



# Forest Health *Notes*

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## Laurel Wilt Confirmed in New Hanover County

While conducting routine field work in southeastern North Carolina recently, the devastating laurel wilt disease was observed and confirmed killing redbay trees in northern New Hanover County. This is the first find of this disease in New Hanover County and marks the sixth county in North Carolina to be affected by the disease. Though we typically survey for laurel wilt during the winter months when dying redbay can be easily identified, the disease can be identified any time of year. The disease was first found in North Carolina in Bladen County in March of 2011. To date, laurel wilt has been confirmed in Bladen, Brunswick, Columbus, New Hanover, Pender, and Sampson Counties.

The North Carolina Forest Service (NCFS) - Forest Health Branch actively surveys the affected counties and surrounding areas to determine the extent of the disease. In an effort to track the disease on a finer scale than county level, a 10 minute (or roughly 10 mile) grid was applied to the region. As the disease is confirmed in a given location, the corresponding grid square is highlighted as shown in the map at the end of this document. Note that our base 10 minute grid has been adjusted slightly since our previous laurel wilt update, which has caused a shift in the estimated affected areas. Keep in mind that the map product is intended to give an approximate location of the generally affected area. Our surveying resources continue to be limited and laurel wilt may also be present in areas adjacent to the known locations, specifically in Columbus and Brunswick counties along the Waccamaw River and in the Green Swamp.

Thus far, our hardest hit area appears to be concentrated near Kelly in Bladen County, where nearly half of the redbay are dead or dying (visually estimated). Additionally, visual estimates of around 30 percent redbay mortality are also being seen around Lake Waccamaw, where the disease appears to be spreading rapidly. Areas on the periphery of these two locations appear to be experiencing much more scattered mortality. The moderate to low mortality rates being observed in all affected areas suggests that the disease has likely not been present in North Carolina for very long. If the disease behaves in North

Carolina as it has in states farther south, where it has killed more than 90 percent of the mature redbay, we can expect the redbay mortality rate to continue to increase over time.

At present, laurel wilt has only been observed affecting redbay trees in North Carolina. Sassafras trees can also be killed by laurel wilt and have been killed by the disease elsewhere in the South. This summer, a sassafras monitoring effort will be initiated in the area of the state where laurel wilt is already present. It is not currently known what impact laurel wilt will have on sassafras in North Carolina.

### **What is laurel wilt?**

Laurel wilt is caused by a fungus (*Raffaelea lauricola*) that is introduced into trees in the Laurel family by a tiny non-native beetle known as the redbay ambrosia beetle (*Xyleborus glabratus*). Trees and shrubs susceptible to this disease include redbay and swampbay, and to a lesser extent, sassafras, spicebush, pondspice, and pondberry. **Note that mountain-laurel, loblolly bay, sweetbay, and rhododendrons are not susceptible to this disease.**

Ambrosia beetles are fungus farmers. As a female ambrosia beetle bores into a host tree, she releases ambrosia fungus spores. She and her offspring will later feed on the fungus that grows from these spores. All ambrosia beetles carry spores for their preferred ambrosia fungus. The ambrosia fungus carried by the redbay ambrosia beetle is unique in that it kills its host trees. As the fungus grows, the tree tries to block its spread and essentially chokes off the movement of water, causing the tree to wilt and die. The laurel wilt fungus spreads quickly and infected trees often die within a month. The ambrosia fungus is virulent, and it is believed that a single beetle can introduce enough fungus to kill a tree.

### **Where did it come from?**

The redbay ambrosia beetle is native to Asia, but was brought to the U.S. in wood packing material. Laurel wilt was originally observed killing redbay trees in Georgia and South Carolina in 2003. Since that time, the disease has been spreading outward, predominantly south and west. The redbay ambrosia beetle is estimated to spread naturally at a rate of 15-20 miles per year, but evidence suggests the introductions in North Carolina were likely human-assisted. **The redbay ambrosia beetle can easily be moved in wood products, such as logs, firewood, and other unprocessed woody material from trees in the Laurel family.**

## **How will I recognize laurel wilt?**

Symptoms of laurel wilt on redbay include drooping reddish-brown and/or purplish leaves. Even after the tree is dead, these leaves may stay attached for several years. In sassafras, the disease may be less readily visible as the wilted leaves are not retained. Evidence of the ambrosia beetle attack can be found by looking at the main stem of the tree. When the beetles bore into the tree, they push out toothpick-like strings of wood called frass. These toothpick-like frass strings may not be present after wind or rain events and are not diagnostic of the redbay ambrosia beetle. Trees with this disease will also have black staining in the outer sapwood, which can be seen after removing a section of the tree's bark. **Any tools used on a suspected laurel wilt-killed tree should be sanitized with a bleach or alcohol solution before their next use.**

## **What can be done?**

Currently, there is no reliable way to save a wilting tree. **Avoiding the movement of infested wood will slow the spread of the beetle and fungus. This non-native invasive pest is easily moved to new locations by people via the movement of infested wood products such as firewood or yard debris. Confirmed laurel wilt-killed trees should not be removed from the site.** Preferred methods of disposal include cutting the tree and leaving it **on the site**, or burying or burning dead trees **on the site** following all state and local regulations.

