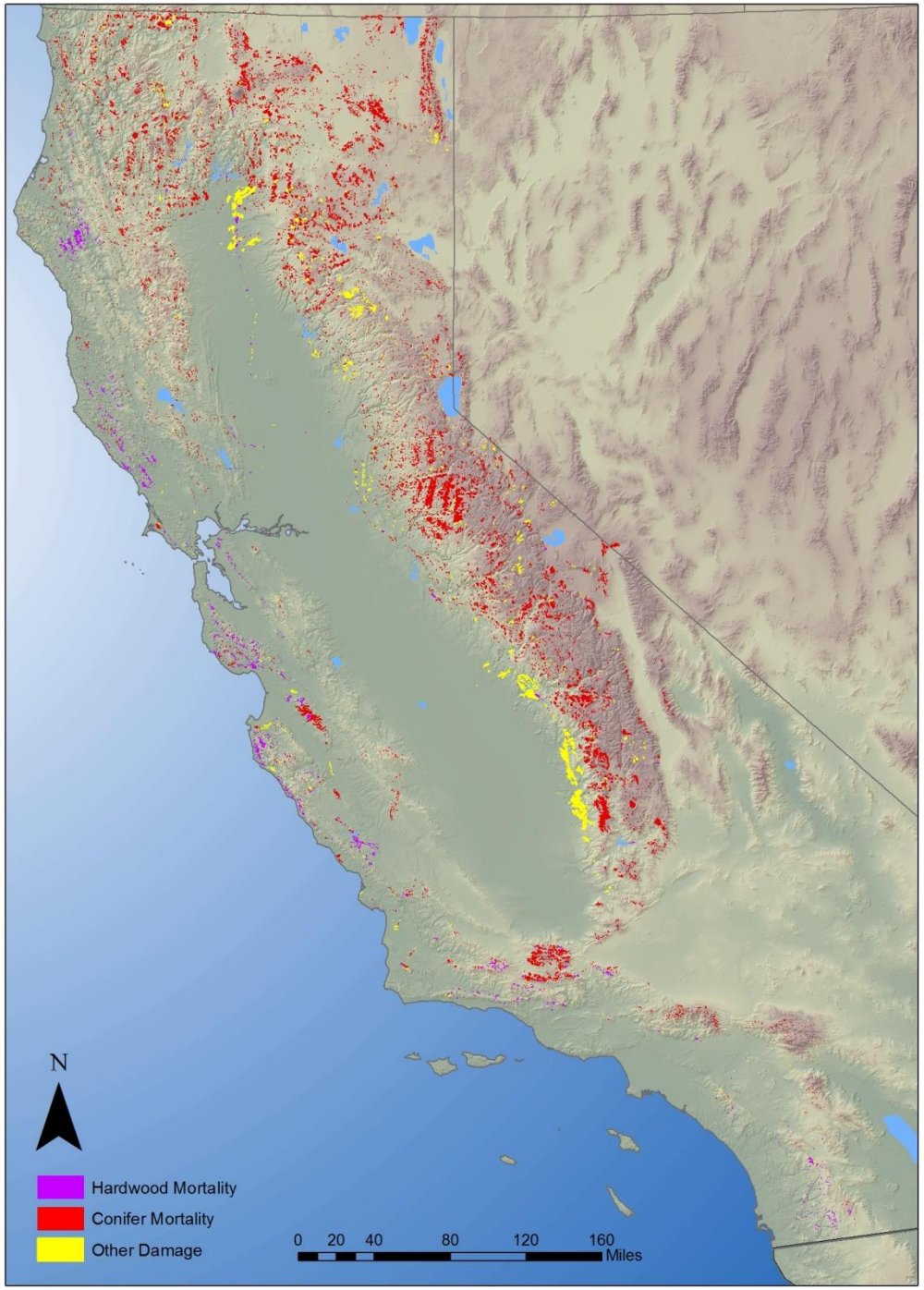
2014 Aerial Survey Highlights

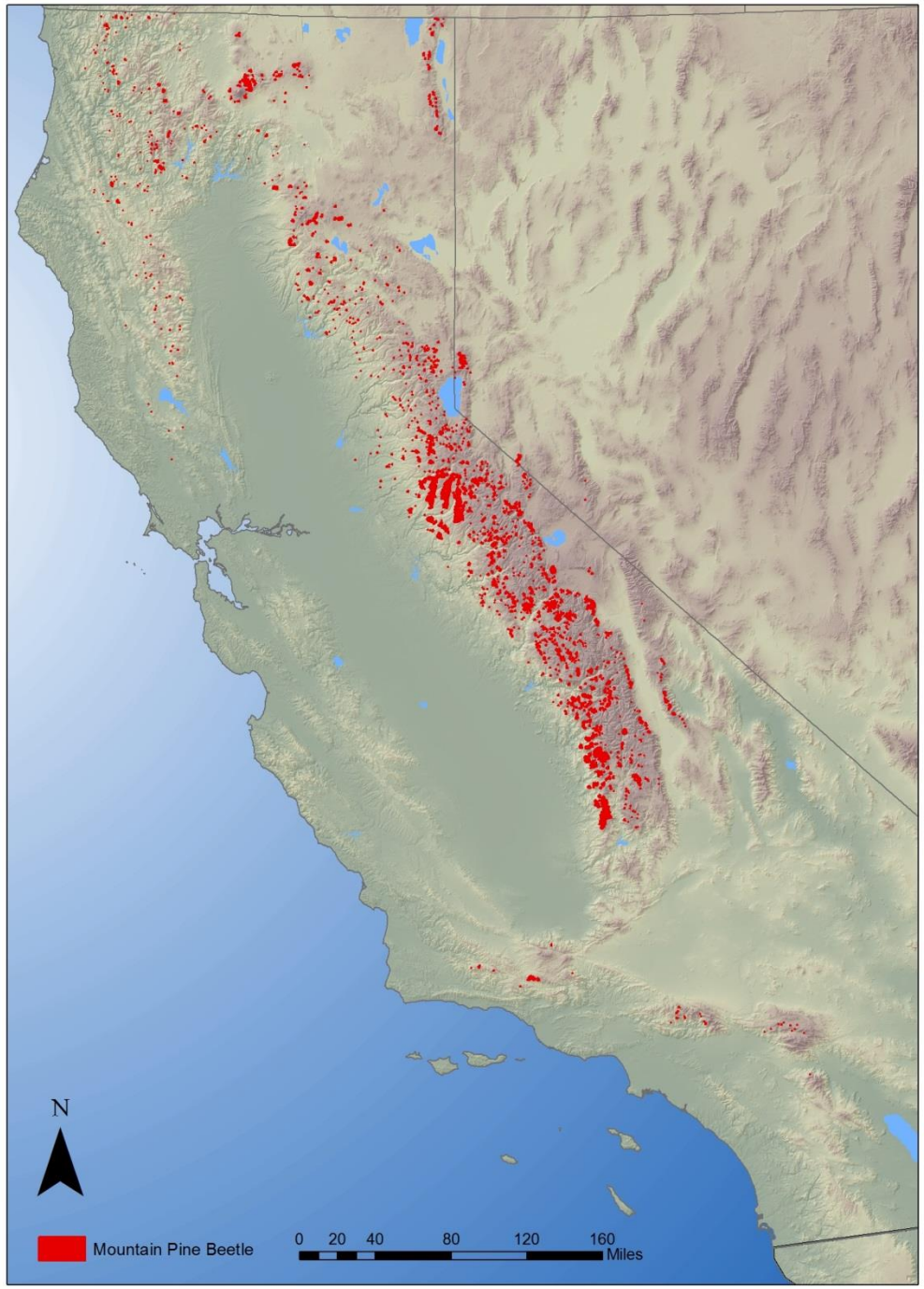
- Surveyed 44M acres in California
- Overall, mortality was about double from last year, mostly due to an increase in bark beetle and wood borer activity



Conifer mortality on the Hume Lake District, Sequoia National Forest

Mountain Pine Beetle

- 220,000 acres, increased from last year
- Large areas with scattered sugar pine mortality

