

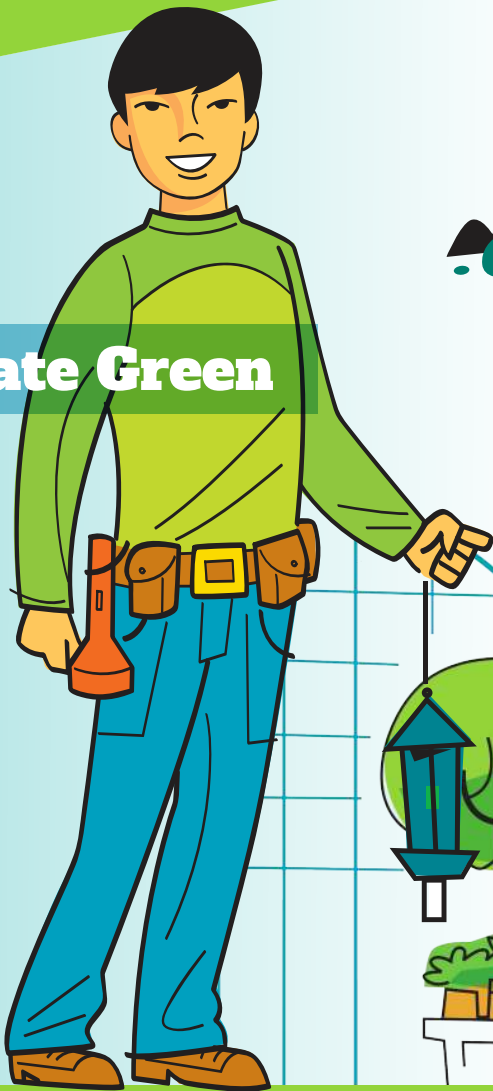


Help the Plant Heroes protect our forests
by slowing the spread of pests and diseases!

RAMORUM BLIGHT

PLANTHEROES.ORG
BEGINNER
ACTIVITY
BOOK

Nate Green



BE A PLANT HERO!
Help Nate slow
the spread of
ramorum blight!



AMERICAN PUBLIC GARDENS ASSOCIATION

Meet the PLANT HEROES!



LAURA WILKINS

From: Athens, Georgia
Hobbies: playing the trumpet,
gardening, studying ecology

FRANKIE BARKER

From: Shrewsbury, Massachusetts
Hobbies: climbing trees, camping

NATE GREEN

From: Tacoma,
Washington
Hobbies: going on
adventures, learning
about fungi

APONI STAR

From:
Southeast
Illinois
Hobbies:
learning
more about
entomology
(the study of
insects)



plantheroes.org

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The Plant Heroes are four friends who love spending time in nature more than anything else! They enjoy climbing trees, walking trails, and camping.

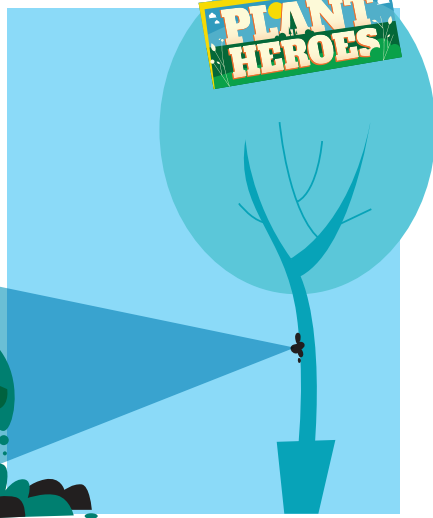
The heroes are learning about why our forests are in danger. There are insects and fungi that can impact trees, sometimes affecting the health of whole forests. Trees may become sick or die when they are weakened by an invasive species, a living thing that is introduced to a new environment where it can cause damage to existing organisms.

Follow Nate to learn the story of how he slowed the spread of the sudden oak death...



THE FUNGUS AMONG US!

Nate, forever focused on fungi, notices a fungus lurking in the local nursery...



Nate was helping his parents pick out plants for their house at a new local nursery. Forever looking for funky mushrooms and molds, a cluster of unusual black and spongy bumps on the trunk of a large oak caught his eye.



He collected some spores which helped him identify the growths as fruiting bodies of a sapwood decay fungus, *Hypoxyylon thouarsianum*, that are frequently found on trees in advanced stages of ramorum blight (also known as sudden oak death).



Nate tells his parents that he is afraid the azaleas and camellias they had just bought might be infected too, as they are both susceptible to this pest.



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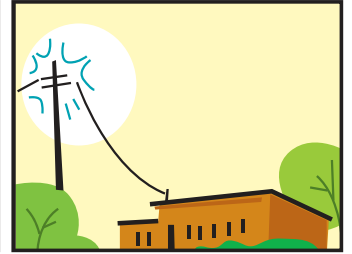


THIS PEST NEEDS TO BE STOPPED!

