

Spotted Lanternfly: A Threat to NC Agriculture



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North Carolina Department of Agriculture & Consumer Services



What is spotted lanternfly?

- Planthopper; member of the family Fulgoridae
 - One of the only pests known in this insect family
- Native to parts of Asia (northern China, Vietnam, Bangladesh)
 - Introduced to Korea in 2004 where it has become a major pest
 - First detected in Pennsylvania in 2014
- Univoltine
- **Very** broad host range



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What is spotted lanternfly?

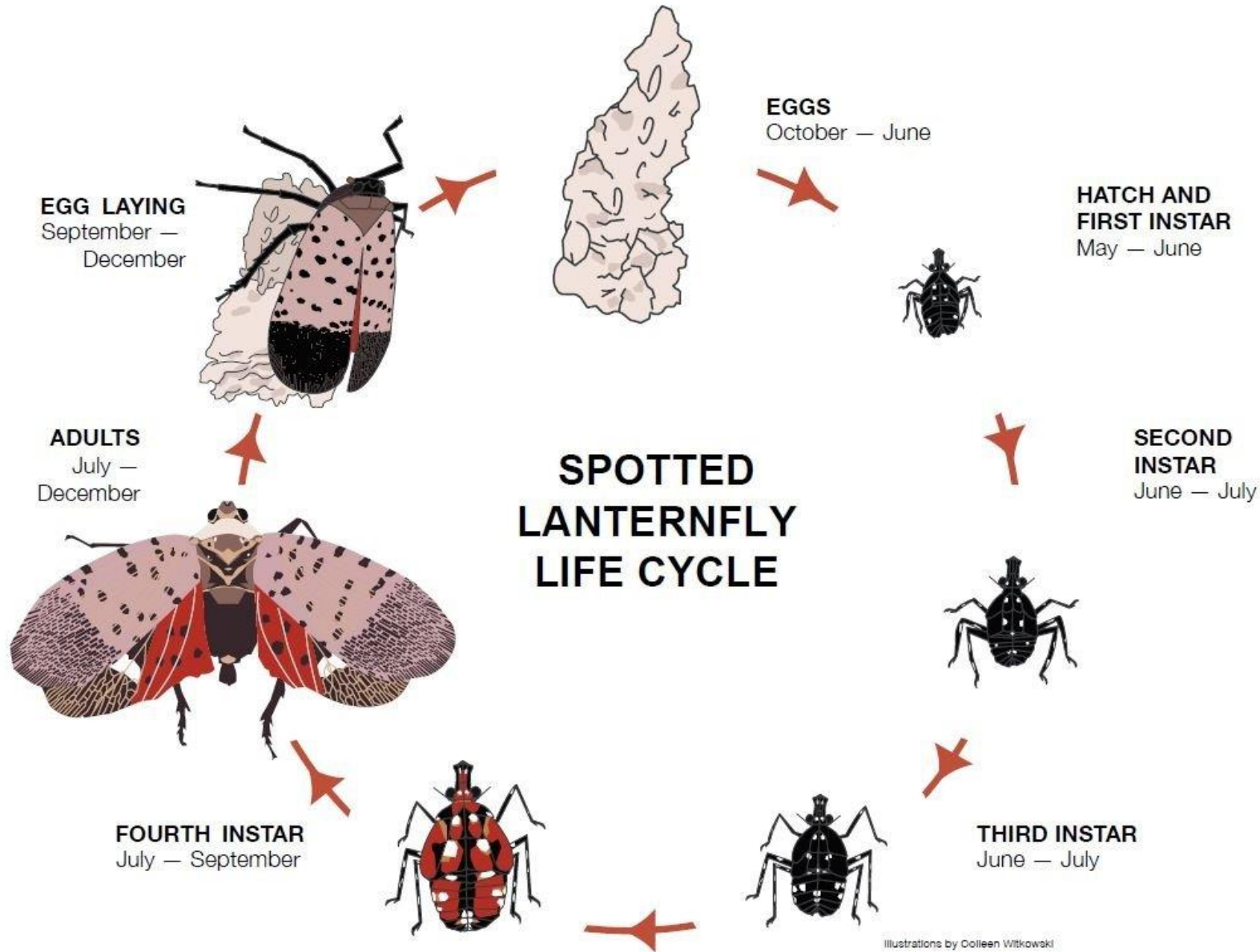
“Spotted lanternfly is a freak among planthoppers.”
~Julie Urban, Penn State University Entomologist

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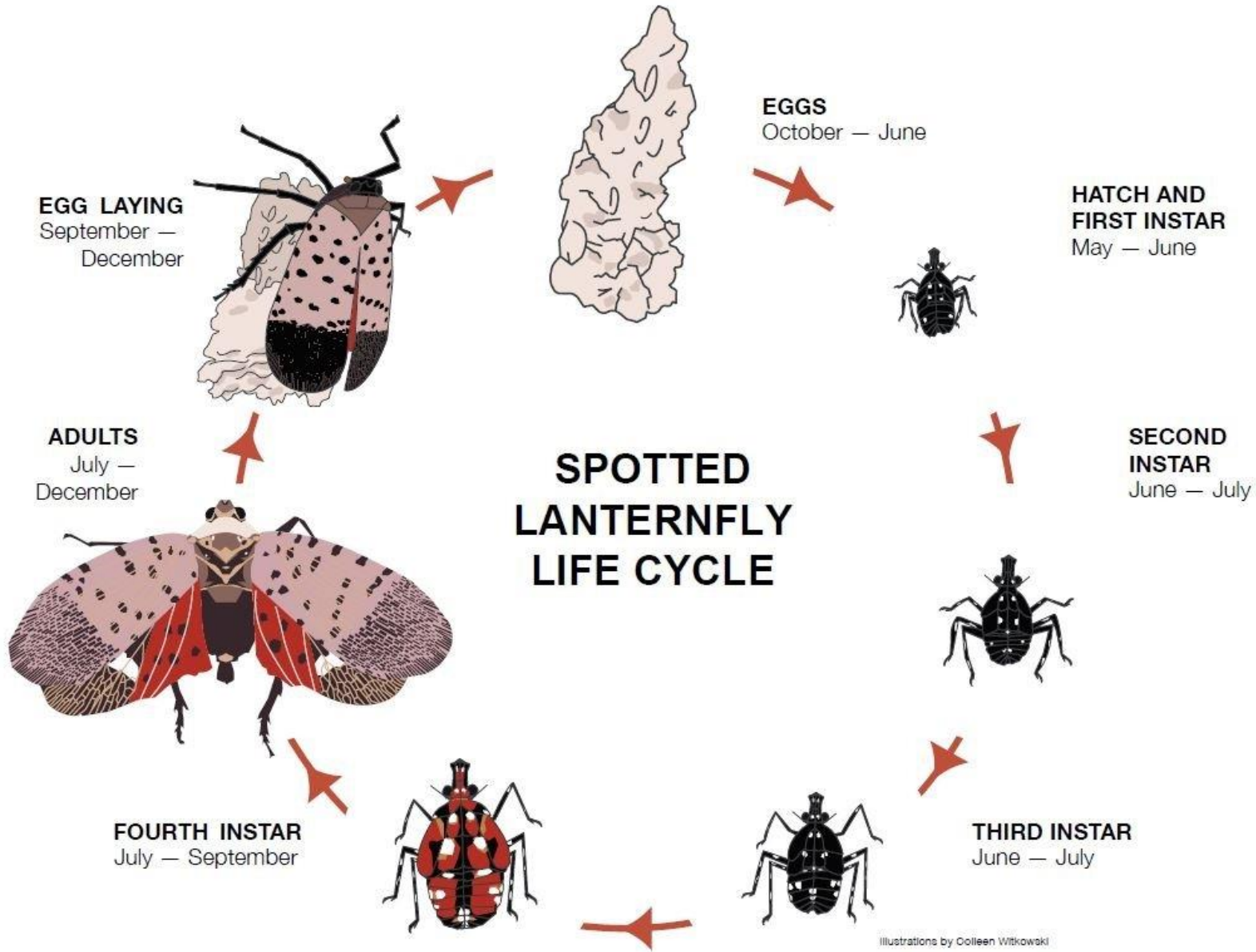


