

# 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.

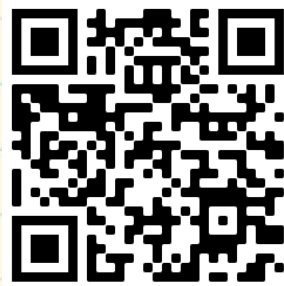
**Thank you for taking the time to answer the following one-minute survey.**



## There are three ways to complete the survey:

**1**

Scan this code with your smartphone camera

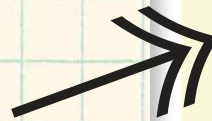


**2**

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:

## Ramorum Blight

*Ramorum blight (Phytophthora ramorum), a fungus-like pathogen, can infect the leaves of many different plants, but rarely kills them. On oak trees, however, it often infects branches and trunks with deadly results.*



**Plant  
Protection  
Program**

AMERICAN PUBLIC GARDENS ASSOCIATION

Photo: Joseph O'Brien, USDA Forest Service, Bugwood.org

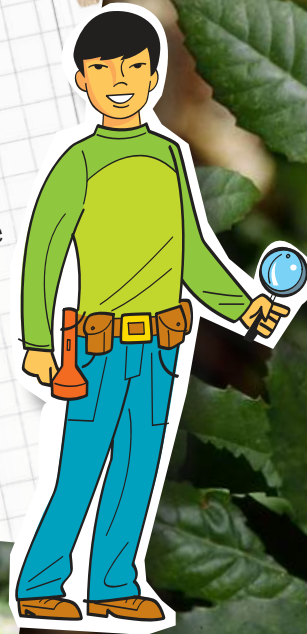


# RAMORUM BLIGHT

## Host Plants

Host plants are plants that ramorum blight infects.

<< Species of blueberry showing leaf discoloration (brown) caused by ramorum blight. Blueberry will carry ramorum blight but it won't kill the shrub!



<< Leaves of a tanoak, (*Notholithocarpus densiflorus*). Ramorum blight usually kills tanoaks and many other oaks.



Leaves of a Douglas fir showing wilting and brown needles caused by ramorum blight. Douglas firs are one of many types of plants that can carry ramorum blight without being killed. >>

A UGA1427007

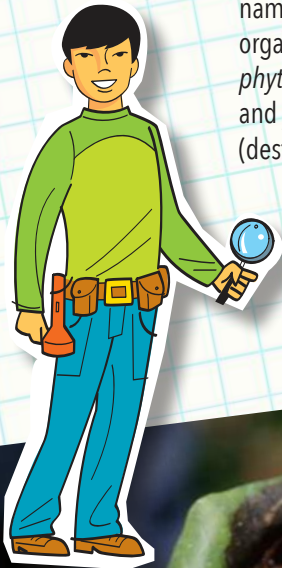
B UGA1427053

C UGA5038043



# RAMORUM BLIGHT

## Host Plants 2



The scientific name of this organism means *phyto* (plant) and *phthora* (destruction).



A UGA5202007

<< Leaves of a camelia damaged by ramorum blight.

Camelias are one of many types of plants that can carry ramorum blight without being killed.



B UGA1427088

⚠ Species of azalea showing brown leaf spots caused by ramorum blight. Azaleas carry ramorum blight without being killed.



C UGA5035036

<< Leaves from a California laurel showing leaf discoloration caused by ramorum blight.



# RAMORUM BLIGHT

## Symptoms

Symptoms are visible clues that a plant is suffering from a pest or disease issue.



<< Branch tip dieback on tanoak, one of the species more vulnerable to ramorum blight.



<< Wood staining caused by ramorum blight.



Sap (a sticky substance produced inside the tree) bleeding from a tree infected with ramorum blight. >>



C UGA1427061



<< Some infected material can stain the wood a bright red color.

D UGA1427057



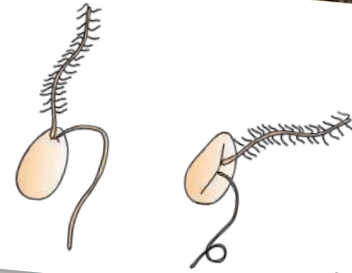
# RAMORUM BLIGHT

## Symptoms

A fungus (*Annulohypoxyton thouarsianum*) growing on this tree suggests the interior of this tree is decaying. The fungus is frequently found on trees in advanced stages of ramorum blight. >>



⚠ Bark discoloration and cankers (a dead spot on a plant caused by a disease) on a coast live oak, (*Quercus agrifolia*), infected by ramorum blight.



<< The spores of this organism are called zoospores because they have a tail and can swim! In fact, ramorum blight can spread through water, and scientists can trap the zoospores in rivers.



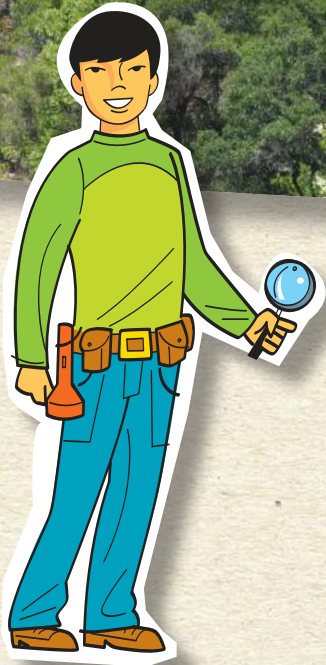
<< Trunk showing the cracks and bleeding discoloration caused by a ramorum blight infection.





# RAMORUM BLIGHT

## Damage



<< Hillsides showing significant loss of tanoaks from ramorum blight. >>

Gray tree tops of oaks killed by ramorum blight.

B UGA5035040

A UGA5043031

C UGA5038023



# RAMORUM BLIGHT

## Control

Ramorum blight spreads when the spores are moved in infected plants, soil, or are spread by human activity, like movement of soil on clothes, shoes, tools and other equipment.



<< Plants in this nursery are being inspected for ramorum blight to make sure that customers who buy them don't accidentally spread the disease to their own yard!



<< Plants in this area were infected with ramorum blight and had to be burned and buried to destroy the disease.



<< A nursery being treated for ramorum blight. All pots and containers with infected plants had to be washed, disinfected, and bagged before being buried in a landfill.



<< Technician disinfecting the inside of a truck used to move plants infected with ramorum blight.





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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