

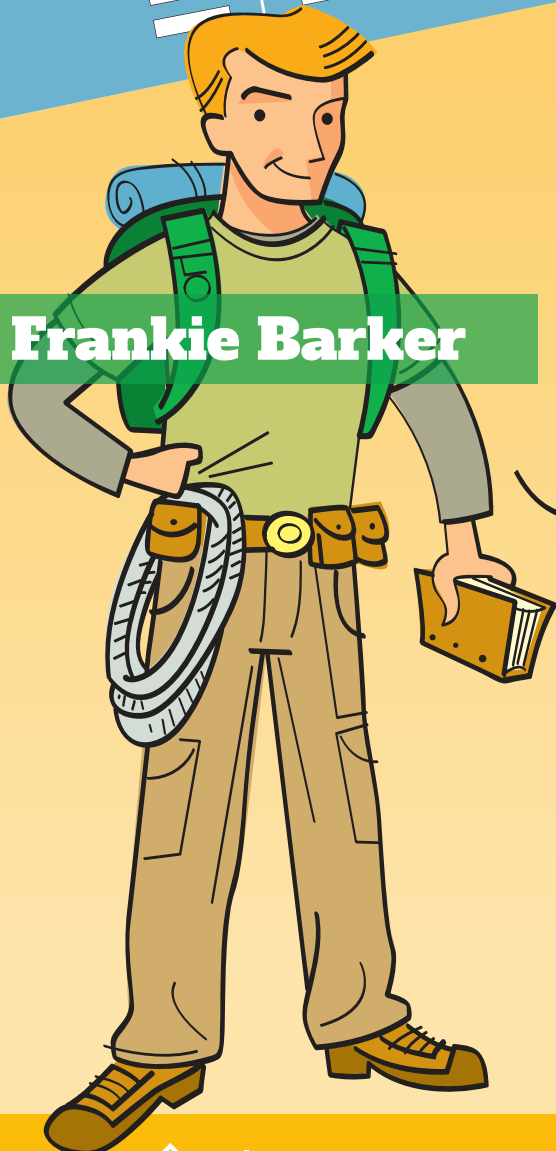


Help the Plant Heroes protect our forests by slowing the spread of pests and diseases!

PLANTHEROES.ORG
BEGINNER
ACTIVITY
BOOK

INSECT ASIAN LONGHORNED BEETLE

Frankie Barker



BE A PLANT HERO!
Help Frankie slow the spread of the Asian longhorned beetle!



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

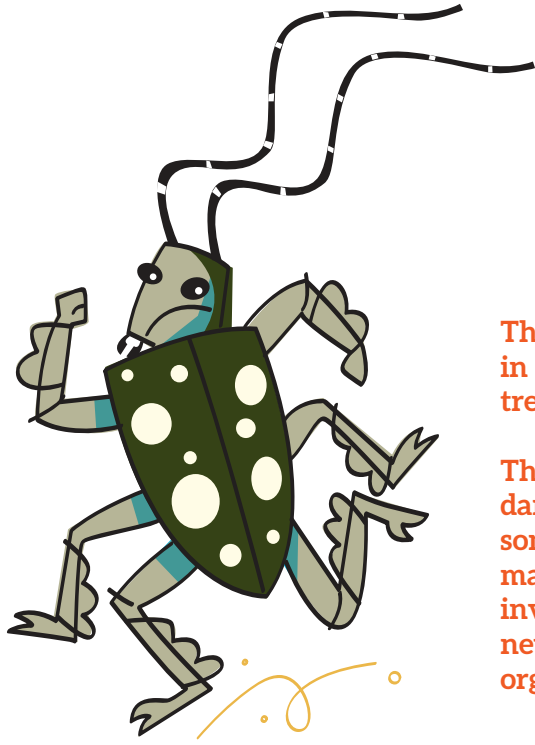
APONI STAR

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



plantheroes.org

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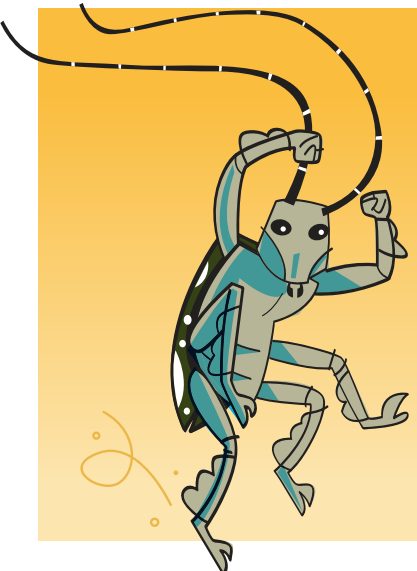