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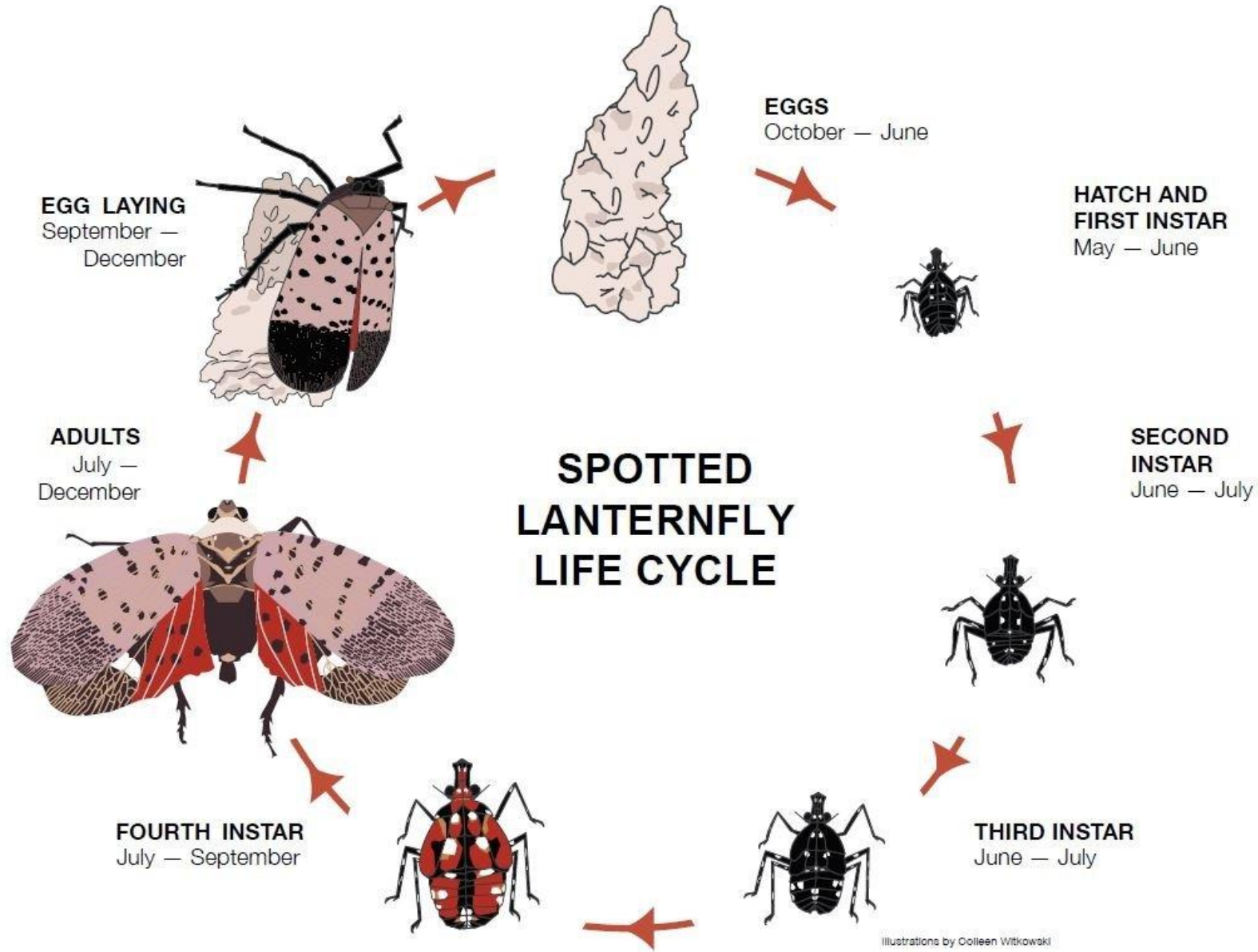
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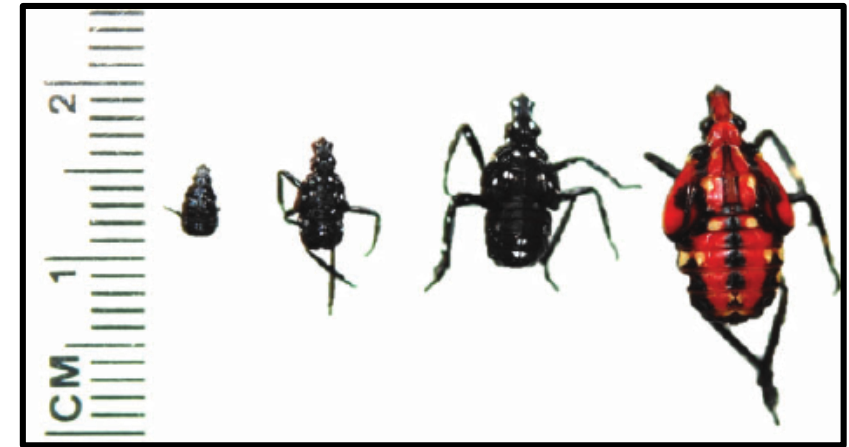
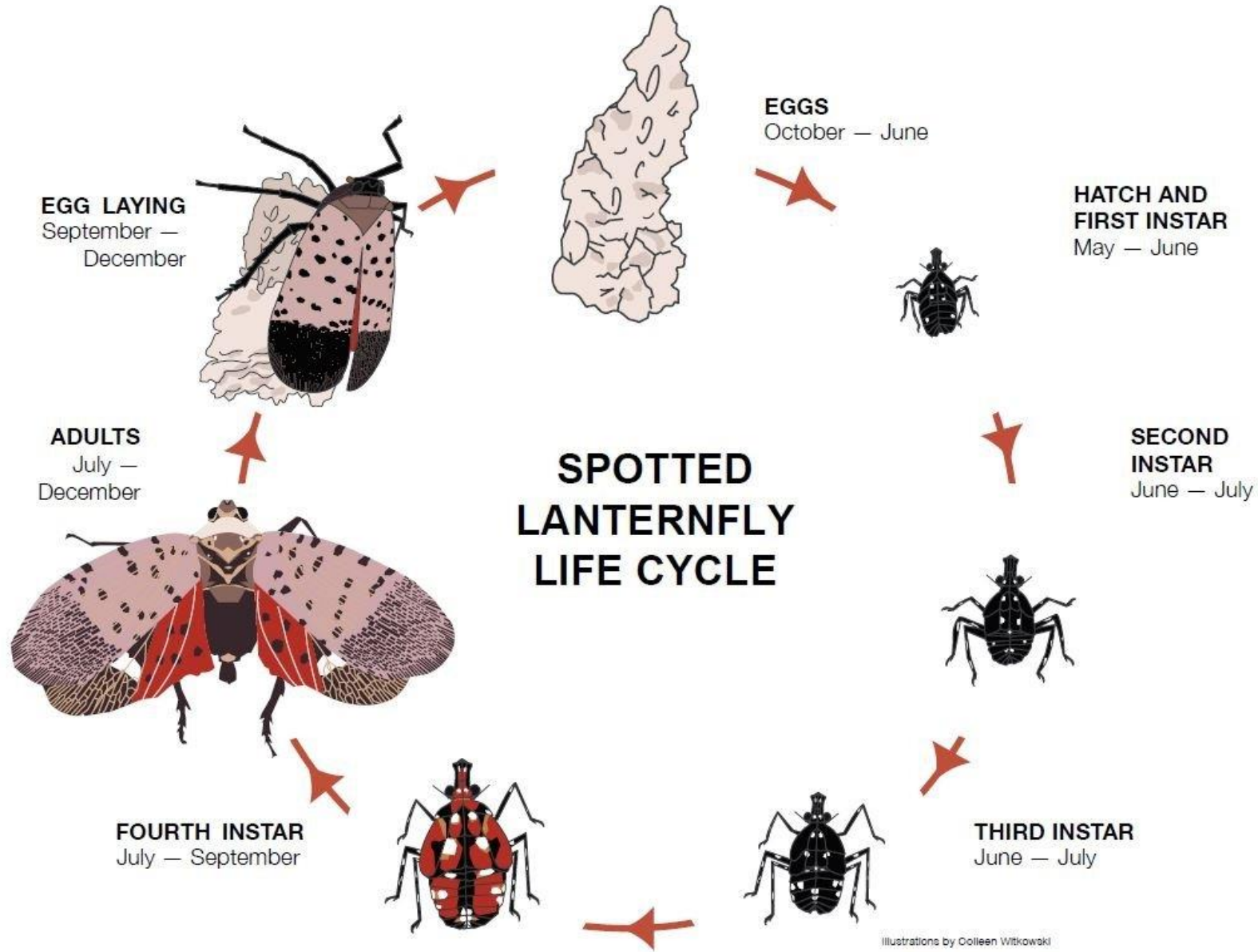
