

# Why can't they just stay home?

What's new in invasive pests of ornamentals



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# Where are they all coming from?

- Global industry
- Don't we have protections – APHIS (Animal and Plant Health Inspection Service)?

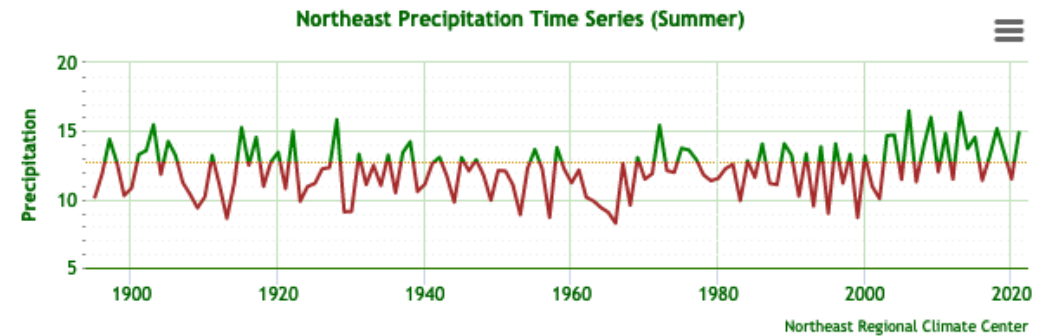
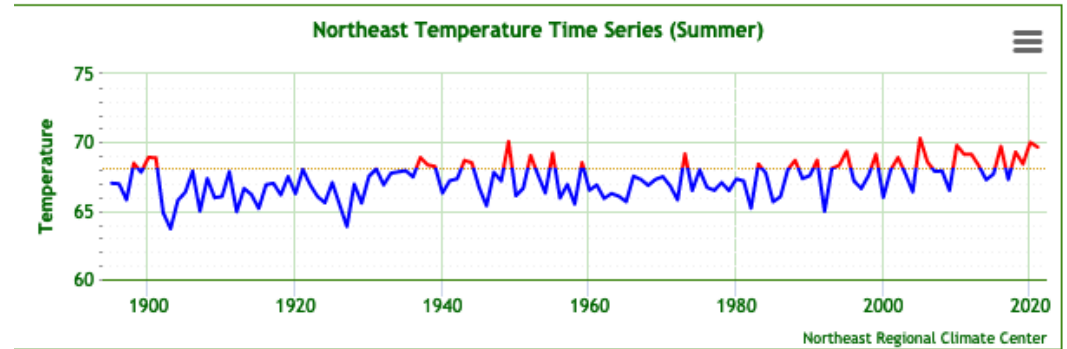
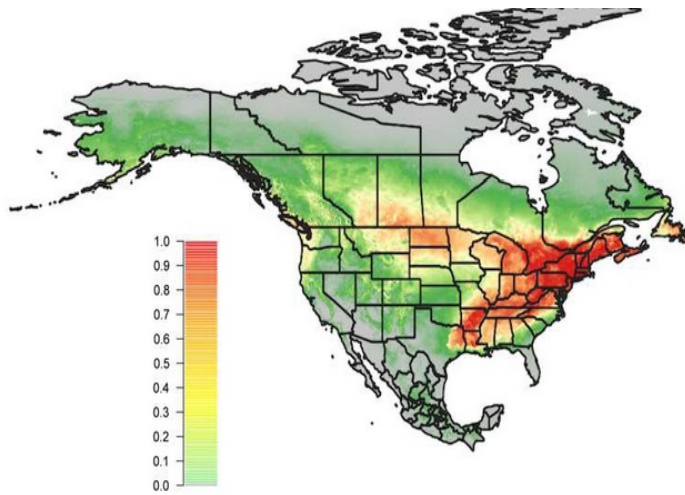


# Lily leaf beetle

- 1942 Montreal
- 1992 Boston
- 1997-9 New Hampshire, Maine, Rhode Island, Vermont
- 2000-1 New York, Connecticut
- It continues west and south



