



# Invasive Shothole Borers and Fusarium Dieback Homeowners Advisory

Invasive wood-boring beetles are causing increasingly extensive damage to 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 native to Southeast Asia that tunnel into trees and introduce a fungus that they use as food source. The fungus causes a disease called Fusarium dieback that disrupts the flow of water and nutrients in susceptible 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.

## Impact

After repeated attacks, 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 combination of tissue decline caused by the fungal disease and the mechanical damage from the beetle's tunneling activity weakens the wood, causing limbs to break and fall.

## Trees at Risk

Common landscape trees like sycamore, cottonwood, willow, valley and Engelmann oak, white alder, and box elder appear to be especially susceptible. Aside from avocado and fig, other backyard fruit trees are not yet known to be susceptible. See [www.ishb.org](http://www.ishb.org) for the full list of susceptible trees.



A severely infested sycamore in an Orange County neighborhood.



ISHB attacks on Mexican sycamore.

# What to Look For

Look for these signs of attack:

## 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 the entry holes.

Dark, wet staining (B), thick gumming (C), white, powdery exudate (D), and/or frass (resembles fine sawdust; E). Symptoms are unique to each tree species. See more photos and descriptions of beetle attacks at [www.ishb.org](http://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](http://www.ISHB.org)

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

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

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All images provided by the authors.

# What You Can Do

- Keep your trees healthy.** Proper irrigation and maintenance will keep trees strong and help protect them from ISHB and other pests.
- 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.
- Confirm suspected infestations.** Review your findings using the online ISHB Detection and Management Assessment tool.\*
- 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 disperse and infest neighboring trees.
- Get professional help.** 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 UCCE office may have additional knowledge about current ISHB monitoring and management programs in your area.\*
- 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.\*
- 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.