

Laurel Wilt Disease

A new threat to California
avocado industry

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Causal agent

- It is an Ophiostoma fungus, *Raffaelea lauricola* similar to the Dutch Elm Disease.



Pictures from: Fraedrich et al. 2008

- The fungus is believed to have arrived with an Asian origin redbay ambrosia beetle (*Xyleborus glabratus*)



Pictures from: Albert E. Mayfield

1/16 inch-long

How did they get here?

- The redbay ambrosia beetle likely arrived in solid wood packing material, such as crates or pallets.

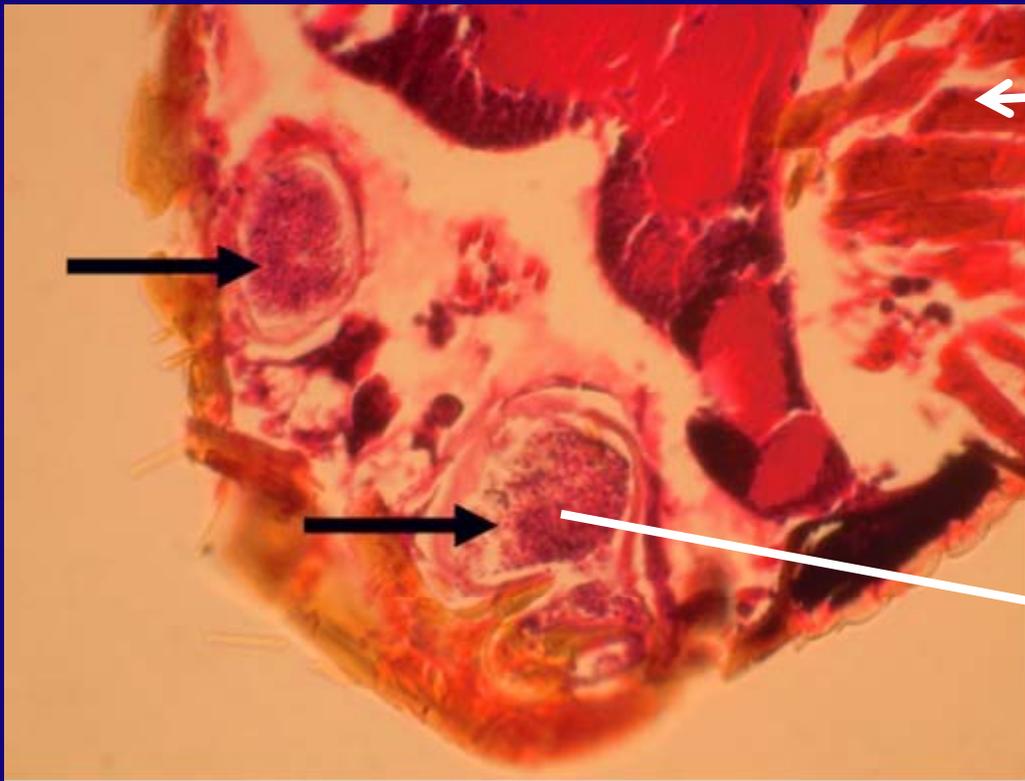


Pictures from: Albert E. Mayfield



How does the disease spread?

The pouches or mycangia (arrows) in the head of a redbay ambrosia beetle where they carry the wilt fungus (Photo by Mike Ulyshen).



How does the disease spread?

Most **likely the result of human** transport of infested wood, either from Asia as a separate, new introduction or from previously infested areas in the southeastern United States.



