

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.

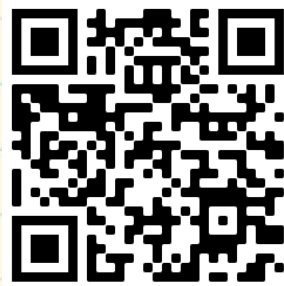
Thank you for taking the time to answer the following one-minute survey.



There are three ways to complete the survey:

1

Scan this code with your smartphone camera

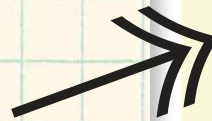


2

Type the following link into your web browser:
<https://plantheroes.org/educator-survey>

3

Email your answers to:
plantheroes@publicgardens.org



- 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:

Asian Citrus Psyllid

This tiny insect and its even tinier bacterial hitchhikers can cause a serious disease in all types of citrus trees. Explore these pages and learn how to identify them.



**Plant
Protection
Program**

AMERICAN PUBLIC GARDENS ASSOCIATION



Photo: U.S. Department of Agriculture, flickr.com

ASIAN CITRUS PSYLLID

Identification



^ Side view of the Asian citrus psyllid (*Diaphorina citri*) showing how its wings are almost clear in the middle and darker around the edges.



<< Top view of the Asian citrus psyllid showing its light brown head and slightly darker colored body.

A UGA5312081

Close-up showing the coloration of an adult Asian citrus psyllid. >>



B UGA5312096

C UGA5312097



D UGA5196084

^ The adult Asian citrus psyllid is usually about 1/8 inch (four millimeters) long, or about the size of a grain of rice.



E UGA5006082

<< The Asian citrus psyllid usually feeds head down, tail up as it sucks sap from a leaf.

ASIAN CITRUS PSYLLID

Life Cycle



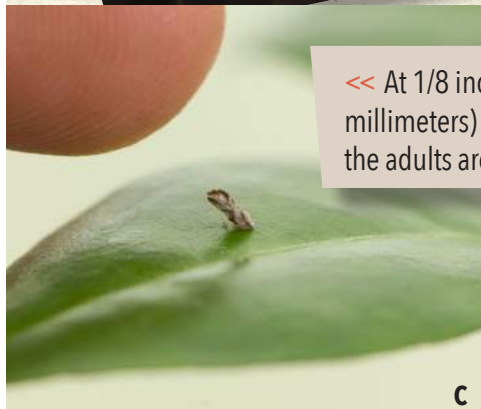
Asian citrus psyllid eggs are tiny—less than 1/2 millimeter long, or about the size of a grain of sand. They begin very pale but darken as they mature.

A USDA-ARS UGA5006088



B UGA5006085

After the eggs hatch, the nymph (immature psyllid) goes through five stages (called "instars") before becoming an adult. The nymphs start out pale yellow, but darken and develop wing pads as they mature.



<< At 1/8 inch (four millimeters) long, even the adults are small!



<< Close-up showing how tiny (about one millimeter) the Asian citrus psyllid is during the nymph stage!

<< Close-up showing both adults and eggs. One female can lay almost 1,000 eggs during her lifetime!



ASIAN CITRUS PSYLLID

Host Trees

A typical orange orchard—heavy with fruit that's vulnerable to citrus greening, the disease transmitted by the Asian citrus psyllid! >>>

<<< Commercial grove of orange trees that are under threat from Asian citrus psyllid!



The tangerine (*Citrus reticulata*) is another tasty treat threatened by the Asian citrus psyllid and citrus greening. ⚡

⚡ Branch of an orange tree (*Citrus sinensis*).



<<< Grapefruit (*Citrus paradisi*) is also vulnerable to the Asian citrus psyllid and citrus greening.

Host trees are trees the Asian Citrus Psyllid damages through its feeding.



ASIAN CITRUS PSYLLID

Host Trees 2



Lemons (*Citrus limon*) and limes (*Citrus aurantiifolia*) are both vulnerable to the Asian citrus psyllid and citrus greening.

C 5401663



A UGA1539100

<< Even though its fruits are small and very bitter, hardy orange (*Poncirus trifoliata*) is a nice ornamental—just watch out for the thorns!



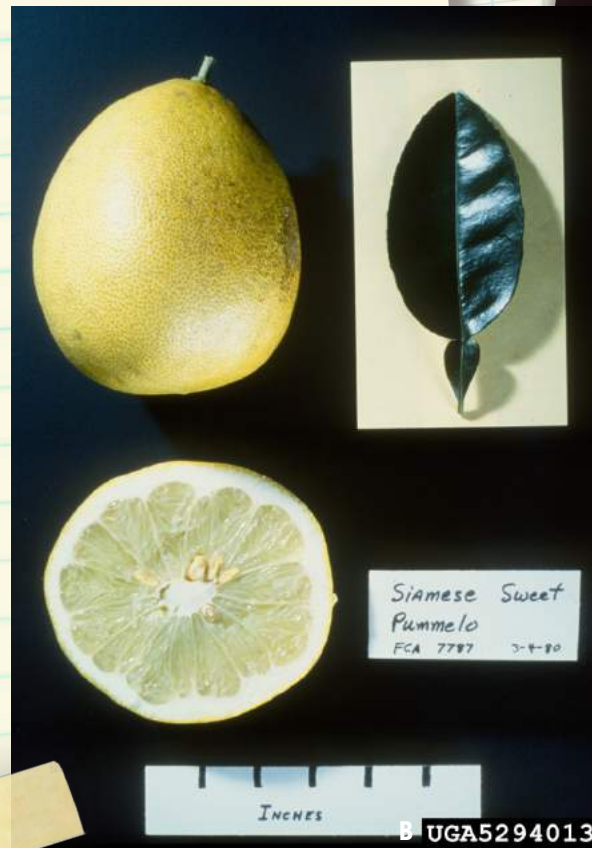
E

⤴ Fruit of the lime tree (*Citrus aurantiifolia*).



D

⤴ Close-up showing the beautiful white flowers of a lime tree.



Siamese Sweet Pummelo
FCA 7787 2-4-80

B UGA5294013



<< Pomelo (*Citrus maxima*) is another tasty fruit in danger!

ASIAN CITRUS PSYLLID

Damage

The bacteria that the Asian citrus psyllid carries in its body causes a range of symptoms on citrus plants.

<< Infected fruits taste very bitter and their seeds often don't mature or are rotten. Yuck!

An attack by the Asian citrus psyllid can cause new leaves to be shrunken and deformed. >>

<< Close-up of Asian citrus psyllids feeding on a twig. The end of the twig at the left is black, meaning that the feeding has killed the new growth on this shoot.

Because the Asian citrus psyllid sucks out a plant's sap, it can cause leaves and young branches to become thick and deformed. >>

⤴ As citrus greening progresses, more and more leaves turn yellow, and they may curl up and fall off the plant.



ASIAN CITRUS PSYLLID

Impact

Oranges can only be sold if they are bright orange and sweet like these healthy fruits! No one wants to eat the hard, deformed, bitter fruits affected by the Asian citrus psyllid and citrus greening.



Because there is no cure for citrus greening, infected trees must be destroyed. This hurts farmers and can make orange juice and other citrus products more expensive.



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.



**American
Public Gardens
Association**

PublicGardens.org

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