

# WE NEED YOUR HELP!

We are glad to provide these materials for free. In order for us to continue receiving funding for new materials, we need to collect information on how they are used.

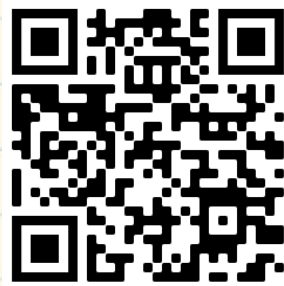
**Thank you for taking the time to answer the following one-minute survey.**



## There are three ways to complete the survey:

**1**

Scan this code with your smartphone camera



**2**

Type the following link into your web browser:  
<https://plantheroes.org/educator-survey>

**3**

Email your answers to:  
[plantheroes@publicgardens.org](mailto:plantheroes@publicgardens.org)



- 1) Job title
- 2) Name of organization you belong to
- 3) What kind of educator are you?
  - Teacher
  - Summer camp counselor
  - Home schooler
  - Public garden educator
  - Informal educator
  - Other (please describe)
- 4) What grade level do you teach?
  - Elementary (K-5)
  - Middle School (6-8)
  - High School (9-12)
  - Other (please describe)
- 5) Specify what subject area you teach:
  - Science
  - Math
  - Language Arts
  - Social Studies
  - Other (please describe)
- 6) How many students do you teach in a school year?



# Field Guide:

## Redbay Ambrosia Beetle

*The redbay ambrosia beetle attacks plants in the laurel family, including redbay, sassafras, and avocado, by boring into the wood and bringing with it a wilt-causing fungus.*



Plant  
Protection  
Program

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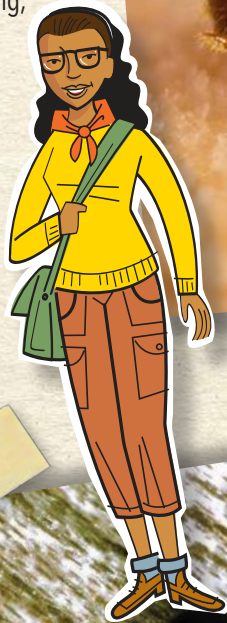


Photo: U.S. Department of Agriculture, Flickr.com

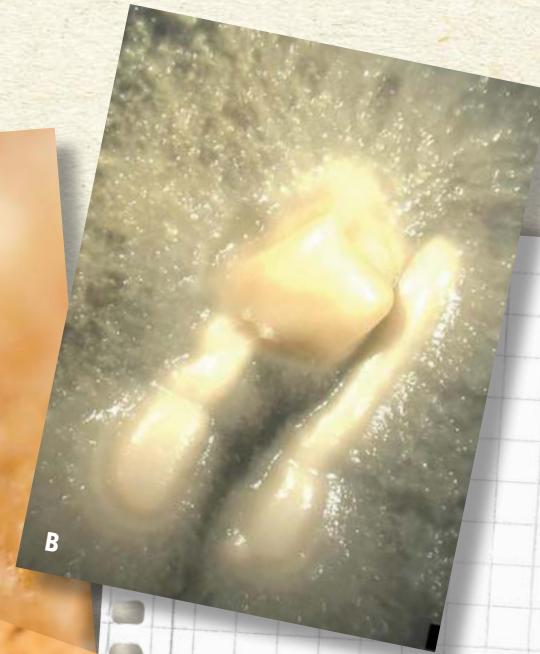
# REDBAY AMBROSIA BEETLE

## Identification

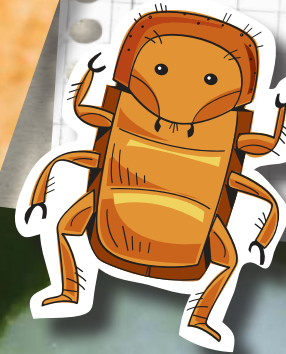
Magnified side and top views of an adult redbay ambrosia beetle (*Xyleborus glabratus*). These tiny bugs are usually about 0.08 inches (2 millimeters) long, or hardly larger than the point of your pencil! >>



Close-up of wood from a redbay tree showing an egg of the redbay ambrosia beetle. >>



<< Close-up of the fungus *Raffaelea lauricola* that causes laurel wilt. This fungus is carried by the beetle from tree to tree. Once inside the tree, the fungus spreads throughout the tree's xylem (water-conducting cells) and clogs it, causing the tree to die from lack of water.



Close-up of a redbay ambrosia beetle larva. >>



# REDBAY AMBROSIA BEETLE

## Host Trees

Host trees are trees that the redbay ambrosia beetle feeds on.

Classic example of the redbay tree, a member of the laurel family and an important native coastal plant species. >>

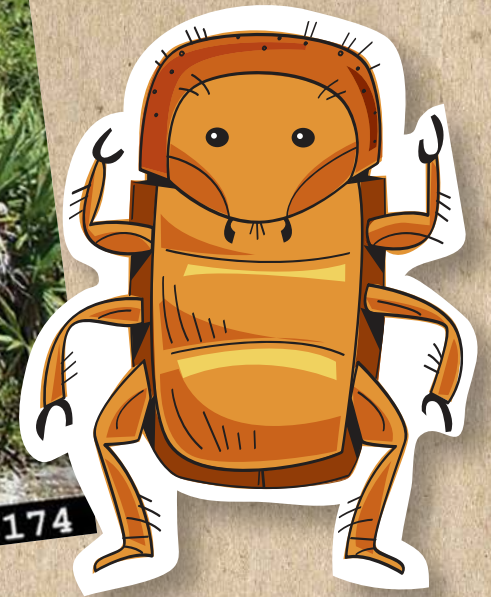


Leaves and fruit of the redbay tree, <sup>^</sup> which is one of the common hosts of the redbay ambrosia beetle and is susceptible to laurel wilt.



