



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

PLANTHEROES.ORG
**BEGINNER
ACTIVITY
BOOK**

RAPID 'ŌHI'A DEATH



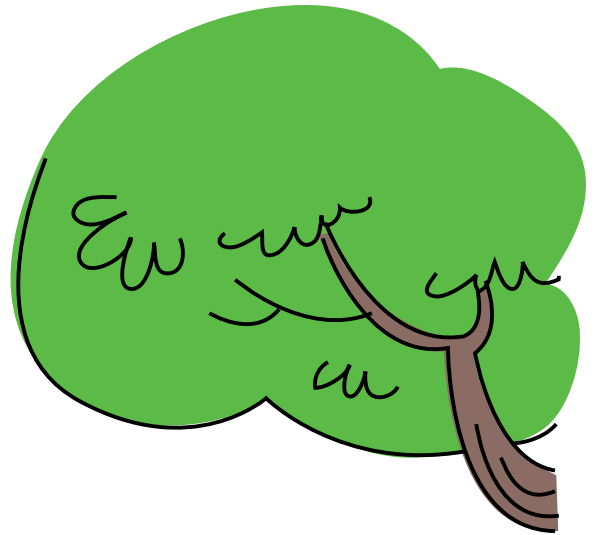
Aponi Star



BE A PLANT HERO!
Help Aponi slow
the spread of rapid
'ōhi'a death!



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 Aponi to learn the story of how she helped slow the spread of rapid 'ōhi'a death...



Hit the brakes!

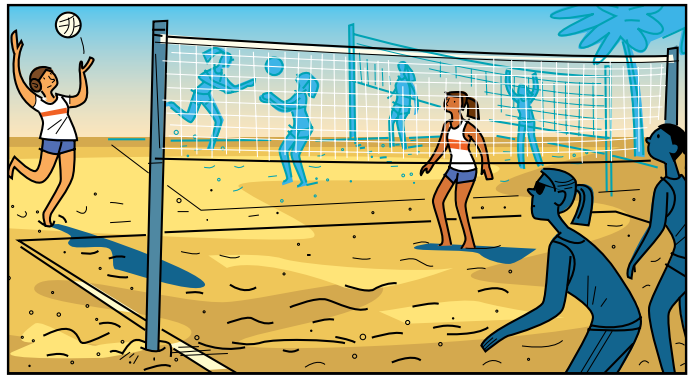
Slowing the spread of Rapid 'Ōhi'a Death...

PLANT HEROES



Aponi and the rest of the high school girls volleyball team are traveling to Hawai'i Island for a national tournament. They are looking forward to seeing volcanoes, hiking in the rainforest, snorkeling with tropical fish, and of course—playing LOTS of volleyball!

When the plane begins its descent, Aponi watches an in-flight movie about the ecological and cultural importance of Hawai'i's 'ōhi'a lehua trees, and a disease that is killing them—**rapid 'ōhi'a death...**



After getting settled at the hotel, Aponi and her friends jump right into practice—there are volleyball teams from all over the country!



The tournament organizers planned a break mid-week so that all the teams could spend a day doing some volunteer work on the island. Aponi and her friends sign up for trail restoration so they can see the tropical rainforest.

Aponi notices that there are several dead and dying 'ōhi'a trees in this section of the forest.

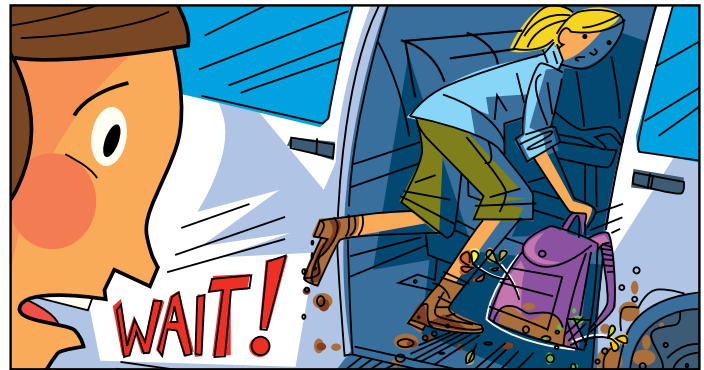
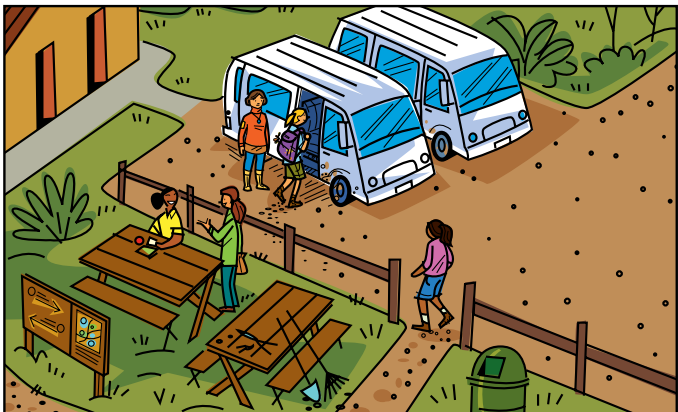