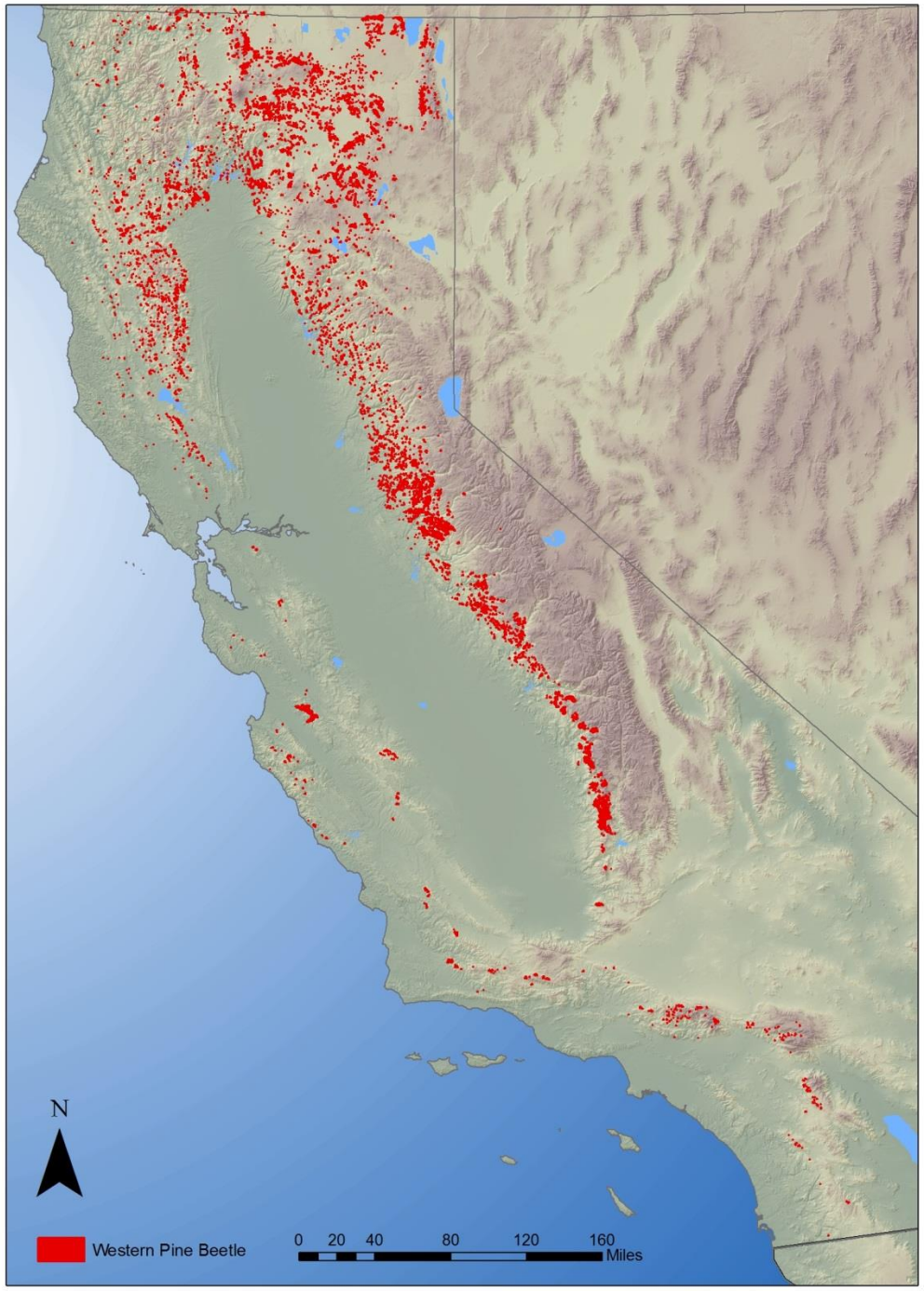


Old lodgepole mortality in the Warner Mountains, Modoc National Forest

Whitebark and lodgepole mortality at June Mountain, Inyo National Forest

Ponderosa and Coulter Pine Mortality

- 260,000 acres, doubled from 2013
- Large increase (10-fold increase) in Coulter pine mortality, but may not be due to WPB.

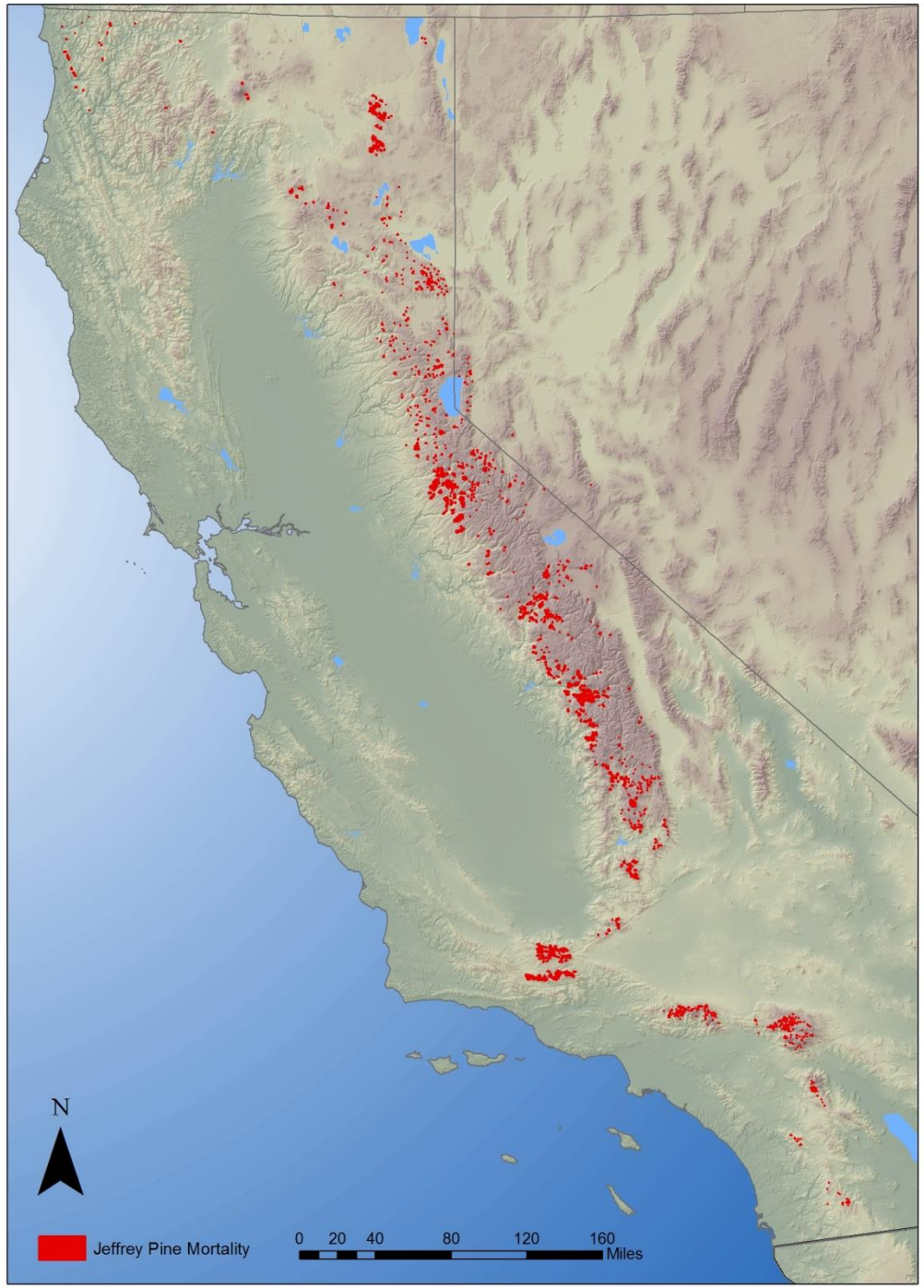


Ponderosa pine mortality in the Tehachapi Mountains

Coulter pine mortality in the Gabilan Mountains

Jeffrey Pine Mortality

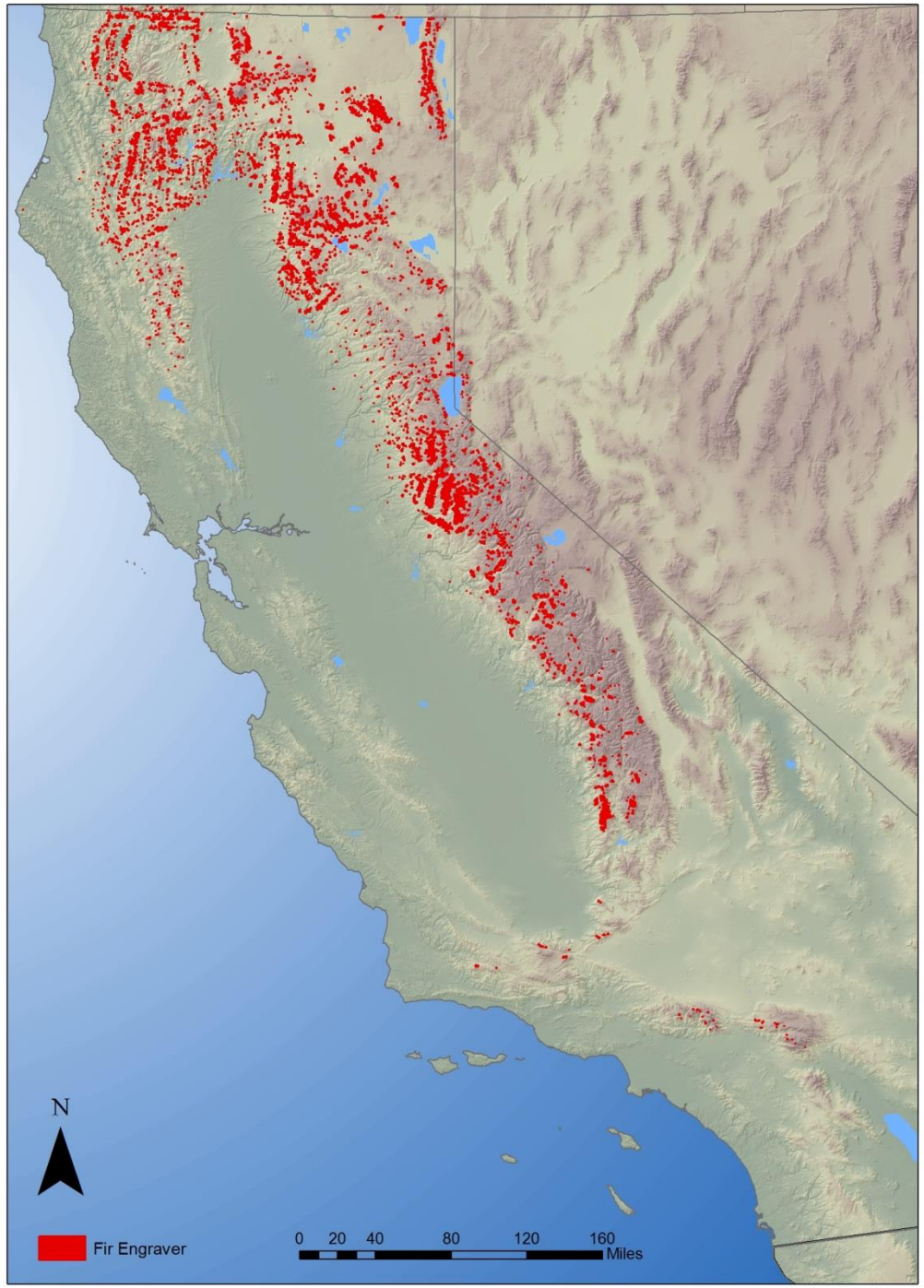
- 120,000 acres, more than double from 2013
- Includes mortality from Jeffrey pine beetle, pine engraver, California 5-spined Ips, California flat-headed borer, and other beetles.