# Habitat suitability



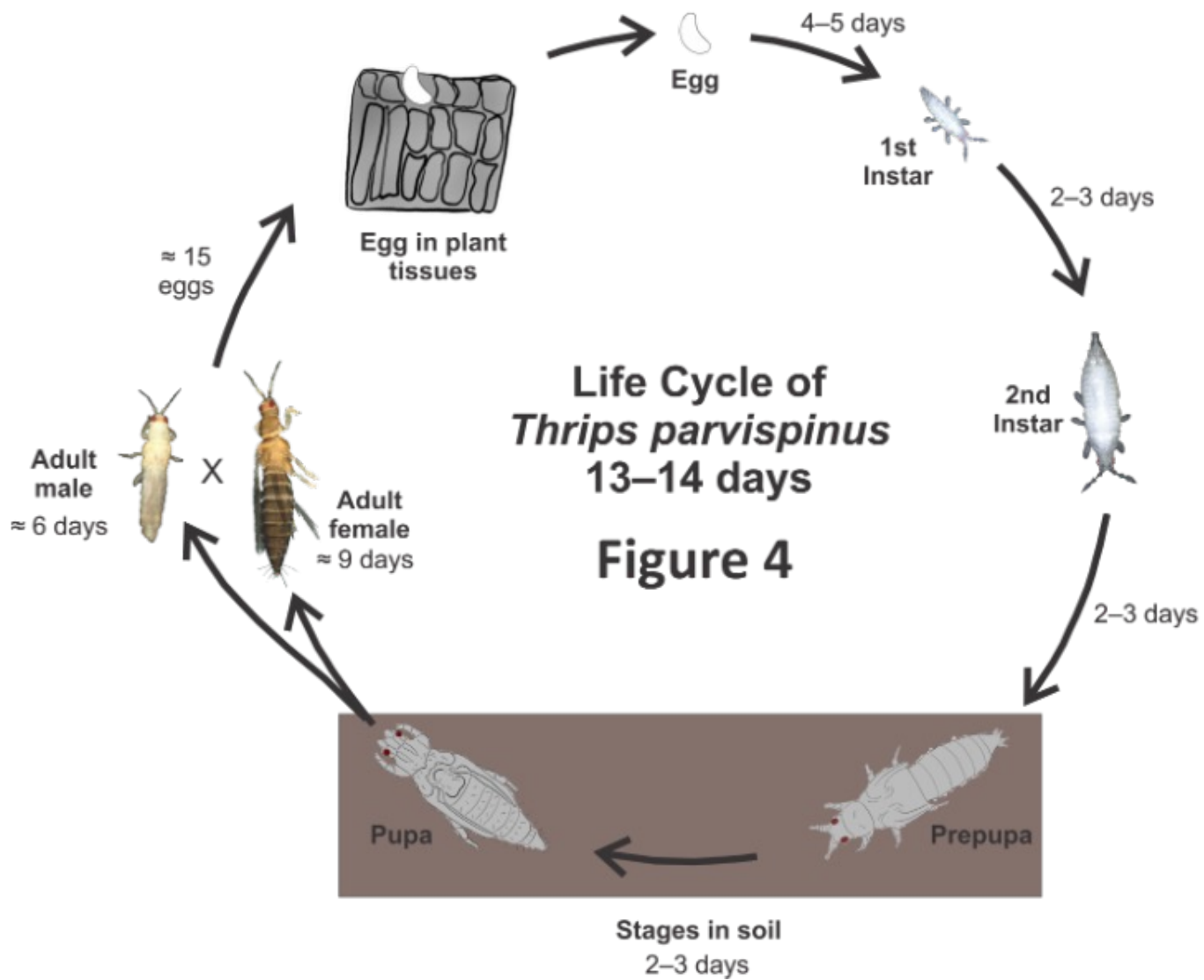
Predicting the invasion potential of the lily leaf beetle in North America, 2020, Freeman et al.

# Thrips parvispinus

- Targets new growth
- Damage looks like heavy broad mite damage but unlike broad mite also in flowers
  - Leaves can abort
  - Can depend on when plant is affected
- Wide host range – lots of tropicals, also peppers
  - Also varietal differences
- Reproduce quickly – frequent and standardized scouting

Lance Osborne,  
UF/IFAS?MREC





# Monitoring

- Plant taps more correlated with damage than flower counts
  - 10 thrips per 5 plants is threshold (ON) – mandevilla at trellising
  - 2 for small vegetative plants
  - \*\* in FL – quarantine pest so 1 is threshold
- Sticky cards 1 card per 250 sq m
  - threshold 10
- Mass trapping – 1 card per pot
- \*\*\* Do your own tests as thresholds may vary by species and conditions



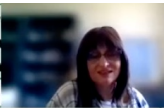
Lyle Buss, UF/IFAS



# Management

- Typical thrips biological and chemical control not as effective?
  - Rapid and variable resistance development
- Some indication that Orius and high levels of Cucumeris do work
  - Banker plants
  - Swirskii also
  - Nematodes, mites, beetle in soil
- Some chemistries are available
- Overwintering in North?

