AERIAL DETECTION SURVEY REPORT

For reporting by the Tree Mortality Task Force based on data recorded and shared by the USDA Forest Service R5 State & Private Forestry Aerial Detection Survey Program.

All numbers are preliminary estimates and are subject to change. Estimated numbers of dead trees reported are rounded to the nearest hundred or thousand as appropriate.

SUMMARY FOR 2017 REGULAR SEASON SURVEY

Report Date	30-November-17
Report #	1
Flight Dates	7/18/2017 - 10/25/2017
General Area Flown	
State-wide	
Acres Surveyed During This Reporting Period	
39,900,000	
2017 Acres With Mortality	
2,533,000	
Acres where mortality has not been previously recorded	
1,173,000	
Estimated Number of Dead Trees	
26,851,000	

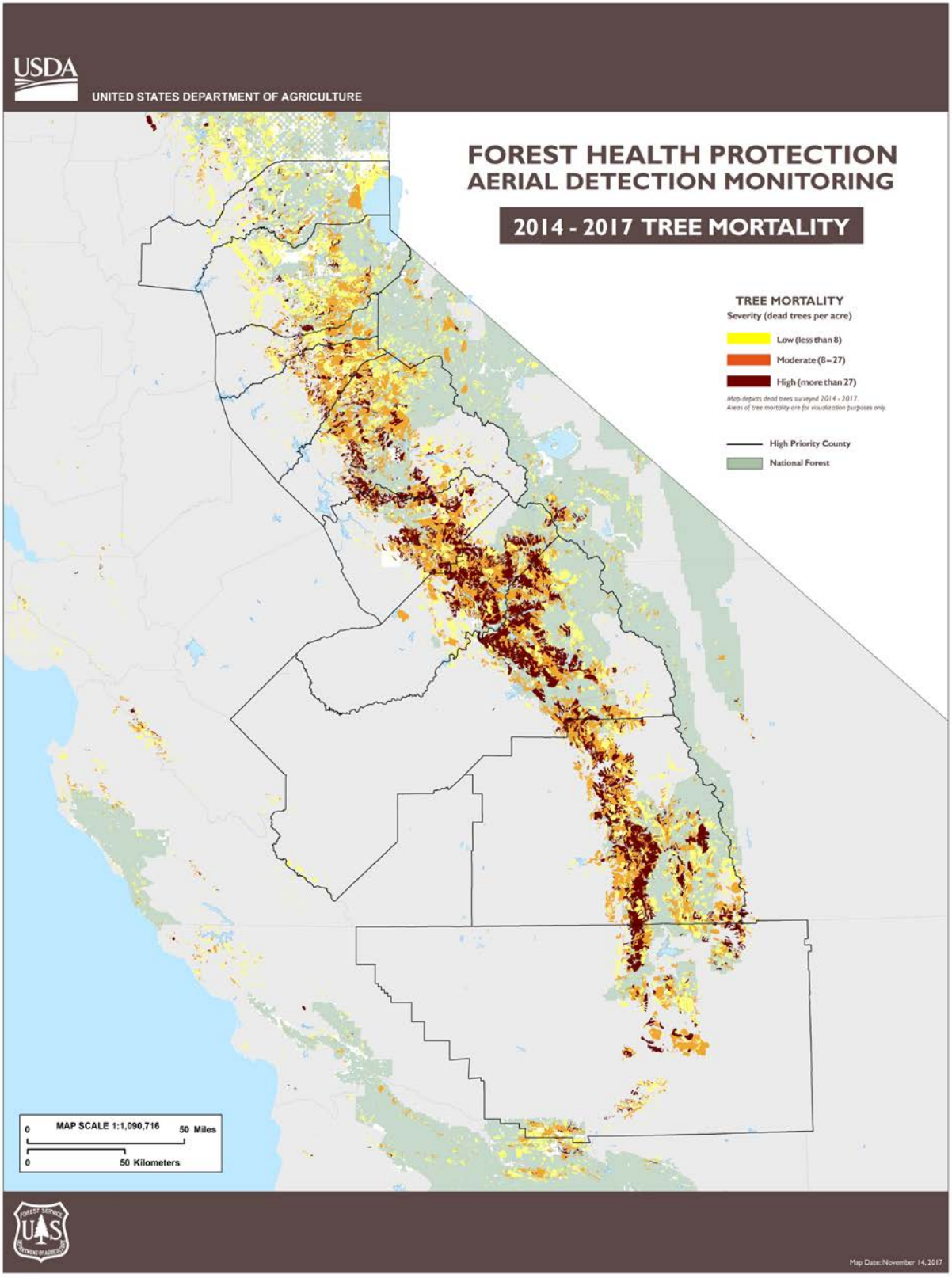
An estimated 27 million additional trees have succumbed to drought and bark beetles since the 2016 survey flights. This brings the statewide total of dead trees to 129 million since the drought began in 2010.

