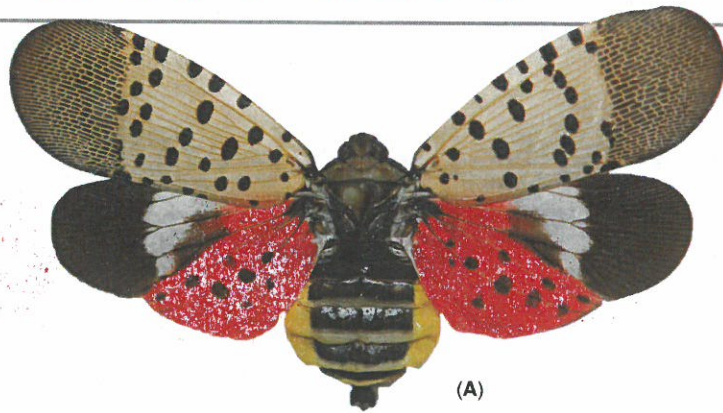


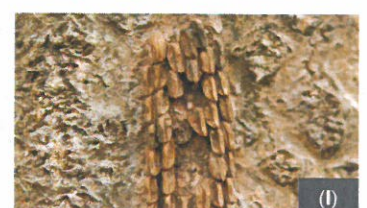
# Pest Alert



## Spotted Lanternfly

*Lycorma delicatula* (WHITE)  
(Hemiptera: Fulgoridae)

The Spotted Lanternfly, *Lycorma delicatula* (White), an invasive planthopper, has been discovered in Berks County, Pennsylvania. It is native to China, India, Vietnam, and introduced to Korea where it has become a major pest. This insect attacks many hosts including grapes, apples, stone fruits, and tree of heaven and has the potential to greatly impact the grape, fruit tree, and logging industries. Early detection is vital for the protection of Pennsylvania businesses and agriculture.



\*Photos courtesy of Park et al. 2009, Biological Characteristics of *Lycorma delicatula* and the Control Effects of Some Insecticides.

(A) Spotted Lanternfly showing the fore and hind wings (B) Resting against bark (C) Lateral view (D) Early nymphs (E) Late nymphs (F) Feeding on wild *Vitis* sp. (G) Weeping sap trail on tree (H) Egg mass covered in waxy coating (I) Old hatched egg mass on a trunk.

## Identification:

The Spotted Lanternfly adult is approximately 1" long and 1/2" wide at rest. The forewing is grey with black spots and the wings tips are reticulated black blocks outlined in grey (A, B, C). The hind wings have contrasting patches of red and black with a white band (A). The legs and head are black; the abdomen is yellow with broad black bands. Immature stages are black with white spots, and develop red patches as they grow (D,E).

## Hosts:

In the fall, adults congregate on tree of heaven (*Ailanthus altissima*) (F), willows (*Salix* sp.), and other trees, in groups of up to 20. Egg masses will be laid on medium to large trees, on trunk, branches, and limb bases. After hatching in the spring, nymphs will move off the tree and search out new hosts, including several kinds of agricultural crops. In Korea, it has been reported to attack 65 different species, 25+ of which are known to grow in Pennsylvania.

## Signs and Symptoms:

Trees, such as tree of heaven and willow, will develop weeping wounds. These wounds will leave a greyish or black trail along the trunk (G). This sap will attract other insects to feed, notably wasps and ants. In late fall, adults will lay egg masses on host trees and nearby smooth surfaces like stone, outdoor furniture, vehicles, and structures. Newly laid egg masses have a grey mud-like covering which can take on a dry cracked appearance over time (H). Old egg masses appear as rows of 30-50 brownish seed-like deposits in 4-7 columns on the trunk, roughly an inch long (I).

## What to do:

**If you see egg masses, scrape them off, double bag them and throw them away.** You can also place the eggs into alcohol or hand sanitizer to kill them. Please report all destroyed egg masses on our website listed below.

**Collect a specimen:** Specimens of any life stage can be turned in to the Pennsylvania Department of Agriculture's Entomology lab for verification. Directions for submission are on the reverse side of this alert.

**Take a picture:** A photograph of any life stage (including egg masses) can be submitted to [Badbug@pa.gov](mailto:Badbug@pa.gov).

**Report a site:** If you can't take a specimen or photograph, call the Automated Invasive Species Report Line at 1-866-253-7189 and leave a message detailing your sighting and contact information.