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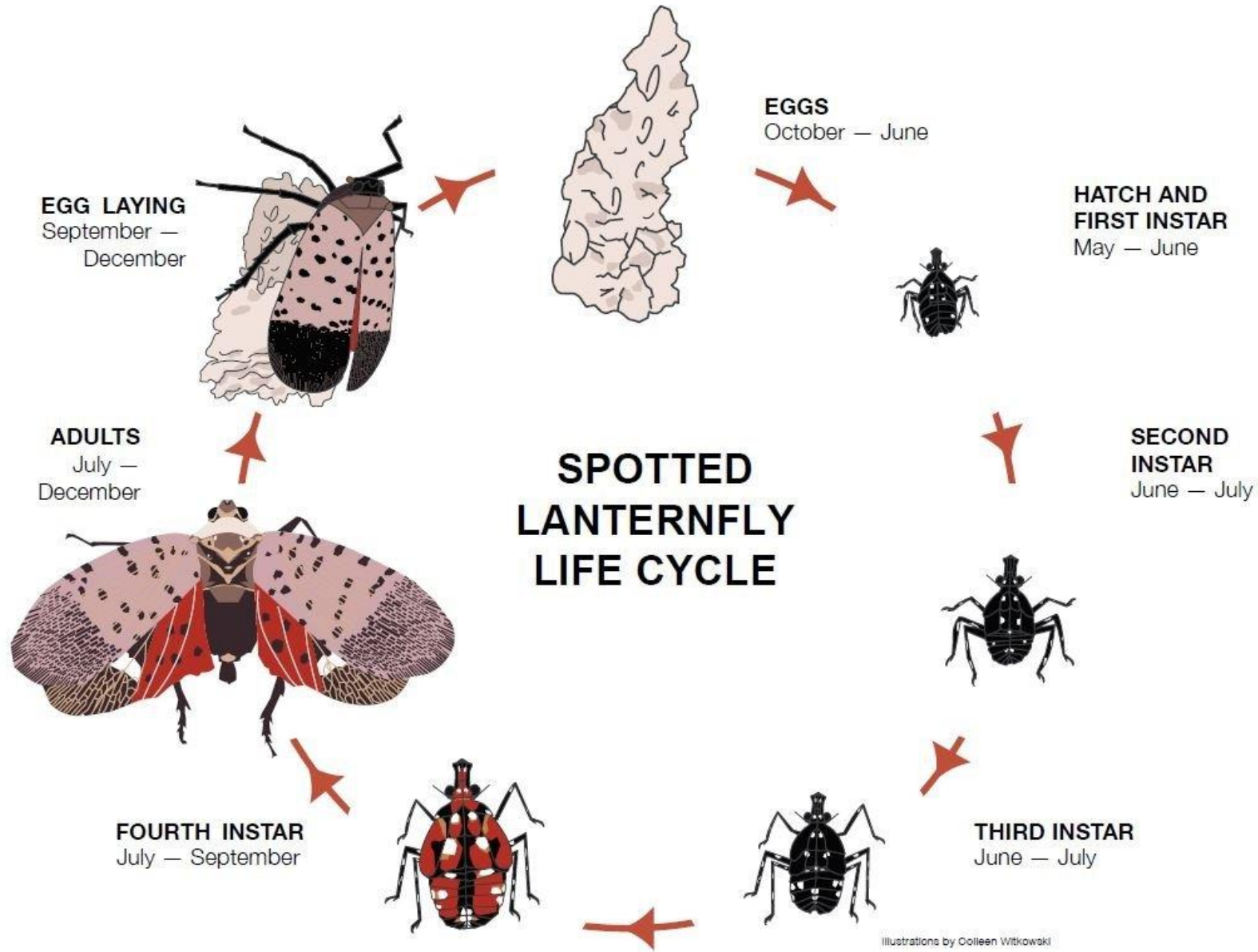
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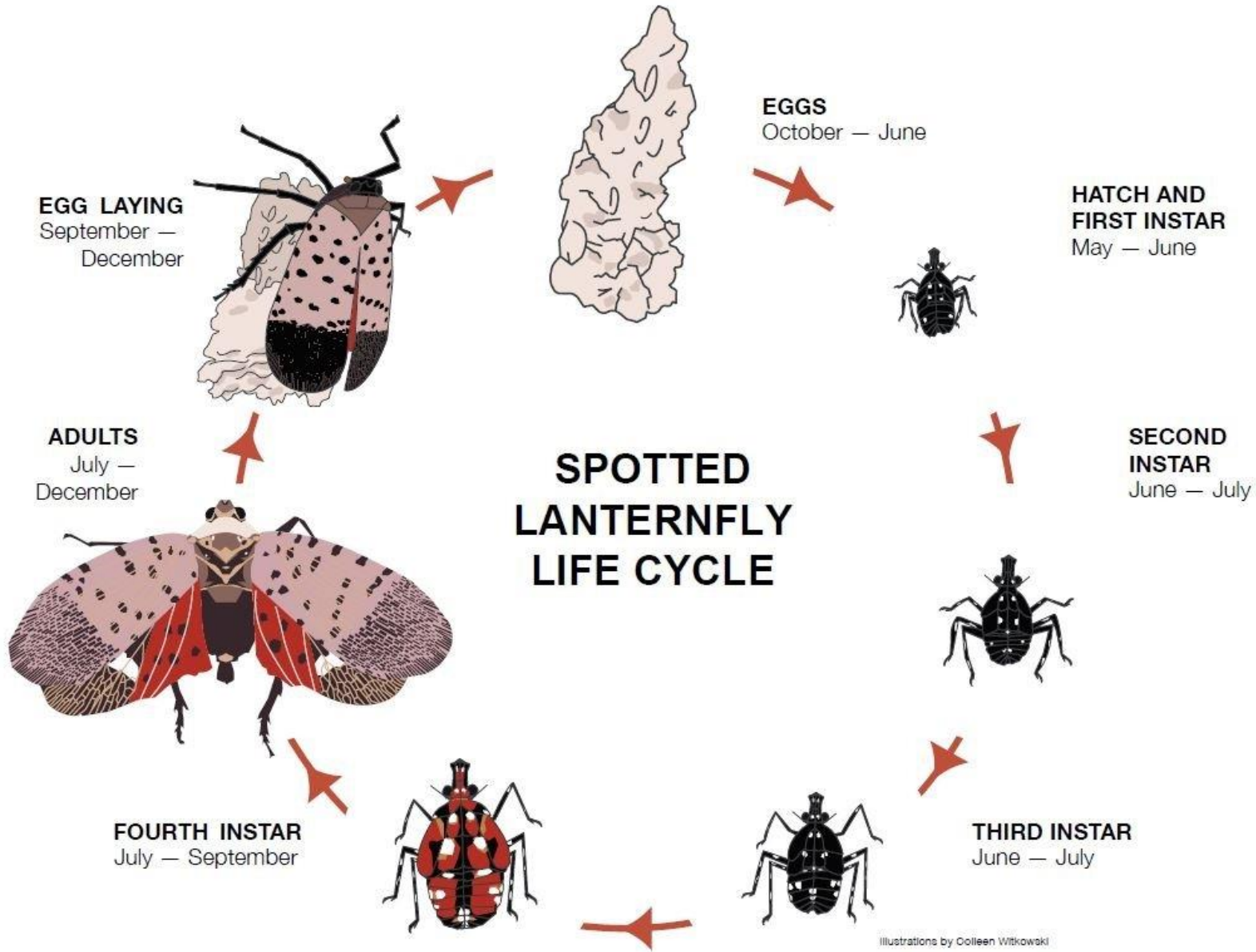
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Why the concern over SLF?