Source: <http://www.fs.fed.us/r8/foresthealth/laurelwilt>



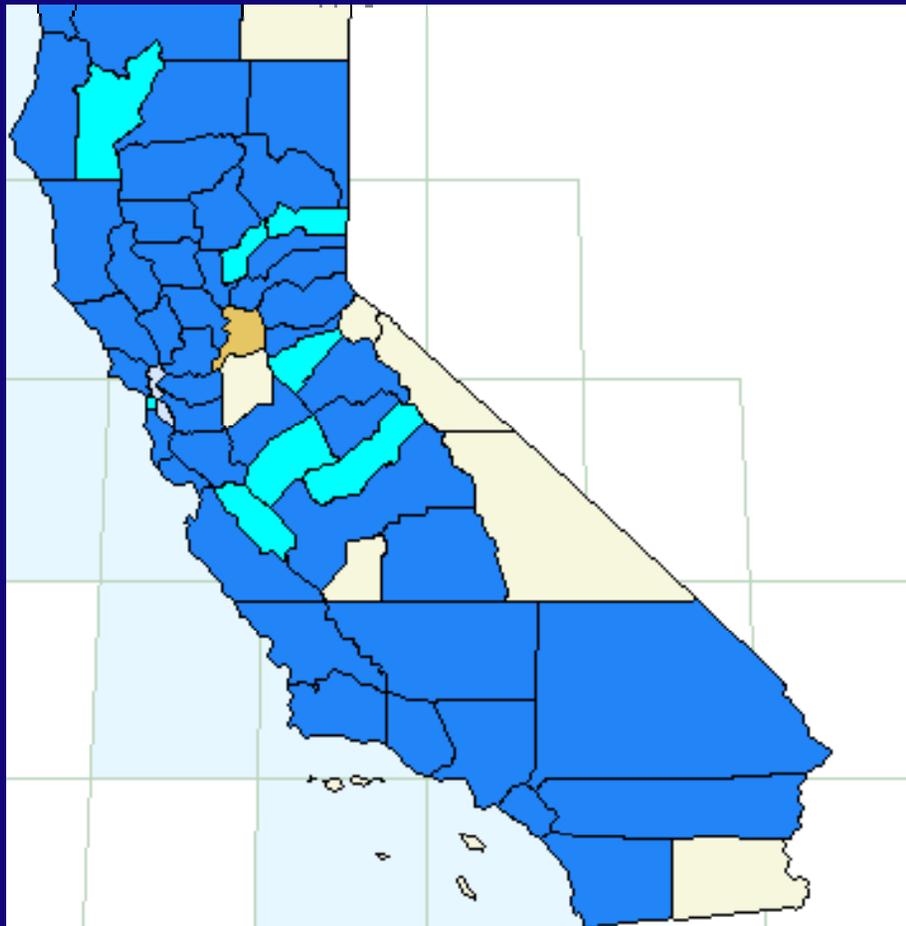
Photo by: T. Coleman

Trees in the Lauraceae

- ▣ **Avocado**
 - *Persea americana*
- ▣ **California Bay Laurel**
 - *Umbellularia californica*
- ▣ **Redbay**
 - *Persea borbonia*
- ▣ **Camphor tree**
 - *Cinnamomum camphora*
- ▣ **Sassafras**
 - *Sassafras albidum*
- ▣ **Silk bay**
 - *Persea humilis*
- ▣ **Northern Spicebush**
 - *Lindera benzoin*
- ▣ **Lancewood**
 - *Ocotea coriacea*
- ▣ **Swamp bay**
 - *Persea palustris*
- ▣ **Love vine, Devil's gut**
 - *Cassytha filiformis*
- ▣ **Pepperleaf sweetwood**
 - *Licaria triandra*
- ▣ **Pondspice**
 - *Litsea aestivalis*

Distribution of California Bay laurel in California

It has been shown that the native California bay laurel is susceptible to this disease. Thus, it is highly probable that the disease will establish in California if the beetle spreads into the western United States.



*Photo from: San Francisco State University Department of Geography
by Alicia Mariscal, student in Geography 316, Fall 2001*

