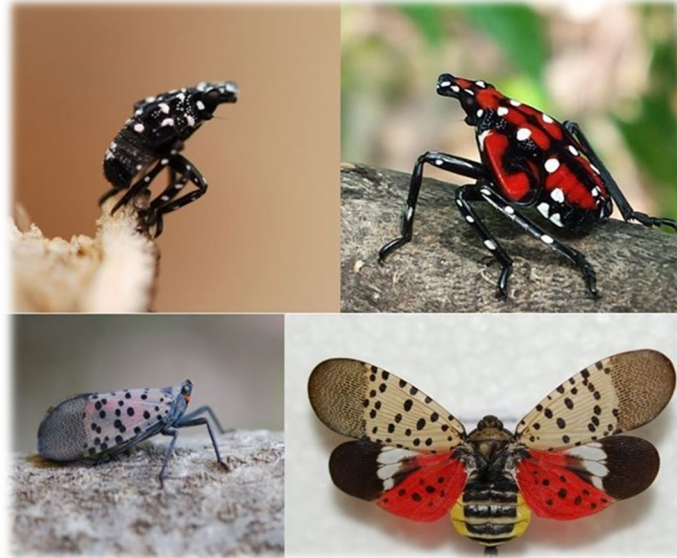


# Is the spotted lanternfly a forest pest?



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March 12, 2024

Forest Health Monitoring Workshop



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# Spotted Lanternfly



- *Lycorma delicatula*
- Native to China, India, Vietnam
- Invasive species in Korea since 2006
- Found September 2014 in PA, first North American record



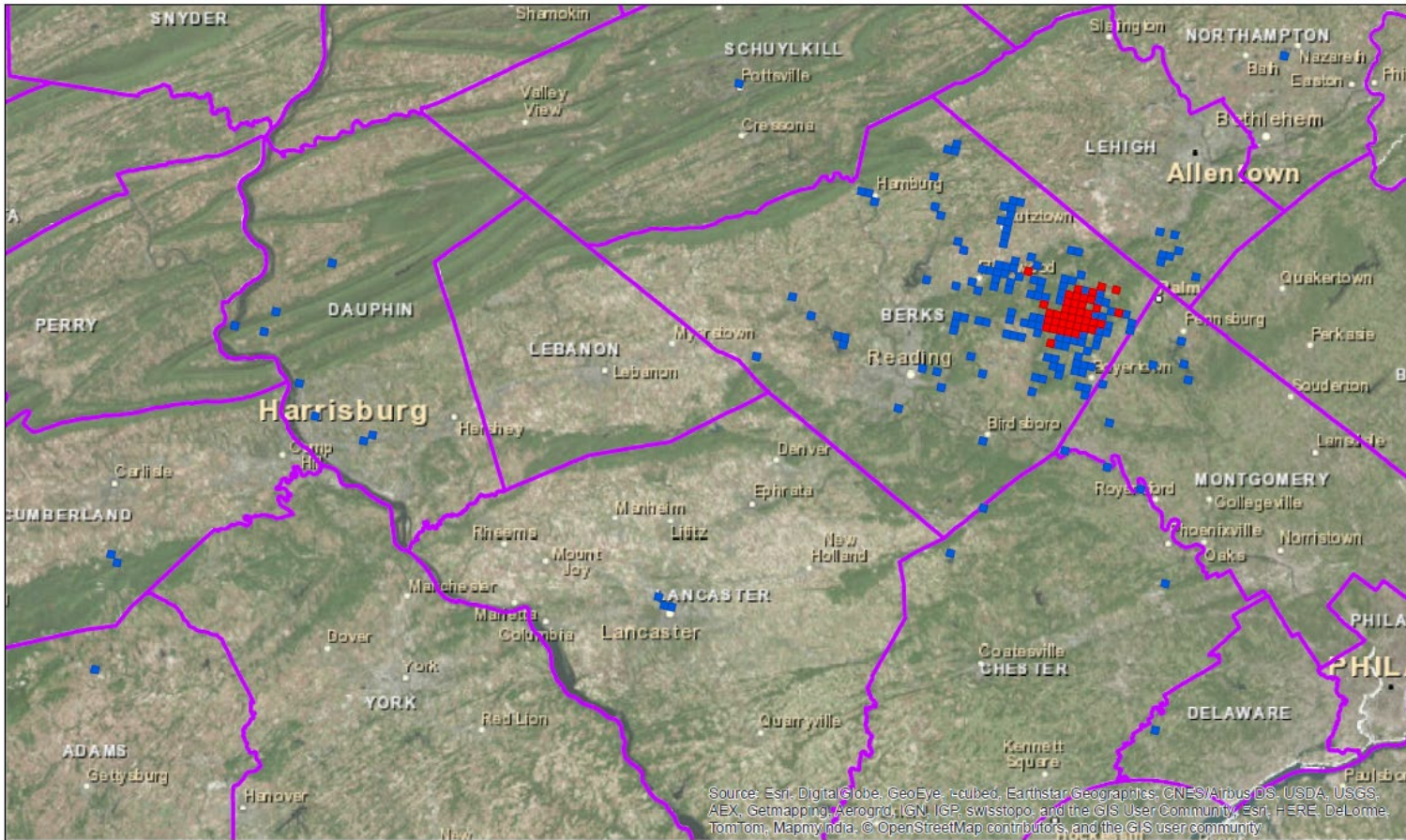
Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org