Active Ingredients	Products	MOA Class	Impact across Average Ra Num
Abamectin	Avid, Timectin, etc	IRAC 6	3.2
Acetamiprid	TriStar	IRAC 4A	3.3 (1 - 5) n9
<i>Beauveria bassiana</i> Strain GHA	BotaniGard	IRAC UNF	2.7 (1 - 5) n12
Bifenthrin	TalStar, etc	IRAC 3A	4.6 (4 - 5) n5
Bifenthrin + Imidacloprid	Allectus	IRAC 3 + IRAC 4A	3.7 (1 - 5) n3
<b>Chlorfenapyr</b>	<b>Pylon, Piston</b>	<b>IRAC 13</b>	<b>3.7 (1 - 5) n19</b>
Clothianadin	Arena (Landscape only)	IRAC 4A	2.5 (1 - 4) n10
<b>Cytraniliprole</b>	<b>Mainspring</b>	<b>IRAC 28</b>	<b>3.8 (2 - 5) n13</b>
Cyclaniliprole	Sarisa	IRAC 28	2.8 (1 - 5) n14
<b>Cyclaniliprole + Flonicamid</b>	<b>Pradia</b>	<b>IRAC 28 + IRAC 29</b>	<b>3.7 (1 - 5) n3</b>
Dinotefuran	Safari	IRAC 4A	3.1 (1 - 5) n10
Flonicamid	Aria	IRAC 29	2.5 (1 - 5) n12
Imidacloprid + cyfluthrin	Discus, Marathon Ultra	IRAC 4A + IRAC 3A	3.0 (1 - 5) n6
ISM-555, A21377X	<i>not yet registered</i>	--	4.7 (3 - 5) n6
Methicarb	Mesural	IRAC 1A	2.9 (1 - 5) n7
<b>Pyridalyl</b>	<b>Overture</b>	<b>IRAC UN</b>	<b>3.6 (1 - 5) n20</b>
Spinetoram + sulfoxaflor	XXpire	IRAC 5 + IRAC 4C	3.6 (2 - 5) n7
Spinosad	Conserve	IRAC 5	2.9 (1 - 5) n41
Thiamethoxam	Flagship	IRAC 4A	2.5 (1 - 5) n28
Tolfenpyrad	Hachi-Hachi	IRAC 21A	3.3 (1 - 5) n27





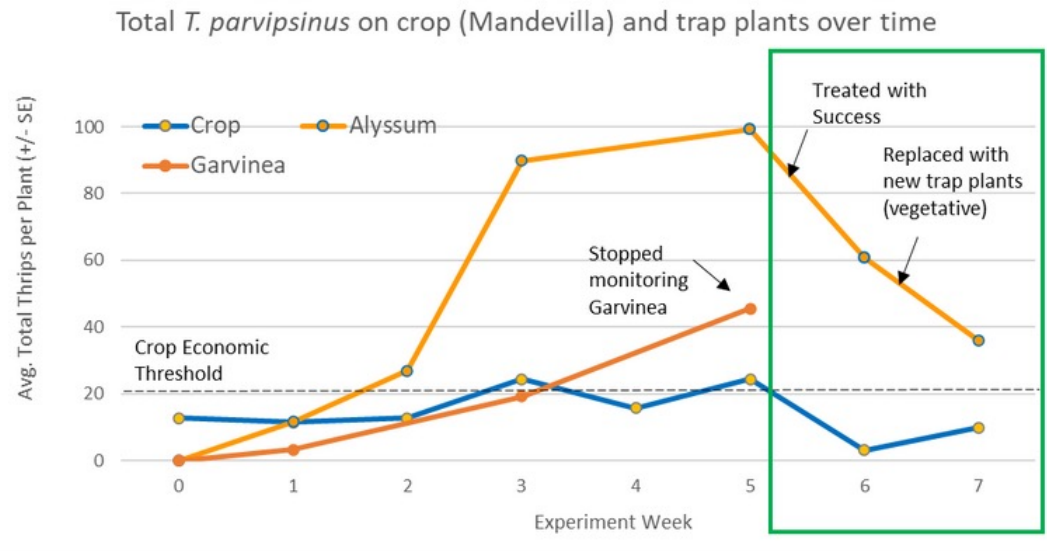
# Resources

- <https://mrec.ifas.ufl.edu/Isolab/thrips/thrips-parvispinus/>
- tHRive - WEB SERIES May 10, 2023. *Thrips parvispinus*: Identification, Scouting, and Potential Controls.  
<https://www.hriresearch.org/thrive-web-series>

# Trap plants for *Thrips parvispinus*



**Figure 2.** A trap plant consisting of Garvinea and Sweet alyssum (left) in a crop of vegetative mandevilla (right).



<https://onfloriculture.com/2023/11/06/trap-plants-as-a-tool-against-thrips-parvispinus-in-tropicals/#more-12235>