Jeffrey pine on the Los Padres National Forest

Fir Engraver

- 460,000 Acres, more than triple from 2013.
- A similar peak in fir mortality occurred in 2010.

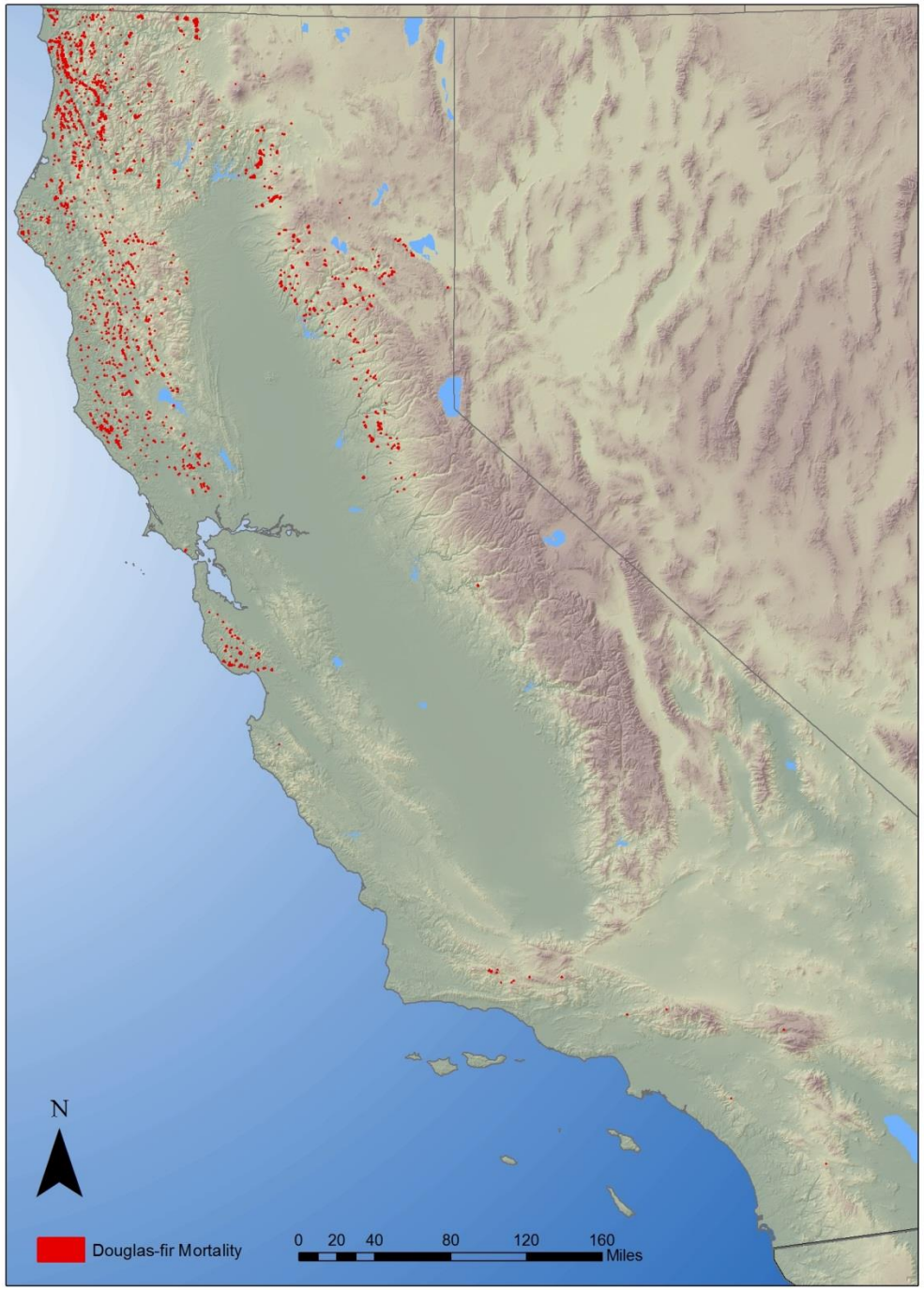


White fir mortality in the Warner Mountains, Modoc National Forest

Red fir mortality, and damage from Cytospora, in the Thousand Lakes Wilderness, LNF

Douglas-Fir Mortality

- Very little recent Douglas-fir beetle observed.
- Flat-headed fir borer similar to last year.
- Bear damage prominent in the northern coastal areas.