## **How do I report a new laurel wilt location?**

If a suspected laurel wilt-killed redbay tree appears to be outside of the highlighted grid squares on the attached map or if you suspect laurel wilt in a sassafras tree, please contact the NCFHS Forest Health Branch for confirmation and documentation. Our contact information is shown below.

### **Forest Health (FH) - East Contact Information**

#### **Kelly Oten - FH Specialist East**

O: 919-731-7988 x209

C: 919-609-1556

Kelly.Oten@ncagr.gov

#### **Wayne Langston - FH Tech East**

O: 919-731-7988 x214

C: 919-920-4906

Wayne.Langston@ncagr.gov

#### **Rob Trickel - FH Program Head**

O: 919-857-4858

C: 919-604-5802

Rob.Trickel@ncagr.gov

#### **Jason Moan - FHM Coordinator**

O: 919-553-6178 x223

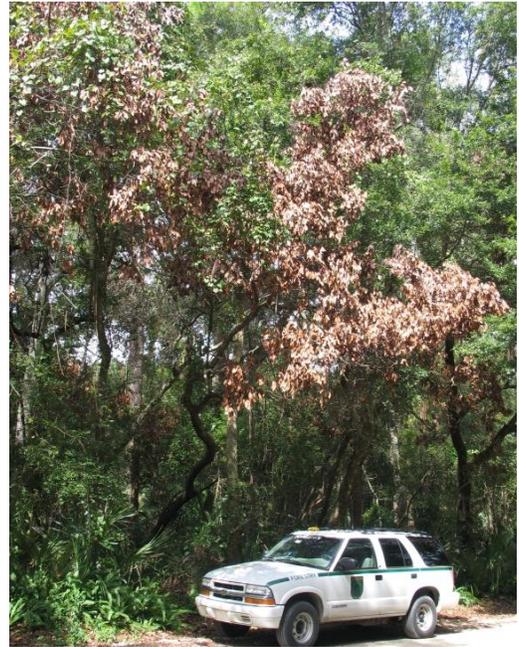
C: 919-280-7219

Jason.Moan@ncagr.gov

Additional information on the redbay ambrosia beetle and laurel wilt disease can be found at [http://www.ncforestsservice.gov/forest\\_health/forest\\_health\\_laurelwiltfaq.htm](http://www.ncforestsservice.gov/forest_health/forest_health_laurelwiltfaq.htm)

For other non-native forest pests of concern in North Carolina, please visit [http://www.ncforestsservice.gov/forest\\_health/fh\\_firewood.htm](http://www.ncforestsservice.gov/forest_health/fh_firewood.htm)

### Laurel wilt in redbay trees



**Toothpick-like frass strings (Top-left)** J. Johnson, Georgia Forestry Commission  
**Dying redbay (Top-right)** A. Mayfield, Florida DACS Division of Forestry  
**Staining in sapwood (Bottom-left)** J. Moan, N.C. Forest Service