# Spotted lanternfly

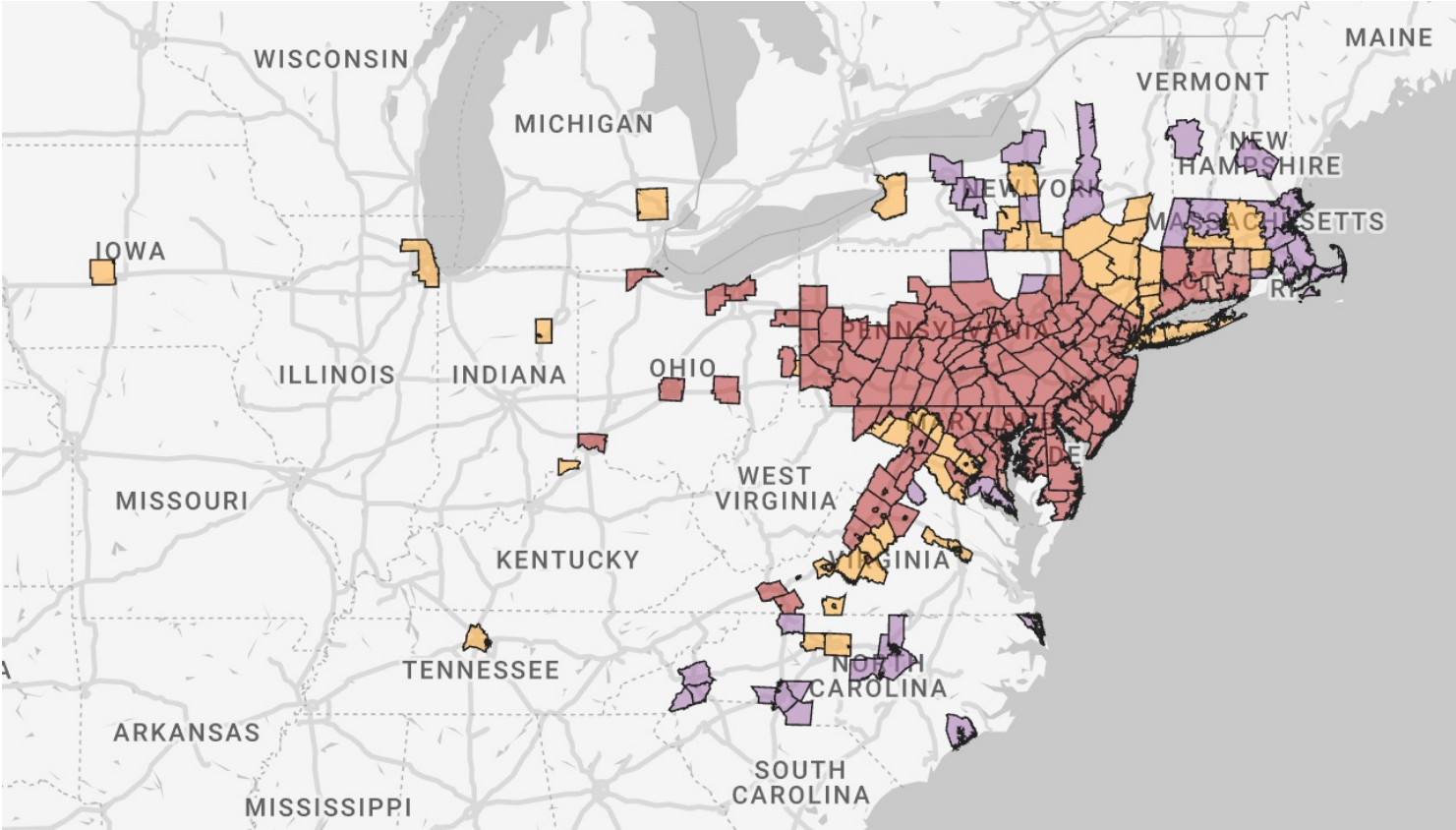
- Is this a nursery pest?
  - High population numbers in landscapes
  - Honeydew and sooty mold

Spotted lanternfly (*Lycorma delicatula*).

Photo: Peter L. Coffey, University of Maryland Extension (2017-2021)



**Status** ■ Infestation present with quarantine ■ Sighting reported ■ Infestation present ■ Sighting reported with quarantine



- Landscape plants are not a preferred host (mostly)

- SLF lays its eggs on all sorts of things

- Add it to your scouting list

*You have a scouting list, right?*



# Management

- <https://cals.cornell.edu/new-york-state-integrated-pest-management/outreach-education/whats-bugging-you/spotted-lanternfly/spotted-lanternfly-management#biocontrol>

Cornell **CALS** College of Agriculture and Life Sciences

## New York State Integrated Pest Management

- RISK ASSESSMENT - RESEARCH & INITIATIVES - OUTREACH & EDUCATION - ECO RESILIENCE - ABOUT US

New York so delaying the infestation provides valuable time to develop management tools needed to implement a successful IPM strategy.

