

Spotted Lanternfly: Information & Update



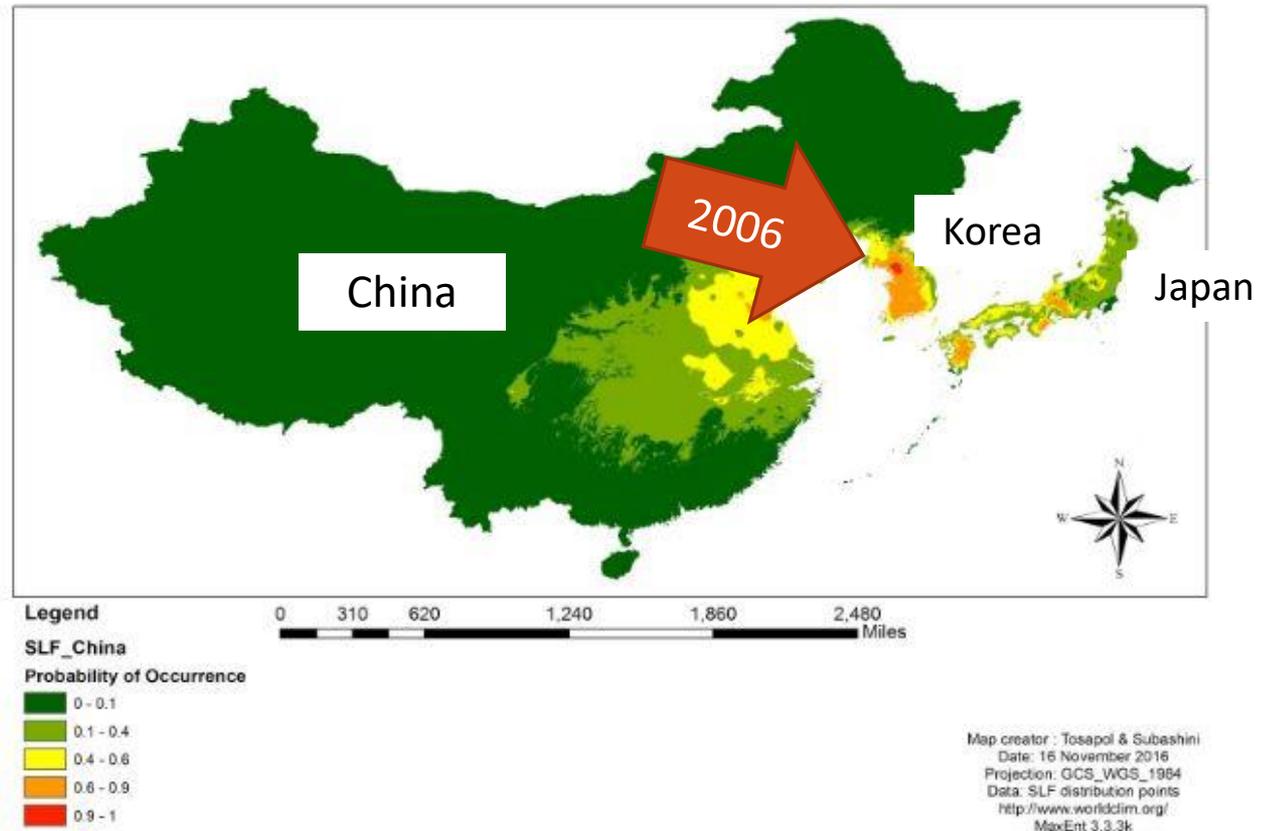
Alina Avanesyan
University of Maryland

What are the native and invaded ranges of spotted lanternfly in Asia?

Native to
China

Invasive in
Korea, Japan,
Taiwan, and
Vietnam

The predicted probability distributions of Spotted Lanternfly in China, Korea and Japan



Map: The predicted probability distributions of Spotted Lanternfly in China, Korea and Japan

Host plants in China



Chinese mahogany



Tree-of-heaven



Manchurian catalpa



'Chinese Elm'

