Mediterranean Oak Borer pest interim management guidance

This information is meant to provide the City of Wilsonville guidance with the information we currently have for management of Mediterranean Oak Borer. More guidance will be provided as we learn more about effective strategies to control this pest.

September 2023

Talking points for the public:

- Mediterranean oak borer (*Xyleborus monographus*) is an invasive insect from Europe and the Middle East that transmits multiple fungi including *Raffaelea montetyi*, which has been shown to be pathogenic resulting in oak wilt which may kill oak trees in as little as 2-3 years. Mediterranean oak borer or "MOB" is a tiny woodboring beetle called an "ambrosia beetle" because instead of feeding on wood, it eats fungus grown in galleries created in the wood.
- This insect was first found in California in 2017 and was found in a single trap in Oregon in 2018 (Multnomah Co.), in 2020 (Marion Co.), and in 2021-2022 (Clackamas and Washington Co.). Then, in 2023 MOB was found in a single Oregon white oak at Sandy River Delta and in several live Oregon white oak in Wilsonville.
- View the factsheet (*https://tinyurl.com/MOB-oregon*) for signs and symptoms (mainly canopy dieback, dark beetle galleries in wood, and pale boring dust) and report evidence of suspected MOB infestation to the Oregon Invasives Hotline: *https://oregoninvasiveshotline.org/login/?next=/reports/detail/2018*
- Don't Move Firewood to prevent spreading this and other pests: *https://www.dontmovefirewood.org/map/oregon*

Suggested guidance for Wilsonville

Recognize the signs and symptoms of MOB:

1) MOB is a tiny reddish-brown beetle that can be confused with many other beetles that reside in oak. 2) Pale boring dust is kicked out by the beetle and found on the exterior trunk of the tree. 3) MOB galleries look like tiny black holes from the exterior of the wood and, 4) black, branched trellises on the cut face of wood. 5) MOB create tiny, perfectly round entrance holes. *Symptoms not from MOB: holes larger than the diameter of a pencil lead, brown boring dust, discolored leaves but absence of dieback, wood staining without associated galleries. Info on other oak pests:* *https://www.oregon.gov/odf/Documents/forestbenefits/Oak_galls_2017.pdf*

Candidates for disposal:

- Oaks with at least 30% crown dieback (not just leaf discoloration or seasonal leaf drop) and/or evidence of pale boring dust
- Oaks damaged (large cracks, broken branches, etc.) by mechanical, abiotic or biotic stressors that indicate they have been weakened via poor crown development.
- Oaks whose roots (typically 2x tree height) are within active or proposed construction

Disposal options:

- Destroy infested trees on-site with a masticator, tub grinder, or burn boss (above-ground air curtain incinerator). Ensure that the tree is cut flush with the ground and a stump is not left exposed. Chip material to 1 inch or less and burn or cover with tarp for two months to reduce beetle spread, do not spread chips near standing oaks.
- Transport felled trees in covered trucks to nearby Covanta incinerator. Beetles are less likely to fly November through January, avoid transporting infested, uncovered material outside of this timeframe.
- Alternate disposal option: If neither 1 or 2 are workable and a chipper/grinder is available that can create chips no more than 3" in any direction, then infested material may be chipped and tarped until it can be burned, moved in a covered truck to the Covanta incinerator, or sent to a landfill for immediate deep burial.

Candidates for chemical treatment:

- Heritage trees
- Trees that pose a hazard or are difficult to remove if they die
- Clustered trees to retain oak islands of habitat and because currently it is unknown if the fungus can spread via root-to-root contact
- Trees with invested protection such as cabling or other efforts

Chemical treatment options:*

- If trees have <30% canopy loss: preventative or mitigative chemical treatment via systemic insecticide (emamectin benzoate) + fungicide (propoconizole, tebuconzaole) applied after a thorough rain or watering may halt MOB and disease spread.
- If no evidence of MOB attack is visible: preventative chemical treatment via contact insecticide (carbaryl, bifenthrin, *Beauvaria bassiana*, *Metarhizium anisopliae*).
- Trial application of repellant (piperitone) and nearby ethanol baited traps for "push-pull"
- Solarization (covering infested material with 6mil clear plastic) may kill some individuals, prevent attacks and beetle spread but may not be sufficient for control. Burying infested material is not recommended.
- Sterilize equipment and avoid transporting soil or chips from infected trees to prevent spreading fungus.

*Chemical and microbial pesticides can have potential non-target impacts on natural enemies and other wildlife, read and follow product labels to reduce the impact of these products.

Future planning: Healthy trees are susceptible but may be able to resist or tolerate MOB attacks longer. Maintain oak health by avoiding construction within 2x the height of the tree or alteration of current irrigation practices that cause an increase or decrease in the watering schedule trees have become accustomed to.