

Paul Hetzler
Cornell Cooperative Extension
of St. Lawrence County

+1(315) 379-9192 ext. 232



Introduction to *Lycorma deliculata*: Spotted Lanternfly

Forest-Pest Identification & Management Course

16 January 2019 Canton, NY

Paul Hetzler

Cornell Cooperative Extension of St. Lawrence County

ph59@cornell.edu (315) 379-9192 ext. 232

Special thanks to:

Sven-Erik Spichiger,



**Spotted Chinese
Lanterns = Good.**



**Spotted
Chinese
Lanternfly =
Bad.**



What is *Lycorma deliculata* ?

Native to China, Bangladesh, Vietnam; invasive in Japan, South Korea, N. America

Not a lantern, or a fly, or even a moth. It's a plant hopper in the order Hemiptera, or "true bugs."

Favors *Ailanthus* or Tree-of-Heaven, also loves *Vitis* and *Acer* spp., and all members of the Rosaceae family, but will feed on nearly anything, including herbaceous plants. It inserts its rostrum into phloem tissue and withdraws sap.

Favorite forest host after *Ailanthus*: Maple

A commuter.

Incredibly fecund; overwhelms trees with high populations.

First discovered in September 2014 in Pennsylvania; now in 7 US States.

Likely came as egg masses on a pallet of stone from China.

The Particulars

One Generation Per Year

Egg masses can be found October-June

Shiny at first, become dull



Fourth instar gets a red paint job.

Also grows a brain—more on that later.



Eggs laid Mid-October-late November

Females seek rough surfaces: rusty metal, rocks, trees



Hatchlings emerge mid-May
to early June



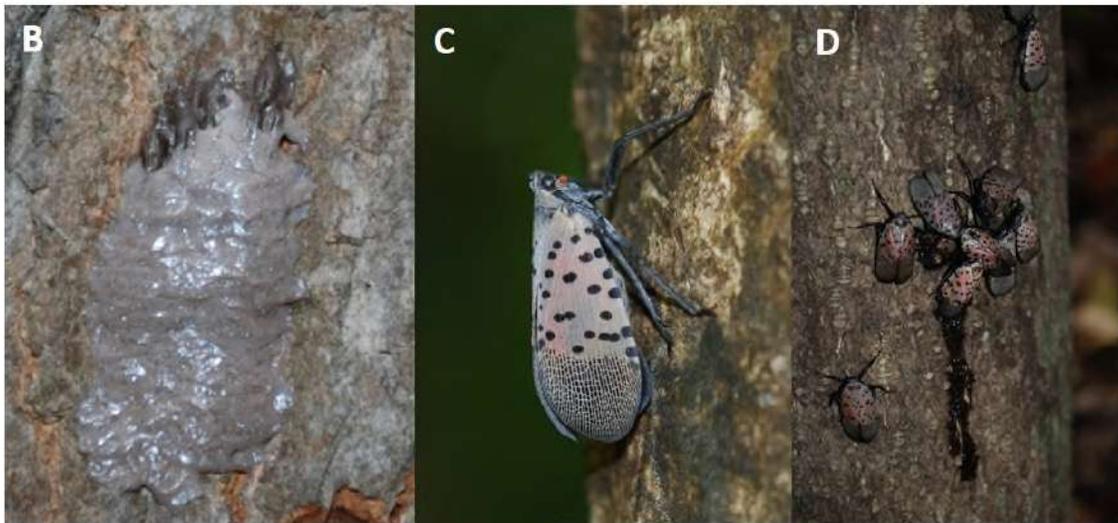


Photo courtesy: Lawrence Barringer,
Pennsylvania Department of Agriculture

- A. 1st-4th instar nymphs and adult female with wings spreadout
- B. Egg masses in oothecae (egg cases) covered in a waxy deposit
- C. Lateral view of a resting adult
- D. Adult congregation on a tree trunk and plant sap oozing from damaged area

Egg masses—often well-hidden





Egg cases become dull over time, making them harder to see.



Immature stages migrate up & down trunks each day & are easily caught on sticky bands

BUT, 4th instars & adults WILL NOT step on bands.



2nd and 4th instar lanternfly nymphs



Typical adult feeding pattern



Commuters



WE WILL SEE THIS PEST IN THE NEAR FUTURE!