For up to date information, visit:  
[www.pda.state.pa.us/spottedlanternfly](http://www.pda.state.pa.us/spottedlanternfly)

By: Lawrence Barringer, Entomologist  
Pennsylvania Department of Agriculture





# ENTOMOLOGY PROGRAM SAMPLE SUBMISSION FORM

*The Entomology Program at the Pennsylvania Department of Agriculture can provide identification. Please complete this form to be submitted with the specimen(s).*

## SPECIMEN REQUIREMENTS:

1. All specimens should be dead.
2. Most specimens should be placed in 70-80% Ethyl or Isopropyl Alcohol in a leak proof vial.  
*(Moths, Butterflies, and Mealy bugs should be frozen and placed in a hard plastic container with dry paper toweling)*
3. The vial should be placed in a zipper style bag.
4. Specimens from different locations (if applicable) should be placed in different vials.
5. A completed sample submission form must accompany the vial/container.

## REQUIRED INFORMATION:

Name of Submitter: \_\_\_\_\_

Contact Information: Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

Address where specimen was collected: \_\_\_\_\_

Date Collected: \_\_\_\_\_ Plant Host/Habitat: \_\_\_\_\_

Name of Person Who Collected Specimen: \_\_\_\_\_

Comments/Special Instruction: \_\_\_\_\_

***Mail the vial/container and completed form, or deliver in person to:***

Pennsylvania Department of Agriculture  
Entomology - Room 111  
2301 North Cameron Street  
Harrisburg, PA 17110

Contact: Sven-Erik Spichiger at 717-772-5229 or Leo Donovall at 717-772-5225



Time to use management practices.

**SPOTTED LANTERNFLY MANAGEMENT CALENDAR**

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
Destroy egg masses												
Destroy most <i>Ailanthus altissima</i> trees <sup>1</sup>												
Treat most <i>Ailanthus</i> trees with herbicide <sup>2,3</sup>												
Use sticky bands to destroy nymphs												
Treat <i>Ailanthus</i> trap trees with systemic insecticides <sup>3</sup>												
Registered contact insecticides may be effective <sup>3</sup>												
Avoid moving gravid (fertilized) females <sup>4</sup>												
Avoid moving viable egg masses <sup>4</sup>												

PEDOMINANT LIFE STAGE PRESENT- (one generation per year in Pennsylvania in 2015 and 2016)

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
eggs												
nymphs												
adults												

<sup>1</sup> Destroying all *Ailanthus* trees (Tree of Heaven) may result in spotted lanternfly moving to surrounding plants and increase the pest pressure on them. It is recommended about 15% of *Ailanthus* trees are left alive to serve as trap trees to attract the spotted lanternflies. Leave only male trees if possible.

<sup>2</sup> *Ailanthus* trees will re-sprout vigorously from cut stumps and roots, unless they are treated with a systemic herbicide. Repeat applications of herbicide may be necessary.

<sup>3</sup> ALWAYS READ HERBICIDE AND INSECTICIDE LABELS AND FOLLOW THE DIRECTIONS

<sup>4</sup> Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, adults, and nymphs and destroy them. Use the checklist at [http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted\\_lanternfly/Documents/SLF%20Checklist%2011-12-2014.pdf](http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly/Documents/SLF%20Checklist%2011-12-2014.pdf)

People are looking for specific approaches to pest management to minimize off-target exposure to pesticides. This type of strategy is known as Integrated Pest Management (IPM). The Pennsylvania Department of Agriculture (PDA) has been using an IPM strategy for spotted lanternfly infestations, and landowners may consider using the same IPM strategy on their properties, or hiring a professional service to do it.

IPM Strategy for the Spotted Lanternfly:

1. Locate *Ailanthus altissima* trees on the site. For reasons not understood, spotted lanternfly seem to prefer some individual *Ailanthus altissima* trees over others. Try to identify the specific *Ailanthus* trees that are most attractive to the insects, based on how many are feeding on them. For information on how to identify *Ailanthus altissima* and how to control it, see this fact sheet: <https://pubs.ext.vt.edu/420/420-322/420-322.html>.
2. Destroy approximately 85% of the *Ailanthus altissima* trees, leaving only a few that are most attractive to the insect. They will serve as "trap" trees. It is recommended that you try to kill all the female *Ailanthus altissima* trees, because they produce seed and contribute to the spread of this invasive tree.

Be careful handling *Ailanthus altissima* wood, leaves, and branches. Exposure to chemicals in the sap of this tree can cause headaches, nausea, and possible heart problems. Wear gloves and protect yourself from exposure.

When you cut down *Ailanthus altissima* trees, they will sprout profusely from the stumps and roots and can grow back in a few years. Because they regenerate so easily, it is highly recommended that you treat the stumps with a herbicide to kill them and prevent them from sprouting new shoots.

Herbicides that are labelled for this use usually contain one of the following active ingredients: triclopyr, dicamba, imazapyr or glyphosate. Use the herbicide carefully and according to the label directions. Methods for using herbicides to kill *Ailanthus altissima* trees include foliar sprays, basal bark applications, and a method called frill application or "hack and squirt." For more information about these methods go to <https://extension.psu.edu/herbicides-and-forest-vegetation-management>. Whatever method you choose, remember that you will have dead *Ailanthus* trees which may eventually have to be removed.