- Ornamental and fruit trees
- Soybean and some agricultural crops



Soybean plants

Host plants in Korea



Tree-of-heaven



Manchurian walnut



Amur grape



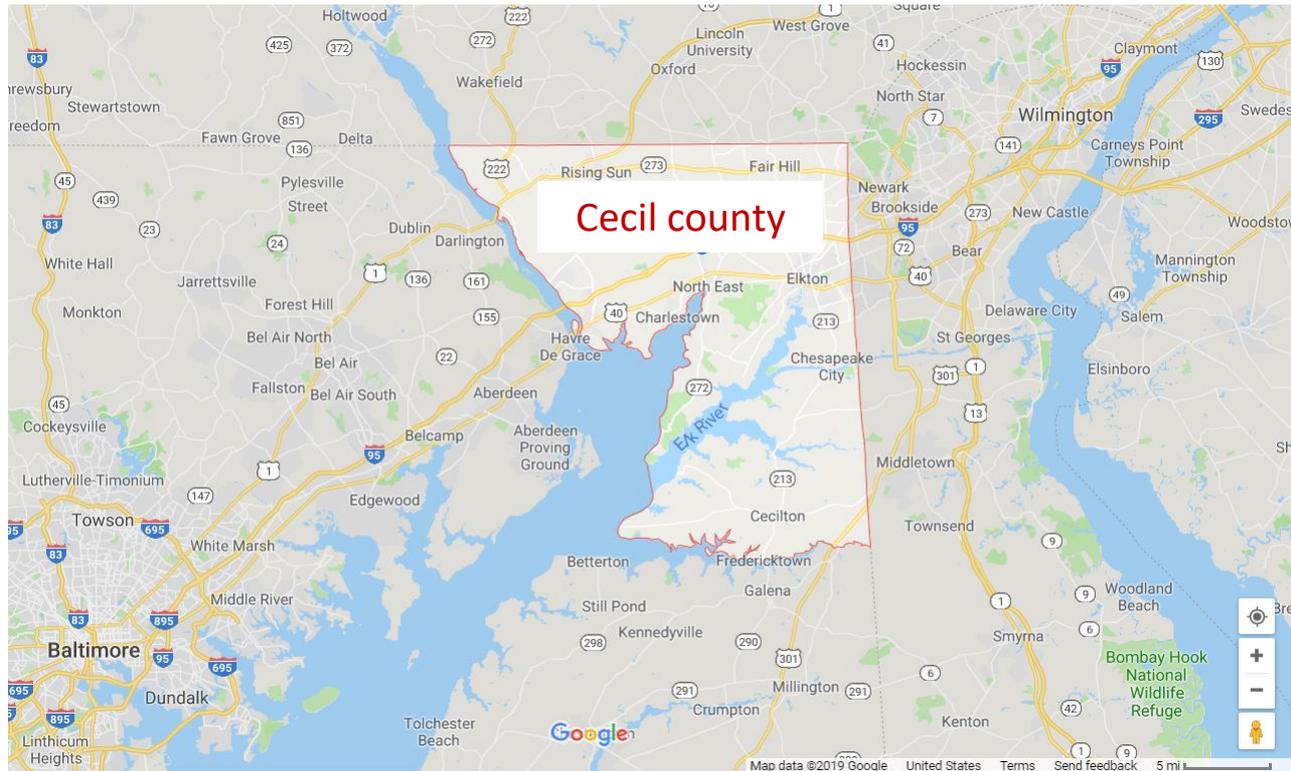
Chinese mahogany



Korean Evodia

- Ornamental and fruit trees
- Herbs

Spotted Lanternfly in Maryland!



■ October 2018: first confirmed spotted lanternfly in Maryland!