**In 2016, spotted lanternfly was restricted to four Pennsylvania counties.
By 2018, it had spread to 6 States.**

**At the close of 2017, no SLF had been found in NYS.
By October 2018, eight SLF specimens were found in six
NYS Counties.**

THE BAZILLION-DOLLAR QUESTION:

Can *Lycorma deliculata* successfully reproduce without at least once feeding on Ailanthus?

Here's a handy flow chart:

IF NO:

**Hooray! All we need to do is keep Ailanthus from establishing here.
Whew—dodged that bullet!**

IF YES:

Aw, sh--!

Because lanternfly has a sweet tooth, or rostrum, it will head right for the nearest maples & fruit trees. We cannot afford to gamble—we need to spread the word, and be vigilant.

Ailanthus altissima, “Tree of Heaven”

Highly invasive, toxic

Preferred host for *Lycorma*

Hardy to USDA Zone 5a (much of NNY)

Often an urban “weed tree”

Compound leaves

Sometimes confused with sumac, walnut



Tree of Heaven - Biological Highlights

- 2 to 3 yr old plants can produce viable seed
- Up to 300,000 seeds / yr for mature tree
- Seeds disperse up to 330 ft from parent
- Sprouts can grow 10 to 14 ft tall in first year and maintain this growth rate for up to 4 yrs







SLF may or may not require *Ailanthus* for successful reproduction...fingers crossed—and management plan in place!

Host-Tree Study

Acer palmatum

Japanese maple

Acer platanoides

Norway maple

Acer rubrum

Red maple

Acer saccharum

Sugar maple

Ailanthus altissima

Tree-of-heaven

Amelanchier canadensis

Serviceberry

Betula lenta

Black birch

Betula papyrifera

Paper birch

Carya glabra

Pignut hickory

Carya ovata

Shagbark hickory

Fagus grandifolia

Beech

Fraxinus americana

White ash

Juglans nigra

Black walnut

Liriodendron tulipifera

Tulip poplar

Nyssa sylvatica

Black gum

Platanus occidentalis

Sycamore

Populus grandidentata

Big-toothed aspen

Prunus serotina

Black cherry

Quercus prinus

Chestnut Oak

Quercus rubra

Red Oak

Salix spp.

Willow

Sassafras albidum

Sassafras

Tilia americana

Linden

Ulmus rubra

Slippery elm

Vitis spp.

Grape

Host -Tree Favorites

Everyone loves maple! Unfortunately.

Species	<i>n</i>	Mean SLF/Tree
<i>A. platanoides</i>	4	46.5
<i>A. saccharum</i>	15	16.667
<i>Ailanthus</i>	69	80.145
<i>B. lenta</i>	14	77.857
<i>F. americana</i>	9	34.778
<i>J. nigra</i>	2	44.5
<i>L. tulipifera</i>	11	31.091
<i>N. sylvatica</i>	4	81

Average number of SLF per tree

Cultural & Mechanical Control & Prevention

- **Egg-mass scraping**
- **Tree banding**
- **Scouting host trees**
- **Inspection of shipments**
- **Increased biosecurity Oct.-June**
- **Sniffer-dogs?**

Find your own @%# rocks!



Biocontrol of *Lycorma*

Julie Gould- USDA

- Cooperative agreement with Chinese Academy of Forestry for foreign exploration.
- USDA-APHIS has imported into quarantine *Lycorma* eggs parasitized by *Anastatus orientalis*.
- Current emphasis on rearing *Lycorma* and the parasitoids and initiating host specificity testing.



Chemical Control

PLEASE NOTE THAT NO PRODUCTS ARE CURRENTLY LABELED FOR USE ON SLF IN NY!

If there is a lanternfly outbreak, NYSDEC likely to issue “2ee” exemption document.

Where *Ailanthus* is present, it is possible to use them as “trap trees.”

Pennsylvania Department of Agriculture has run trials on:

Pymetrozine (selective for Hemiptera; soil application)

Bifenthrin (broad-spectrum synthetic pyrethroid)

***Beauveria bassiana* (a naturally occurring fungus)**

Dinotefuran (systemic neonicotinoid; basal-bark spray)

Right now, Dinotefuran (Safari) is the go-to pesticide for SLF. The downside is that it is both mobile and persistent, and toxic to pollinators. There is no easy answer. Except maybe to use rocks from your own back yard.

Questions?

Thank you!

http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly