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Hosts:

Apples
Birch
Cherry
Grapes
Hops
Lilac
Maple
Poplar
Stone fruits
Tree-of-heaven
Walnut
Willow



To date, >70 species of woody plants have been identified as hosts of spotted lanternfly

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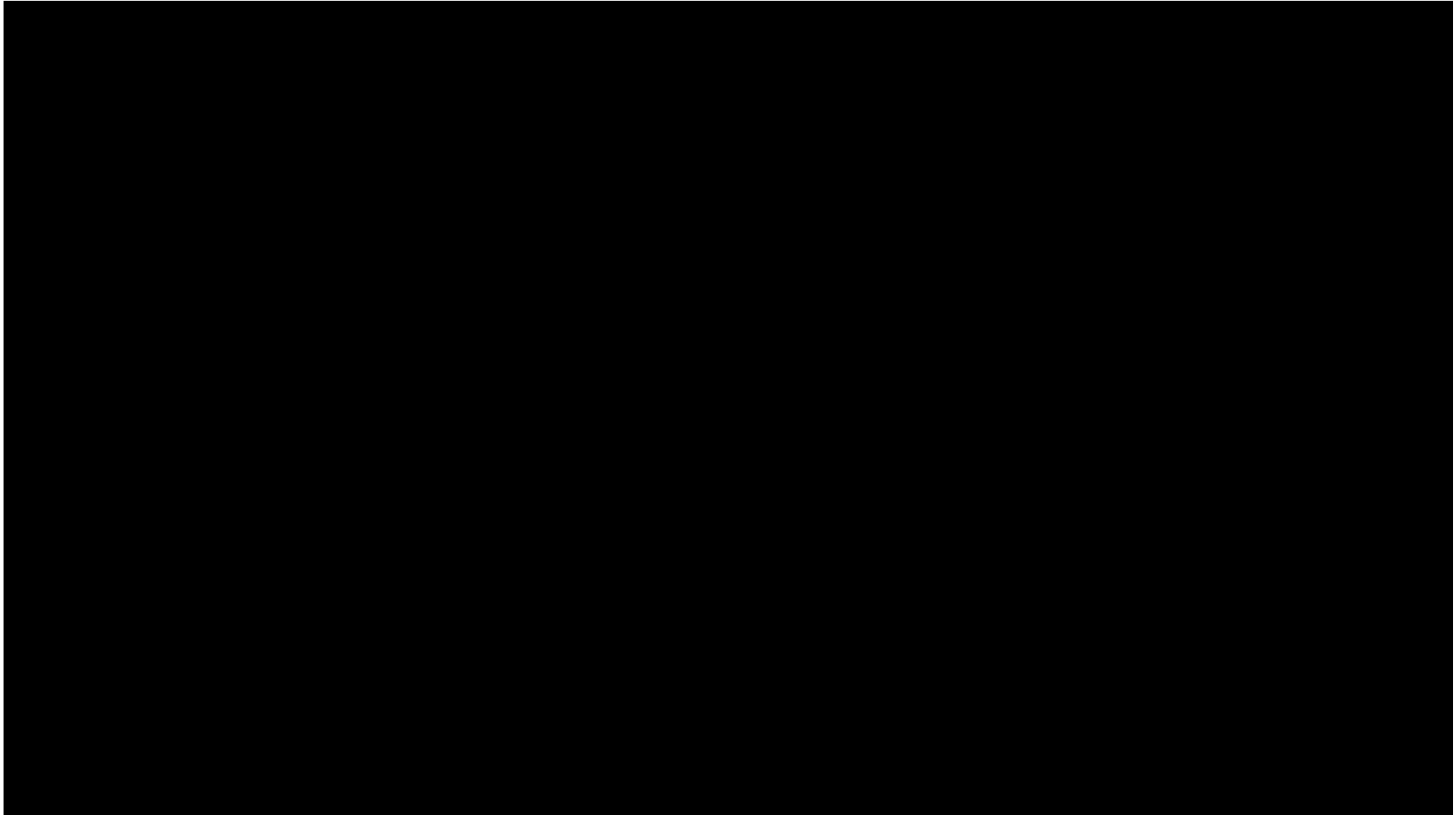
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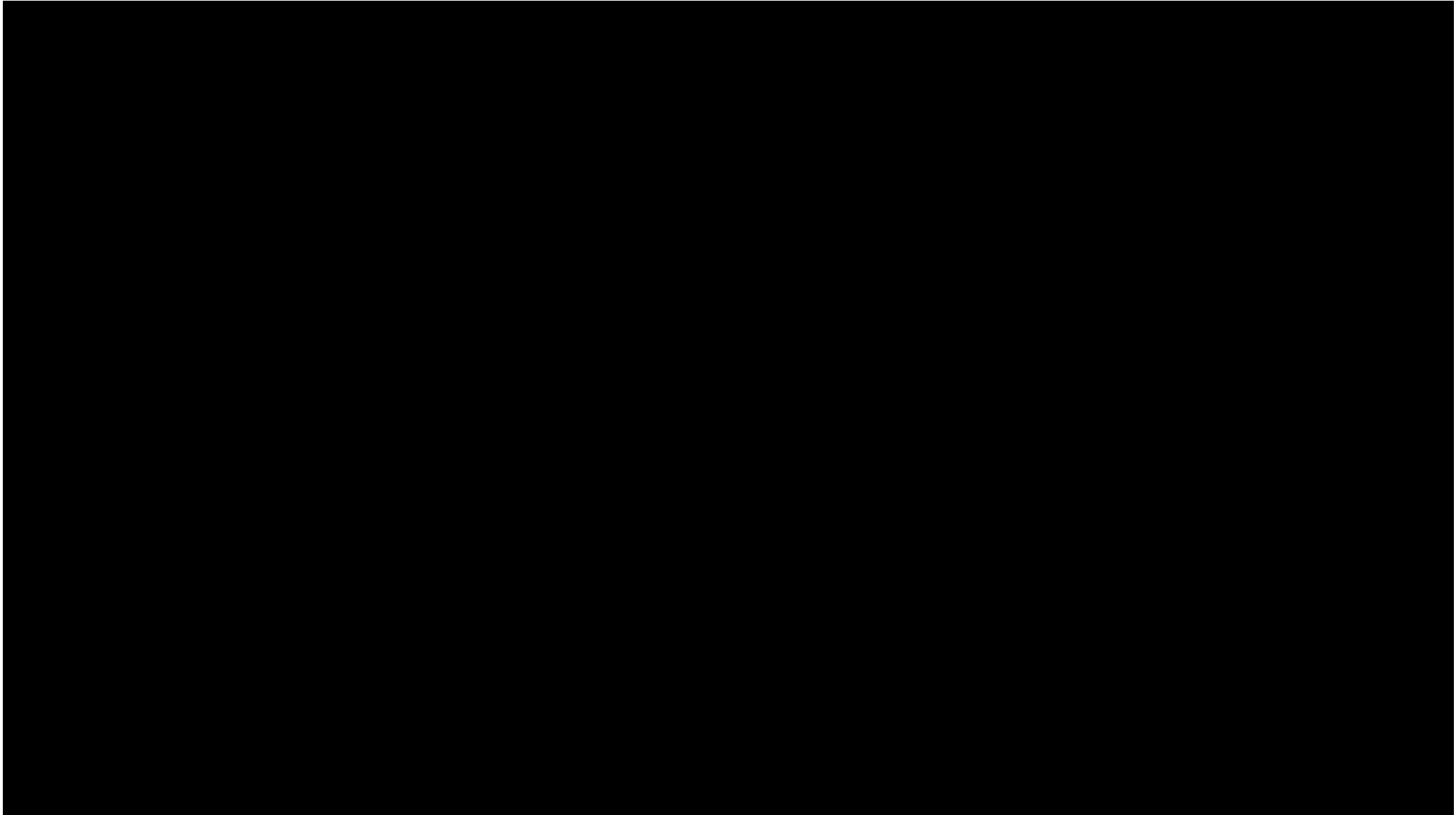