The Plant Heroes are four friends who love spending time in nature more than anything else! They enjoy climbing trees, walking trails, and camping.

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.

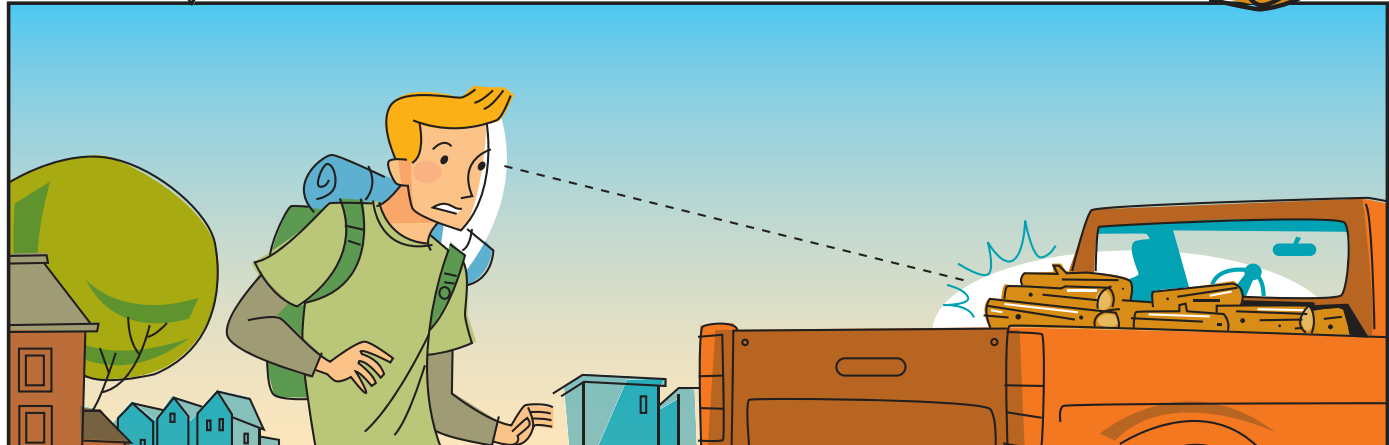
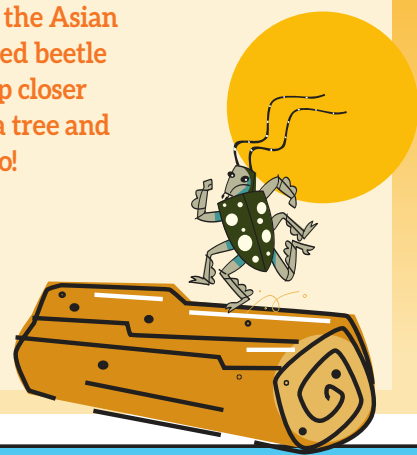
Follow Frankie to learn the story of how he slowed the spread of the Asian longhorned beetle...