holly raguza, Bugwood.org

# Lycorma Detection Survey

Results Through 15 December 2014



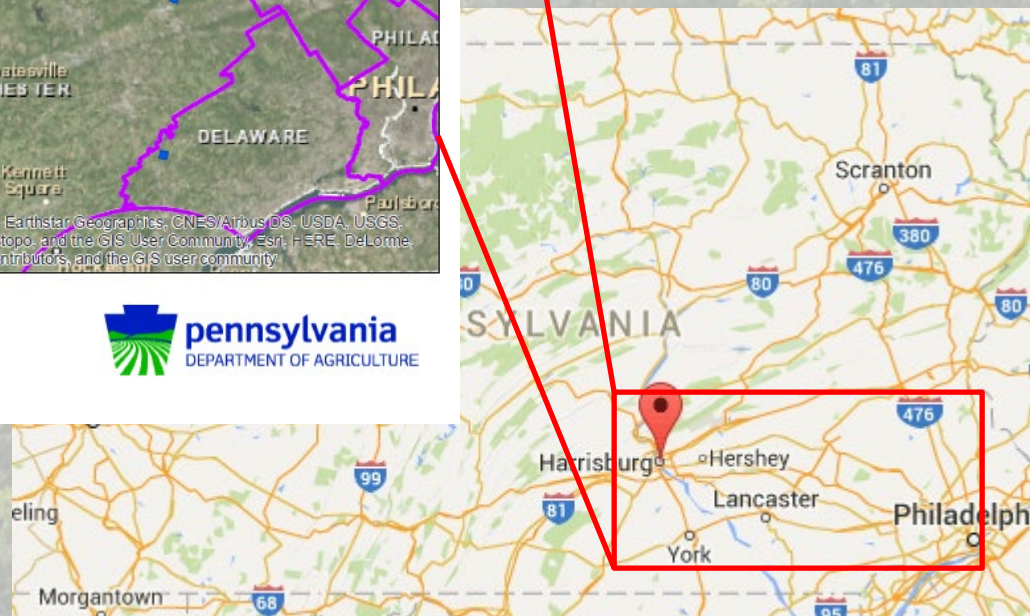
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