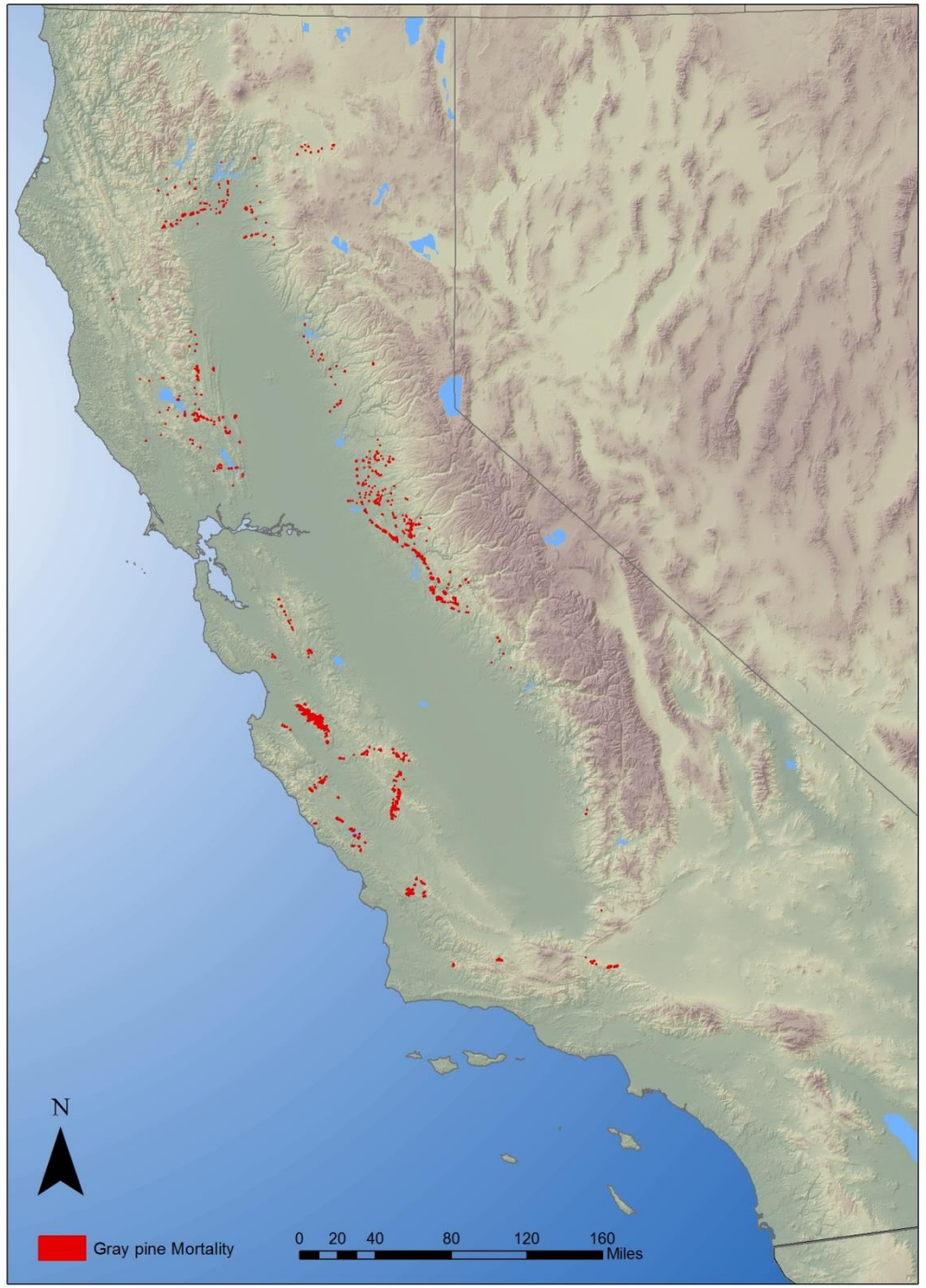


Douglas-fir killed by Flat-headed fir borer on the Eldorado National Forest

Douglas-fir killed by Douglas-fir beetle on the Plumas National Forest

Gray Pine Mortality

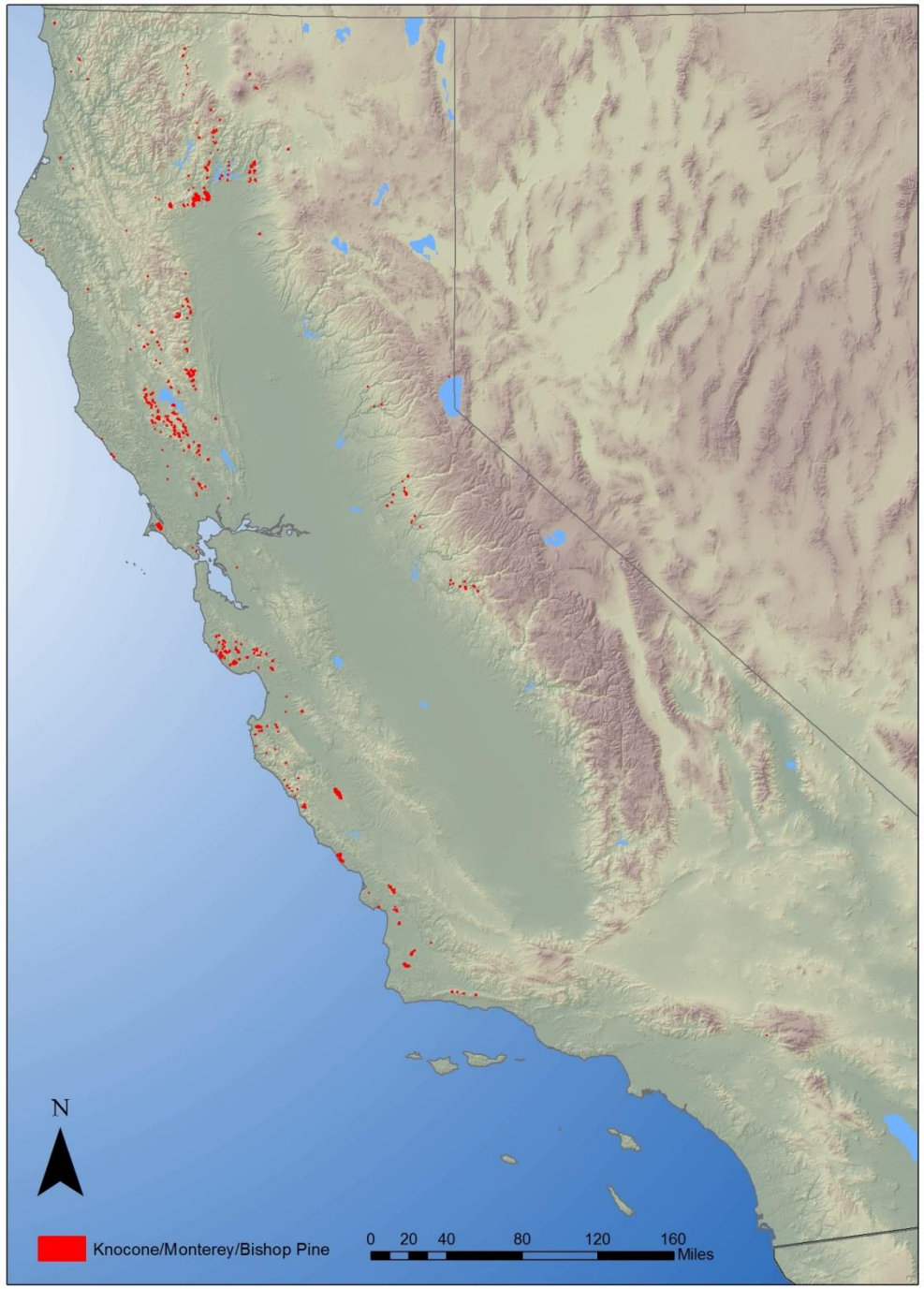
- Almost 25,000 acres mapped in 2014, similar to last year.
- 2,000 acres in 2012 and less than 400 in 2011.



Gray pine mortality in the Diablo Range

Monterey, Bishop and Knobcone Pine Mortality

- 19,000 acres mapped in 2014, more than double from last year.
- At least some of the mortality due to California 5-spined Ips.



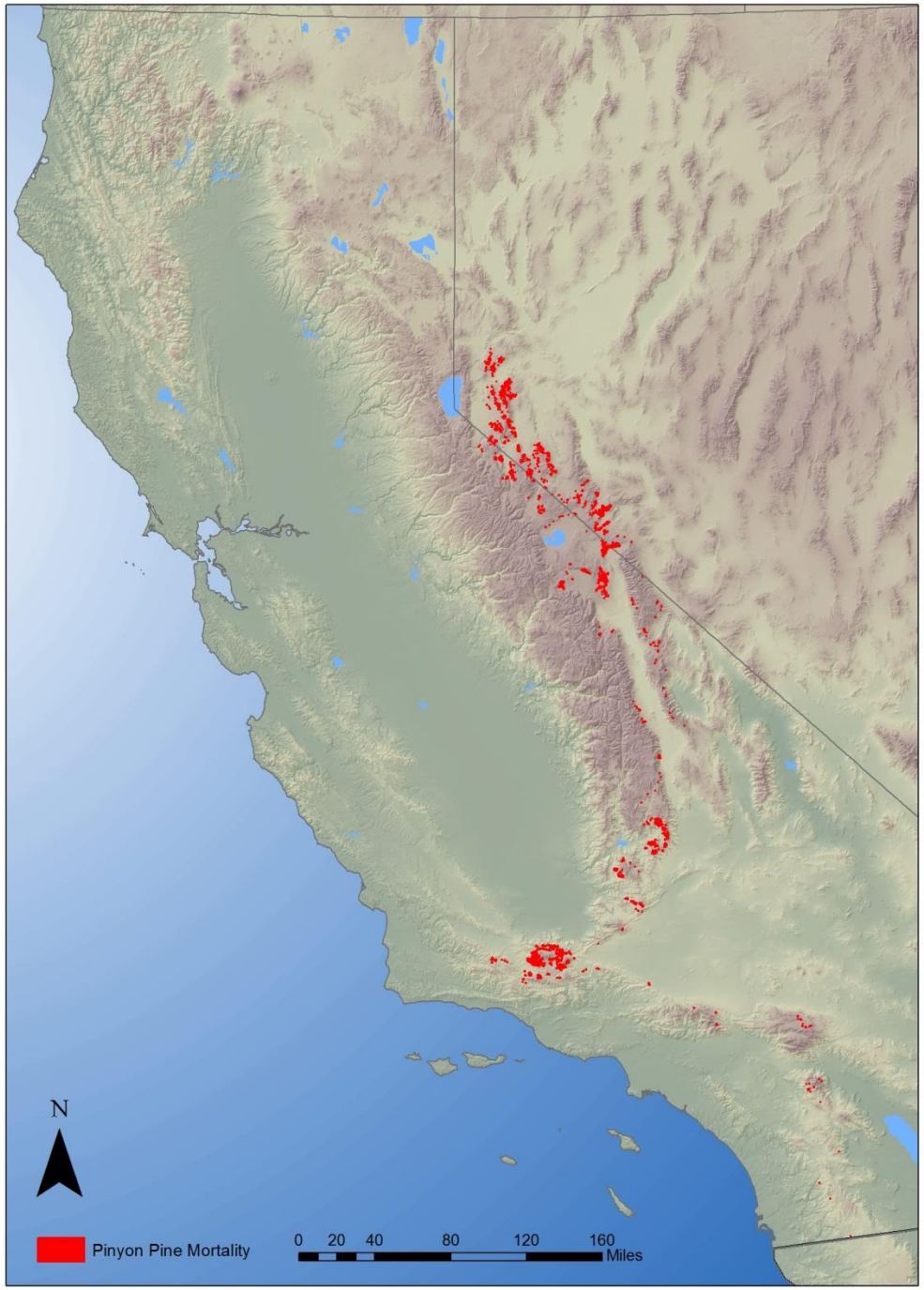
Native Bishop pine stand near Lompoc, Santa Barbara County