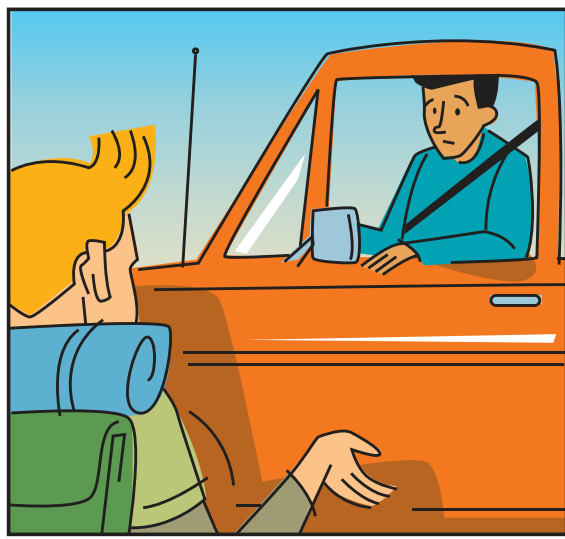


NOT GOOD TO MOVE FIRE WOOD

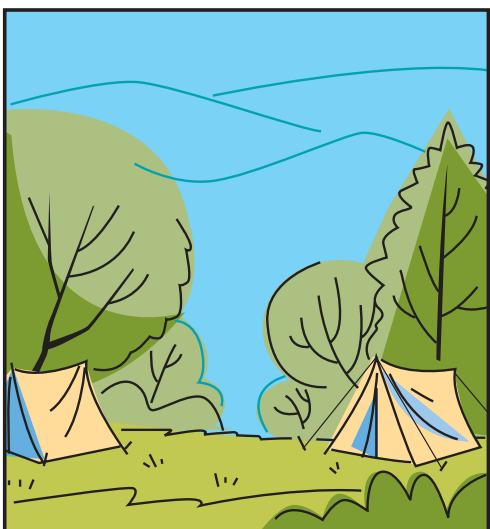
Understanding how firewood enables the spread of the Asian longhorned beetle is one step closer to being a tree and plant hero!



When Frankie's Eagle Scout troop comes by to pick him up for a weekend camping trip to nearby Wachusett Mountain State Reservation, Frankie sees a load of firewood in the back of his friend's pickup truck.



When he asks where the wood came from, Frankie's friend says his dad cut down a dead tree in their back yard. Frankie knows they both live within the Asian longhorned beetle quarantine area and understands that transporting the firewood could help spread the insect to other areas.

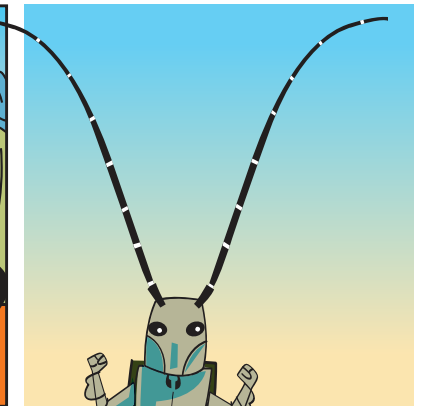


USE FIREWOOD WHERE YOU FIND IT. STOP ASIAN LONGHORNED BEETLE FROM TRAVELLING!

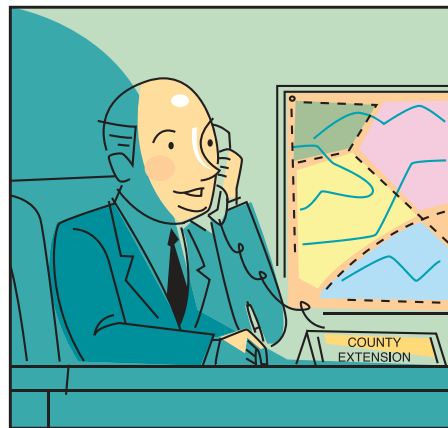
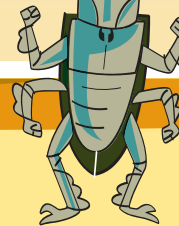
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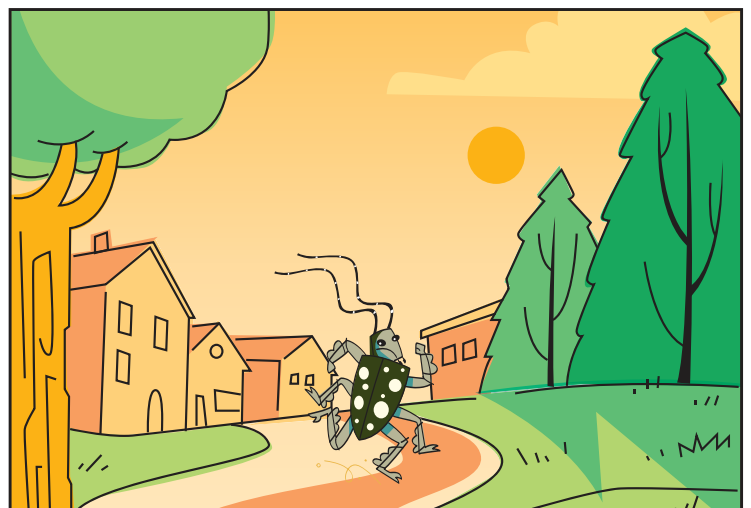
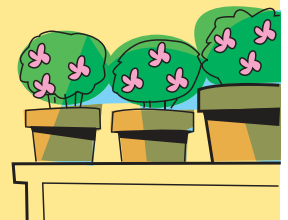
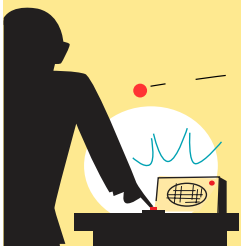
PLANT HEROES