The next day,
they return
to talk with
the nursery owner.



The nursery
owner contacted
the county and
state officials.



Once the diagnosis was confirmed, the Plant Heroes team was brought in to help Nate recall all of the potentially infected plants that had been sold, and destroy them before they spread the disease throughout town.



Fortunately, the nursery owner was able to remove the diseased tree, disinfect all of the plant containers, and remove all the contaminated soil from the plant growing area to prevent the further spread of the fungus!



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What in the World is Water Mold?

A water mold causes the diseases sudden oak death and ramorum blight. Although water molds are not really “molds,” they are like molds. Water molds like very wet conditions—rainy damp weather is their favorite! They feed on organic matter (like trees or animals). The water mold we will be studying is called *Phytophthora ramorum*. Can you say that three times quickly?

The water mold we are studying harms trees and shrubs differently. When the leaves and stems of shrubs are harmed, we call the disease ramorum blight. When the trunks of large trees are harmed, we call the disease sudden oak death. Learn more on the following page!



A Water Mold Buffet – Ramorum Blight

Just like you have your favorite foods, water mold does too! They like to feed on very specific plants. Below are some shrubs that can be infected with ramorum blight. These shrubs usually don't die from the disease, but they can help the water mold spread to other plants. Color in the rhododendron below!



RHODODENDRON

This plant has large leathery leaves and flowers that can be red, pink, purple, white, or orange!

More tasty snacks for the water mold:

BAY LAUREL



CAMELLIA



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PHOTO CREDITS: A: Forest & Kim Starr, Flickr.com; B: Kim MyoungSund, Flickr.com

A Water Mold Buffet – Sudden Oak Death

The water mold we are studying harms the trunks on oak trees. See if you can spot an oak tree near you. Oaks come in all shapes and sizes, but if you spot some acorns, it is a dead give-away! Color in the coast live oak branch below!



Other tasty snacks for the water mold:

CALIFORNIA BLACK OAK



CANYON OAK



If you've found an oak, complete the below checklist to see if it's healthy!

- My oak tree has no wilted leaves.
- The tree's leaves are green—they are not yellow or brown.
- The tree trunk looks healthy and does not have any holes in it.

DID YOU CHECK ALL THE BOXES?
There is a good chance you've found a healthy oak!



Shrubs in Trouble



Shrubs with ramorum blight have damaged leaves and shoots. Learn more about the signs you might spot if you see a shrub with ramorum blight by matching the descriptions with the photos below!



Rhododendrons get spots on their leaves when they have a ramorum blight infection.



Sometimes the very top of a plant wilts and turns brown.



On some plants, the very tip of the leaf turns brown from the water mold.

For more photos of shrubs in trouble, see pages 2 & 3 in your field guide!



Trees in Trouble



When trees are infected with the water mold *Phytophthora ramorum*, it is called sudden oak death. The water mold harms the trunk of the tree by blocking the cells that carry food to other parts of the tree. Without food, the roots cannot take up water, so the tree cannot drink. Learn more about the signs you might spot if you see a tree with sudden oak death by matching the descriptions with the photos below!



You might spot dark-colored liquid seeping out of the trunk of the tree.



Trees that are infected by sudden oak death often have this funny-looking black fungus called a hypoxylon canker. It is a sign that the tree is weakened or dying.



The leaves on a tree infected with sudden oak death turn brown very quickly.

For more photos of trees in trouble, see pages 4 & 5 in your field guide!



A Vacation on the Oregon Coast

Match the picture with the blanks in the story below!

WORD BANK:

HOUSE BEACH FLOWERS TABLE LEAVES TREE GARDEN



Nate and his parents are visiting Nate's grandmother on the coast of Oregon. She lives in a little _____ close to the _____. Nate loves staying with his grandmother and spending lots of time near the ocean! One day, as Nate and his parents are walking to the beach, Nate sees a beautiful flowering shrub with _____ that would look just perfect for his grandmother's kitchen _____. Just as he is about to snip off a stem to bring back to his grandmother, he sees a brown spot on one of the _____. He remembers something a park ranger taught him about ramorum blight, and how shrubs often have leaf spots if they are infected. He also remembers the beautiful oak _____ growing in his grandmother's front yard and thinks twice about taking a flower. It would be terrible if this branch infected his grandmother's huge oak tree! When Nate gets home, he picks some flowers from his grandmother's _____ instead to surprise her with a colorful summer bouquet.

ANSWER KEY

Shrubs in Trouble: 1. c; 2. a; 3. b

Trees in Trouble: 1. a; 2. c; 3. b

A Vacation on the Oregon Coast: house, beach, flowers, table, leaves, tree, garden



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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 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.



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