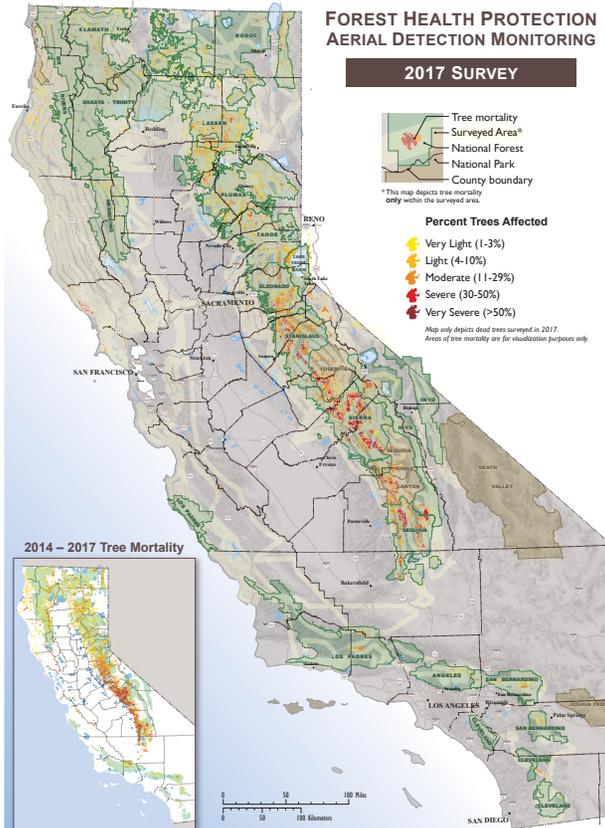




AERIAL SURVEY 2017 CALIFORNIA HIGHLIGHTS

Most forested lands in California experienced drought conditions from late 2011 through late 2015. Drought relief came to part of the state during the winter of 2015-2016 however, in the southern Sierra Nevada range and southern California forests drought conditions persisted through 2016. Strong weather systems in January 2017 brought snow pack throughout much of the state to above normal levels bringing the average statewide precipitation to 170% of normal by the end of April. Although Governor Jerry Brown declared the drought over, millions of trees were unable to recover. An estimated **27 million dead trees** were detected through aerial surveys across **2.5 million acres** – this brings the statewide total since 2010 to an estimated **129 million dead trees**.

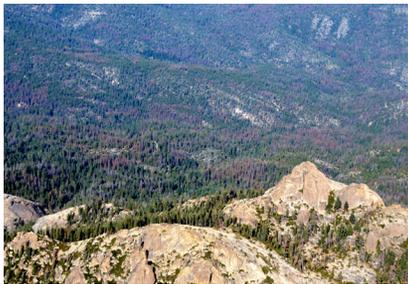
2017 AERIAL SURVEY DATA OVERVIEW



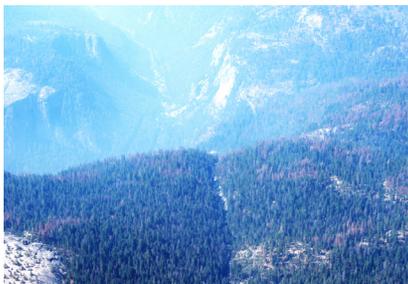
ACRES SURVEYED	40,000,000
FEDERAL	23,780,000
STATE & LOCAL	903,000
PRIVATE	15,300,000
OREGON/NEVADA	52,000
	(Acres est.)

2017 KEY RESULTS

- The bulk of new mortality was in white and California red fir which collectively accounted for 89% of the mortality and present on 88% of the acres mapped.
- California red fir was often considerably impacted even at the highest and the most remote areas, especially in the southern Sierra Nevada range.
- White fir was heavily impacted in the south but also in northern areas closely correlated with overstocked stand conditions.
- Western pine beetle-related mortality, primarily in ponderosa pine, was drastically reduced from over **2.4 MILLION** acres in 2016 to about **330,000** acres in 2017.
- Mountain pine beetle activity was also markedly lower from **1.1 MILLION** acres to **113,000** acres. Similarly, Jeffrey pine beetle activity went down from **500,000** to **139,000** acres.
- Coulter pine mortality decreased from **18,000** acres in 2016 to just over **7,000** acres in 2017.
- Mortality in larger Douglas-fir, not attributed to feeding by bears, also decreased from **31,000** acres in 2016 to **18,000** acres in 2017.
- Oak mortality attributed to goldspotted oak borer in San Diego County decreased somewhat from **7,000** in 2016 to **5,700** acres in 2017 and from an estimated **11,000** to **4,000** trees respectively.
- Drought-related oak mortality decreased from **98,000** acres to less than **3,000** acres. Surviving oaks looked healthy for the first time in years; a testament to their resiliency throughout drought conditions.
- Mortality attributed to *Phytophthora ramorum*/sudden oak death (SOD) was detected across **17,400** acres, an increase from about **10,500** acres in 2016, but still much lower than historical norms as drought conditions in recent years inhibited the spread of this disease.