### Survey Grids

- Surveyed - Positive
- Surveyed - Not Found

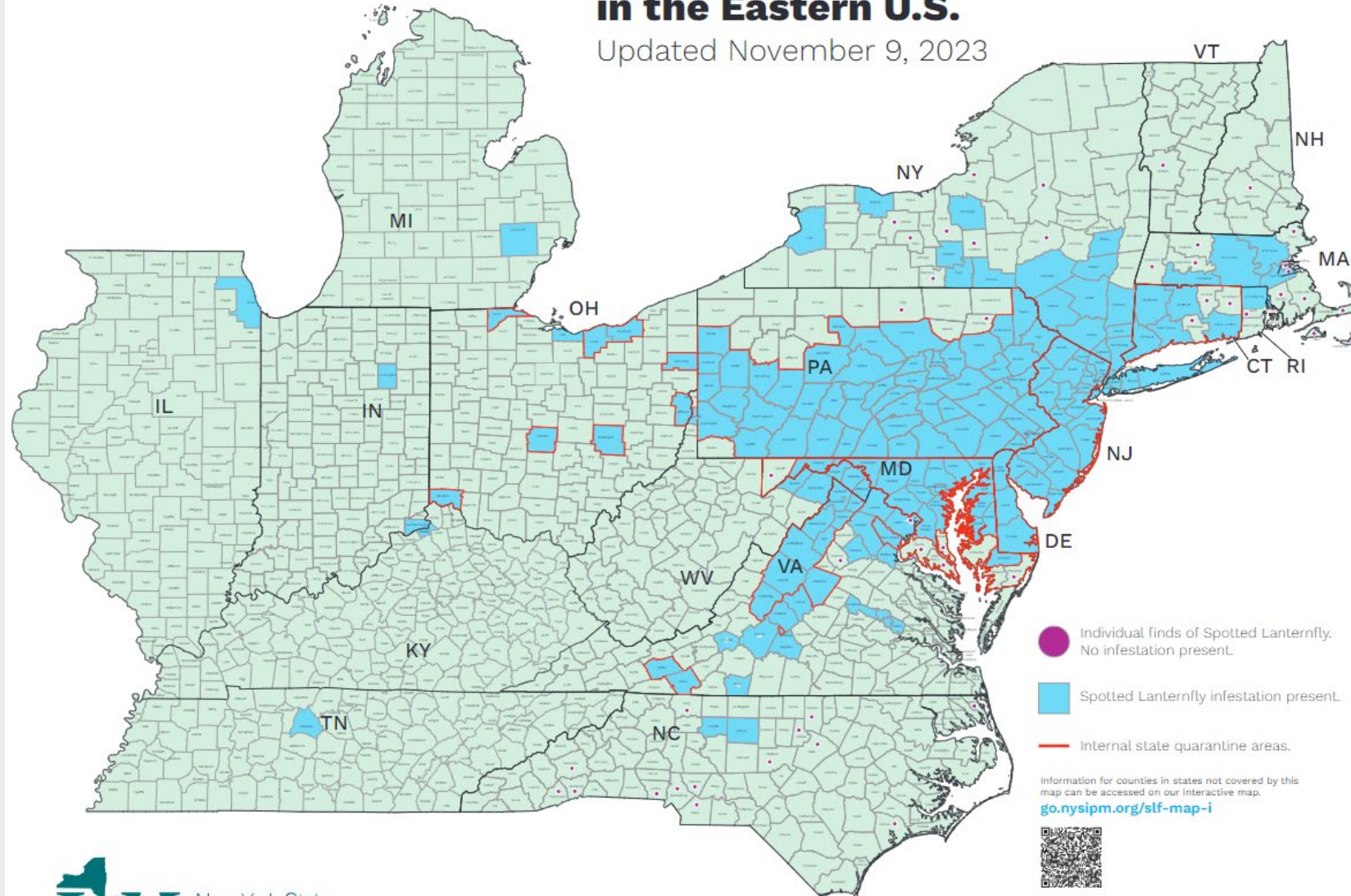


First Detection of Spotted Lanternfly: Berks County, PA  
Late 2014



# Spotted Lanternfly Reported Distribution in the Eastern U.S.

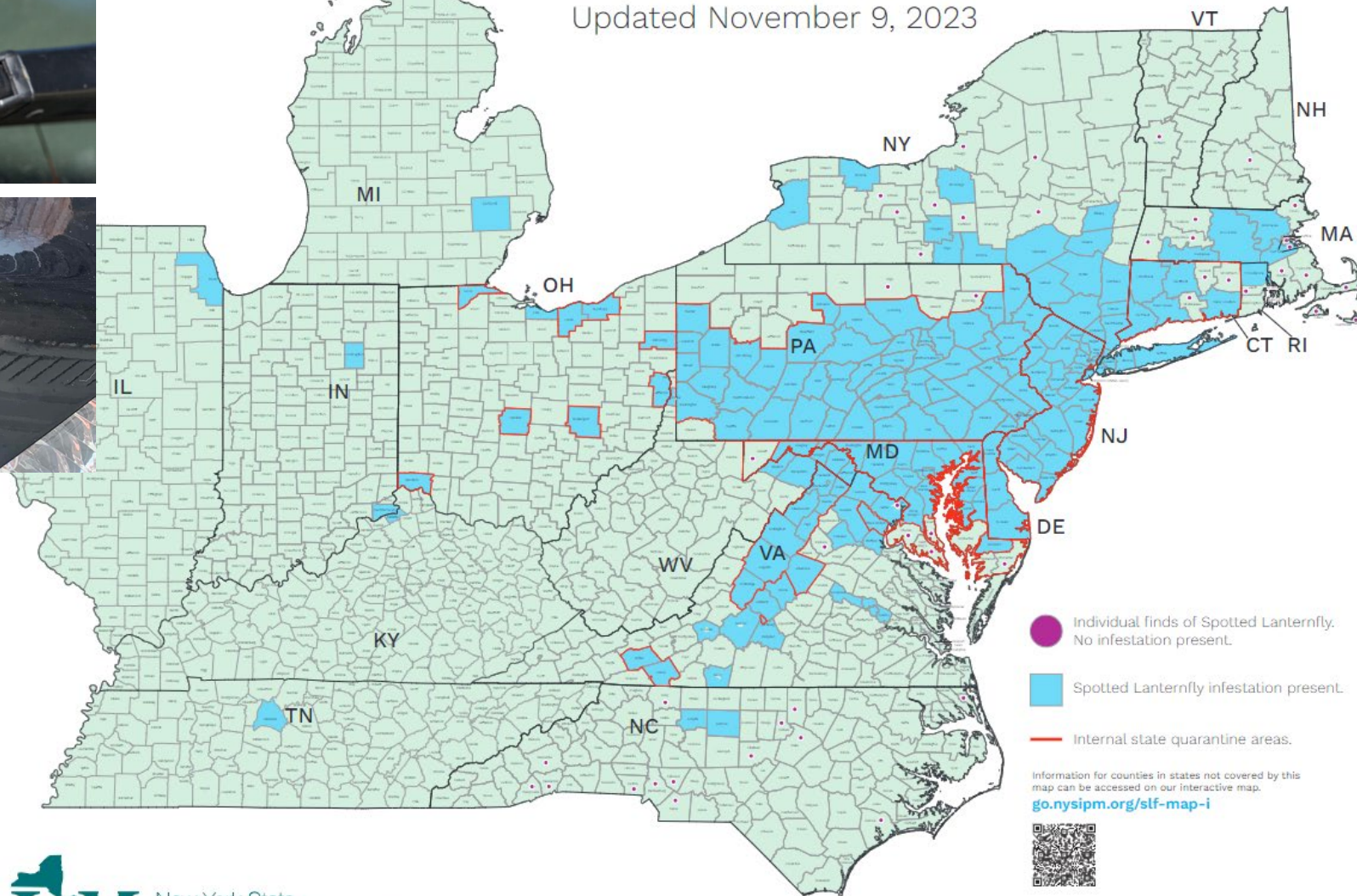
Updated November 9, 2023





# Spotted Lanternfly Reported Distribution in the Eastern U.S.

Updated November 9, 2023





**EGG LAYING**  
September —  
December



**EGGS**  
October — June



**HATCH AND  
FIRST INSTAR**  
May — June



**ADULTS**  
July —  
December



**SECOND  
INSTAR**  
June — July



# SPOTTED LANTERNFLY LIFE CYCLE

**FOURTH INSTAR**  
July — September



**THIRD INSTAR**  
June — July



Illustrations by Colleen Witkowski

# Life Cycle

- Nymphs are black with white spots, later instars have red patches
- Nymphs feed on smaller plants and vines, moves to trees as they mature
- Feeding damage like aphids, honeydew can collect at plant base, large amounts from heavy infestations may produce fungal mats.

