



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

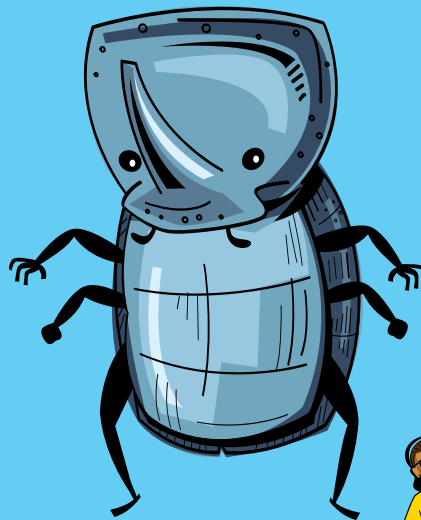
INSECT | COCONUT RHINOCEROS BEETLE

PLANTHEROES.ORG
BEGINNER
ACTIVITY
BOOK

Aponi Star



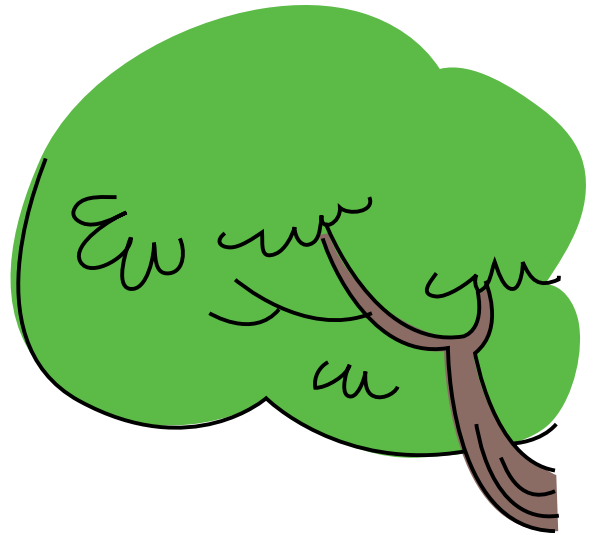
BE A PLANT HERO!
Help Aponi slow the
spread of the Coconut
Rhinceros Beetle!



Plant
Protection
Program

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

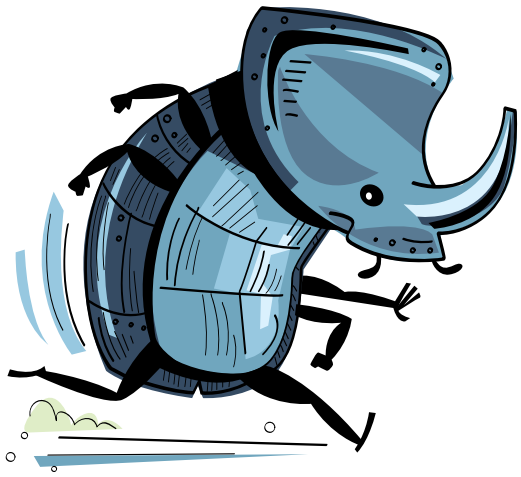
APONI STAR

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



plantheroes.org

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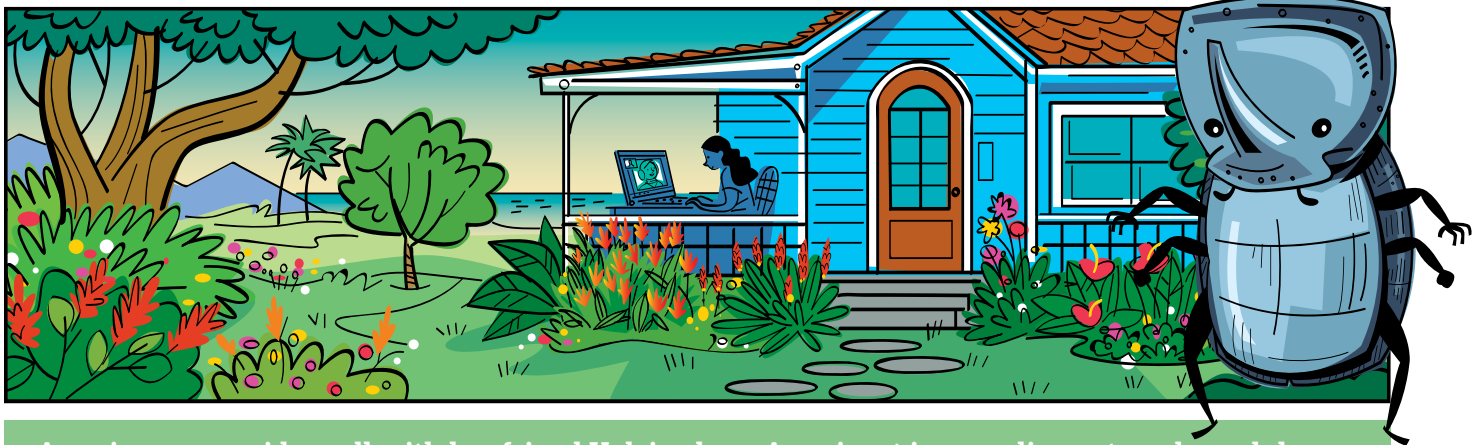
The Plant Heroes are four friends who love spending time in nature more than anything else! They enjoy climbing trees, walking trails, and camping.

