

## NEW DISEASE EPIDEMIC THREATENS REDBAY AND OTHER RELATED SPECIES

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Laurel wilt, a new disease of redbay (*Persea borbonia*) and other plant species in the family Lauraceae, is causing widespread mortality in the coastal regions of South Carolina, Georgia and Florida. The disease is caused by a fungus

(*Raffaelea* species) that is introduced into trees by an exotic insect, the redbay ambrosia beetle (*Xyleborus glabratus*), which is native to Asia and is the 12th new species of ambrosia beetle introduced into the U.S. since 1990.

Redbay trees grow in the Coastal Plain region from eastern Texas to Virginia and are ecologically and culturally important, although of minor commercial timber value. Redbay trees provide fruit for song birds, turkey, and quail; deer and black bear browse on the foliage and fruits. Additionally, the larvae of the Palamedes swallowtail butterfly require redbay leaves for development.

The redbay ambrosia beetle was discovered in Savannah's Port Wentworth area in spring 2002; however, it is likely to have been established in the area prior to 2002 when the three adult specimens were trapped at the port. The beetle likely entered the country in solid wood packing material with cargo that was imported at Port Wentworth. Redbay trees began dying in Georgia and South Carolina in 2003. By early 2005, officials with the Georgia Forestry Commission (GFC), South Carolina Forestry Commission (SCFC), and USDA Forest Service began to suspect the newly discovered



Redbay tree with ambrosial fungus in beetle galleries.



“Toothpicks” on *Xyleborus glabratus* attacked redbay tree.



Dead redbay trees.

ambrosia beetle was associated with this mortality. Subsequent research has found that the mortality is caused by a pathogenic fungus that is carried by the beetle. The fungus is believed to be transmitted to healthy redbay trees when they are attacked by the beetle, resulting in a wilt disease. The disease has also been discovered in individual plants of the federally endangered pondberry (*Lindera melissifolia*), the threatened pondspice (*Litsea aestivalis*), sassafras (*Sassafras albidum*) and avocado (*Persea americana*).

Many native ambrosia beetles (40 plus species) occur in the United States and primarily target stressed or dying trees. In general, ambrosia beetles carry specific fungi that are introduced into the trees as they tunnel into the wood, and are fed upon by the developing insects. In the case of the redbay ambrosia beetle, one of the associated fungi also acts a pathogen as it spreads through the tree's vascular system, causing the tree to wilt and die. This associated fungus is in the same class of fungi as those that cause Dutch elm disease and blue stain in pines.



Redbay Tree with vascular staining due to Laurel Wilt.

All of Georgia's coastal counties now have confirmed laurel wilt and the disease is moving northward in South Carolina, southward in Florida, and inland at an alarming rate. In 2004, those states reported three counties with damage; now the disease has spread to 31 total counties. Officials estimate that natural spread is about 20 miles per year, but movement of infested firewood, wood chips and logs may be a major factor in spreading the disease into new locations not contiguous with main area of infestation. Landowners, loggers, and others are asked to leave dead redbay trees in the woods and not salvage them for logs, chips or firewood. It is likely that long distance spread via wood movement has occurred already, and the public is asked to cooperate with this voluntary request by state and federal agencies.

There are no proven management strategies for preventing the development of laurel wilt disease. Early sanitation of newly infested trees and limiting movement of infested wood may help slow the spread. Field trials evaluating the effectiveness of certain pesticides are being conducted in Florida and Georgia. Formal ground surveys are being conducted by the SCFC and the GFC to develop baseline infestation information. Research is ongoing with the USDA Forest Service – Southern Research Station (Athens, GA and Pineville, LA), Louisiana State University, Iowa State University, University of Florida, and Florida DACS-DOF. Substantial information about this problem will soon be available at: <http://www.fs.fed.us/r8/foresthealth/>.

# Distribution of Counties with Laurel Wilt Disease\* Symptoms, by Year of Initial Detection