He also brings the bark depressions and dime-sized exit holes of the Asian longhorned beetle to the attention of his troop. They quickly return the firewood to his friend's yard and contact the county extension office.



The Plant Heroes team is notified and sent in to help Frankie inspect the trees in the area and deploy pheromone traps in the affected neighborhood. They find a dozen infested trees and remove them before the Asian longhorned beetle spreads even further!



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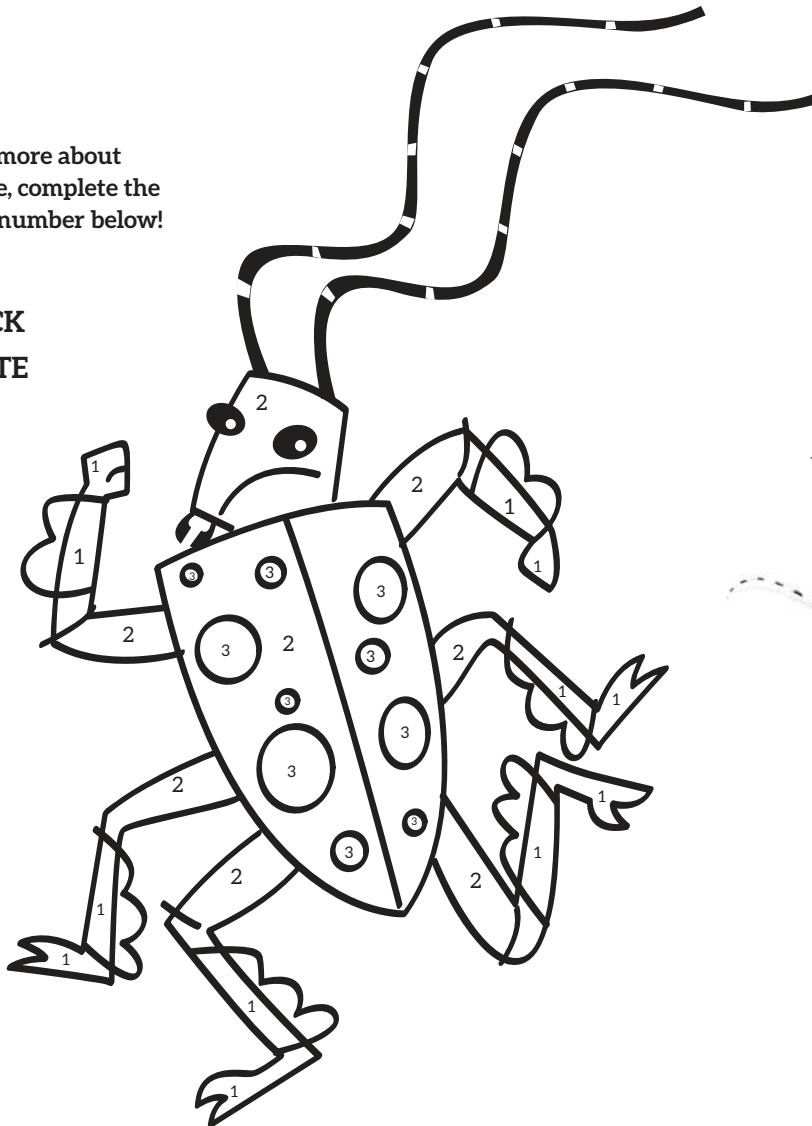