Life stages of spotted lanternfly



Eggs

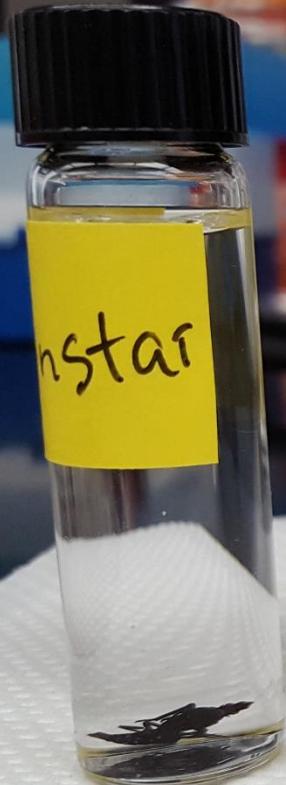
1st
instar

2nd
instar

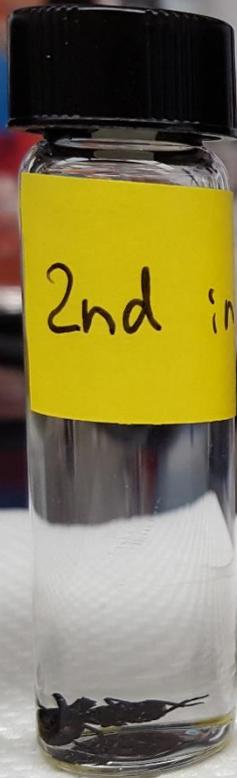
3rd
instar

4th
instar

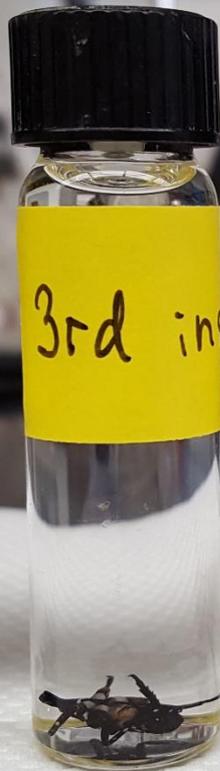
Adult



1st
instar



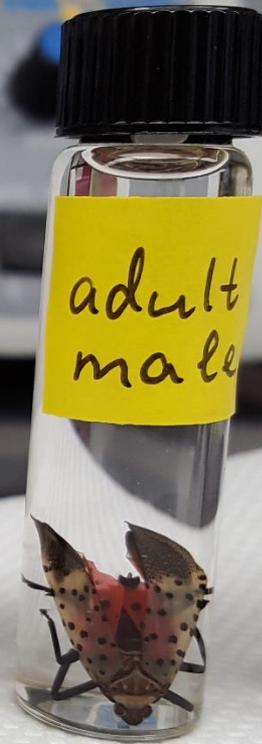
2nd
instar



3rd
instar



4th
instar

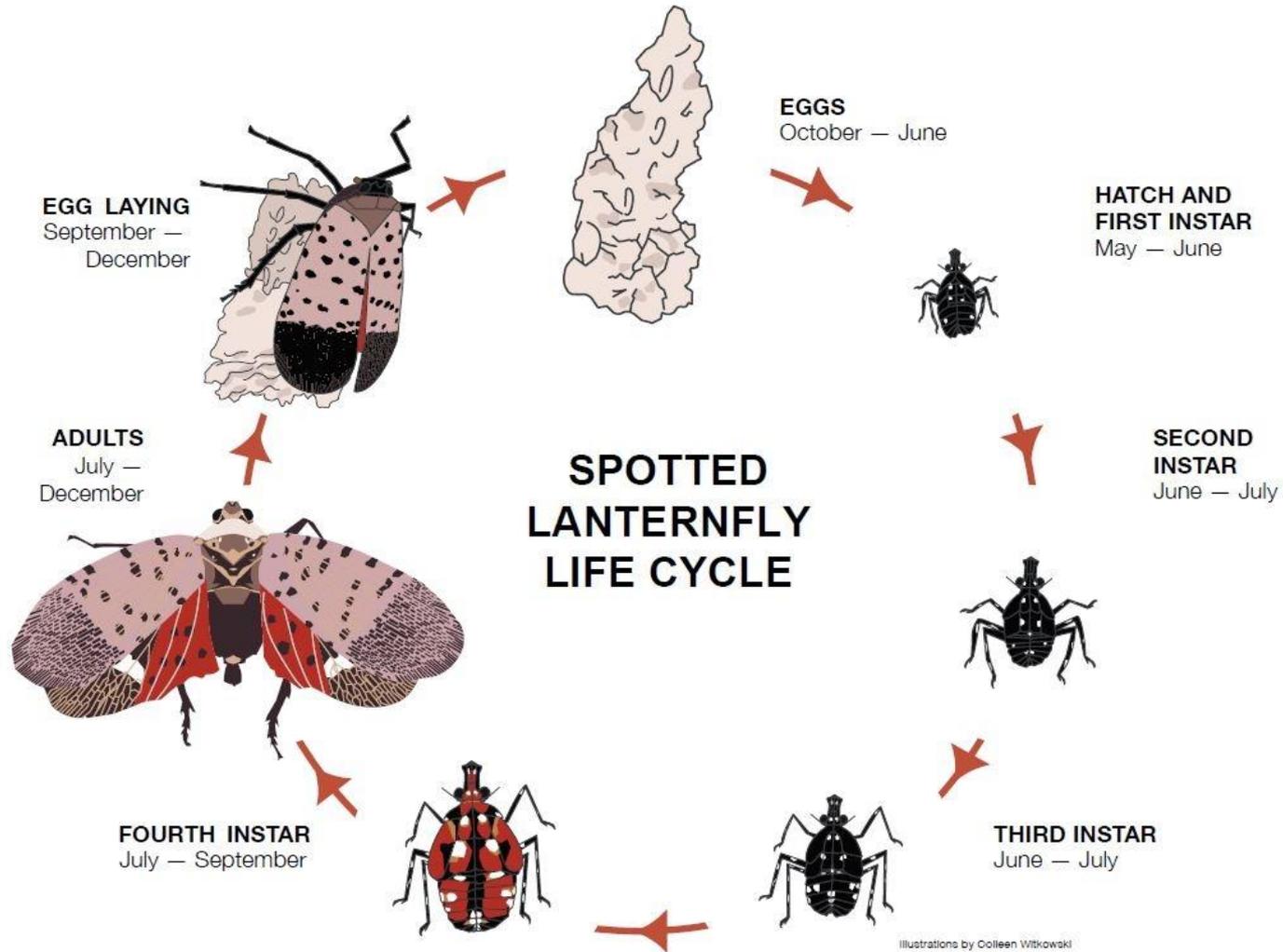


Adult
male



Adult
female

Life cycle of spotted lanternfly



Modes of SLF dispersal

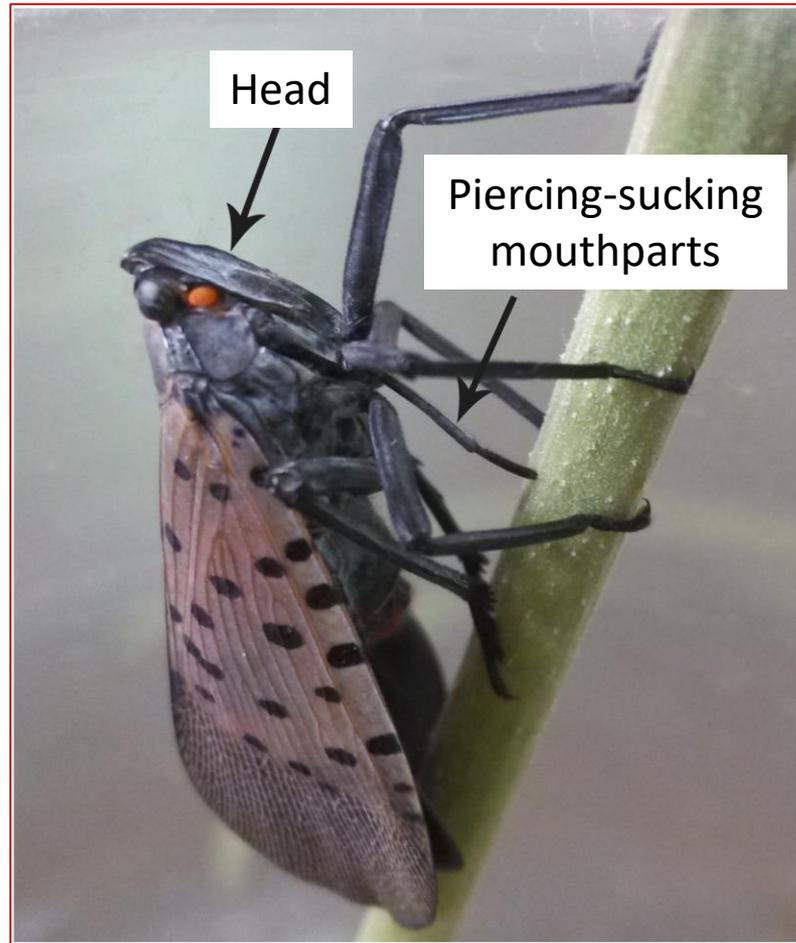
- One of the most aggressive leaf-hopping pest in Mid-Atlantic region
- Very high potential to breed and increase its population size
- It can be spread long distances by any material (including manmade material) containing egg masses:
 - ❖ trunked tree
 - ❖ stones
 - ❖ vehicles
 - ❖ yard furniture
 - ❖ farm equipment, etc.



Egg masses



How does the lanternfly eat and damage plants?



Sap- feeders

Damage caused by lanternfly

Consumes
phloem sap

Reduction in
photosynthesis

Weeping wounds

Decreasing
plant's growth



Plant damage



Create a sugary substance (honeydew)

Attract other insects - ants, wasps, etc.

Colonized by sooty mold -> blackening of parts of the plant





Host plants

Sap-feeder

SLF can utilize over 70 host plants:

- **Apple**
- Plum
- Cherry
- Peach
- Apricot
- **Grape**
- Pine
- Tree of heaven (preferred tree host)
- and many many others....



Collection trip to PA - July 2018

Lanternfly observed and collected from:

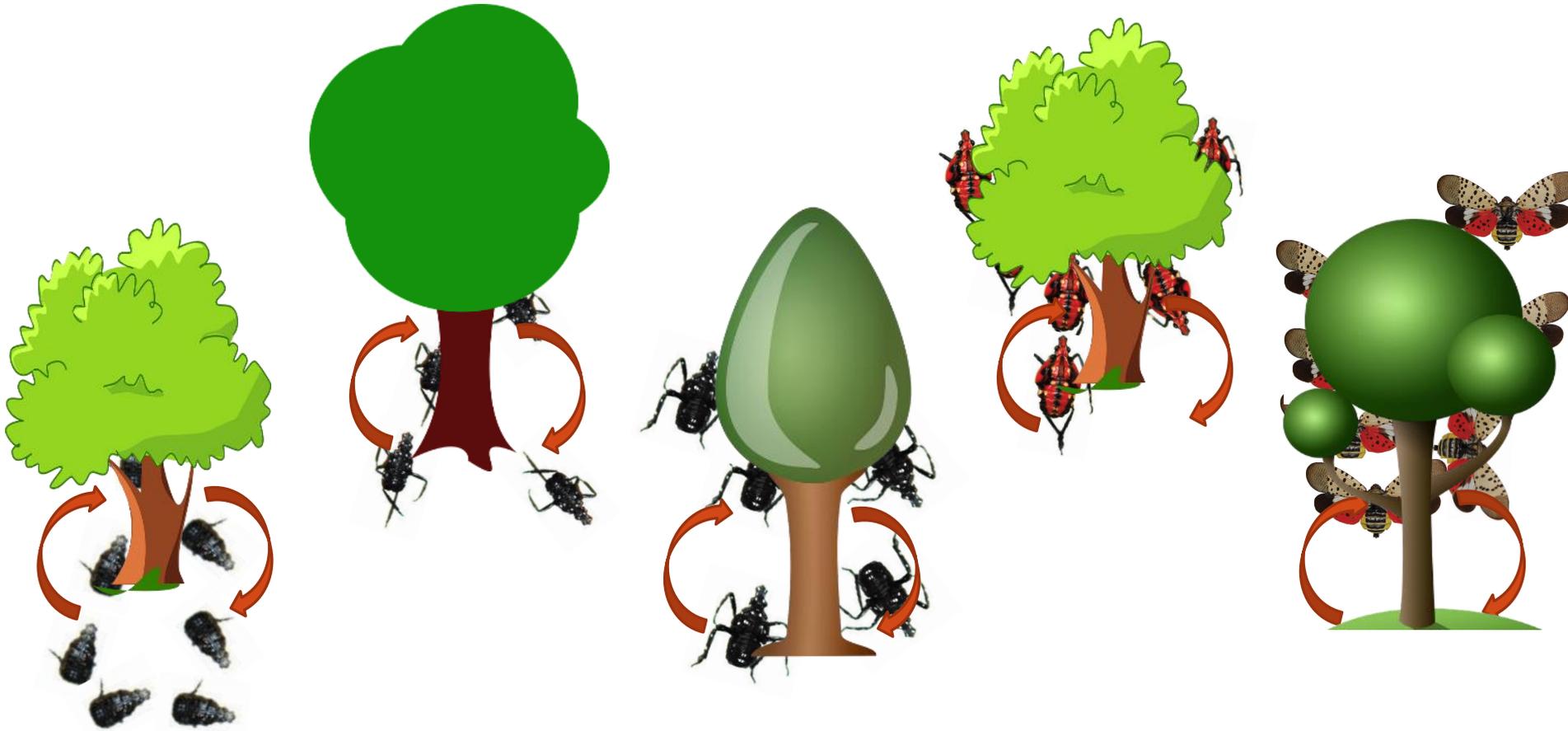


1. Three-flowered maple
2. Amur honeysuckle
3. Mapleleaf grape
4. Staff vine
5. Sumac
6. False poison sumac
7. Tree of heaven
8. Tropical burnweed
9. European dewberry
10. Norway maple
11. Roundleaved maple
12. Pokeweed
13. Late boneset