Close-up showing the dark, glossy green top and paler grayish undersides of redbay tree leaves.

<<



# REDBAY AMBROSIA BEETLE

## Host Trees 2



Sassafras leaves in summer

<< Leaves and fruit of pondberry, *Lindera melissifolia*, which is a federally endangered plant and one of our native shrubs vulnerable to laurel wilt.

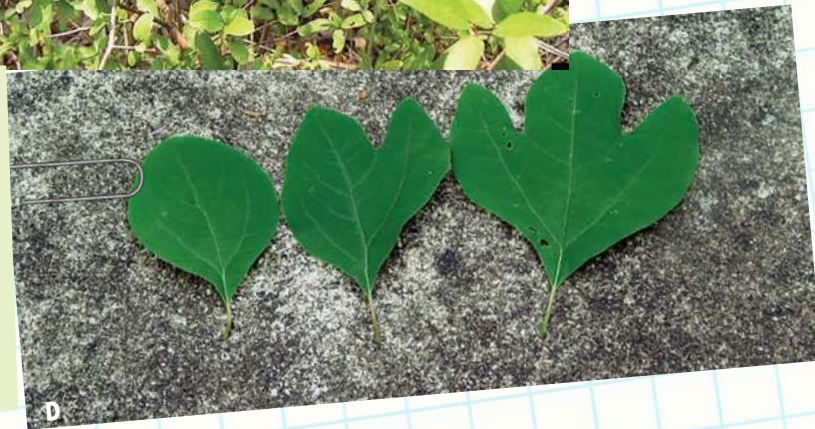


Fall color of the sassafras tree (*Sassafras albidum*), one of the members of the laurel family that is susceptible to laurel wilt. >>



<< Leaves and fruit of pondspice, (*Litsea aestivalis*), which is a native shrub vulnerable to laurel wilt.

Close-up of sassafras showing three different leaf shapes that often all can be found on the same plant! >>



# REDBAY AMBROSIA BEETLE

## Damage

Browned leaves of redbay trees indicating that these trees are infected. >>



<< Cross section of a redbay showing the tunnels (called "galleries") created by the burrowing beetles.



<< Close-up of a redbay showing leaf browning in the upper crown of the tree.

# REDBAY AMBROSIA BEETLE

## Symptoms



Close-up showing the brown redbay leaves caused by laurel wilt.



Redbay tree showing the flush of leafy green growth on the lower trunk, which is a good clue that the tree is infected.

The tiny hole to the left of the finger is the place where the beetle entered the tree. The dark stains in the wood are caused by the laurel wilt fungus that the beetle introduced.

>>



Close-up of entrance holes created by the redbay ambrosia beetle. These tiny holes are often less than 0.04 inches (1 millimeter) wide, or smaller than the tip of your pencil! >>

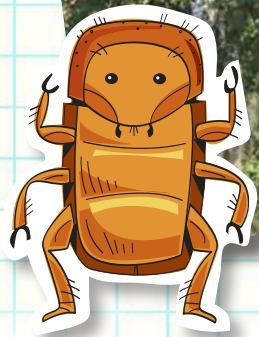


Close-up of redbay bark showing the sawdust tubes created when burrowing beetles excavate their tunnels inside the tree. >>



# REDBAY AMBROSIA BEETLE

## Control



Aerial traps can be used to catch redbay ambrosia beetles. Once laurel wilt is found in an area, all trees must be cut down and left to decompose on site. It is important to never move firewood in order to prevent the spread of beetles to new areas!





Join our team of Plant Heroes and learn about trees, forests, and the natural world around you!

**PLANTHEROES.ORG**

**You can be a Plant Hero!**

Are you curious about plants and animals? Do you like asking questions about nature? Do you enjoy being outdoors and having fun, climbing trees, balancing on logs, or finding a new butterfly or beetle? If so, you are already on your way to becoming a Plant Hero! We invite you to join forces with Nate, Laura, Aponi, and Frankie to protect the plants and ecosystems we all love.

**How can you become a Plant Hero?**

Join our team and go on a journey with Nate, Aponi, Laura, and Frankie. As a Plant Hero, you will learn to notice when plants are in trouble. You will also find out ways you can act quickly to help find solutions in your own neighborhood. Follow their adventures and learn how they help plants and ecosystems stay healthy.

**On the Plant Heroes website, you will find** materials to help you learn about plants, forest health, and ecosystem balance. The more you know, the more you can help protect plants and ecosystems in your own yard, neighborhood, and community!

**Plant Heroes strives to spark curiosity about nature and science in all children.**

Our program provides hands-on, nature-based learning materials for educators to engage children in topics of plant health, ecosystem balance, and forest health. We also spotlight the amazing work our public gardens do in protecting the plants and ecosystems we all depend on through our website and printed materials. Visit [plantheroes.org](http://plantheroes.org) today to learn more!

**Plant Heroes is brought to you by the American Public Gardens Association, founded in 1940.**

Over the last eight decades, the Association has supported the work of public gardens in North America and beyond. Our mission is to champion and advance public gardens as leaders, advocates, and innovators in the conservation and appreciation of plants. Our vision is "A world where public gardens are indispensable" as they provide botanic, conservation, community, education, and economic resources to their community.

The Association is committed to increasing the knowledge of public garden professionals throughout North America through information sharing, professional development, networking, public awareness, and research, so that they have the tools to effectively serve visitors and members.



**American  
Public Gardens  
Association**

[PublicGardens.org](http://PublicGardens.org)

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