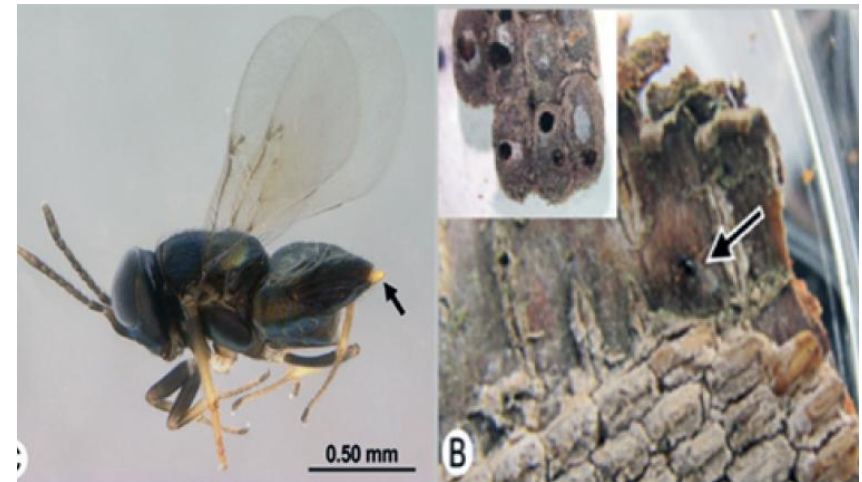
### Management Tools and Tactics

Traps →	Sticky Bands →	Circle Traps →
Destroy Egg Masses →	Insecticides →	Biocontrol →
Trap Trees →	Vacuum Removal →	

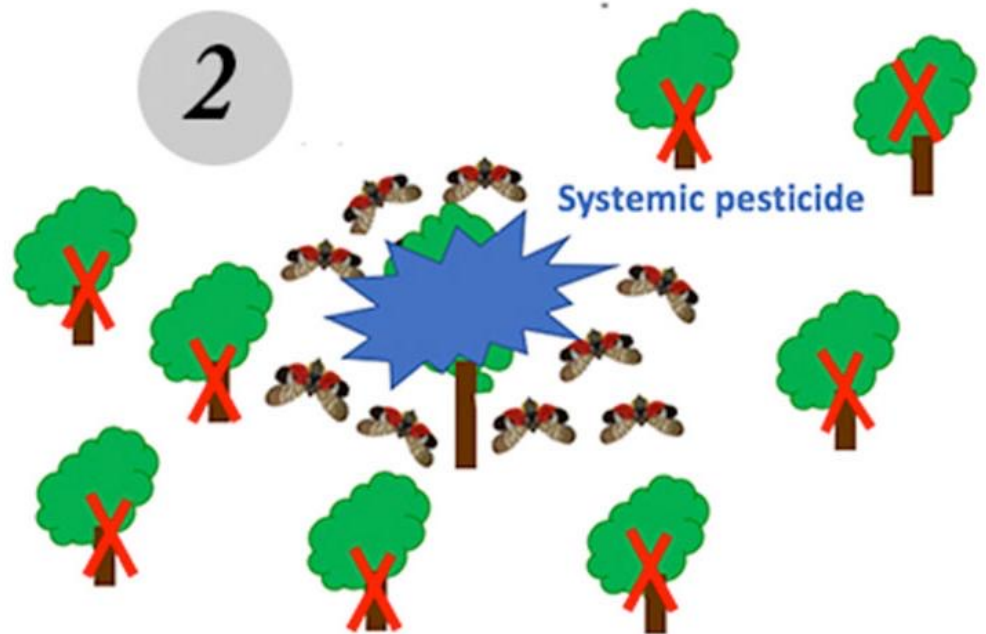
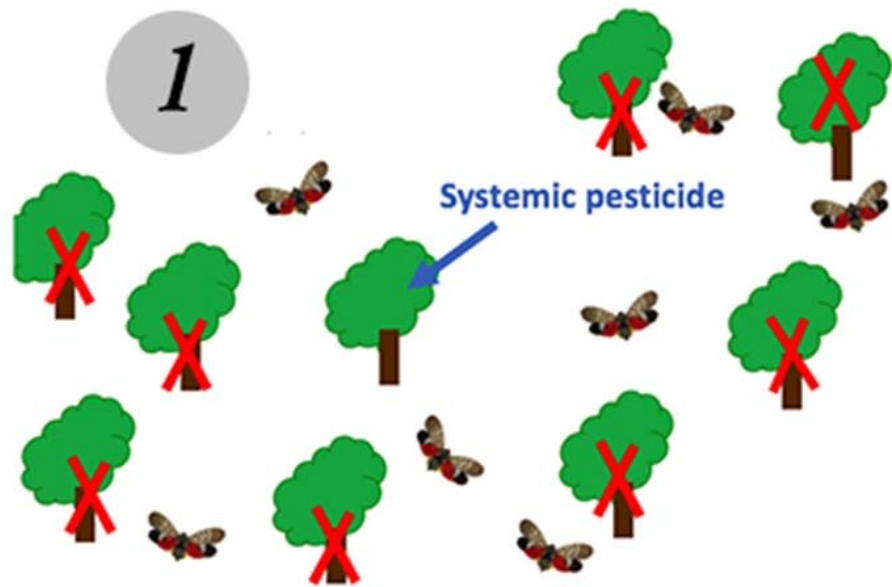


# Management

- List of labeled pesticides (NYS)
- Biocontrol
- Insufficient GDD for development in N NY?