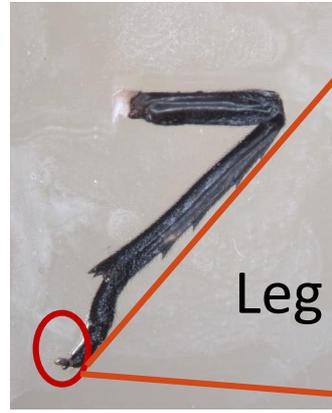
Behavior on host trees



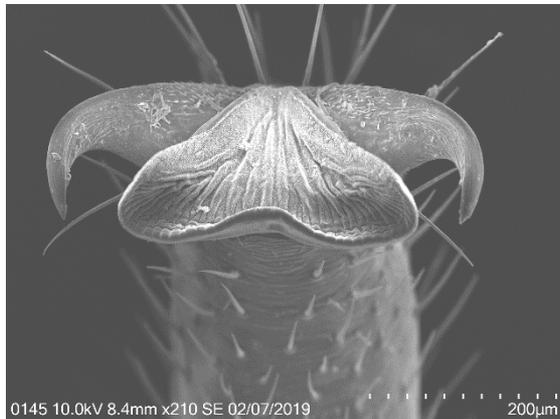
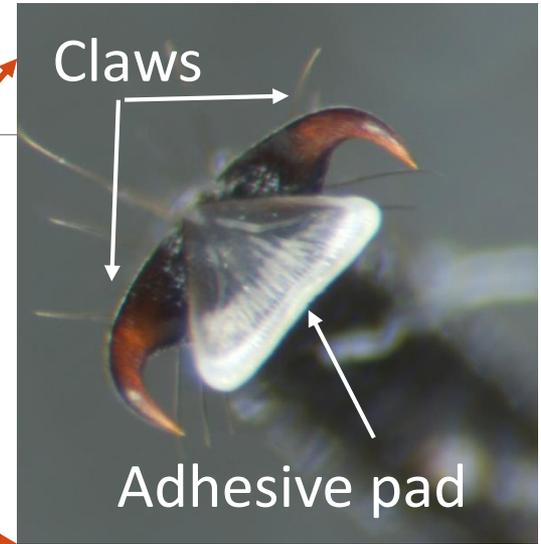
Behavior on host trees



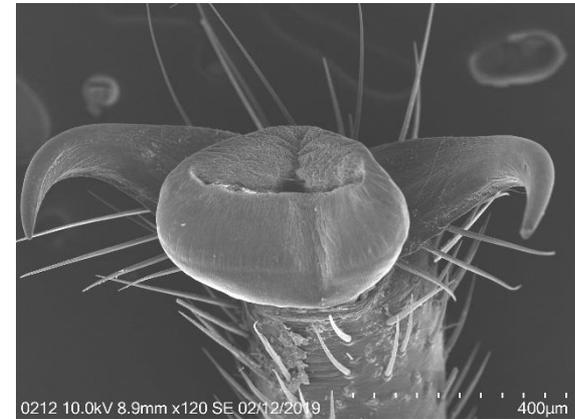
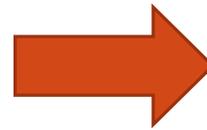
Holding on to the host trees