Knobcone pine near King City, Monterey County

Native Monterey pine near Cambria, San Luis Obispo County

Pinyon Ips

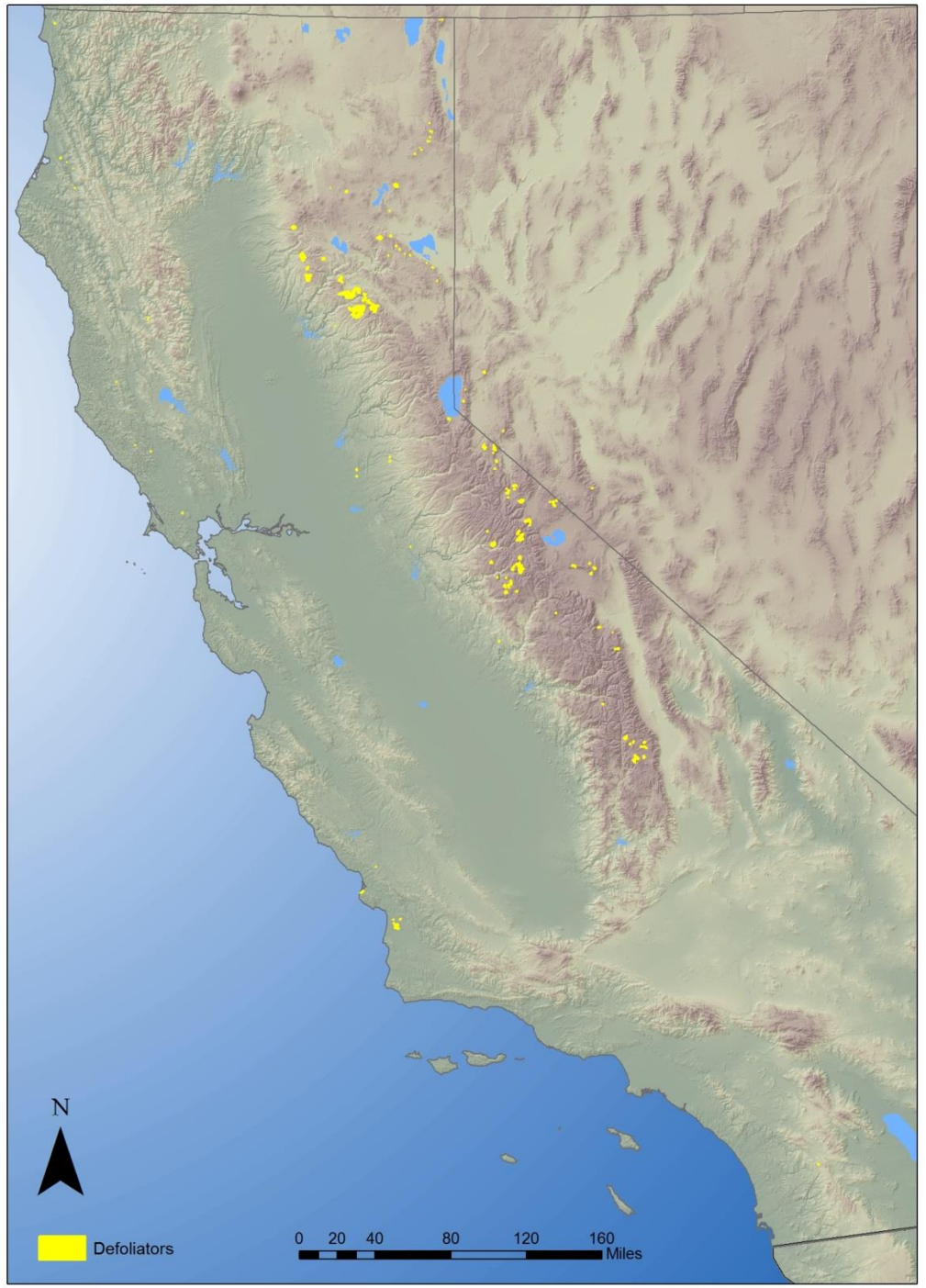
- 44,000 acres mapped in California in 2014, up from 9,000 last year.



Pinyon pine mortality near Lockwood Valley, Los Padres National Forest

Defoliators

- 28,000 acres of Douglas-fir tussock moth
- Jeffrey pine needleminer on the Tahoe Basin
- Pine scales on the Inyo, San Bernardino
- Lodgepole needle-miner in Yosemite
- Satin moth in aspen

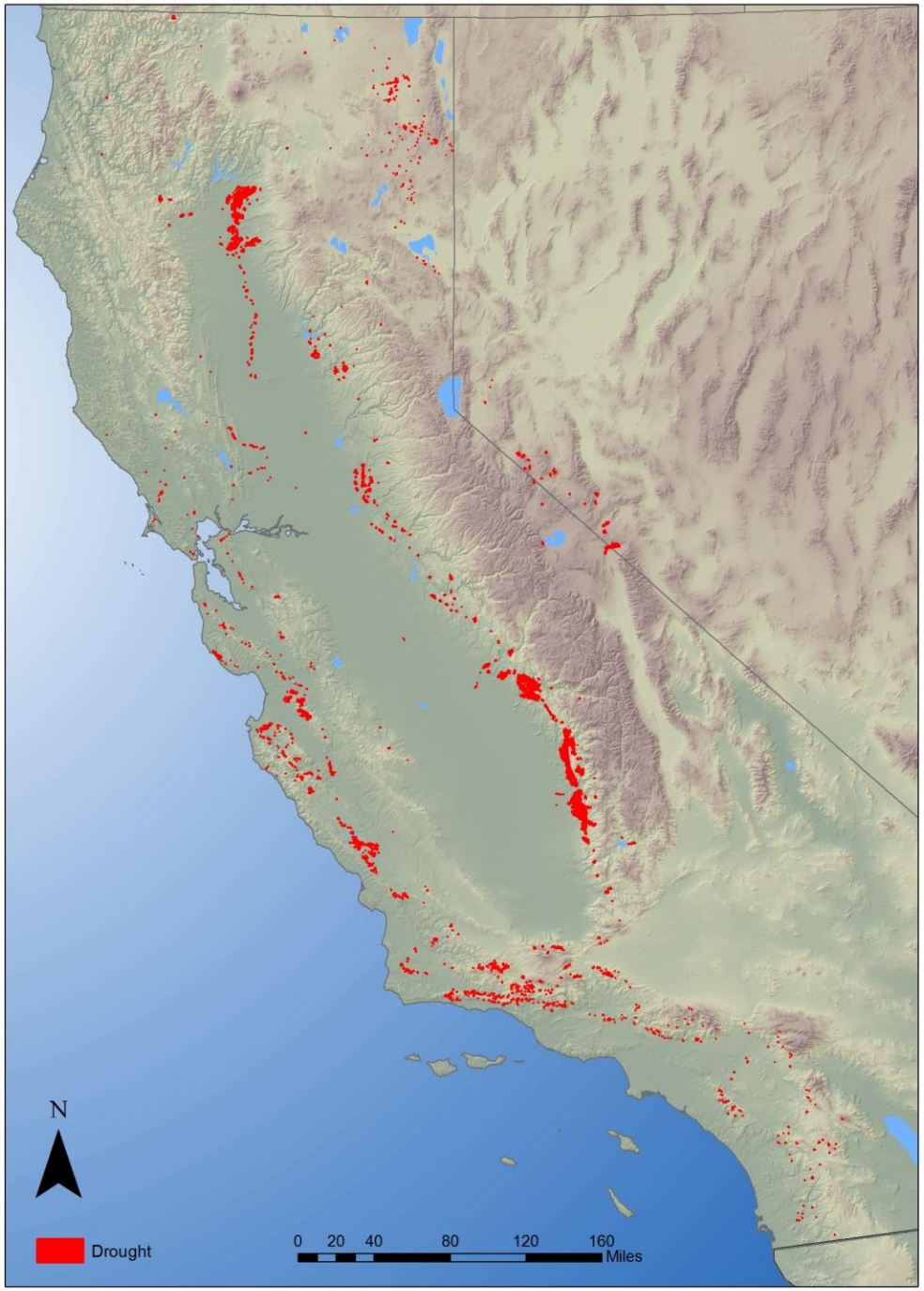


Douglas-fir tussock moth defoliation on the Plumas National Forest

Douglas-fir tussock moth near Eagle Lake

Drought

- 227,000 acres of damage to hardwoods mapped, mostly in blue oak in the southern Sierra foothills and live oak on the Central Coast