# Box tree moth



- 2018 Ontario
- 2021 Connecticut, Massachusetts, Michigan, New York, Ohio, South Carolina,
- 2023 Massachusetts
  
- Hosts
  - Box tree
  - Holly
  - Euonymus
- Will feed on bark once foliage is gone
- 2 generations a year in Ontario



## **Damage**

(Courtesy of Colette Walter,  
[http://www.lepiforum.de/webbbs/images/forum\\_2/pic13983.jpg](http://www.lepiforum.de/webbbs/images/forum_2/pic13983.jpg)).



**Adult moths  
(wingspan is 1.5 to 1.75 inches):**

(Courtesy of Ilya Mityushev, Department of Plant protection of the Russian State Agrarian University - Moscow Timiryazev Agricultural Academy.)

(Courtesy of Matteo Maspero and Andrea Tantardini, Centro MiRT - Fondazione Minoprio [IT].)







**Caterpillars and webbing (larvae can reach 1.5 inches long)**

(Courtesy of Matteo Maspero and Andrea Tantardini, Centro MiRT - Fondazione Minoprio [IT].)



### **Egg mass under the leaves**

(Courtesy of Walter Schön, [www.schmetterling-raupe.de/art/perspectalis.htm](http://www.schmetterling-raupe.de/art/perspectalis.htm))

### **Pupa**

(Courtesy of Ilya Mityushev, Department of Plant protection of the Russian State Agrarian University - Moscow Timiryazev Agricultural Academy.)



# Quarantines

- Intrastate and interstate from Erie, Niagara and Orleans Counties, NYS
- Importation of boxwood from Canada prohibited





# New York State Integrated Pest Management

- RISK ASSESSMENT - RESEARCH & INITIATIVES - OUTREACH & EDUCATION - ECO RESILIENCE - ABOUT US



## Insecticides Labeled for Box Tree Moth Registered in New York State

- ▲ [Products for Home Use \(xlsx\)](#)— Updated April 2023
- ▲ [Products for Commercial Landscape and Nursery Use \(xlsx\)](#)— Updated August 2023

# Elm zigzag sawfly

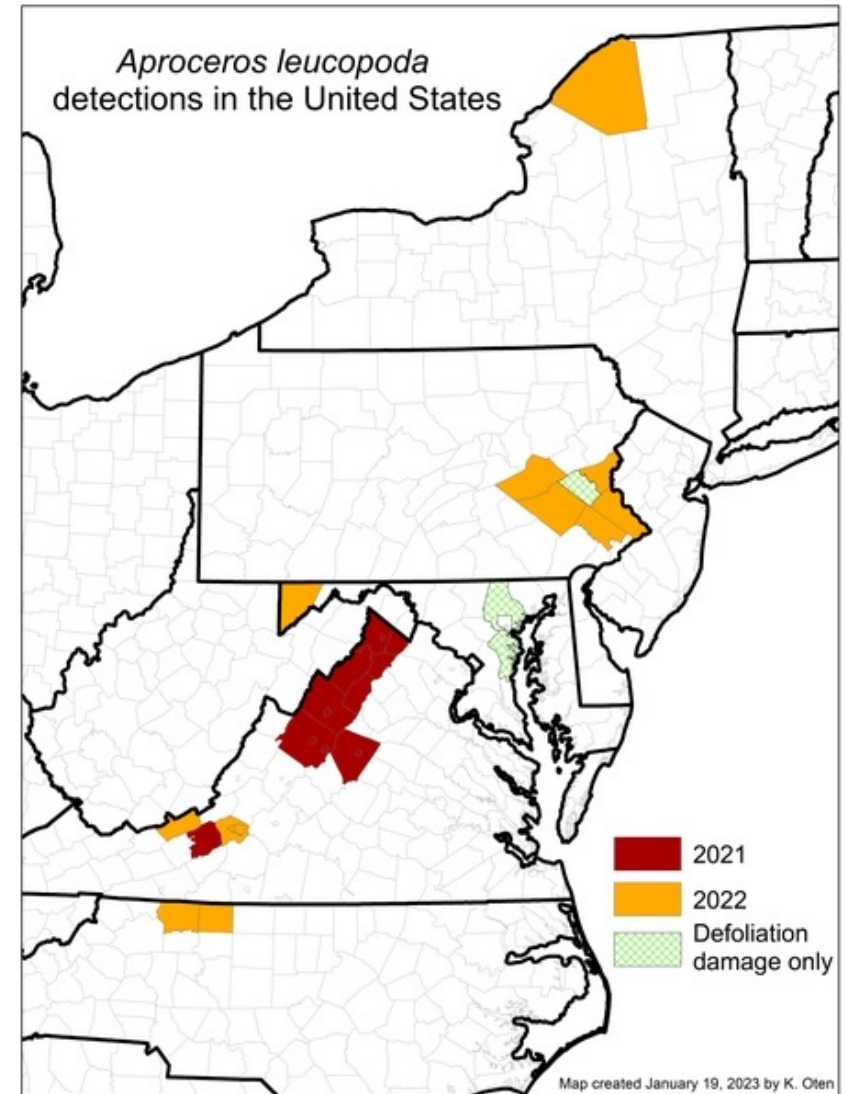
- Parthenocarpic – no mating needed
- Multiple generations in a season
  - 25-36 days per generation
  - May – October
- High potential for defoliation
- Is it a problem?