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 Aponi to learn the story of how her friend Kalei helped slow the spread of the coconut rhinoceros beetle...



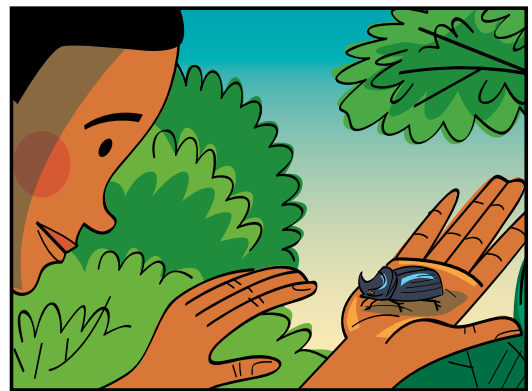
Catching the Coconut Rhinoceros Beetle



Aponi was on a video call with her friend Kalei, whom Aponi met in an online entomology club. Kalei lives on the island of O’ahu and told Aponi about an insect she found...



Kalei had been exploring her backyard, looking under logs for insects, and found a large black beetle with a horn that filled most of the palm of her hand! Surprised by its size, she took a picture to share at the next entomology club meeting.



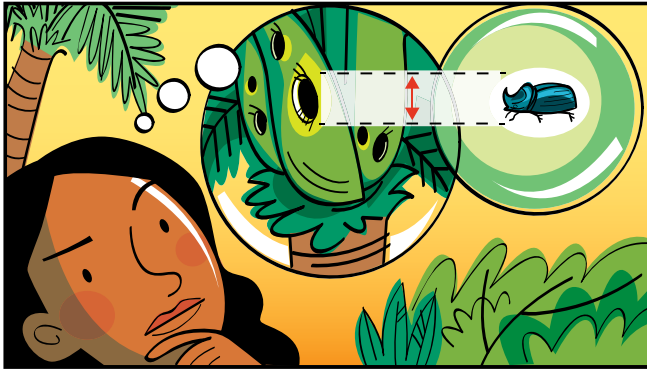
Later that evening, Kalei, her brother, and her tūtū (grandmother) went out to gather niu (coconut) near their house in preparation for a baby lū’au (party) to celebrate her cousin’s first birthday.

While harvesting the coconut, they noticed large holes in the base of the coconut palm fronds.



The Plant Heroes are brought to you by the American Public Gardens Association. This comic was developed with financial support from the USDA – Animal and Plant Health Inspection Service and reproduced with financial support from the USDA – Forest Service. Play games and learn how you can protect plants at plantheroes.org.





Kalei took a closer look and noticed that the holes were almost the same size as the beetle she had seen earlier that day. Kalei wondered, “Could it have been the beetle that made these holes?”

Concerned for the coconut palms they often harvest from, she and her tūtū contacted (808) 643-PEST, Hawai'i's statewide pest-reporting hotline. Kalei sent the photo of the beetle she took to the hotline and an expert told her it was a coconut rhinoceros beetle, a pest to the coconut, loulu (fan palm), kalo (taro), and other important plants.



The hotline put them in touch with the Coconut Rhinoceros Beetle Response team, which came out and collected the coconut rhinoceros beetle Kalei discovered and shared more information about the beetle and where else it has been found.



“Wow,” said Aponi. “Good thinking to call the pest-reporting hotline! Is there anything you can do to keep the coconut rhinoceros beetle from spreading?”

