

# 2022 HIGHLIGHTS OF TREE MORTALITY FROM INSECTS AND DISEASES AS SEEN BY AERIAL SURVEY

Approximately 39.7 million acres surveyed in California

## PACIFIC SOUTHWEST REGION

### CALIFORNIA PINES

WESTERN, MOUNTAIN, and JEFFREY PINE BEETLES

- Native insects which attack several pine species
- Pine mortality remains greatly elevated (~2x background levels)
- Pine beetle-caused mortality **made up 11%** of detected mortality in California in 2022
- ★ Working across ownerships and landscapes to improve resilience to insects, diseases, and wildfire

### CALIFORNIA OAKS

GOLDSPOTTED OAK BORER

- Invasive insect which attacks several western oak species
- First identified in San Diego County in 2008; **now present in 4 additional counties**
- GSOB-caused mortality from aerial survey fairly consistent over last 6 years
- ★ Monitoring and treating high value individual trees



### HAWAI'I 'ŌHI'A

RAPID 'ŌHI'A DEATH (ROD)

- Continues to significantly impact all districts of Hawai'i Island, with further spread on Kaua'i
- Incorporating remote sensing of high-resolution satellite imagery to map the extent of ROD
- Researching effects of storm events, ambrosia beetles, and feral hoofed animals on disease spread
- ★ Implementing management techniques to monitor and suppress ROD
- ★ Developing an 'ōhi'a resistance program

### CALIFORNIA OAKS

SUDDEN OAK DEATH (SOD)

- Exotic tree disease which kills several oak species and tanoak in particular in coastal forests
- SOD spreads primarily during wet spring events
- New SOD-caused mortality in 2022 was **significantly reduced** from recent years.
- ★ Cooperating with Tribes and other partners to evaluate tanoak for resistance against SOD

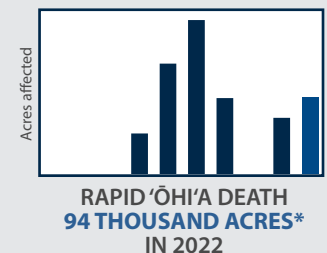
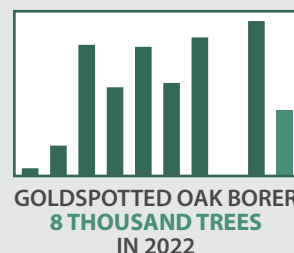
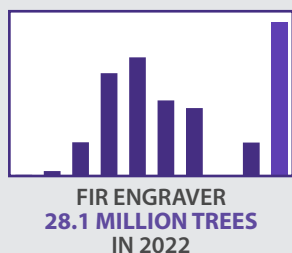
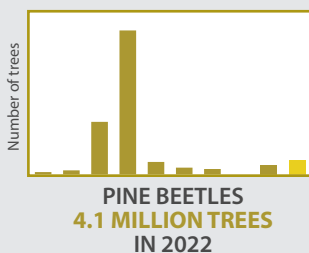
### CALIFORNIA FIRS & DOUGLAS-FIR

FIR ENGRAVER (FEB)  
FLATHEADED FIR BORER

- FEB is a native insect significantly impacting California red fir and white fir
- FEB-caused mortality **made up 77%** of detected mortality in California in 2022
- Flat headed fir borer is a native insect attacking Douglas-fir; it **made up an additional 8%** of detected mortality in California in 2022
- ★ CCI funding helps improve resilience in CA forests, including where firs grow

☆ An action the US Forest Service is taking.

## TREE MORTALITY SURVEY TRENDS 2013 - 2022



Note: The units of measurement of mortality for above charts vary by pest. No statewide data for California available for 2020 due to COVID-19 precautions.

# 2022 INSECT AND DISEASE SURVEY