Figure 4. This American elm is severely defoliated by the elm zigzag sawfly. Kelly Oten, NC State University

- 2020 Quebec
- 2021 Virginia
- 2022 North Carolina, Maryland, Pennsylvania, New York
- 2023 Ohio







**Adult *Aproceros leucopoda* on an elm leaf.**

Photo by Gyorgy Csoka, Hungary Forest Research Institute, Bugwood.org.



Larval *Aproceros leucopoda* feeding on an elm leaf. Photo by Gyorgy Csoka, Hungary Forest Research Institute, Bugwood.org



Matt Bertone, NC State University

# Management

- Chemical management difficult because of multiple generations
  - Umass has a pesticide list
  - Remember this is Hymenoptera, not Lepidoptera
- Handpicking small infestations



# Norway spruce shoot gall midge

- Identified from Connecticut in 1983 and Long Island about 2013
- Is it becoming more common?
- Is it just not identified?

Loss of current year's needles.  
Twigs may be distorted.





Adults active April  
– mid May -  $\geq$  55-  
60 F



Small galls  
formed beneath  
bud scales

# Management

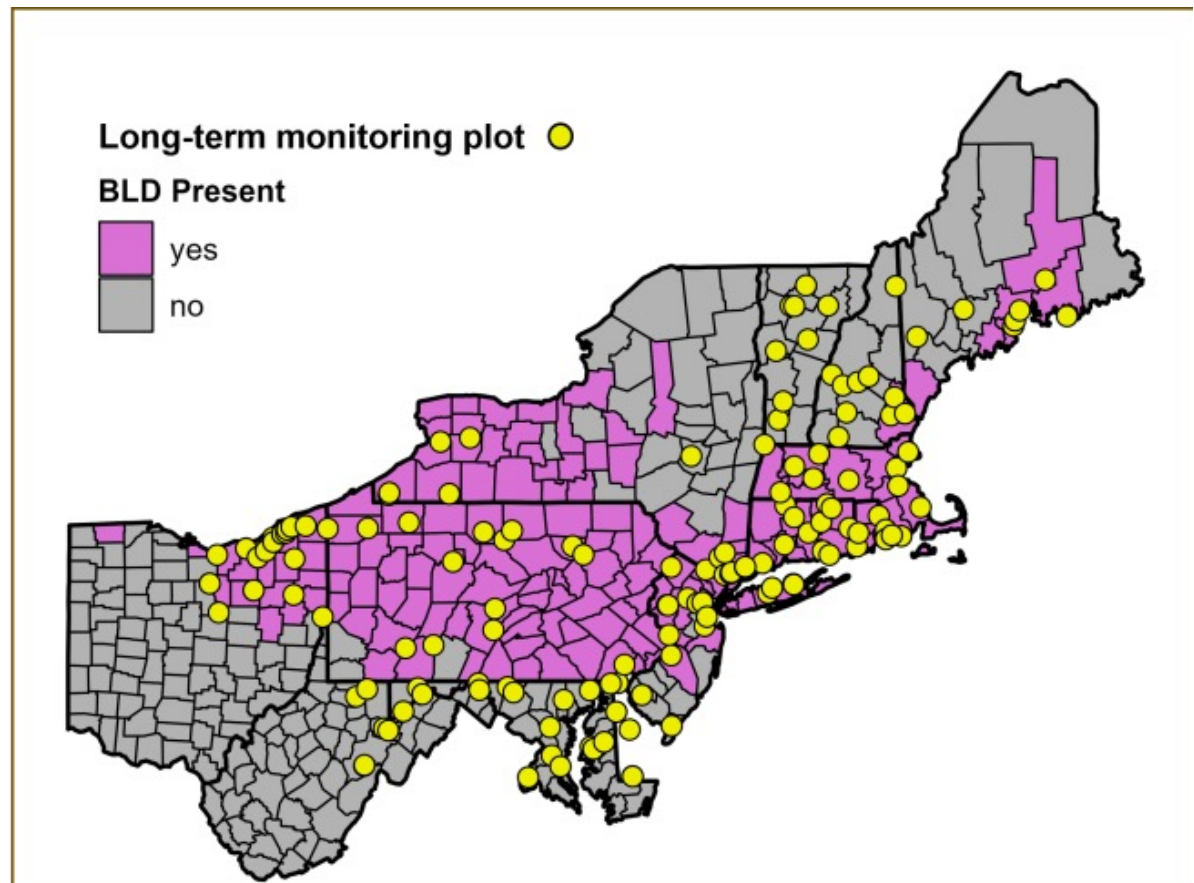
- Remove affected branches before adults emerge in the spring.
  - How possible is this?
- No good information on efficacy of pesticides?
  - Contact materials labeled for midges or gall midges
    - Umass has a pesticide list
    - Bifenthrin – Rich Cowles – check the labels
  - Applied at or just before adult emergence
  - Timing is difficult – don't have growing degree day information
- Fact sheet by Dan Gilrein and Jennifer Stengle

