

PEST ALERT

Mediterranean oak borer *Xyleborus monographus*



MOB galleries can cause extensive damage to the trunk and branches of infested oak trees.

About the Beetle

The Mediterranean oak borer (MOB) is an invasive ambrosia beetle native to the Mediterranean region, including Europe, the Middle East, and North Africa, where it primarily attacks oak species. The first North American infestations of MOB were confirmed in valley oaks in Napa County, California in late 2019, followed by Lake and Sonoma Counties in early 2020.

Female beetles (A) are light brown and 3 mm (1/8 inches) long. Male beetles are smaller and rarely found outside the galleries.



A

Host Trees

MOB attacks at least 12 species of oaks in its native range. In California, it has been found infesting two species of white oak: most commonly valley oak (B) and, to a lesser extent, blue oak (C). A single, very limited attack was found in a severely distressed California black oak.



B



C

Life Cycle

MOB requires 5-8 weeks to develop from egg to adult and can have two or more generations per year. In California, mated females overwinter in the gallery system and emerge in late winter or spring, when the temperature approaches 80°F.

Damage

MOB creates tunnels (or galleries) in the trunks and branches of host trees. It initially attacks the crown of the tree, where it will kill individual limbs. Infestation can continue over several growing seasons, eventually invading the main trunk and killing the entire tree. Infested trees can become a hazard when widespread galleries weaken their limbs and upper trunk. This can lead to premature failure, especially if combined with heart rot.

Ambrosia Beetles and Tree Disease

All ambrosia beetles (like MOB) grow fungi inside their galleries and use it as food for larvae and adults. Some of these fungi can be pathogenic and cause tree diseases that may lead to tree decline and, sometimes, tree death. Several species of fungi have been found in MOB specimens in Napa County, and research is underway to determine if these fungi cause tree diseases.

Signs and Symptoms

Oak trees infested with MOB are most easily identified by damage caused by the beetle's tunneling activity (galleries) in the xylem. MOB galleries (**D**) are often:

- Trellis-like
- Very crowded and intersecting
- Fanning out in a single plane
- 1.2-1.5 mm in diameter

Other signs and symptoms of MOB tunneling activity include boring dust (**E**) in cracks of the tree bark, and sometimes oozing sap ("sap flux"). Similar symptoms can be produced by tree diseases and other boring insects, so MOB galleries or specimens must be identified in addition to the presence of boring dust and/or sap flux.



Lookalikes

In Northern California, two native ambrosia beetles in the genus *Monarthrum* also create black-colored galleries in oaks. *Monarthrum* galleries (**F**) branch from a single point like a palm leaf and do not cross over neighboring galleries. These native beetles typically only attack trees that are already dead, dying, or diseased.



What Can I Do?

Research is currently underway to determine the best way to control this beetle and prevent tree mortality. If you have a tree that you believe to be infested, please contact the California Department of Food and Agriculture (see Pest Hotline below) and take the following steps to limit the spread of MOB:

- Moving infested wood artificially spreads pests to other areas. **Buy it where you burn it - don't move firewood!** www.firewood.ca.gov
- Chip infested wood as small as possible (1-3 inches in diameter).
- Bury or burn material that is too large to chip. Burying with 8" of soil should be sufficient. Packing improves containment. If burying and burning are not practical, leave material on site and lay out in the sun in a single layer to maximize rapid drying of the wood.



How Do I Report a Potential Infestation?

If you believe that you have found oak tree damage and/or beetles that fit the description above, please contact your County Agricultural Commissioner's office or the California Department of Food and Agriculture.

Pest Hotline: 1-800-491-1899

Report a Pest: www.cdffa.ca.gov/plant/reportapest

Visit www.mobpc.org for more information