Many of the areas where mortality was not mapped previously are at higher elevations primarily in white and red fir as compared to previous years where most of the extensive mortality was observed in lower elevation pine and mixed conifer forests.

Mortality in the low elevation pine of the southern Sierra Nevada range is greatly reduced due to lack of viable host and more normal precipitation conditions. However, low elevation pine mortality elsewhere is common.

Questions regarding this report should be directed to Sheri Smith at ssmith11@fs.fed.us or 530.252.6667.

Figure 1. 2014-2017 survey results by mortality severity (dead trees per acre).



RESULTS BY COUNTY – REGULAR SEASON 2017

COUNTY	Acres with Mortality	Estimated Number of Dead Trees
Alpine	48,000	321,000
Amador	30,000	276,000
Butte	30,000	115,000
Calaveras	63,000	1,016,000
Colusa	1,000	2,000
Del Norte	22,000	52,000
El Dorado	143,000	1,371,000
Fresno	216,000	4,385,000
Glenn	10,000	27,000
Humboldt	73,000	179,000
Inyo	9,000	68,000
Kern	31,000	387,000
Lake	5,000	15,000
Lassen	151,000	688,000
Los Angeles	11,000	46,000
Madera	134,000	3,327,000
Marin	3,000	17,000
Mariposa	90,000	1,497,000
Mendocino	14,000	68,000
Modoc	72,000	552,000
Mono	58,000	564,000
Monterey	200	1,000
Napa	200	300
Nevada	25,000	104,000
Placer	94,000	709,000
Plumas	191,000	811,000
Riverside	10,000	25,000
San Bernardino	33,000	175,000
San Diego	10,000	83,000
San Luis Obispo	400	2,000
Santa Barbara	1,000	6,000
Shasta	88,000	463,000
Sierra	72,000	401,000
Siskiyou	201,000	845,000
Sonoma	15,000	190,000
Tehama	60,000	211,000
Trinity	40,000	196,000

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Tulare	283,000	4,808,000
Tuolumne	175,000	2,721,000
Ventura	17,000	115,000
Yolo	100	1,000
Yuba	3,000	11,000
Total	**2,533,000**	**26,851,000**

RESULTS BY NATIONAL FOREST – REGULAR SEASON 2017

NATIONAL FOREST	Acres with Mortality	Estimated Number of Dead Trees
Angeles National Forest	12,000	49,000
Cleveland National Forest	2,000	17,000
Eldorado National Forest	129,000	1,251,000
Inyo National Forest	84,000	1,035,000
Klamath National Forest	94,000	455,000
Lake Tahoe Basin Management Unit	30,000	168,000
Lassen National Forest	197,000	1,058,000
Los Padres National Forest	23,000	152,000
Mendocino National Forest	36,000	114,000
Modoc National Forest	73,000	515,000
Plumas National Forest	134,000	555,000
San Bernardino National Forest	29,000	146,000
Sequoia National Forest	185,000	3,480,000
Shasta-Trinity National Forest	76,000	309,000
Sierra National Forest	297,000	6,836,000
Six Rivers National Forest	18,000	52,000
Stanislaus National Forest	159,000	2,240,000
Tahoe National Forest	95,000	641,000
Total	**1,673,000**	**19,073,000**

Online Resources:

USFS Aerial Detection Program http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046696