**Laurel wilt in sassafras trees**

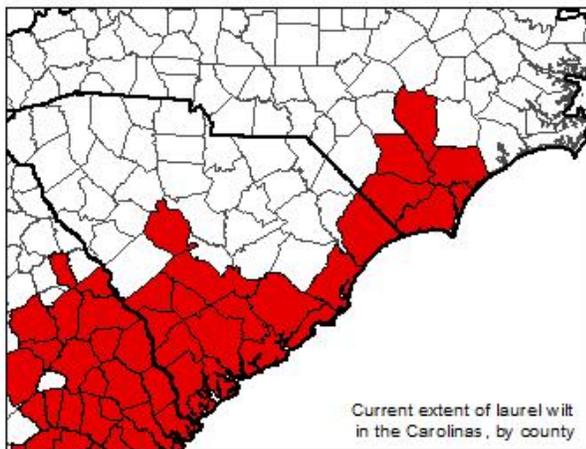
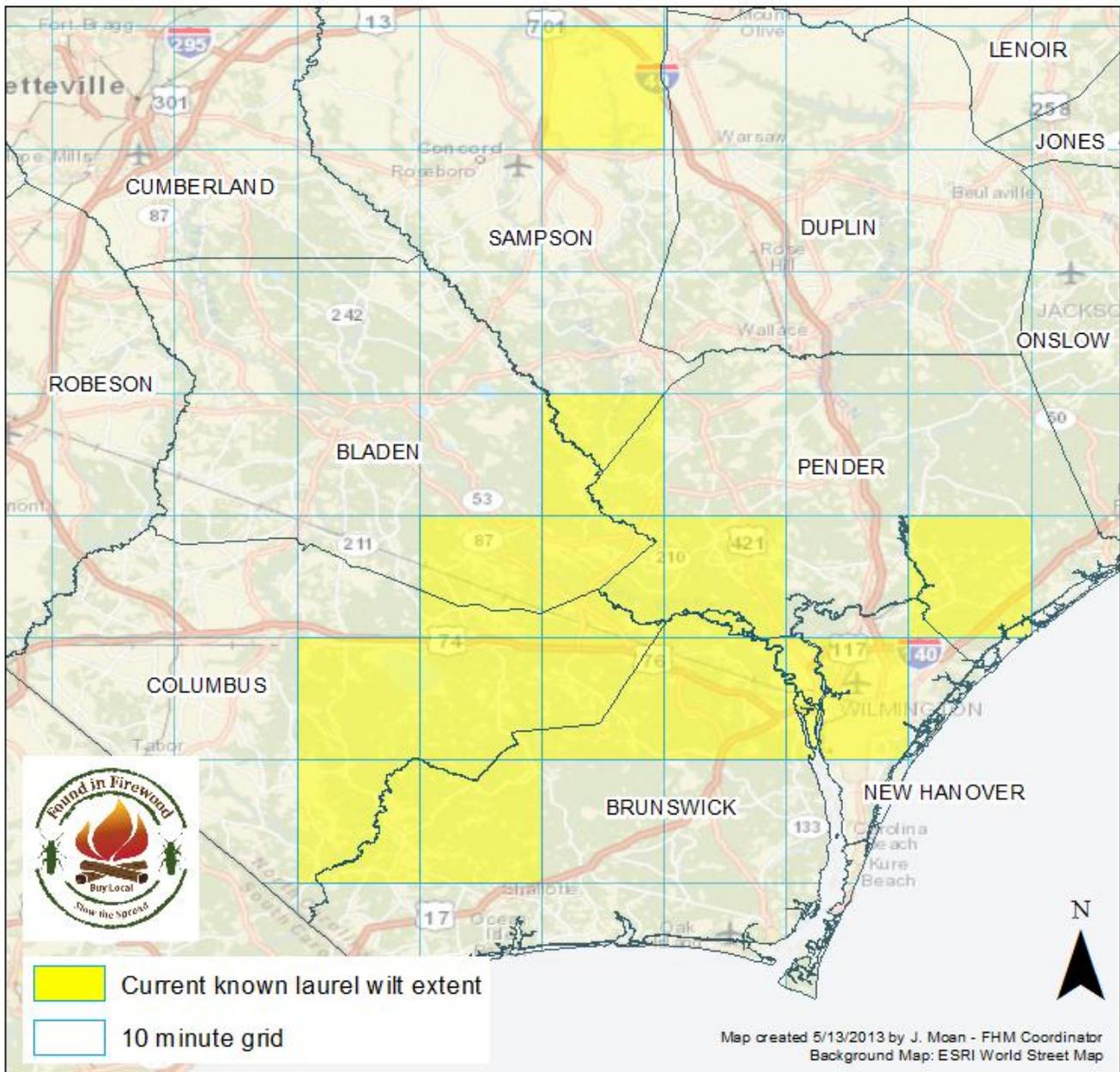


**Frass strings (Top-left), Ring of vascular staining (Top-right), Wilting and dying sassafras (Bottom)**  
C. Bates, Georgia Forestry Commission



**Female redbay ambrosia beetle (~1/16<sup>th</sup> inch)**  
M. Thomas, Florida DACS Division of Plant Industry





## Current Known Distribution of Laurel Wilt in North Carolina

Laurel wilt is a devastating invasive disease of plants in the Laurel family. (Note: This does NOT include mountain-laurel or rhododendron)

Susceptible plants in North Carolina are redbay, swampbay, spicebush, sassafras, pondberry, and pondspice. This disease is spread by the redbay ambrosia beetle and can be moved to new locations in woody material from infested trees.