The Starry Sky Beetle

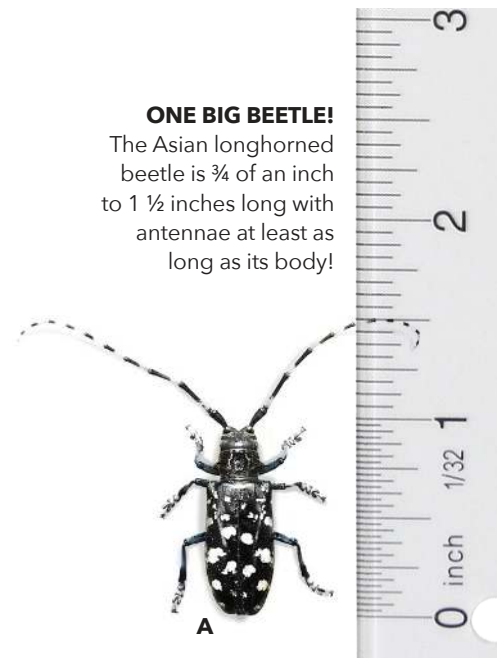
The Asian longhorned beetle is also called the “starry sky beetle.” Can you guess why scientists decided to give the beetle these two names? Is there anything about the way the beetle looks that gives you a hint?

To learn more about the beetle, complete the color-by-number below!

- 1: BLUE
- 2: BLACK
- 3: WHITE



ONE BIG BEETLE!
The Asian longhorned beetle is $\frac{3}{4}$ of an inch to $1\frac{1}{2}$ inches long with antennae at least as long as its body!



From Egg to Adult



The Asian longhorned beetle goes through four life stages from egg to adult. Learn more about each life stage below by matching each photo with the life stage it shows. Use the descriptions for help.

1



2



3



4



LARVA

Alarva looks like a little white worm. It eats the inner part of the tree, creating lots of tunnels under the bark.

.....

PUPA

A pupa is the resting stage of the beetle. During this resting stage it slowly changes into an adult beetle.

.....

ADULT

The adult beetle chews its way out of the tree and flies off in search of a mate.

.....

EGG

An adult female beetle lays one egg in a tiny groove she chews into the bark.

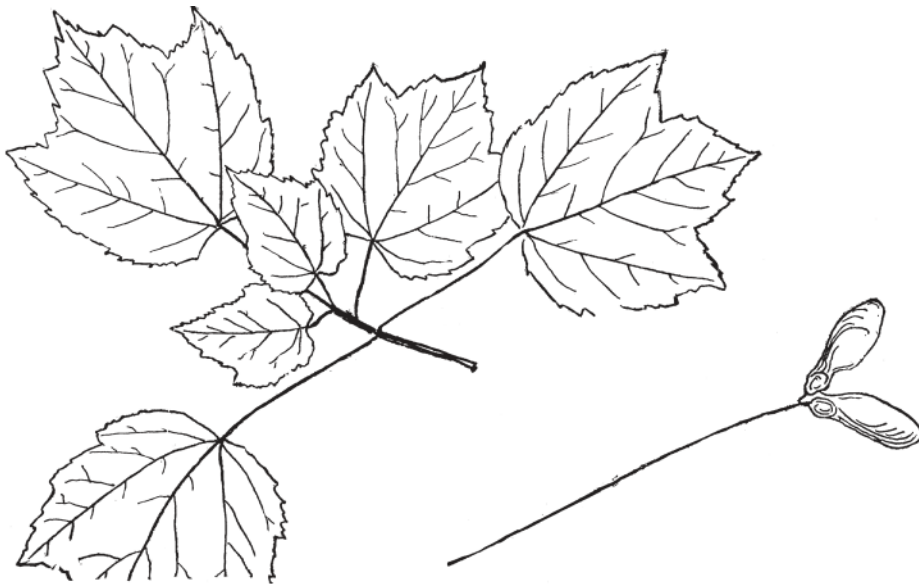
HANDY TIP!

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



Meet The Trees!

