



Invasive Shothole Borers and Fusarium Dieback California Resident Advisory

Invasive wood-boring beetles are damaging Southern California's urban trees and native and riparian forests. Trees in your neighborhood, and even your yard, might be infested without you even knowing it!

About This Pest

The invasive shothole borers (ISHB) are beetles that tunnel into trees and introduce a fungus that they use as their food source. The fungus causes a disease called Fusarium dieback that disrupts the flow of water and nutrients in trees. ISHB was first discovered in Los Angeles in 2012 and has now spread to Orange, San Diego, Riverside, San Bernardino, Ventura, Santa Barbara, and San Luis Obispo Counties.



ISHB tunnels in castor bean wood.

Trees at Risk

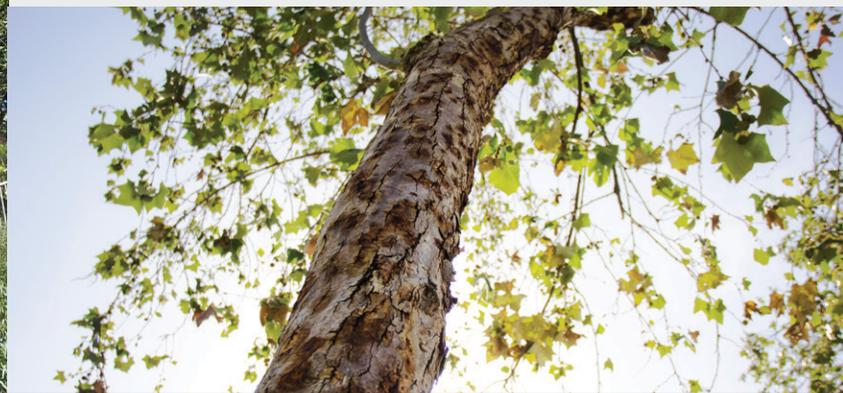
Common landscape trees like sycamore, cottonwood, willow, valley and Engelmann oak, white alder, and box elder appear to be especially susceptible. While avocado and fig are also known to be susceptible, similar signs and symptoms on other backyard fruit trees are probably due to other pests or diseases. See www.ishb.org for the full list of susceptible trees.

Impact

In severely infested trees, the beetles and associated fungal disease can cause tree decline, branch dieback, and tree death. Trees with heavily infested branches can be especially hazardous, since the combined damage of the fungal disease and the beetle's tunneling activity weakens the wood, causing limbs to break and fall.



A severely infested sycamore in an Orange County neighborhood.



ISHB attacks on Mexican sycamore.

What to Look For

Look for these signs of infestation:

- 1. Entry holes to the beetle tunnels.** Perfectly round and less than 1 mm wide (about the size of the tip of a medium ball-point pen; A).
- 2. Tree symptoms and signs accompanying entry holes.** Dark, wet staining (B), thick gumming (C), sugar-like buildup (D), and/or boring dust (resembles fine sawdust, E). Symptoms are unique to each tree species. See more photos and descriptions of beetle attacks at www.ishb.org.
- 3. Dieback.** Dead branches with wilting leaves may be a sign of severe infection by the Fusarium dieback disease.



Box elder logs full of ISHB tunnels and beetles.

www.ISHB.org

*Visit the ISHB website to access the ISHB Detection and Management Assessment tool, find your local UC Cooperative Extension office and Agricultural Commissioner's Office, and get more information on ways to safely dispose of green waste.

 [facebook.com/ISHB.Update](https://www.facebook.com/ISHB.Update)

 [@ISHB_SoCal](https://twitter.com/ISHB_SoCal)

Authors: Randall Oliver¹, Beatriz Nobua-Behrmann, PhD², Monica Dimson², John Kabashima, PhD², Akif Eskalen, PhD³, Janis Gonzales². All images provided by the authors.

¹UC ANR Statewide IPM Program, ²UC Cooperative Extension, ³UC Davis

What You Can Do

- 1. Keep your trees healthy.** Proper irrigation and maintenance will keep trees strong and help protect them from ISHB and other pests.
- 2. Check your trees.** Look for the common signs and symptoms listed previously. Regular monitoring ensures that infestations are managed early, before they cause dieback or death.
- 3. Confirm suspected infestations.** Use the online ISHB Detection and Management tool* to confirm your observations.
- 4. Review your management options.** When possible, pruning infested branches is recommended. Low and moderately infested trees can be treated (you'll need to contact a licensed professional to apply the treatments). Severely infested trees may require removal since they are not likely to recover and are a constant source of beetles that can spread and infest neighboring trees.
- 5. Call in a professional.** A certified arborist or pest control professional would be able to provide recommendations based on the conditions of your tree. Your county Agricultural Commissioner's Office and UC Cooperative Extension office may have additional knowledge about current ISHB monitoring and management programs in your area.*
- 6. Take care of green waste.** The beetles can survive in cut wood for weeks or even months. Proper disposal of green waste includes chipping infested wood, followed by solarizing or composting the chips.*
- 7. Don't move firewood.** These beetles and other tree-killing insects often reach new locations by hitchhiking in firewood. Please use locally sourced firewood to help slow the spread of non-native pests like the invasive shothole borers. Buy firewood where you will use it, and only purchase the amount of firewood you need. Do not move unburned firewood.