3. Treat the remaining *Ailanthus altissima* trees with a systemic insecticide that will move throughout the tree. The insecticide must be applied according to the label and at the right time of year for the trees to absorb it. When spotted lanternflies feed on correctly treated trees, they will die. Systemic insecticides that are labelled to treat ornamental trees usually contain the active ingredients dinotefuran or imidacloprid. The PDA is using dinotefuran in their IPM strategy.

Treating only a few trap trees with a systemic product can reduce the amount of insecticide released into the environment and may help conserve beneficial insects.

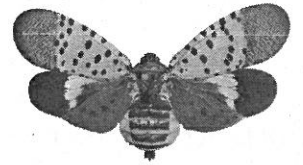
Prepared by: Emelie Swackhamer, Horticulture Extension Educator, Montgomery County, December, 2017.

**[extension.psu.edu](https://extension.psu.edu)**

Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.

This publication is available in alternative media on request.



## Management Options for Spotted Lanternfly: Using Sticky Bands on Trees

There is a new invasive insect in southeastern Pennsylvania, *Lycorma delicatula*, commonly known as the spotted lanternfly (SLF). This insect can harm grapes, hops, fruit and trees and it is also a nuisance in landscapes. Established populations of SLF are not known to exist anywhere else in North America.

The United States Department of Agriculture (USDA), the Pennsylvania Department of Agriculture (PDA) and residents are trying to reduce populations of this pest and possibly eradicate it. These efforts rely on cooperation from residents, property owners and businesses. Several management options are being used and more are being developed from experimental results.

This article summarizes one management option: placing sticky bands on trees to capture and kill SLF.



SLF are often found moving around on tree trunks. SLF can be captured on the sticky surface of bands placed around trees. This method can effectively destroy many SLF without using insecticides.



Young nymphs captured on a sticky band

Sticky bands are usually placed about 4 feet from the bottom of the tree and may be secured with a push pin. When discarding used sticky bands, some of the SLF that have been captured may still be alive. Double bag or burn the bands to eliminate the possibility of spreading viable SLF.

The stickiness of the type of band you are using will determine how effectively you can catch different life stages of SLF. Less sticky types of bands will capture the younger nymphs, but they will not capture the oldest nymphs or adults as well. Older stages of SLF are strong enough to walk across the less sticky bands without getting stuck and they may actually avoid the bands.

One drawback of using sticky bands is that they can capture other creatures. Other insects are often captured and some of them may be beneficial insects. Occasionally a bird, small mammal or other animal has been captured. Users must understand that this possibility exists.

There are several types of sticky bands:

**PDA volunteer program bands:** The PDA has been using sticky bands made with brown paper. In 2018, the PDA will supply sticky bands to residents who participate in their official volunteer program, as supplies allow. Volunteers must live in the quarantined area. To see the current map go to: [http://www.agriculture.pa.gov/Plants\\_Land\\_Water/PlantIndustry/Entomology/spotted\\_lanternfly/quarantine/Documents/Lycorma%20Quarantine%20Map%20\(Statewide%20View\).pdf](http://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/quarantine/Documents/Lycorma%20Quarantine%20Map%20(Statewide%20View).pdf). PDA volunteers will band only *Ailanthus altissima* (Tree of Heaven). They must change

the bands every two weeks and report the number of SLF captured into the PDA database. If you are interested in participating in the official PDA volunteer program, send your contact information to: [aciccarone@pa.gov](mailto:aciccarone@pa.gov) (please include your name, phone numbers, mailing address and the municipality of the property.) Potential volunteers will be contacted and receive information about upcoming training opportunities.

**Commercially available bands:** If you do not want to be an official volunteer in the PDA program or you are interested in using sticky bands to kill SLF on trees other than *Ailanthus altissima*, you can purchase a variety of types of sticky bands from several commercial sources. There is also a commercially available band that configures the sticky side of the band as an inward facing surface which reduces the potential of catching birds and other animals. Other companies offer a roll of tree wrap and a sticky substance to spread onto the wrap.

**Tree bands you can make:** You can wrap several widths of duct tape around a tree trunk and coat it with a sticky substance such as petroleum jelly. Petroleum jelly can discolor the bark of trees, and can even injure the bark of young trees, so avoid getting it on the bark. For more information see the article at: <https://fyi.uwex.edu/gypsyothinwisconsin/making-a-sticky-barrier-band/>

By using sticky bands, people who care for trees are able to capture and kill many SLF, especially in their early nymphal stages. This is one method that can reduce SLF populations in the infested area. Sticky bands are also useful to monitor for SLF in areas where it has not been found.

For more information about the SLF go to:

[www.agriculture.pa.gov/spottedlanternfly](http://www.agriculture.pa.gov/spottedlanternfly)  
<https://extension.psu.edu/spotted-lanternfly>

This is not an endorsement of any product of producer. This is not a complete list of possible products or brands.