Inyo NF highlands depicting older, mostly pine mortality, and recent CA red fir mortality.



Significant red fir mortality within Yosemite NP. (notice the smoky conditions)



Older, mostly pine mortality, and recent, mostly white fir mortality, on the Stanislaus NF.

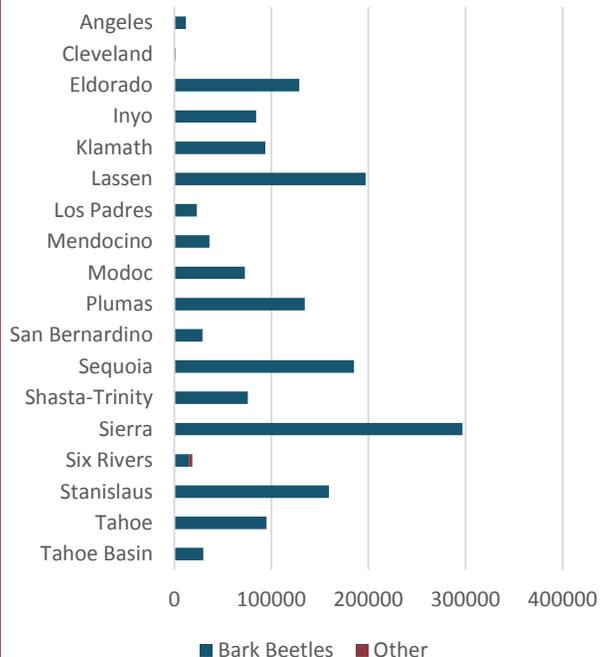


Scattered white fir mortality in dense stands on the Plumas NF.

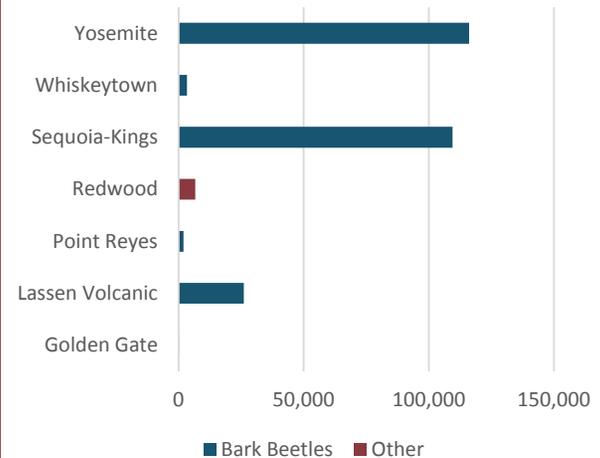


Ongoing white fir mortality in the northern Warner Mtns, Modoc NF.

ACRES WITH MORTALITY BY NATIONAL FOREST



ACRES WITH MORTALITY BY NATIONAL PARK



ABOUT

AERIAL SURVEY

The **Aerial Survey Program** is conducted by the Pacific Southwest Region's **Forest Health Protection Program**. Since 1994, aerial surveys have been conducted annually to map recent tree mortality in California across all land ownerships, including all National Forests and forested National Parks, along with state and private lands.

Data is collected by trained specialists who for the first time in 2017 fielded new **Digital Mobile Sketch Mapping (DMSM)** systems. Due to multiple delays, flights were typically flown on a wider 5-mile grid, with two observers mapping out opposite sides simultaneously.

The 2017 survey was completed by three observers: Jeff Moore, Loren MaCafee, and Jennifer Iaccarino between July 18th and November 17th.

Interim and special reports of the 2017 survey findings are available online at: www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsprd550891.



Scan QR code to visit the program web page for more information as well as data and maps available.

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