

# URBAN TREES ARE UNDER ATTACK!

Two exotic, invasive beetles that carry a dangerous fungus are causing increasingly extensive damage to Southern California's urban trees. The potential loss of city trees to this disease complex can have a cascade of adverse effects on management costs and the ecoservices trees provide in landscaped areas.

## INVASIVE PESTS ARE ATTACKING TREES

Invasive Shot-Hole Borers (ISHB) are two closely related, physically identical beetles. Both beetles carry a type of fungus that causes disease in susceptible trees.<sup>1</sup>

## PESTS & DISEASE CAN KILL TREES

The beetles tunnel into trees to lay their eggs and introduce a type of Fusarium fungus. This disease disrupts the flow of water and nutrients that the tree needs to survive, while the beetles' tunneling activity also weakens the tree's trunk and branches. After repeated attacks, the beetle/disease combination can cause branches to die back and kill the host tree.<sup>2</sup>

## SPREADING FAST

First discovered in 2012, researchers estimate that ISHB could kill over 23 million of the 70.8 million urban trees, or almost 32.8% of the trees in Southern California.<sup>3</sup>

## TOO MUCH TO LOOSE

Over 60 tree species such as sycamores, oaks, box elder, and willow are at risk of attack<sup>4</sup>. These trees make up our urban forests, and provide numerous benefits including reducing energy consumption, and helping to cool cities, removing pollutants from the air we breathe and the water we drink, as well as other ecosystem services that not only make our cities more livable but also help to improve public health.<sup>3</sup>

## IT WILL BE COSTLY

If 80% of vulnerable trees die by 2031, the removal and replacement costs of approximately \$25.4 billion. The loss of ecosystem services is also great; valued at \$987 million annually.<sup>3</sup>

## HELP FUND THE FIGHT

It is estimated that at least \$5 million is required to implement management strategies that will lead to the effective control.<sup>3</sup>



For more information on invasive shot hole borers visit [pshb.org](http://pshb.org) or [eskalenlab.ucr.edu](http://eskalenlab.ucr.edu)

### Literature Cited:

1. Dimson, M., Kabashima, J., Eskalen, A., & Gonzales, J. 2017 "Invasive Shot-Hole Borers + Fusarium Dieback. A Devastating Threat to California Trees" accessed at [ucanr.edu/sites/pshb/files/240640.pdf](http://ucanr.edu/sites/pshb/files/240640.pdf)
2. Kabashima, J. & Eskalen, A., August 24, 2017 "Invasive species, disease and the urban forest" conference presentation. Presentation accessed at [caufc.org/resources/workshop-resources/life-among-the-leaves/](http://caufc.org/resources/workshop-resources/life-among-the-leaves/)
3. McPherson, E.G., Sept 28, 2017 "Potential Impact of ISHB-FD on Urban Forests in Southern California." accessed at [caufc.org/wp-content/uploads/2018/01/Updated-ISHB-Vulnerability-Assessment-10-4-17.pdf](http://caufc.org/wp-content/uploads/2018/01/Updated-ISHB-Vulnerability-Assessment-10-4-17.pdf)
4. Eskalen, A., et al. 2013. Host range of fusarium dieback and its ambrosia beetle (Coleoptera: scolytinae) vector in southern California. *Plant Dis.* 97 (7), 938-951. Updated list accessed at [eskalenlab.ucr.edu/shotholeborerhosts.html](http://eskalenlab.ucr.edu/shotholeborerhosts.html)

