schrader-Patton, C., USDA Forest Service Remote Sensing Application Center publication, RSAC-LSP-3400-RPT2, May 2002.

Aerial Survey Geographic Information System Handbook, November 2005, and Forest Health Monitoring Aerial Survey Standards, October 1999, online at: www.fs.fed.us/foresthealth/technology/ads_standards.shtml.

Potyondy, John P.; Geier, Theodore W. 2011. Watershed condition classification technical guide. FS-978. U.S. Department of Agriculture, Forest Service. 41 p. Online at: www.fs.fed.us/publications/watershed/watershed_classification_guide.pdf.

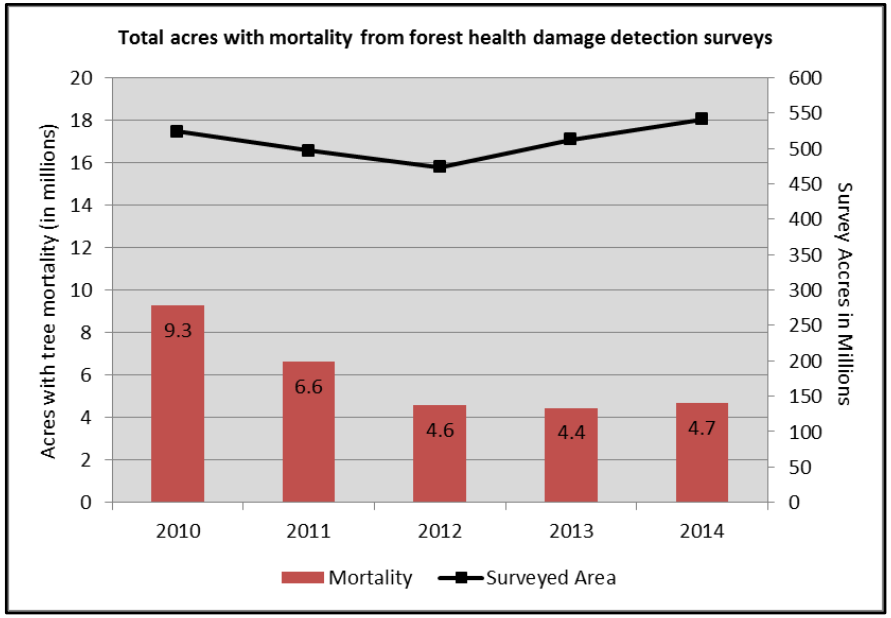
Summary for 2014:

Footprint acres with tree mortality: 4,656,000

Note: Acres are summarized from current year's observations only and are not cumulative. The "footprint" total represents the affected area on the ground with no multiple counting of acres affected by multiple agents.

Top 5 mortality agents: Percent of footprint acres with mortality

- Mountain pine beetle 38%
- Spruce beetle 16%
- Fir engraver 15%
- Western pine beetle 7%
- Subalpine fir decline 6%

Acres with mortality were reported in 48 states. California reported the most with 884 thousand acres.

The total cost of aerial survey is approx. $5 million annually, or roughly $.01 per acre surveyed.