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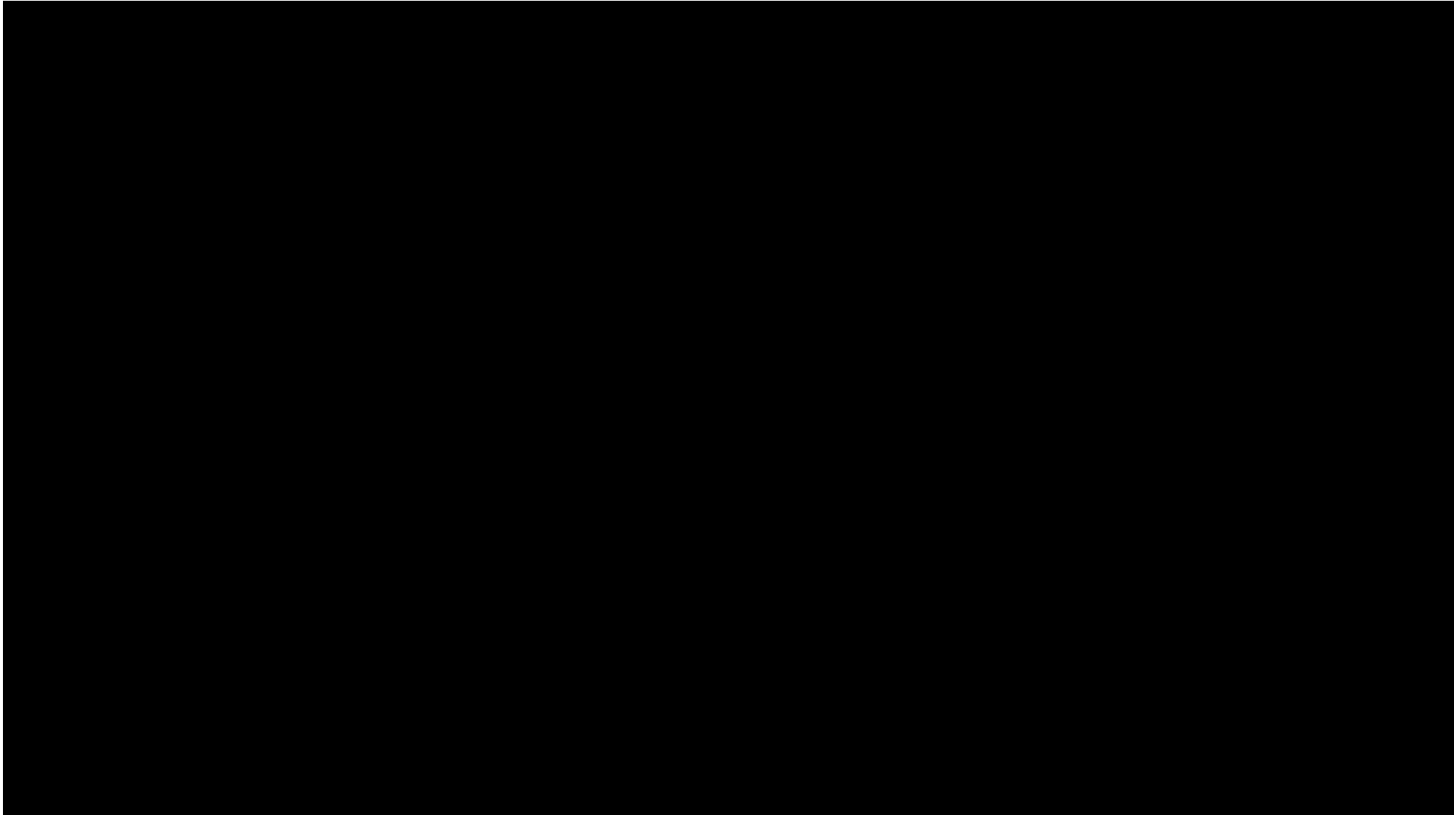
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Tree-of-Heaven (*Ailanthus altissima*)



- Allelopathic

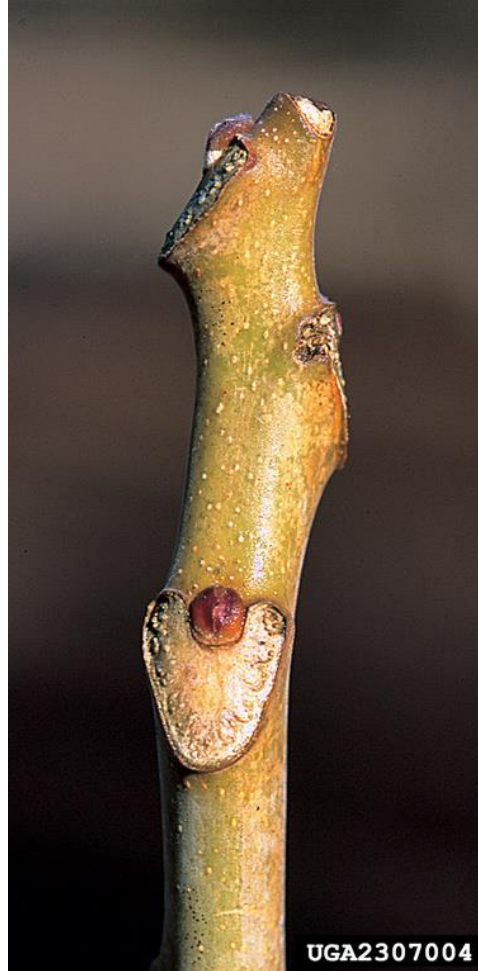


- Females produce yellow samaras in the summertime
- Smooth bark often described as resembling cantaloupe skin