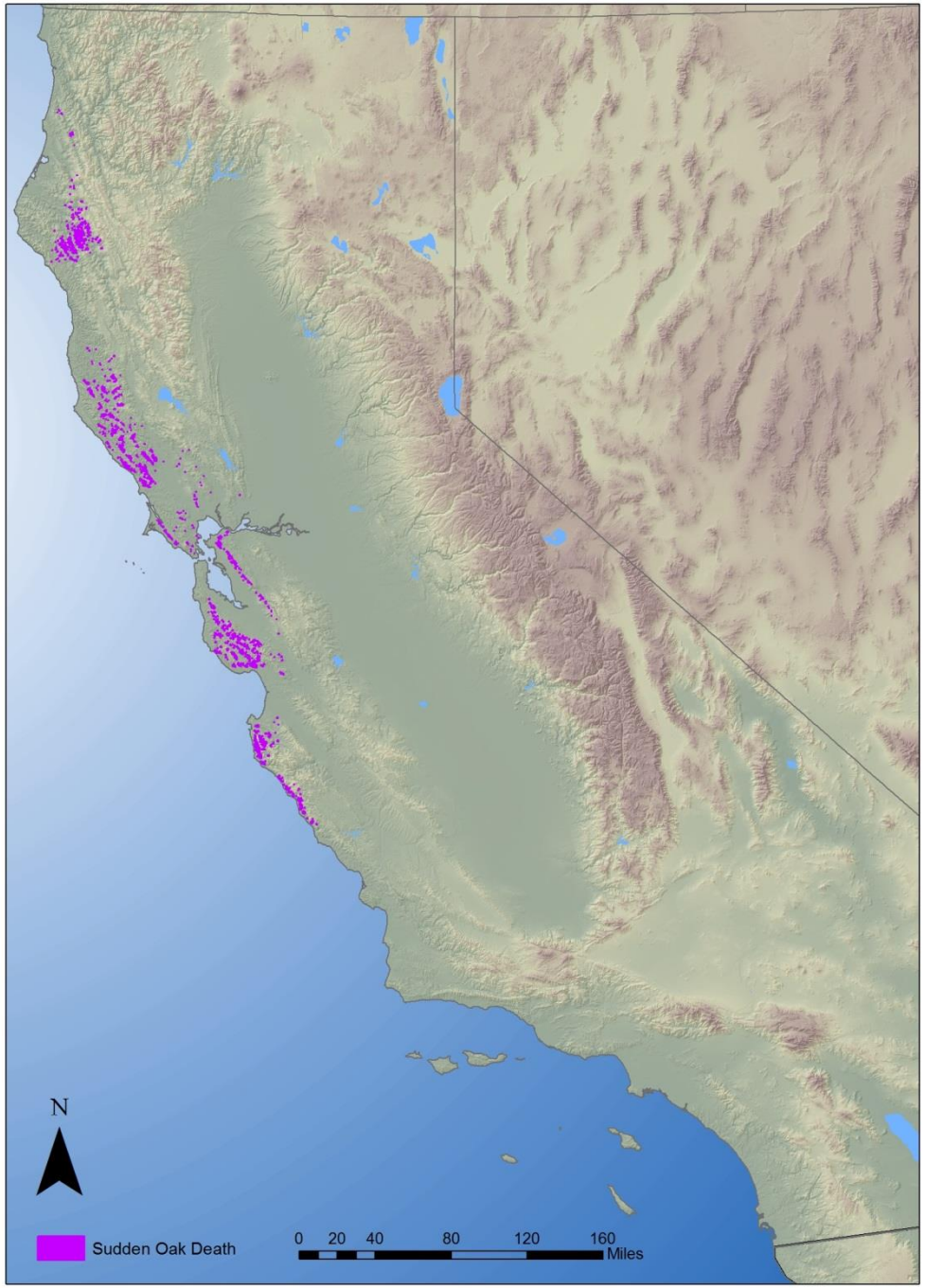
Riparian area along Cache Creek, Yolo County

Blue oak near Redding, Shasta County

Live oak mortality, San Luis Obispo County

Sudden Oak Death

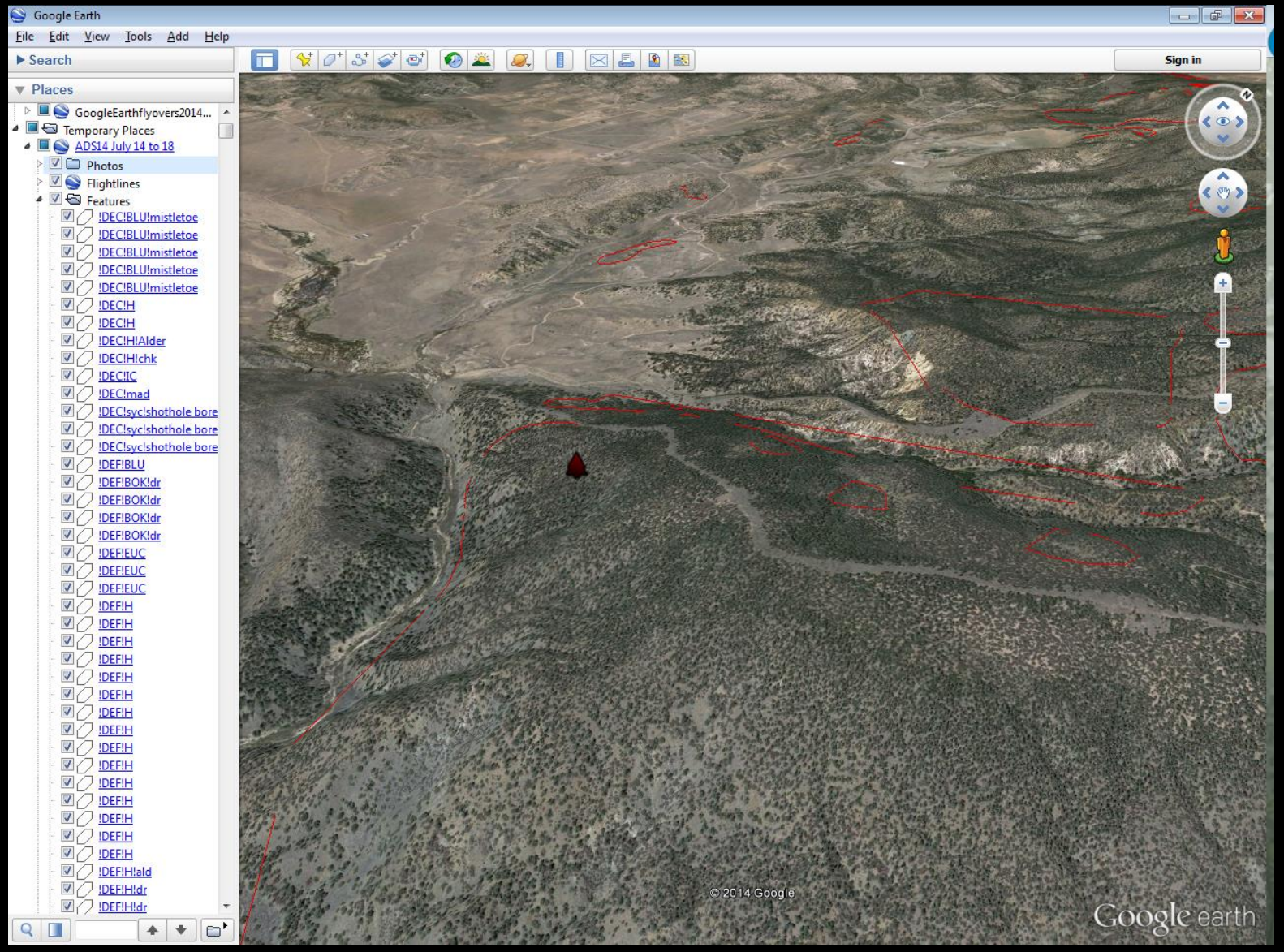
- 28,000 acres, down from 2012 & 2013 levels
- New finds, mostly in Humboldt County
- Still no obvious signs of the disease in San Luis Obispo or Del Norte Counties



Tanoak near Carmel Valley, Monterey County

Data and weekly reports available at:

