



# Forest Health Protection

## Pacific Southwest Region



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### Manzanita Reservation Oak Surveys (FHP Report # SC-11-03)

#### Background

On September 9, 2010, follow-up surveys were conducted on the Manzanita Reservation by Tom Coleman, Forest Health Protection, and members of the Manzanita Reservation to identify additional tree injury and infestation from the goldspotted oak borer (GSOB), *Agrilus auroguttatus*.

#### Oak Surveys

Surveys were conducted at four sites across the Reservation and consisted of examining coast live oak, *Quercus agrifolia*, for GSOB injury symptoms. Crown thinning, D-shaped exit holes, bark staining, and woodpecker foraging were used to determine infested trees and level of injury from GSOB (see Goldspotted Oak Borer Field Identification Guide attached).



Figure 1. Coast live oak mortality from the goldspotted oak borer on the Manzanita Reservation.

Coast live oak was the dominate tree species found across the Reservation. The average infestation rate observed in coast live oak was 46%. The infestation was found spanning the entire Reservation and adjacent properties also injury and tree mortality from GSOB. Larger diameter coast live oaks (14.1-60.2" DBH) were infested by GSOB. Low levels of injury from GSOB were observed on coast live oaks. Few trees had extensive injury from the beetle, which was determined by the density of exit holes and crown fullness. Several dead oaks were encountered that showed previous injury from GSOB (Figure 1 and Appendix 1). Similar data was observed by FHP pathologist, Paul Zambino, on his site visit.

#### Management Options

*No action:* If no action is taken to prevent or slow GSOB populations, oak mortality will likely continue at low levels on the Reservation in larger diameter coast live oaks. Oak mortality will be persistent in the future and occur at elevated levels than what has historically been associated with insects or diseases in this area. Additional oaks will become infested during this time and will likely succumb to beetle herbivory in 5-9 years. If additional stress from drought, wildfire, or other insects and diseases impact oaks in the area, an increase in oak mortality levels will likely be observed. Coast live oak >10" DBH are at risk from GSOB-caused mortality.

*Prevention Options:* Developing a management plan for the Reservation will be essential for assessing the oak resource, identifying high-value sites for management actions, limiting the

spread of GSOB populations, monitoring the activity of GSOB populations, and planning restoration efforts. Distributing educational and outreach materials to the tribe are also suggested to inform people of this new problem and management options currently available. The document “Developing a Goldspotted Oak Borer Management Plan” can assist with this process.

Prevention options for limiting the goldspotted oak borer are outlined in the document “Best Management Practices for Preventing Tree Mortality from the Goldspotted Oak Borer on Public and Tribal Lands.” Research shows that topical insecticides are more effective against GSOB populations than systemic insecticides. Preventive insecticides should be used only on coast live oaks in high-value sites that are uninfested or lightly infested (exit hole density of  $\leq 1$ , see GSOB Field ID Guide). Topical insecticide treatments should only be applied to coast live oaks  $>10$ ” DBH that are at risk from GSOB injury and in designated high-value sites. Topical treatments should be applied to the lower bole and larger branches. Treating the canopy with topical insecticides may not be required to save the tree, and effectively applying the treatments throughout the crown may not be feasible and incur excessive costs. Topical treatments should be re-applied every year until additional data are available. These topical treatments should limit mortality in these species. Trees surveys should be conducted at regular intervals to monitor the health of these treated trees, efficacy of the treatments, and health of other trees in the area.

*Suppression Options:* Cutting infested trees and properly managing the cut wood can eliminate local populations and may slow tree mortality in the area. Trees with severe injury from GSOB populations (crown rating of 3-4 and exit hole rating of 3, see GSOB Field ID Guide) should not be treated with insecticides. These trees contain high densities of GSOB and will likely die in the next few years. Grinding ( $<3$ ” particle size), double tarping during the summer months (May-October), or debarking recently cut wood can eliminate GSOB populations. Properly dispose of cut wood (grinding, tarping, or debarking) or leave the wood on site for two years before removing it from the Reservation so the invasive population is not moved to additional areas. The GSOB Field ID Guide attached also outlines prevention and suppression options and information for detecting this new pest.

### **Conclusions**

I advise the Reservation to develop a management plan for managing this new invasive pest and focus prevention treatment in high-value sites (immediately surrounding homes or heritage sites). Topical application of insecticides is currently the most effective means for impacting GSOB populations. Severely infested trees should not be treated with insecticides and considered for removal.

If there are additional questions or forest health concerns, please contact Forest Health Protection, Southern California Shared Service Area.

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