Leg tip



Lanternfly resting



Lanternfly moving

Behavior on host trees





Behavior on host trees



M. J. Raupp

Behavior on host trees



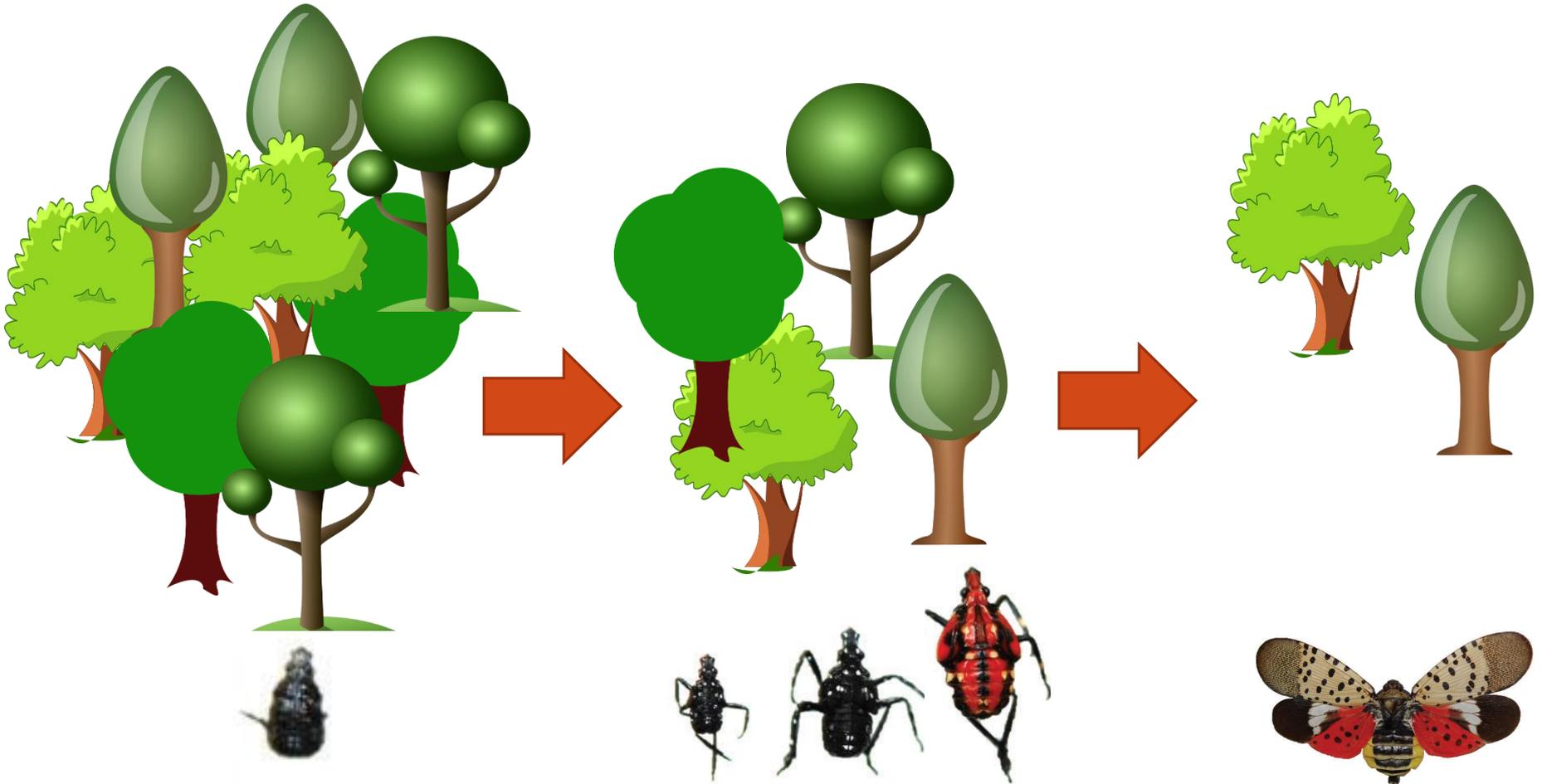
Behavior on host trees



Behavior on host trees



Seasonal behavior



May-June

June-August

September-December

Management strategies in PA



Band trees to catch nymphs

Did you know?

In the spring, spotted lanternfly nymphs crawl up trees to find a place to feed— stop them by banding trees with sticky paper or tape.



Pennsylvania Department of Agriculture



PennState

Scrape eggs

Eggs should be scraped off of trees, posts, stones, houses, and anywhere else you find them!

Use a plastic card, putty knife, or stick to scrape eggs downward into a bottle or bag.

Eggs can then be killed by putting them in rubbing alcohol, smashing them, or burning them.

Removes 30-50 eggs per mass

Link to video:

<https://extension.psu.edu/how-to-remove-spotted-lanternfly-eggs>

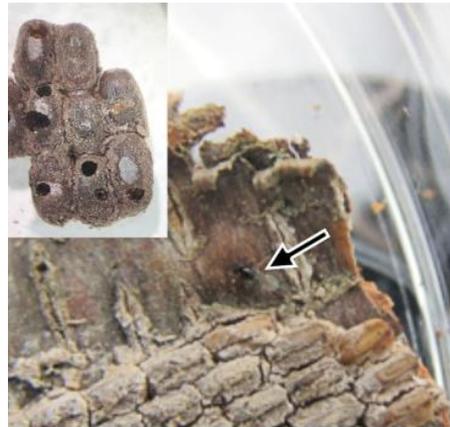


PA Dept. Ag.



Biological control

Indigenous natural enemies including spiders, mantises, and assassin bugs are now attacking and killing lanternflies



A tiny wasp called *Ooencyrtus kuvanae* was imported in 1908 to control gypsy moth. It was taken a liking to spotted lanternfly and now parasitizes and kills eggs of the lanternfly.

Insecticidal control



Synthetic pyrethroid - deltamethrin 1% EC

Organophosphate - fenitrothion 50% EC

“Quick and strong insecticidal activity against the 2nd-3rd nymphs”