http://www.fs.usda.gov/detail/r5/forest-grasslandhealth



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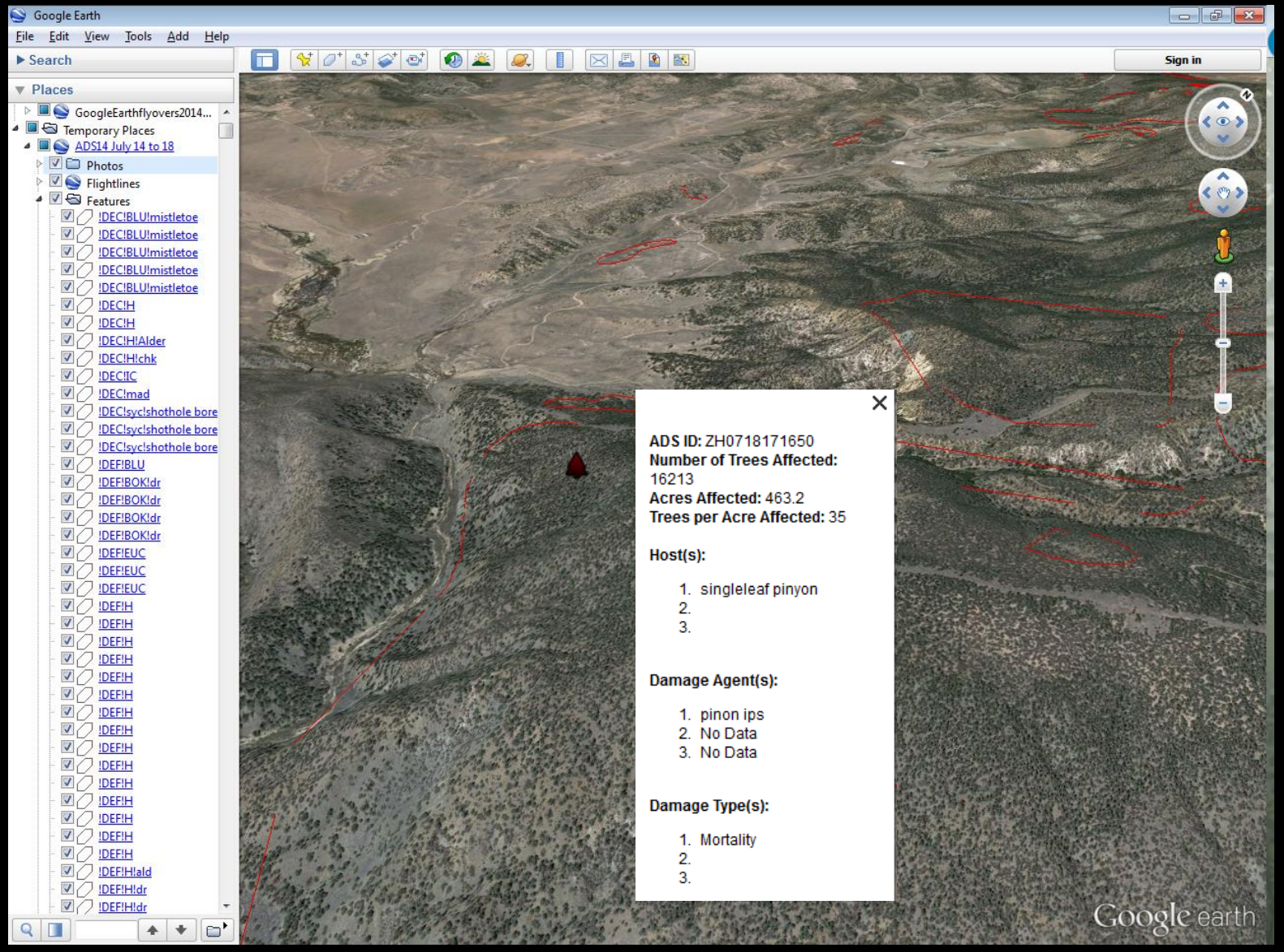

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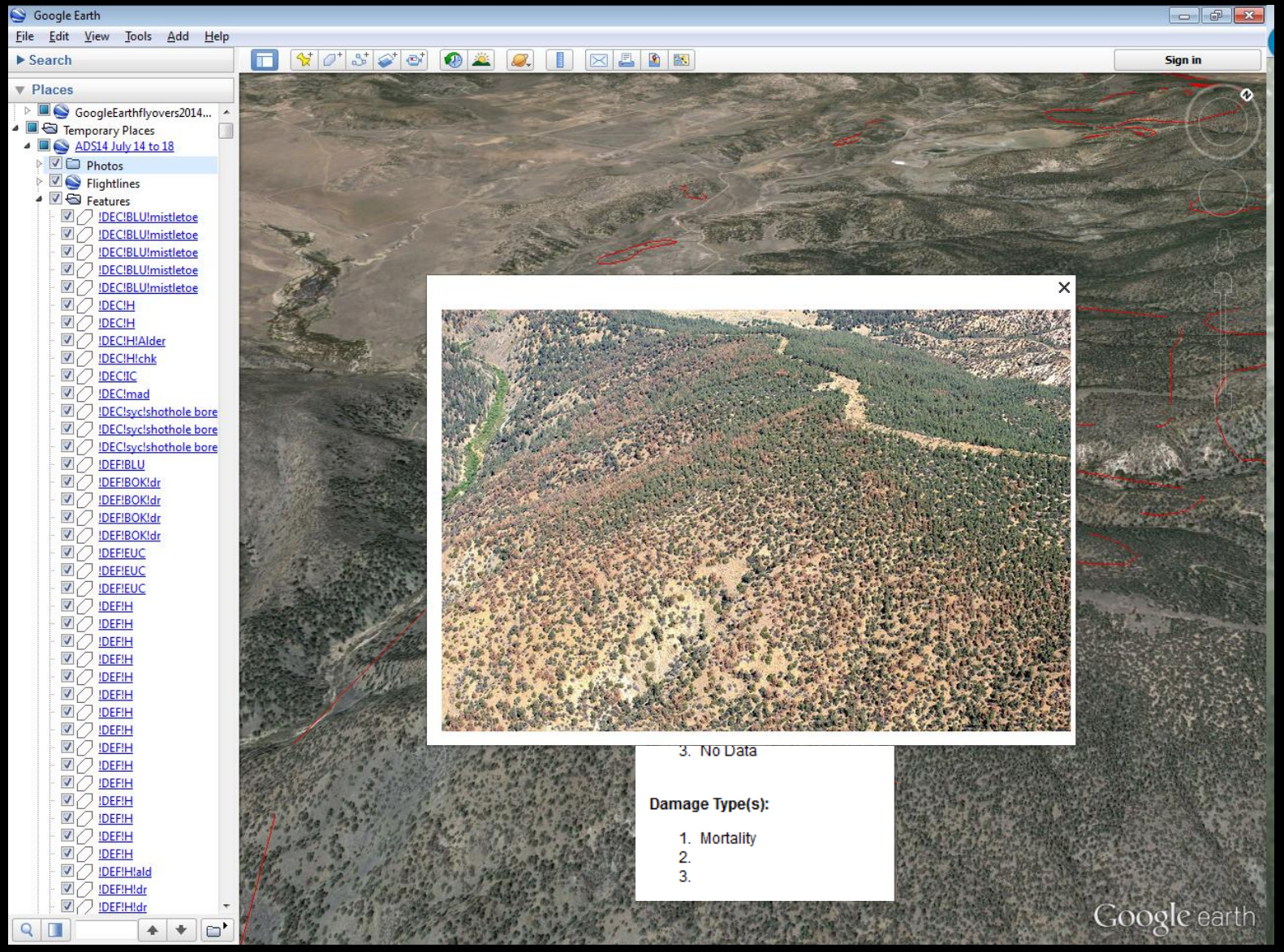

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Region 5 Forest Health Protection / CalFire / California Polytechnic State University

Sudden Oak Death Special Survey

Background: Sudden oak death (SOD) was first detected in California in 1995. This disease, caused by *Phytophthora ramorum*, has since killed millions of oaks and spread to 14 counties in California. Annual aerial detection surveys for SOD have been conducted in California since 2001. San Luis Obispo County on California's central coast has remained uninfested despite having suitable habitat for SOD in close proximity to known infestations.

Objective: Detect and map areas with oak and tanoak mortality in San Luis Obispo and southern Monterey County. Mapped areas will be ground checked by Cal Poly and Cal Fire personnel for verification of the disease. Assessment of overall tree mortality in the area was a secondary objective.

Surveyors: Z. Heath, K. Corella, S. Bisbing, J. Moore

Date: May 20th, 2014

Methodology: Recently dead tanoak and coast live oak 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. Photos of mapped trees were taken as well to aid in finding the trees. Cal Poly and CalFire personnel will follow up the survey with ground visits to areas with oak mortality to test for the presence of *P.ramorum*.

Details:

- About 460,000 acres were surveyed in San Luis Obispo County. Additionally, parts of Monterey, San Benito, Fresno and Merced Counties were surveyed during the survey and en route. Large areas with tree mortality were seen throughout forested areas of the survey area. Figure 1. The majority of the damage was likely related to the ongoing drought; California's central coast is currently experiencing even more severe drought conditions than the rest of the State. Figure 2.
- Extensive coast live oak mortality was observed in the vicinity of Paso Robles in San Luis Obispo County, about 10 to 20 miles away from the coast. This mortality is likely due to the drought, not from sudden oak death. Figure 3.
- Relatively less oak mortality was seen closer to the coast. About 30 discrete areas, consisting of individual or small clumps of dead oak trees, were identified in San Luis Obispo County within 10 miles from the ocean. These locations will be the priority for ground checks.
- Live oak and tanoak mortality was also observed in the Salmon Creek drainage in southern Monterey County, slightly more than a mile from the San Luis Obispo County line. Figure 4. Based on the proximity of known areas with SOD, this may be due to *P.ramorum* rather than drought. Large areas of intense tanoak mortality was observed on the Monterey Coast north of Salmon Creek, where SOD is known to exist.
- One of the three native stands of Monterey pine in California was also included in the survey. Intensive mortality was seen throughout this stand, Figure 5. Substantial mortality in Coulter, gray pine, and landscape pines was also observed throughout the survey area, much more than was recorded in previous years. Figure 6.
- Small areas Santa Lucia fir mortality were observed as well, similar in extent to previous years.
- Many eucalyptus plantations near the coast also were also dead or completely defoliated. Figure 7.