Kalei explained, “We are cleaning up our yard waste so that it doesn't become a breeding site for the beetles,

and I was able to tell my family and friends at the baby lū'au to be on the lookout for the beetles.”

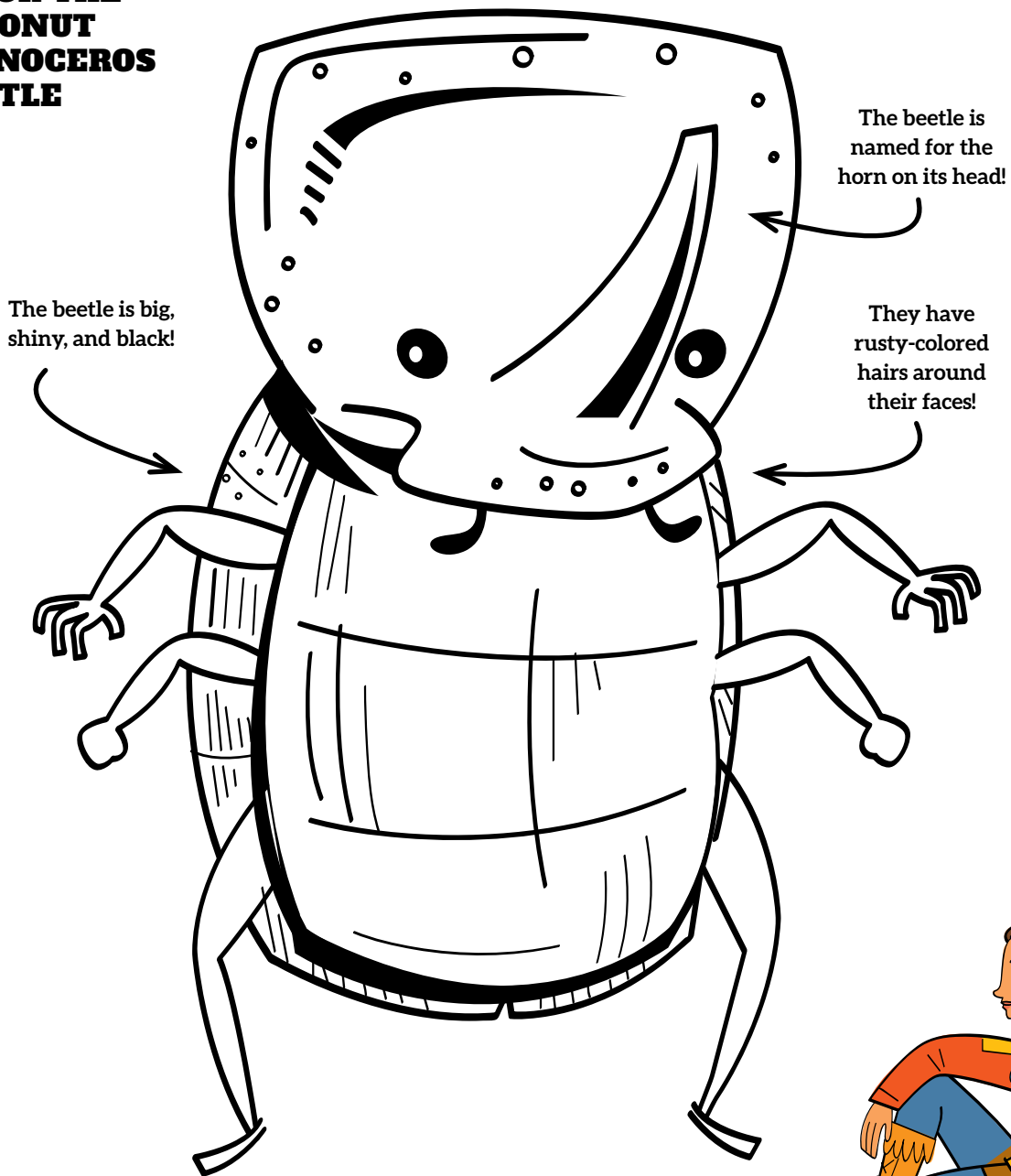
Aponi and Kalei ended their video call by agreeing that Kalei should share her story at the next entomology club meeting!