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PLANT HEROES

The volunteers break for lunch. Afterwards, they start piling into their vans so they can drive to another site where they will continue working for the rest of the afternoon...



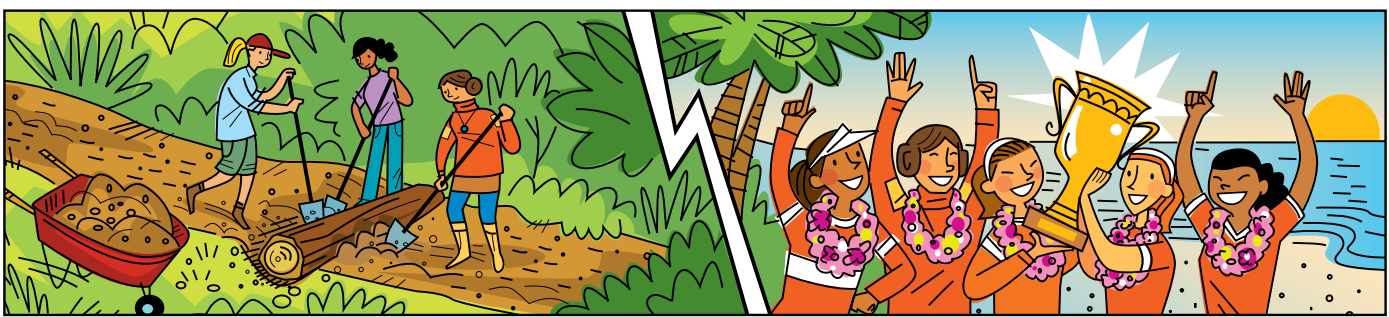
As one of her teammates climbs into the van ahead of her, Aponi notices that her shoes are covered in mud, and she has some 'ōhi'a branches tucked into the pockets of her backpack. She remembers from the video how important it is not to move soil or 'ōhi'a plants to avoid spreading the fungus that causes rapid 'ōhi'a death.

Aponi tells her teammates about the video, and about the dead 'ōhi'a trees she noticed when they walked along the trail.



Coach helps them use rubbing alcohol from their first aid kit to clean off all of their tools. They clean all the mud off their shoes and a local forest ranger takes care of the 'ōhi'a branches. **That was a close one!**

Aponi and the rest of the team spent the rest of the day installing water bars on a trail at another park. They return to the hotel and, after a good night's rest, win the rest of their volleyball matches! Taking 1st place in the tournament feels extra good knowing that they also had a chance to give back to the island, and they avoided spreading such a terrible disease into a new part of the rainforest.



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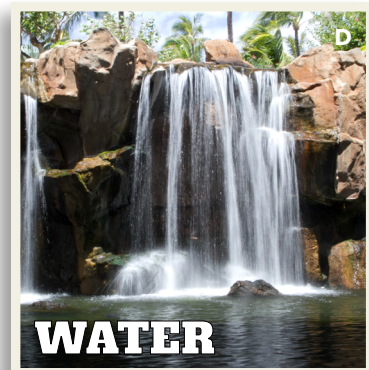
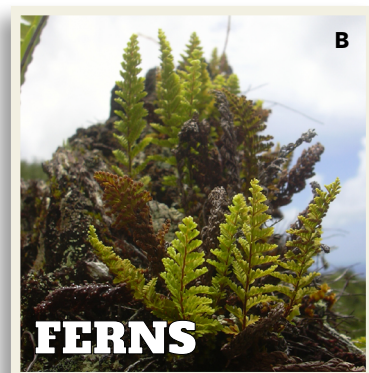
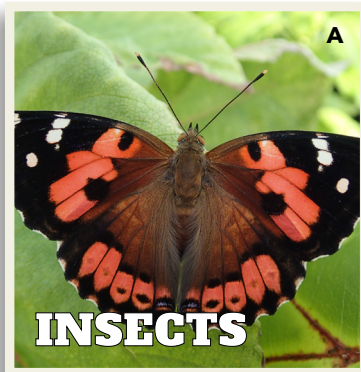
A Bountiful Tree

‘Ōhi‘a is an important part of the ecosystem (a community of living things and their environment). Many other plants and animals in Hawai‘i rely on ‘ōhi‘a to survive. Without the ‘ōhi‘a tree, Hawai‘i would be changed forever. The animals that rely on the ‘ōhi‘a tree could become extinct, invasive plants might take over the forests, and the forests would be drastically different.