Just like you have favorite foods, the Asian longhorned beetle does too! Below are some of the trees that Asian longhorned beetles eat and live in. Can you find any of these leaves in a garden or park near you? Use the hints below for help. Color in the pictures of the leaves below.



RED MAPLE

Hint: Almost everything on this tree is red! It has red stems, red buds, and red flowers, as well as soft red leaves in the fall. If you find any of the seeds with two wings, hold it up and drop it. It will twirl like a helicopter!

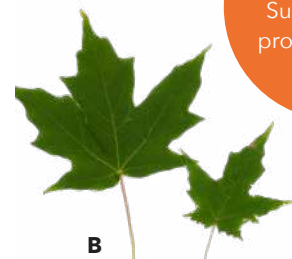


A



SUGAR MAPLE

Hint: The leaves on this tree are soft and look almost like a hand with 3-5 fingers. The sugar maple also has winged helicopter seeds!



B

DID YOU KNOW?

Sugar maples produce maple syrup!

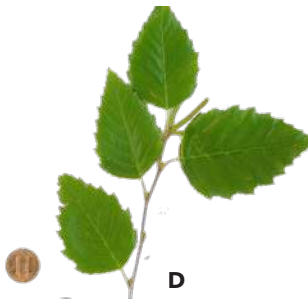
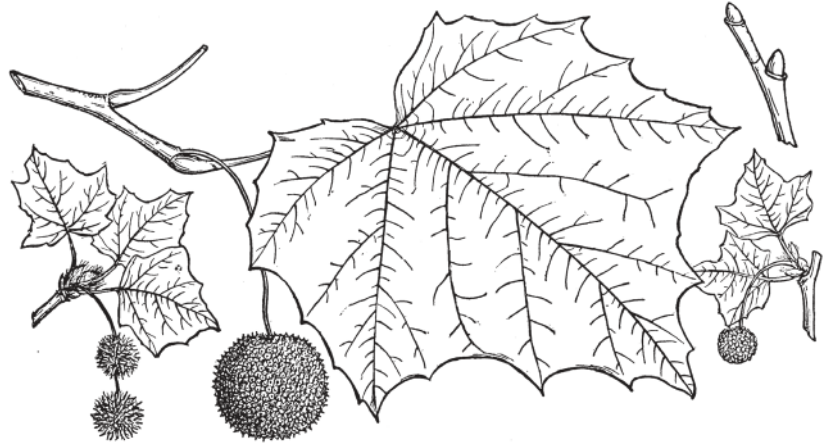




C

SYCAMORE

Hint: This tall tree has bark that looks like camouflage with white and gray patches. It has leaves that look a little like a sugar maple, but are rough and leathery.



D

BIRCH

Hint: This tree often has bark that looks like paper and peels off in strips. Birch leaves have many small, sharp points called "teeth." In spring they have long buds that look like hanging caterpillars.



E

WILLOW

Hint: A common type of willow is a weeping willow which has drooping branches. You can find willows near ponds or streams, and they have very skinny long leaves.

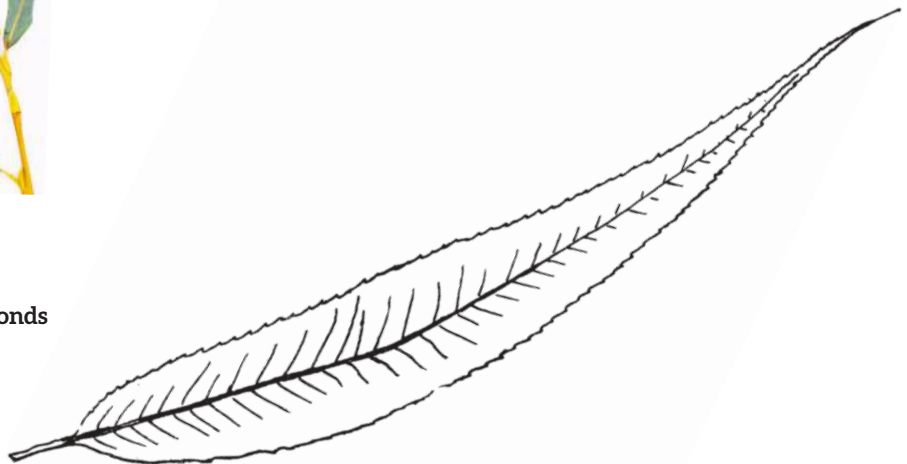


PHOTO CREDITS: C: Katja Schulz; D, E: Maggie, Flickr.com



Trees in Trouble



With all its eating, the Asian longhorned beetle leaves signs that it has visited a tree. See if you can use your detective skills and write the letter of the photo that matches the description in the blank next to it to learn more about the signs you might spot that the beetle has been eating the tree.