Tree-of-Heaven (*Ailanthus altissima*)



- Compound leaf, typically between 1'-4' long
- Smooth leaf margins



- Heart-shaped leaf scar

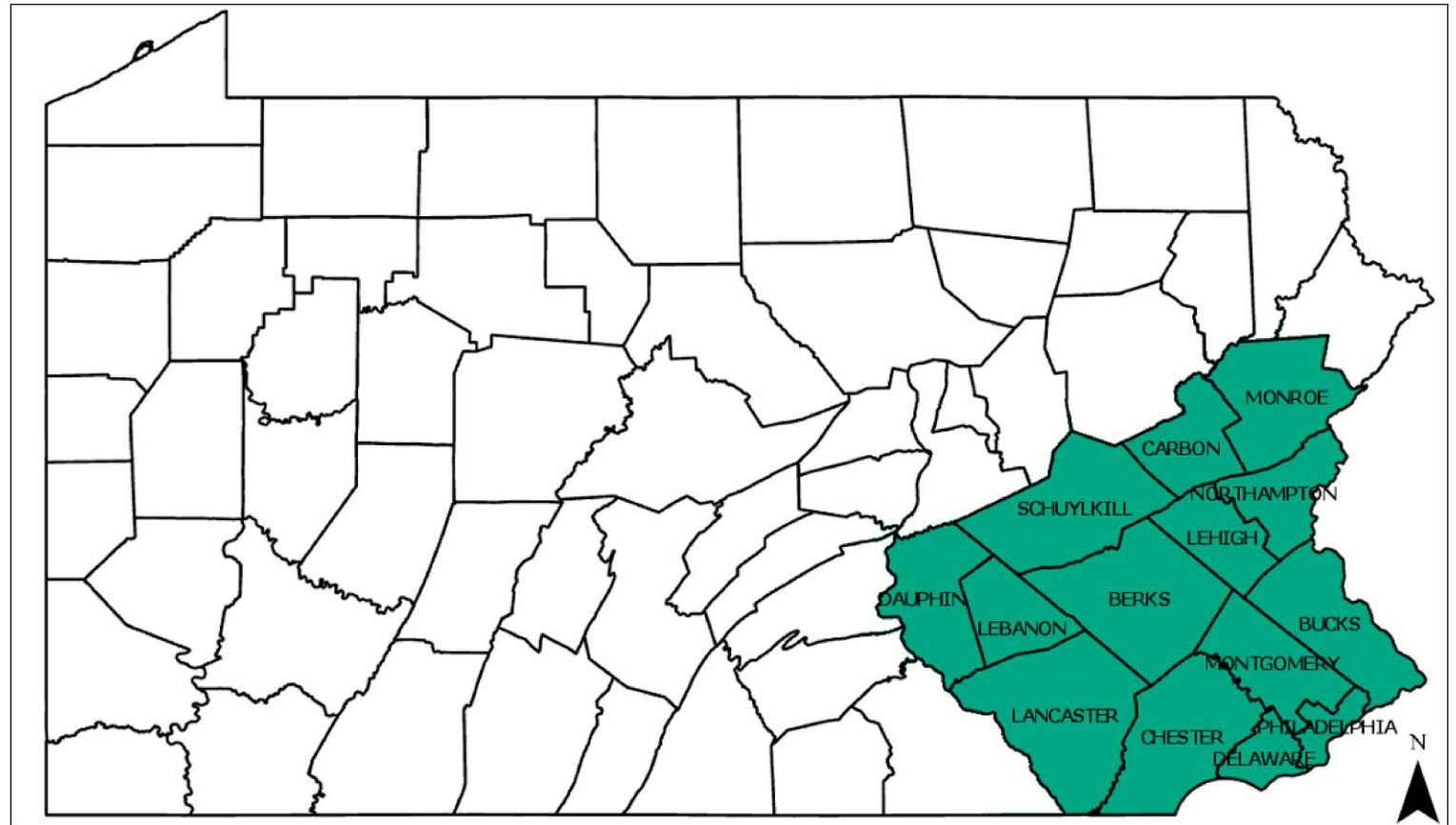


- Two teeth at base of leaflet
- Two glands on back, base of leaflet
- Crushed leaves and twigs smell of burnt peanut butter



Regulatory Status of Spotted Lanternfly

Spotted lanternfly, *Lycorma delicatula* (White), was first detected in Berks County, Pennsylvania in 2014.