Why is the ‘ōhi‘a tree so special?

Match the pictures to the descriptions to find out who relies on the ‘ōhi‘a tree.



1.
I rely on the sweet nectar of the ‘ōhi‘a flowers for my food, and I make my nest in the branches of the tree.

2.
I grow on the branches of the ‘ōhi‘a and my roots rely on the ‘ōhi‘a tree for support.

3.
All living things need me to survive. ‘Ōhi‘a trees collect me during a rainstorm so that the rivers, lakes, and waterfalls do not dry out.

4.
We use the ‘ōhi‘a to make leis, use its wood for our buildings, and it provides us with shade on a hot day.

5.
I am a small animal that visits the ‘ōhi‘a flowers for their nectar and pollen. I have six legs and birds love to eat me!



What is Rapid 'Ōhi'a Death?



Rapid 'ōhi'a death is caused by two different fungi. The fungi make it hard for the tree to move water through its branches, causing trees to die from lack of water. The 'ōhi'a tree is a "host" for the fungi because the fungi are the "guests" that use the tree as their home. The fungus spreads when very tiny spores enter the tree through a wound or broken branch. The fungus begins to grow, spreading throughout the tree. Color in the picture of Aponi spotting trees that show signs of rapid 'ōhi'a death.



Fascinating Fungi



Fungi, like the kind that cause rapid 'ōhi'a death, are living beings that are neither plants nor animals. They are often parasites (organisms that steal resources from and cause harm to other living things), but they don't always cause harm! Some common fungi that you might recognize include mushrooms and molds. Match the descriptions of how some fungi are beneficial to the pictures below.



A

Some fungi help plants that produce fruits and vegetables to get the nutrients they need to grow.



B

Yeast is a type of fungus used to make bread! Other types of fungi are used to make the cheese you eat.