Symptoms on Redbay



Photo by: A.Eskalen

Sapwood symptom on Redbay



Picture from: Fraedrich et al. 2008

<http://www.fs.fed.us/r8/foresthealth/laurelwilt>

Sapwood symptom on Redbay



Photo by: A.Eskalen

Symptom on Sassafras



Photos by: A.Eskalen



healthy



infected

Geographical distribution of Laurel Wilt

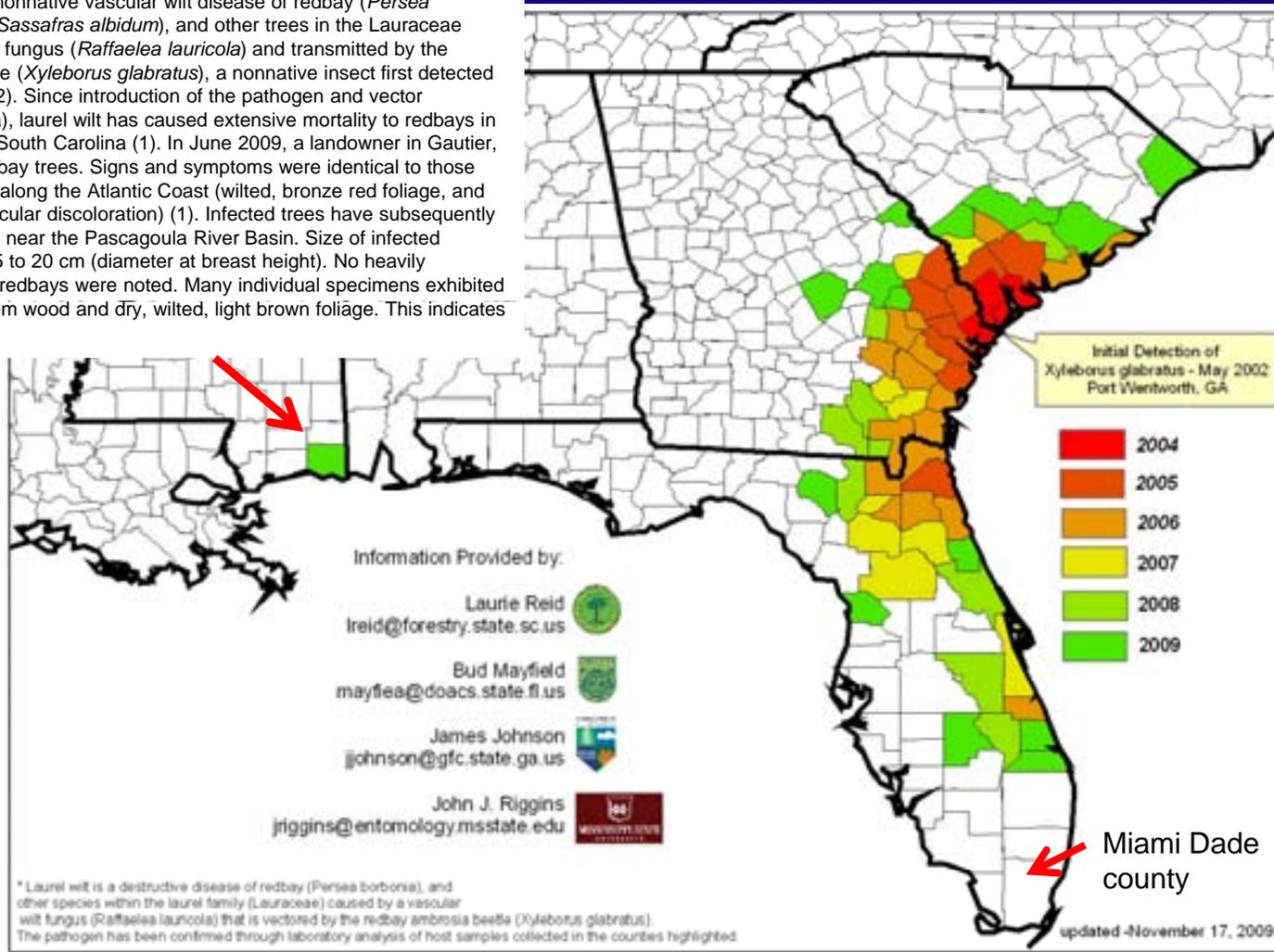
Plant Disease Note

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First Occurrence of Laurel Wilt Disease Caused by *Raffaelea lauricola* on Redbay Trees in Mississippi

Laurel wilt is a lethal, nonnative vascular wilt disease of redbay (*Persea borbonia*), sassafras (*Sassafras albidum*), and other trees in the Lauraceae (1,4). It is caused by a fungus (*Raffaelea lauricola*) and transmitted by the redbay ambrosia beetle (*Xyleborus glabratus*), a nonnative insect first detected in Georgia in 2002 (1,2). Since introduction of the pathogen and vector (presumably from Asia), laurel wilt has caused extensive mortality to redbays in Georgia, Florida, and South Carolina (1). In June 2009, a landowner in Gautier, MS reported dead redbay trees. Signs and symptoms were identical to those reported for laurel wilt along the Atlantic Coast (wilted, bronze red foliage, and dark gray-to-black vascular discoloration) (1). Infected trees have subsequently been confirmed in and near the Pascagoula River Basin. Size of infected redbays ranged from 5 to 20 cm (diameter at breast height). No heavily decomposed or fallen redbays were noted. Many individual specimens exhibited extensive drying of stem wood and dry, wilted, light brown foliage. This indicates that



Laurel wilt disease on avocado



Avocado (*Persea americana*) (Ploetz and Pena, 2007)

Laurel wilt disease on avocado in Florida



Photo by: A.Eskalen

Laurel wilt disease caused by *Raffaelea* sp. on backyard avocado trees in Florida

Laurel wilt disease on avocado in Florida



Photo by: A. Eskalen



Laurel wilt disease caused by *Raffaelea lauricola* on backyard avocado tree in Florida

Laurel wilt disease on avocado in Florida



Photos by: A. Eskalen

Laurel wilt disease caused by *Raffaelea lauricola* on backyard avocado tree in Florida

What to do?

- If the tree is wilted in a large proportion of its crown, and has black discoloration in the sapwood, it is likely infected with the laurel wilt fungus.
- Full confirmation of the disease requires taking samples of stained wood from the affected tree and isolating the laurel wilt fungus in the laboratory.



Photos by: A.Eskalen

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