___ Tunnels inside the trunk are created by beetle larvae.



___ These round holes are created when adult beetles chew their way out of the tree.



___ Larva poop looks like sawdust from all the wood they eat! If you see sawdust, larvae are probably not far away.



___ Leaves sometimes turn yellow and red, and drop when the tree is not able to get enough water.

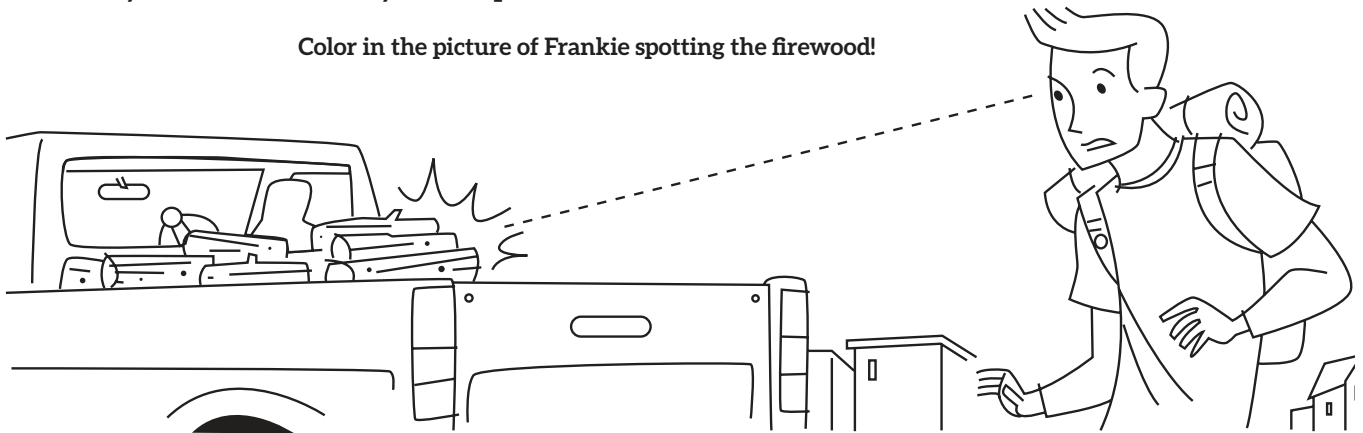
PHOTO CREDITS: A: US Dept of Ag, Flickr.com; B: Dennis Haugen, Bugwood.org; C: Steven Katovich, Bugwood.org; D: Kenneth R. Law, Bugwood.org



A Stowaway

Beetles that live inside trees are often accidentally brought to a new area when people move firewood. Help the Plant Heroes by never transporting firewood! Thank goodness Frankie spotted this firewood with many beetle stowaways inside before they could spread to new trees.

Color in the picture of Frankie spotting the firewood!



Dogs to the Rescue!

Did you know that dogs can be used to find Asian longhorned beetles? Pretty neat! Trained dogs can smell the beetles' sawdust-like waste and show insect experts which trees they should inspect!

ANSWER KEY

From Egg to Adult: 1. Egg; 2. Larva; 3. Pupa; 4. Adult

Trees in Trouble: C) Tunnels inside the trunk are created by beetle larvae. A) These round holes are created when adult beetles chew their way out of the tree. D) Larva poop looks like sawdust from all the wood they eat! If you see sawdust, larvae are probably not far away! B) Leaves sometimes turn yellow and red and drop when the tree is not able to get enough water.





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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This publication was developed with financial support from the US Forest Service and the USDA Animal and Plant Health Inspection Service.