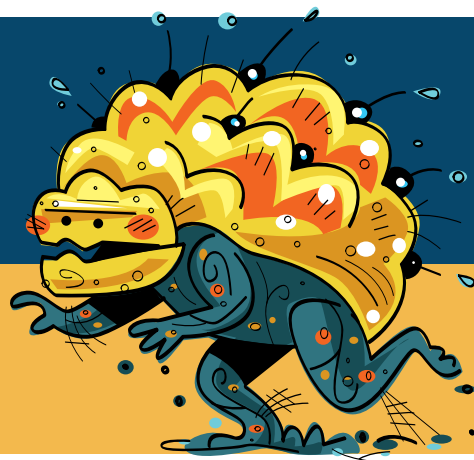


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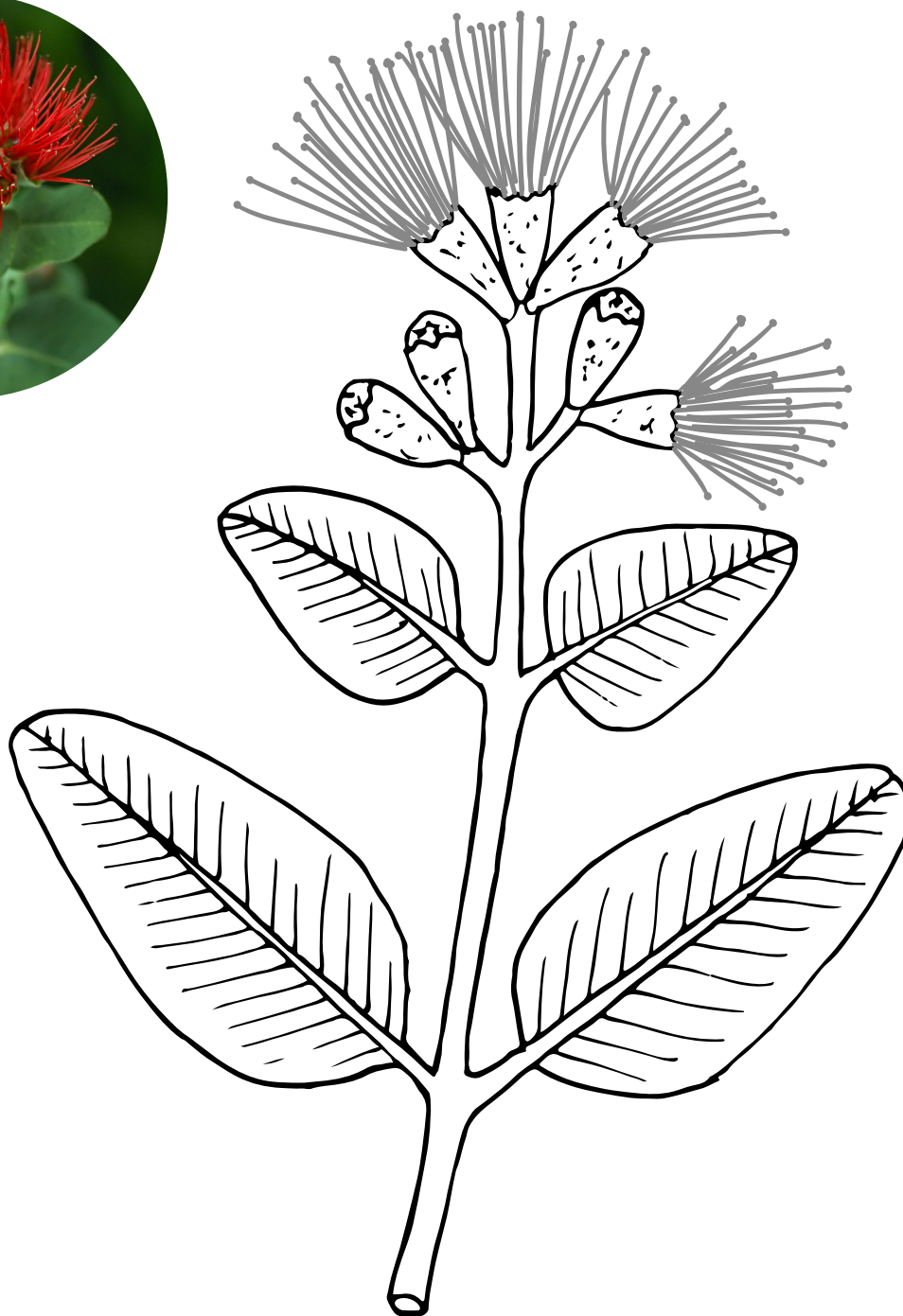
Scientists have discovered fungi that can help make you feel better when you are sick!



The Fungus's Favorite Food



Just like you have your favorite foods, so do fungi! They like to feed on very specific plants. 'Ōhi'a happens to be this fungus's favorite plant. Color in the 'ōhi'a plant below.



Legend of 'Ōhi'a Lehua

'Ōhi'a lehua is an important plant in the traditional culture of Hawai'i. Match the picture with the blanks in the story below!



WORD BANK:

RAIN

TREE

ISLANDS

FLOWER



Pele, the goddess of fire and creator of the Hawai'ian _____, once fell in love with a man named 'Ōhi'a, but 'Ōhi'a had already pledged his love to a woman named Lehua. Pele became so angry that she turned 'Ōhi'a into a crooked and stunted _____. When the other gods saw how heartbroken Lehua was, they felt sorry for her and turned her into a beautiful red _____. They placed the Lehua flower on the 'Ōhi'a tree, so the two would be together forever.

The legend says that when a flower is picked from the 'Ōhi'a tree, it will _____ instead to surprise her with a beautiful summer bouquet.



Slow the Spread!

It is easy for the fungi which cause rapid 'ōhi'a death to spread, but fortunately, you can help slow it down! Fill in the blanks to learn more; you can use the comic for help!



WORD BANK:
FUNGUS, CLEAN, MUD,
TOOLS, MOVE

When you go hiking or camping out in the woods, make sure you clean and wash off the _____ on your shoes and clothes before you return home. The spores of the _____ that causes rapid 'ōhi'a death can stay alive in the soil for over a year and can infect 'ōhi'a near your home if you aren't careful! Make sure you don't _____ any parts of the 'ōhi'a tree to use for leis or wood for your campfire. If you use any _____ to cut down or trim branches or flowers, make sure you _____ them with rubbing alcohol to kill any spores.

ANSWER KEY

A Bountiful Tree: 1. Birds; 2. Ferns; 3. Water; 4. People; 5. Insects

Fascinating Fungi: A. Farming; B. Food; C. Medicine

Legend of 'Ōhi'a Lehua: (in order) islands; tree; flower; rain

Slow the Spread!: (in order) mud; fungus; move; tools, clean





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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