USFS California Tree Mortality http://www.fs.usda.gov/main/catreemortality/home

Tree Mortality Task Force http://www.fire.ca.gov/treetaskforce/

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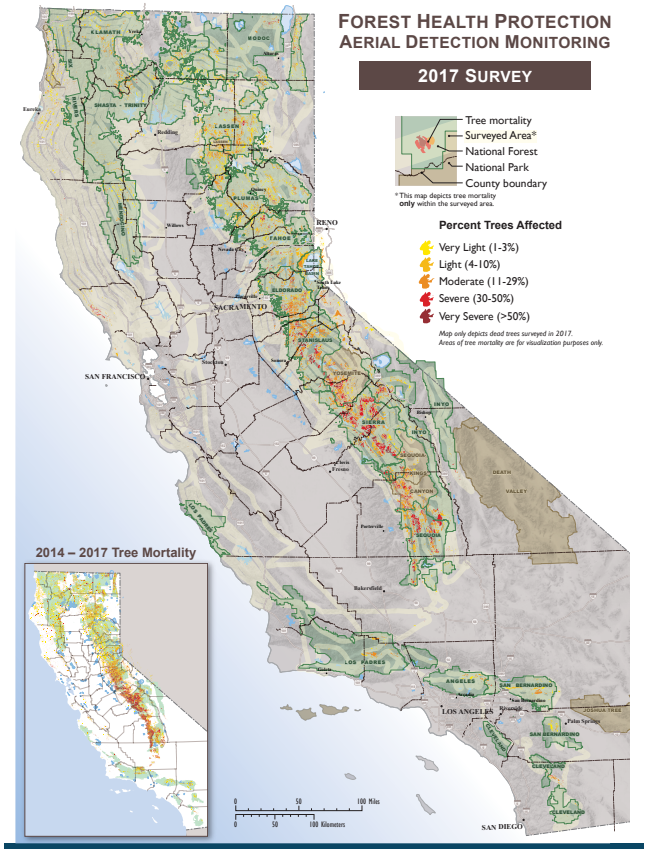
Aerial Survey 2017
California Highlights

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

1. 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.
2. California red fir was often considerably impacted even at the highest and the most remote areas, especially in the southern Sierra Nevada range.
3. White fir was heavily impacted in the south but also in northern areas closely correlated with overstocked stand conditions.
4. 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.
5. 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.
6. Coulter pine mortality decreased from **18,000** acres in 2016 to just over **7,000** acres in 2017.
7. 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.
8. 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.
9. 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.
10. 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.

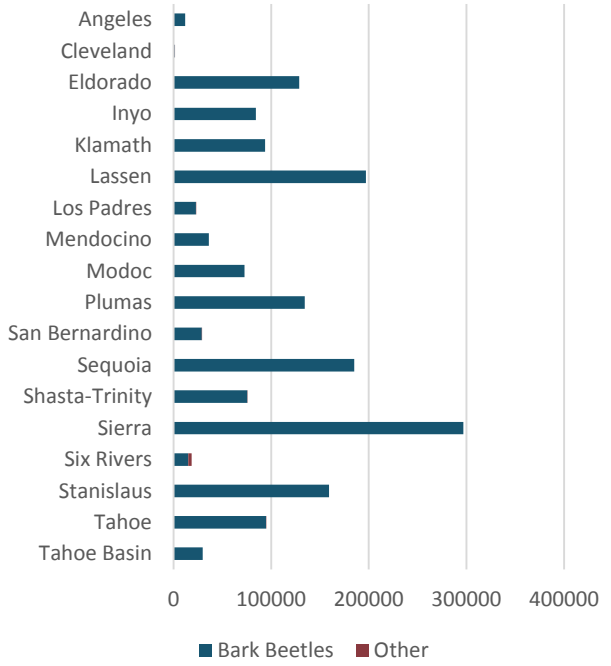
Significant red fir mortality within Yosemite NP. (notice the smoky conditions)

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

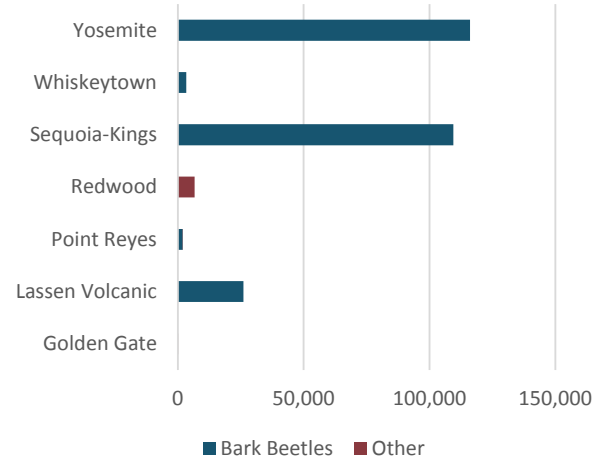
Scattered white fir mortality in dense stands on the Plumas NF.

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=fseprd550891*.

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

Contact

Jeff Moore
530.759.1753
jwmoore@fs.fed.us