Spotted Lanternfly Quarantine Map
Counties Under Quarantine as of March 15, 2019



Legend

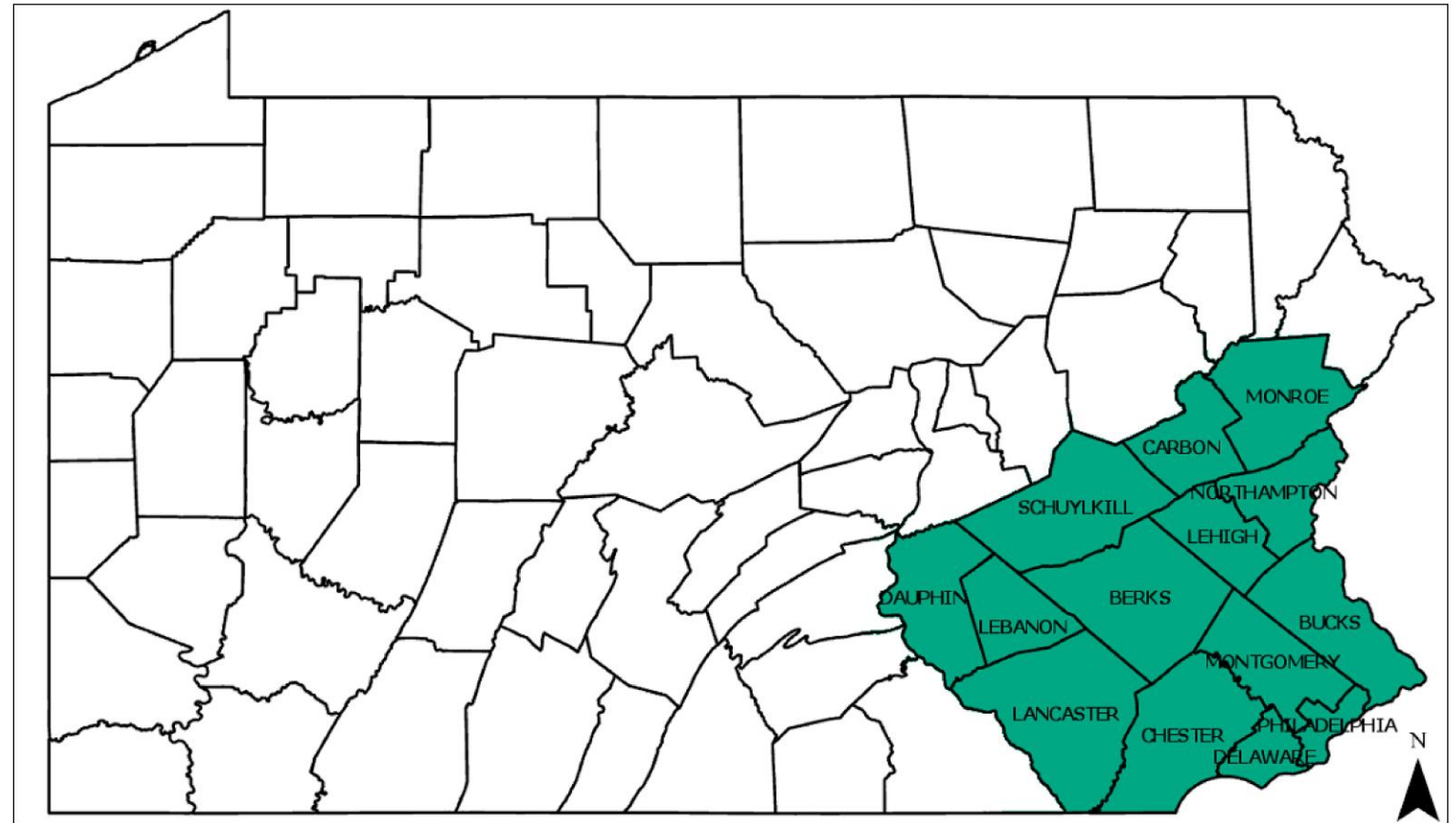
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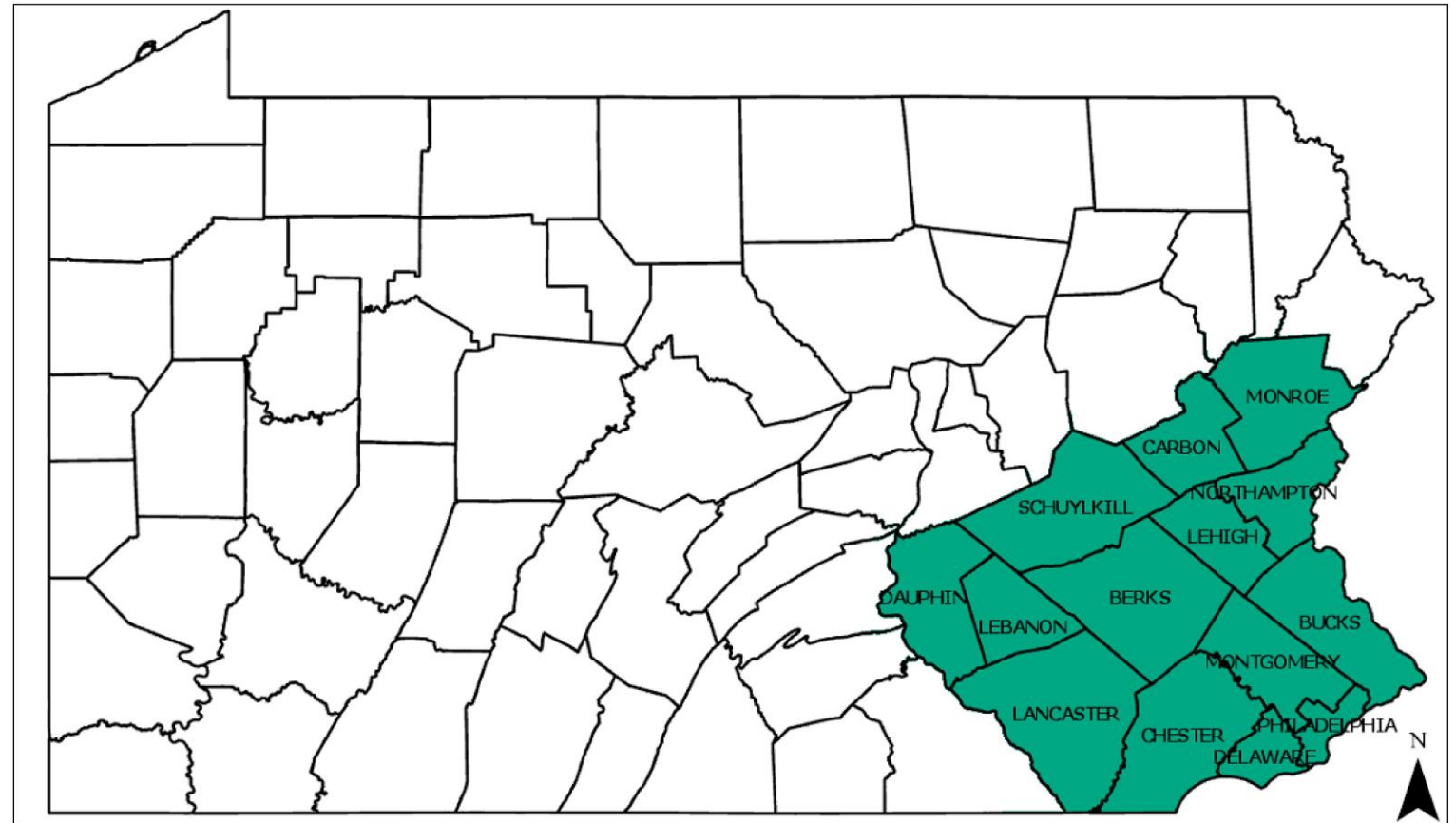
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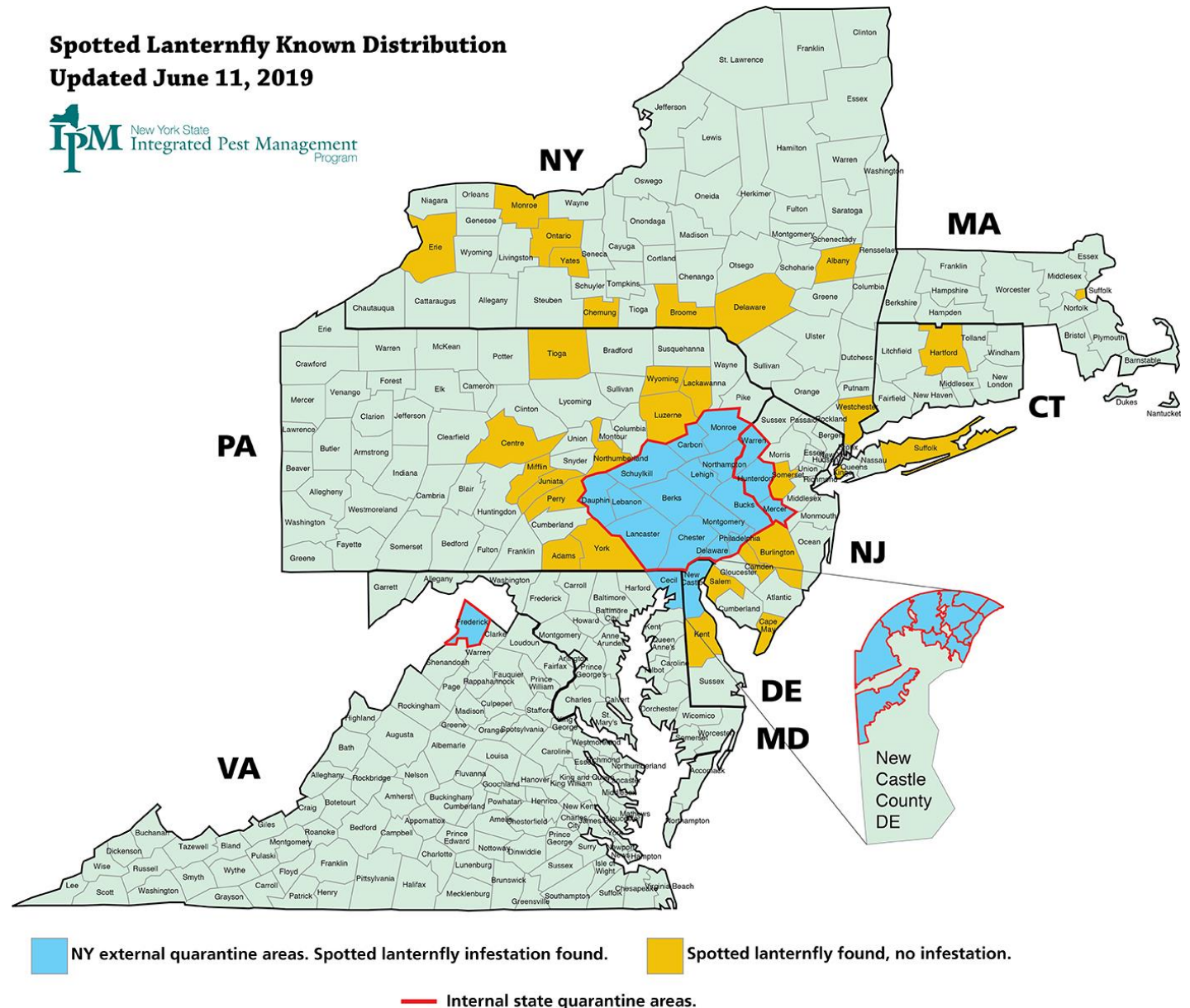
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As of May 2019 SLF has been **intercepted in Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Pennsylvania and Virginia**



