

2021 HIGHLIGHTS OF TREE MORTALITY FROM INSECTS AND DISEASES AS SEEN BY AERIAL SURVEY

Approximately 38 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 27%** of detected mortality in California in 2021
- ★ 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, and **made up less than 1%** of detected mortality in 2021
- ★ 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
- Utilizing a new survey technology to map the extent of rapid 'ōhi'a death
- ★ Implementing management techniques to monitor and suppress ROD
- ★ Developing an 'ōhi'a resistance program

CALIFORNIA FIRS

FIR ENGRAVER

- Native insect significantly impacting California red fir and white fir
- Fir engraver-caused mortality **made up 64%** of detected mortality in California in 2021
- ★ CCI funding helps improve resilience in CA forests, including where firs grow

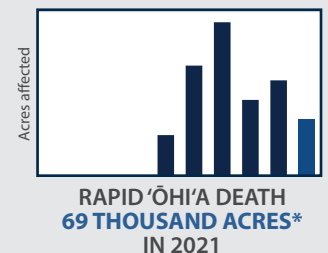
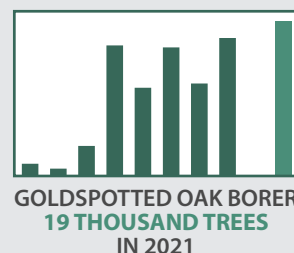
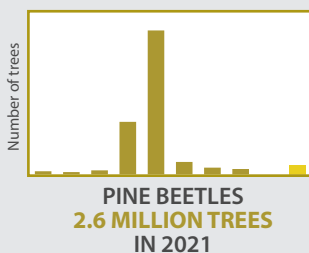
CALIFORNIA OAKS

SUDDEN OAK DEATH (SOD)

- Exotic tree disease which kills several oak species and tanoak in particular
- **Ongoing effects** in coastal forests in California and Oregon
- New SOD mortality in 2021 was greatly reduced from 2018-2019 since drought may reduce disease spread
- SOD-caused mortality **made up 1%** of detected mortality in California in 2021
- ★ Cooperating with Tribes and other partners to evaluate tanoak for resistance against SOD

☆ An action the US Forest Service is taking.

TREE MORTALITY SURVEY TRENDS 2012-2021



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.

2021 INSECT AND DISEASE SURVEY