Meet the Beetle

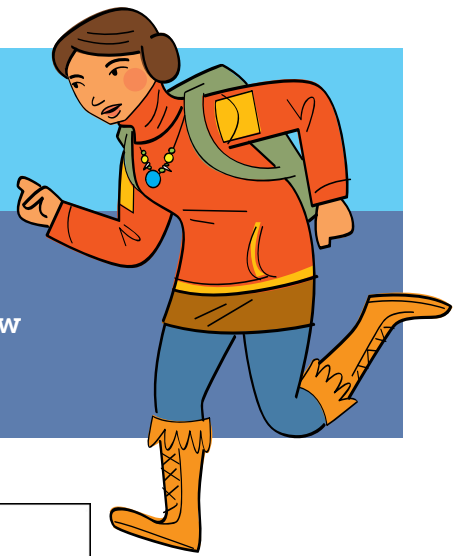
The coconut rhinoceros beetle is an impressive beetle with a horn sticking out of its head. Unfortunately, just as impressive is its ability to cause damage to palms, bananas, and other plants. Color in the coconut rhinoceros beetle below.

COLOR THE COCONUT RHINOCEROS BEETLE



Life Cycle Maze

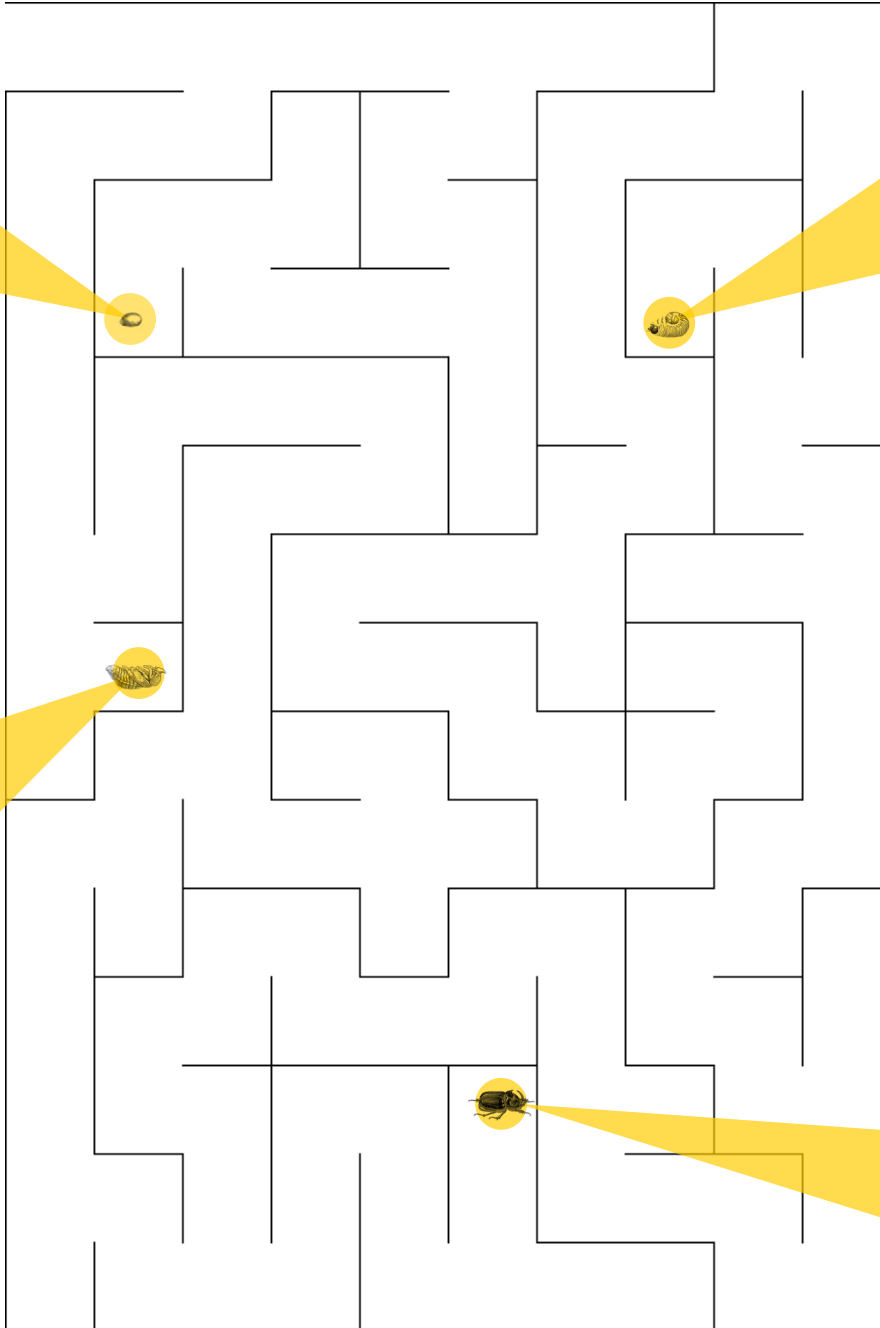
Humans change as they get older. Did you notice that you get a little taller every year? Beetles look different as they get older, too. The beetle starts as an egg, then becomes a larva, then a pupa, and finally an adult beetle. Follow the stages of the beetle through the maze to learn more about its life cycle.