# Beech leaf disease

- Dark and light bands most easily seen looking through canopy against the light
- Leaf distortion
- Rapid death of tree – 6-10 yrs
  - May not notice symptoms for several years
- American and European beech
- Associated with nematode
- Vector? Toxin? Associate pathogen?



# Spread in NE





# Management

- No demonstrated specific benefit of pesticides
- Maintain health of tree



# ***Webinar on beech diseases***

## **Attend EPA's Webinar: Beech Leaf and Bark Diseases: Emerging Threats to Beech Trees**

- December 5, 2023 – 2:00-3:30 EST
- <https://register.gotowebinar.com/register/4483444913702781023>



# Lily leaf beetle

- Hosts
  - True lilies
- Variation in susceptibility
  - Asiatic most susceptible
  - Some Oriental and others less
    - *Lilium henryi* 'Madame Butterfly'
    - *Lilium speciosum* 'Uchida'
    - *Lilium* 'Black Beauty'



Lily leaf beetle adult on Asiatic lily, Joellen Lampman



©Pamm Cooper

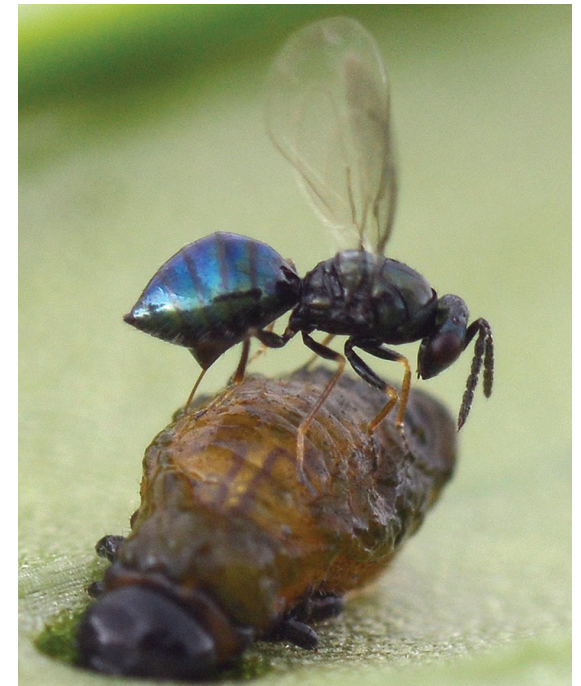


Lily leaf beetle eggs in Amherst, MA on 5/16/2018. Photo: Simisky.

# Biological control success story

- Parasitoid wasps
  - *Tetrastichus setifer*, *Lemophagus errabundus*, and *Diaparsis jucunda*
  - Released Massachusetts, Rhode Island, Maine

**Figure 3.** *Tetrastichus setifer* ovipositing in lily leaf beetle (*Lilioceris lili*) larva. (Andrea Brauner, Agriculture and Agri-Food Canada)



# Research project from Michigan

- Interest in developing a parasitoid production system
- Collecting pupae from around the Northeast
  - Rhode Island – 2 of every 3 pupae dissected were parasitized
  - New York (Finger Lakes) – none were

# Want to keep ahead of invasives?

- State Invasive Species organizations
- CAPS – Cooperative Agricultural Pest Survey
- NAPPO – North American Plant Protection Organization
  - Phytosanitary alert system - international



## NAPPO Official Pest Report posted



o PASChair <nappo.pas.alerts@gmail.com>

To: Elizabeth M. Lamb

A new Official Pest Report was just posted.

Region: United States

Date: Wed, 11/08/2023 - 14:48

Title:

APHIS Establishes Mediterranean Fruit Fly and Queensland Fruit Fly Quarantines in Califorr

Contact Person: Richard Johnson, Fruit Fly National Policy Manager, at (301) 851-2109 or

Thanks!

Any questions?