Figure 1. Flown area and mapped tree mortality

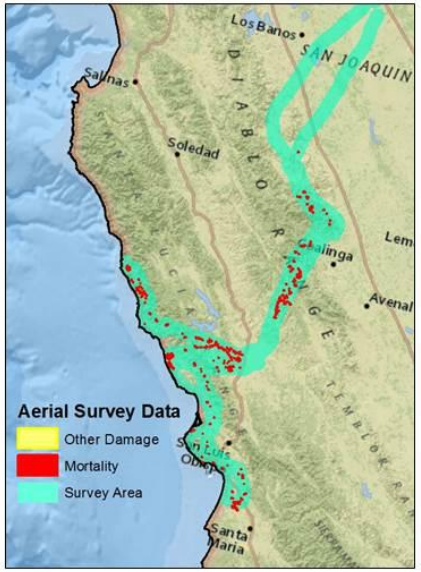
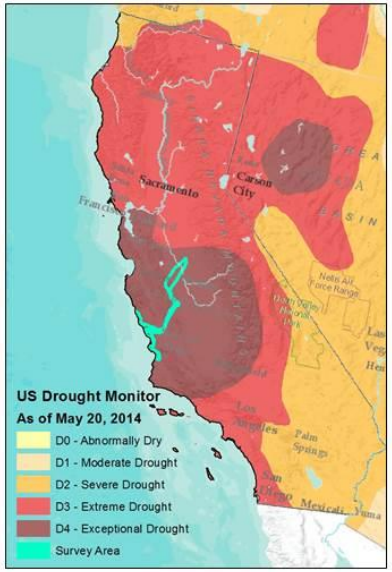


Figure 2. Current Drought Conditions in California



Zachary Heath
zheath@fs.fed.us

FPODA 2014

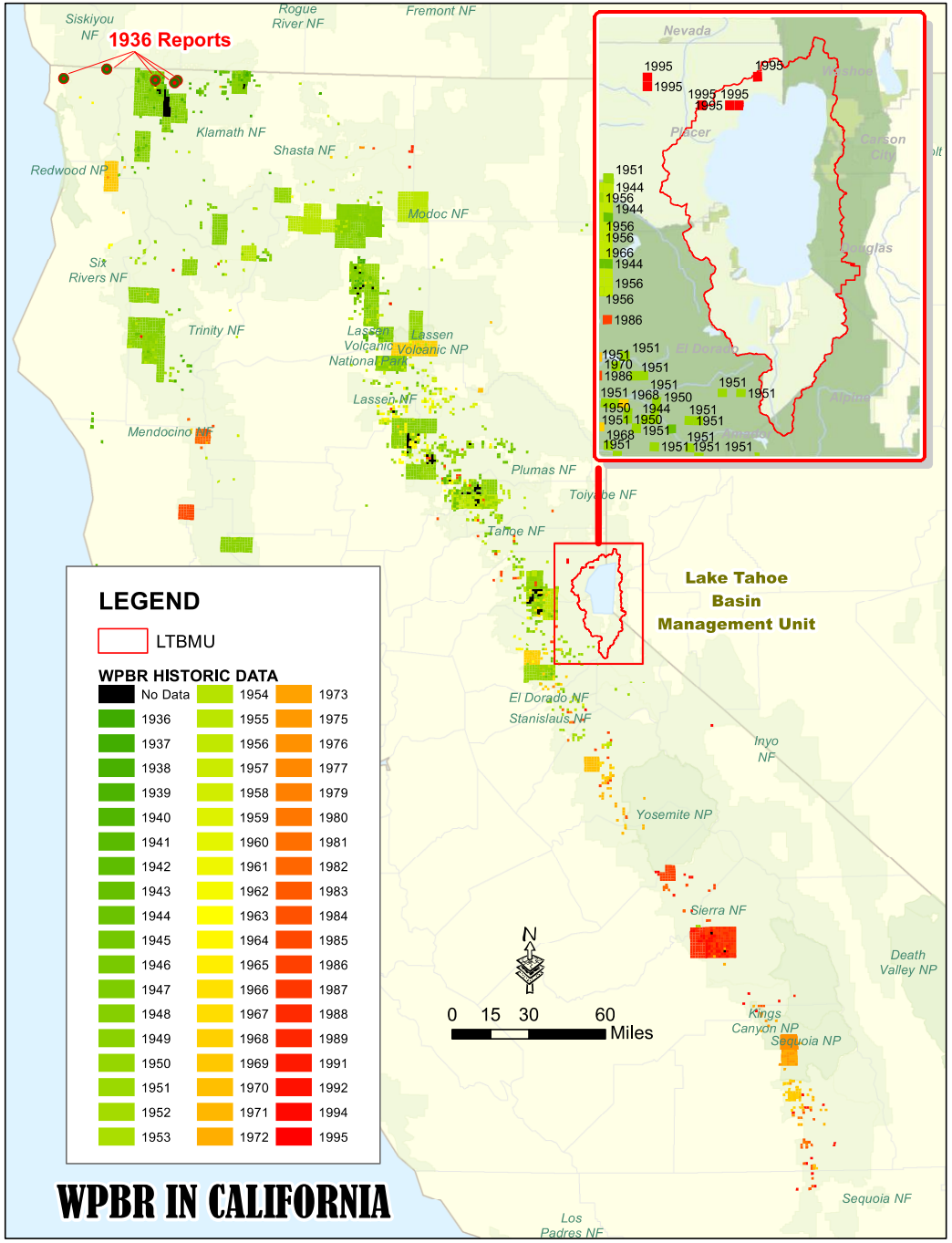
Forest Pest Observation Database Reporting

R5 SPF

Connecting Forestry to People.

Q:

When blister rust first arrived at Lake Tahoe Basin?



“...I can’t begin to tell you how helpful this is. Obviously, it doesn’t answer every question, but that little inset map you made of the Basin raises some very interesting issues…”

FPODA

an unified platform for all users to efficiently report, manage, and utilize forest pest field observation data.

State and Private Forestry
Pacific Southwest Region
USDA Forest Service
1323 Club Dr.
Vallejo, CA
94592

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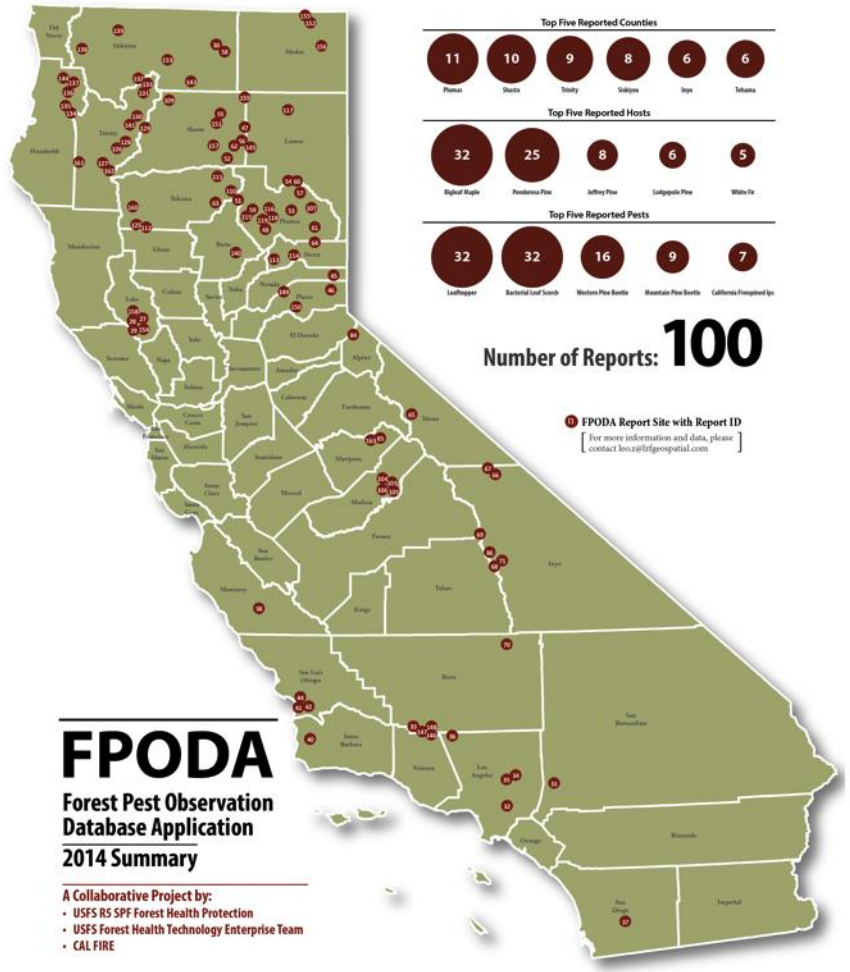

FPODA

Forest Pest Observation Database Application

2014 Summary

A Collaborative Project by:

- USFS R5 SPF Forest Health Protection
- USFS Forest Health Technology Enterprise Team
- CAL FIRE

Top Five Reported Counties

Plumas	Shasta	Trinity	Siskiyou	Inyo	Tehama
11	10	9	8	6	6

Top Five Reported Hosts

Bigleaf Maple	Ponderosa Pine	Jeffrey Pine	Lodgepole Pine	White Fir
32	25	8	6	5

Top Five Reported Pests

Leafhopper	Bacterial Leaf Scorch	Western Pine Beetle	Mountain Pine Beetle	California Fivespined Ips
32	32	16	9	7

Number of Reports: 100

(11) FPODA Report Site with Report ID

[For more information and data, please contact leo.z@lzfgeospatial.com]

Data downloaded on 11/05/2014. Designed by Leo Z.L (leo.z@lzfgeospatial.com). Last Update: 11/09/2014

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