START →



**Stage 1
EGG**
The beetle begins its life as an egg laid in mulch.



**Stage 2
LARVA**
Larvae, which look like white grubs, hatch from the eggs and live in the mulch.



**Stage 3
PUPA**
The larvae change into pupae.

HANDY TIP!
Add an "e" to the end of "larva" or "pupa" if you are talking about more than one larva or pupa!

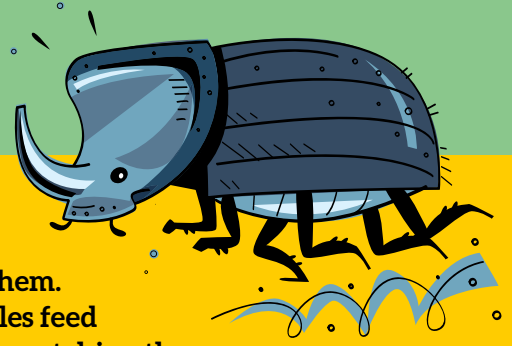
**Stage 4
ADULT**
Adult beetles emerge as big, shiny beetles and can fly off to find mates.



FINISH



Meet the Palms!



While coconut rhinoceros beetles are named after the coconuts they like to feed on, they also feed on other plants. These plants are called “hosts” because the beetles are the “guests” that feed on them. Below are some of the favorite plants that coconut rhinoceros beetles feed on. Learn about a couple of the most common plants they prefer by matching the descriptions to the images.



Coconut Palm (*niu*)



Palm



Date Palm

1

My leaves are fan-shaped and I produce clusters of small fruits.

2

I produce red or yellow fruits that are tasty to eat! What am I?

3

You can often find me along the beach. I produce a very hard, large fruit that contains a refreshing liquid inside.

For more of the coconut rhinoceros beetle's favorite plants, see pages 4, 5, and 6 in your field guide.



Trees in Trouble

Coconut rhinoceros beetle adults feed on the leaves of their favorite plants. Learn more about how to tell if a coconut rhinoceros beetle has been feeding on a plant by matching each photo with the right description.



1

When feeding on coconut palm leaves, the beetle creates zigzag or V-shaped edges on the leaves.

2

Adults tunnel into the heart of the tree, leaving big holes.



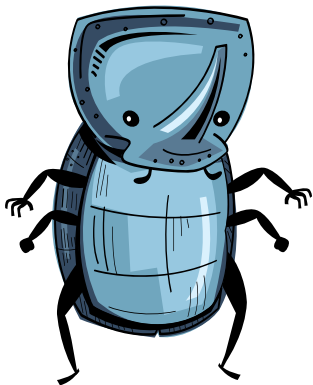
Time to Journal



1. The coolest thing I learned in this book is

2. My favorite tree that the coconut rhinoceros beetle likes to eat is

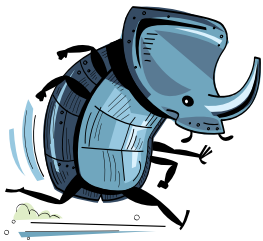
3. If I could be only one life stage of the coconut rhinoceros beetle (egg, larva, pupa, adult), I would be



4. Have you spotted any beetles near where you live? Draw a picture here if you can spot one!



Slow the Spread!



If you find a coconut rhinoceros beetle, you can help stop the spread by asking an adult to call (808) 643-PEST (in Hawai'i) or a local expert for advice.

Dogs to the Rescue!



Did you know dogs can be used to find coconut rhinoceros beetles? Trained dogs can smell the beetles in mulch and compost piles before experts see them. This shows insect experts where to inspect for the coconut rhinoceros beetles!

ANSWER KEY

Meet the Palms: 1. Fan Palm; 2. Date Palm; 3. Coconut Palm (or *niu*)

Trees in Trouble: 1. b; 2. a





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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