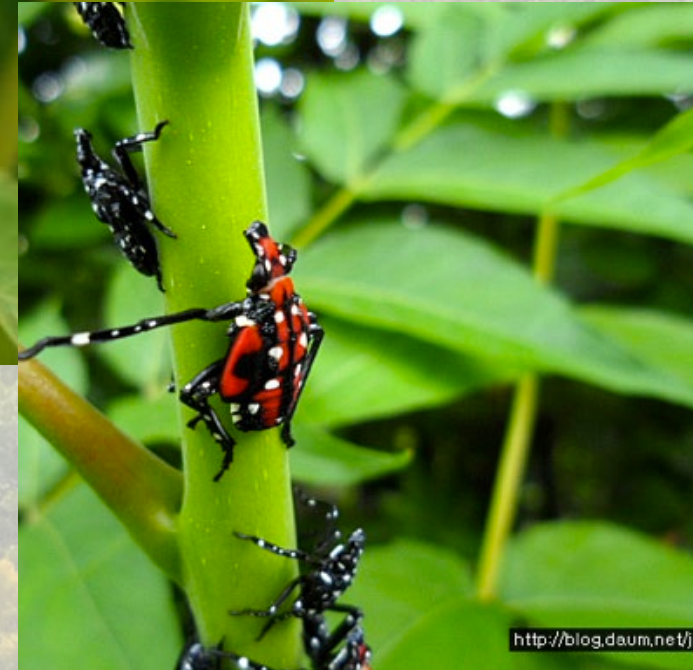
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<http://blog.daum.net/jsc7610>





# Life Cycle



- Adults could appear as early as July, but start mostly in August
- Adults are not strong fliers but are good jumpers – can travel!
- Egg masses are laid under a waxy deposit – similar to spongy moth, but harder to spot
- Egg masses can be laid on many surfaces and can be moved



HOST	NYMPHS			ADULTS		
	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
Rose (cultivated, multiflora, etc.)						
Perennials						
Grape (wild and cultivated)						
Tree-of-heaven						
Black walnut, butternut						
River birch						
Willow						
Sumac						
Red/silver maple						

HOST	NYMPHS			ADULTS		
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Black walnut, butternut						
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Willow						
Sumac						
Red/silver maple						



# Preferred Host: Tree of Heaven

- Non-native/invasive species
- Smooth leaf edges
- Brown pith
- Scent glands on leaf edges
- Smells like rancid peanut butter
- Not REQUIRED for SLF, but without it, fecundity and survivorship are lowered



# Management Recommendation

- **Identify and remove tree of heaven**
  - This is an invasive tree
  - There are instructions on how to kill TOH on the Penn State website
- This tree has an extensive root system, and simply cutting it down results in a large clonal grove
- Using highly targeted herbicides can kill roots and tree, and then trees can be removed with limited resprouting



# SLF Impact

- SLF doesn't directly harm people
- SLF doesn't carry plant viruses
- SLF feeding is considered a plant stressor and may contribute to the long-term weakening of established plants and trees.
- **It is not known to kill plants except for TOH, black walnut saplings, and grapevines.**



# Is the spotted lanternfly a forest pest?



## Likely not

### POTENTIAL

- High SLF pressure shuts down photosynthesis, stomatal conductance, & transpiration
- Experiments show that extended pressure on maple, willow, and birch can lead to lower growth as shown by thinner tree rings
- Sooty mold may impact growth of saplings under heavily infested trees

### BUT

- SLF highly favors tree-of-heaven and grapes, maybe due to lack of defensive responses
- Trees not subjected to extended feeding pressure show little impact
- Outbreaks in natural areas, especially those without tree-of-heaven are rare

Willow



Tree of Heaven



Defense response to SLF  
absent in TOH

# Thank you!



- Sponsored by
  - CAES Board of Control
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  - Melody Keena, Talbot Trotter, USFS
  - Niklas Lowe, CAES
  - Hany Dweck, CAES