So what's actually regulated?

Regulated Articles:

- Any living stage of SLF including egg masses, nymphs, and adults
- Brush, debris, bark, or yard waste
- Landscaping, remodeling or construction waste
- Logs, stumps or any tree parts
- Firewood of any species
- Grapevines for decorative purposes or as nursery stock
- Nursery stock
- Crated materials
- Outdoor household articles including recreational vehicles, lawn tractors and mowers, mower decks, grill and furniture covers, tarps, mobile homes, tile, stone, deck boards, mobile fire pits, any associated equipment and trucks or vehicles not stored indoors



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- Logs, stumps or any tree
- Firewood of any
- Grapevine
- Nursery
- Crops
- Outdoor articles including recreational vehicles, lawn tractors and mowers, mower decks, grill and furniture covers, tarps, mobile homes, tile, stone, deck boards, mobile fire pits, any associated equipment and trucks or vehicles not stored indoors

EVERYTHING!



The Spotted Lanternfly Permit



Businesses operating in the quarantine zone must have permits to move equipment and goods within and out of the zone.

Our Visit to Pennsylvania



What studies are underway?

- Host preference and suitability studies
 - Is tree-of-heaven required for SLF to complete its life cycle?
- Traps & Lures
 - Web-cote sticky bands vs. Bug Barriers vs. Circle traps
 - Attractants: methyl salicylate, pheromone
- Biological control
 - Predators in North America: *Apoecilus cynicus* (Pentatomidae), *Arilus cristatus* (Reduviidae), preying mantids, spiders
 - Fungal pathogens: *Entomophaga* sp.
 - Parasitoids: *Ooencyrtus kuvanae*, *Dryinus lycormae*, *Dryinus* sp. nr. *browni*, *Anastatus orientalis*

What is the plan for North Carolina?

Farm Bill Funding to complete a statewide survey for Tree-of-Heaven

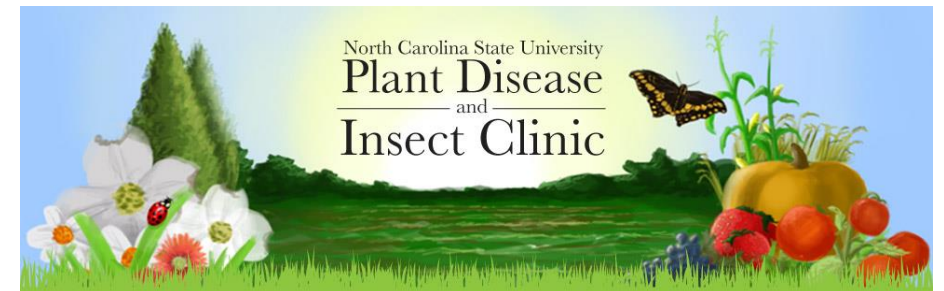
Visual survey for life stages:

- State Parks
- Rest areas
- Railyards
- Hardscape businesses
- Metropolitan areas
- Tourist hotspots (NASCAR, campgrounds, beaches, etc.)



Outreach

- Working closely with NC Forest Service, NC Cooperative Extension, North Carolina State University



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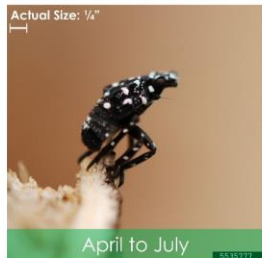
Have you seen spotted lanternfly?

Spotted lanternfly (SLF) is an **invasive planthopper** native to China that was first detected in the United States in Pennsylvania in 2014. SLF feeds on over 70+ plant species including fruit, ornamental and woody trees with **tree-of-heaven** as its preferred host. Spotted lanternfly is a **hitchhiker** and can easily be moved long distances through human assisted movement.

Egg Mass



Early Nymph



Late Nymph



Adult



If you think you have seen Spotted Lanternfly please contact the North Carolina Department of Agriculture & Consumer Services at:
badbug@ncagr.gov • 1-800-206-9333
 Please visit <https://www.ncagr.gov/SLF> for more information
 Steve Troxler, Commissioner of Agriculture

Can you identify Tree of Heaven?

Tree of heaven (TOH) is the preferred host for the spotted lanternfly (SLF), an **invasive planthopper** native to China that was first detected in the United States in Pennsylvania in 2014. Young SLF are known to feed on over 70+ species of plant species including fruit, ornamental and woody trees, however the 4th-stage nymphs and adults show a **strong preference for tree of heaven**. The ability to identify TOH will be critical to monitoring the spread of this invasive pest into North Carolina.

Tree of Heaven



Leaf



Leaf Scar



Pith



Leaf Margin



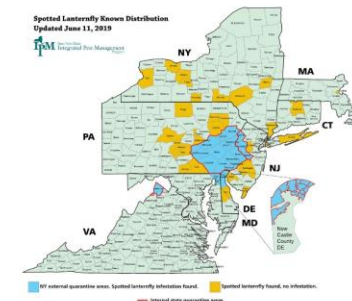
Spotted Lanternfly



For more information about Spotted Lanternfly please visit: <https://www.ncagr.gov/SLF>
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Have you moved spotted lanternfly?

Spotted lanternfly (SLF) is an invasive planthopper native to China that was first detected in Pennsylvania in 2014. This pest is a hitchhiker and can easily be moved long distances through human assisted movement on vehicles, campers, and outdoor equipment. **Please help prevent the spread of spotted lanternfly into uninfested areas.**



How to look for hitchhiking SLF



SLF catching a ride south



All life stages of spotted lanternfly can hitchhike, but the eggs and adults pose the greatest risk for movement.

For more information about Spotted Lanternfly please visit:
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Questions?



Contact Whitney Swink at whitney.swink@ncagr.gov or (919)707-3742