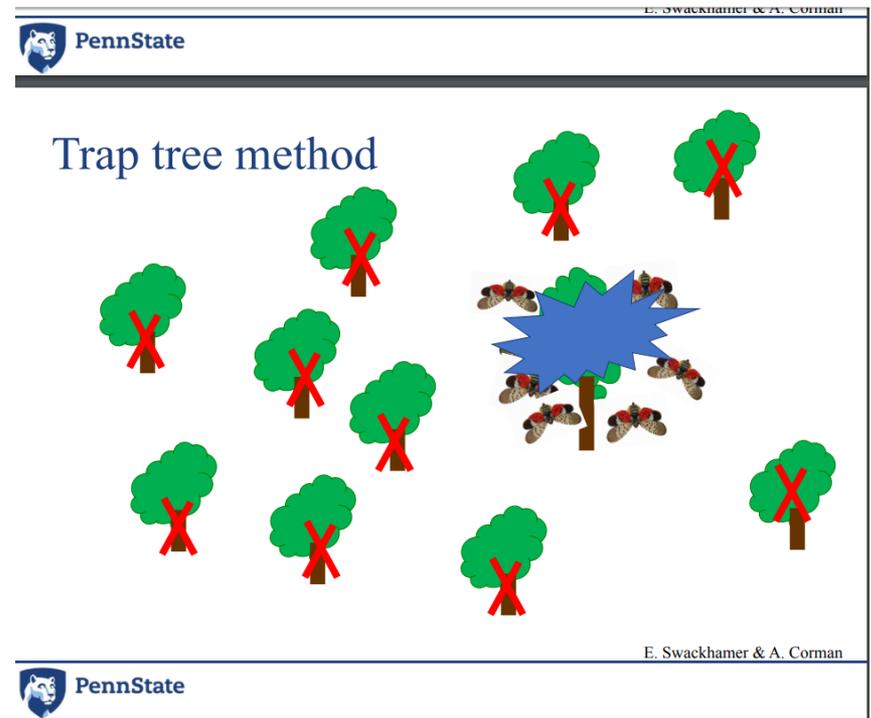
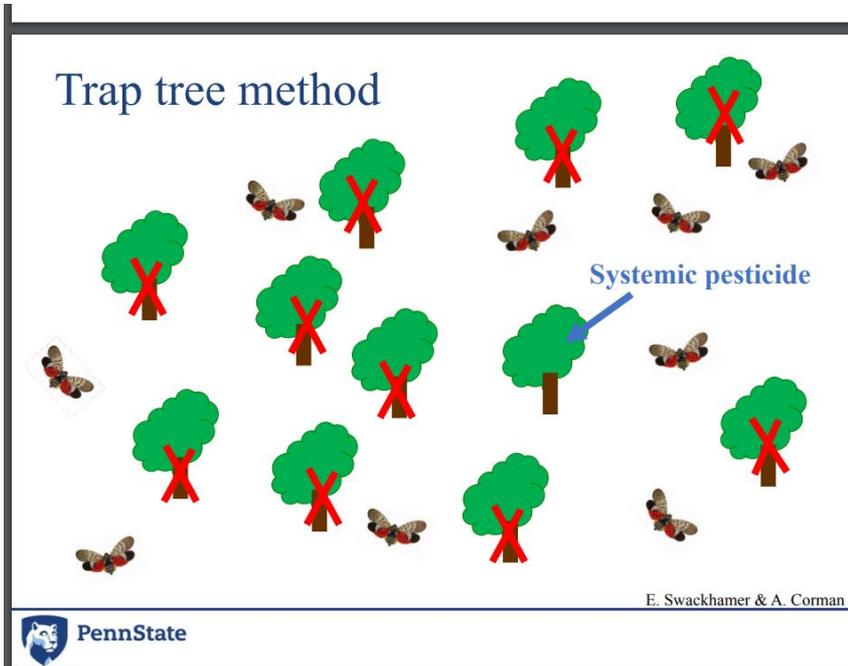
Neonicotinoids - imidacloprid 4% SL and clothianidin 8% SC “showed 100% insecticidal activity at 24h after treatment”

Park et al. 2009

Pyrethrum, Sophora, and neem extracts (at 1,000 fold dilution) killed 95% of adults within 48 h, but the extracts tended to be less effective against nymphs in some tests

Dara et al. 2015

Use trap-trees to reduce populations



Use trap-trees to reduce populations



Monitoring and scouting



Egg masses: on tree trunks, stones, etc.



Adults: in clusters on tree trunks



1st instar: close to the ground, plant shoots, stems, etc.

2-4th instars: plant leaves, stems, tree trunks

What can be done to assist with management of lanternfly?

Pennsylvania Department of Agriculture and Penn State web sites assist citizens with identification of this new pest, learning how to destroy egg masses, and for reporting sightings in general.

<https://extension.psu.edu/spotted-lanternfly>



If you discover an egg mass, nymphs, or adult lanternflies, report to your University Extension Service or State Department of Agriculture.

<http://extension.umd.edu/hgic/topics/spotted-lanternfly>



Thank you!



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