Additional information about SLF is at this link:

<https://goo.gl/kmSy5R>

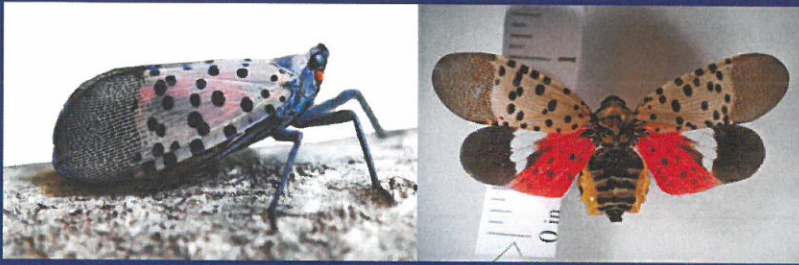
Prepared by: Emelie Swackhamer, Horticulture Extension Educator, Montgomery County, January 2018.

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# Checklist for Residents Living in Spotted Lanternfly Quarantine Areas

**IMPORTANT:** Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, adults, and nymphs. Make sure all items are pest free before you move them. Help keep this pest from spreading.

If you find any of these life stages of the Spotted Lanternfly, remove, devitalize, place in a sealed bag, and dispose of bag in the garbage.



Adult Spotted Lanternfly, present in autumn months.



Spotted Lanternfly nymphs, present in spring and summer months. (Images from Park et al. 2009)

Fresh Spotted Lanternfly egg mass (outlined in red). Egg masses are present in autumn and winter months, blending in with their surroundings.



By signing this checklist, I am confirming that I have inspected my vehicle and those items I am moving from the Spotted Lanternfly quarantine area, and do not see any egg masses or insects in or on anything I am moving.

Signature \_\_\_\_\_ Address \_\_\_\_\_ Date \_\_\_\_\_

Please sign, date, and keep this checklist in your vehicle with you – use it each time you need it.

For more information, visit the Pennsylvania Department of Agriculture website:  
[www.pda.state.pa.us/spottedlanternfly](http://www.pda.state.pa.us/spottedlanternfly)

# Checklist for Residents

## Living in Spotted Lanternfly Quarantine Areas

**IMPORTANT:** Before you move outdoor items from the quarantine area, check for spotted lanternfly egg masses, adults, and nymphs. Make sure all items are pest free before you move them. Help keep this pest from spreading.

### Check before you move

#### Recreational or Camping Items

---

- |  |  |                                |
|--|--|--------------------------------|
| <input type="checkbox"/> Backpacks             | <input type="checkbox"/> Ice chests            | <input type="checkbox"/> Tarps |
| <input type="checkbox"/> Basketball backboards | <input type="checkbox"/> Motorcycles           | <input type="checkbox"/> Tents |
| <input type="checkbox"/> Bicycles              | <input type="checkbox"/> Motor homes           | <input type="checkbox"/> Other |
| <input type="checkbox"/> Boats/Boat trailers   | <input type="checkbox"/> Recreational vehicles |                                |
| <input type="checkbox"/> Campers               | <input type="checkbox"/> Snowmobiles           |                                |

#### Outdoor Household Items

---

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Barrels                   | <input type="checkbox"/> Propane or oil tanks   | <input type="checkbox"/> Storm/Screen doors and windows |
| <input type="checkbox"/> Cardboard or wooden boxes | <input type="checkbox"/> Trash cans             | <input type="checkbox"/> Window awnings                 |
| <input type="checkbox"/> Outdoor poles             | <input type="checkbox"/> Refrigerators/Freezers | <input type="checkbox"/> Outdoor furniture              |
| <input type="checkbox"/> Plant containers          | <input type="checkbox"/> Storage sheds          | <input type="checkbox"/> Other                          |
| <input type="checkbox"/> Firewood                  | <input type="checkbox"/> Shutters               |   |

#### Building Materials

---

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Bricks/Cinder blocks | <input type="checkbox"/> Roofing materials   | <input type="checkbox"/> Skidsters/Forklifts |
| <input type="checkbox"/> Cement mixing tubs   | <input type="checkbox"/> Tools and toolboxes | <input type="checkbox"/> Pipes               |
| <input type="checkbox"/> Lumber               | <input type="checkbox"/> Workbenches         | <input type="checkbox"/> Other               |

#### Yard and Garden Items

---

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Dog houses, rabbit sheds, chicken coops, etc | <input type="checkbox"/> Garden tillers   | <input type="checkbox"/> Signs and posts          |
| <input type="checkbox"/> Barbecue grills                              | <input type="checkbox"/> Yard decorations | <input type="checkbox"/> Storage sheds            |
| <input type="checkbox"/> Carts  | <input type="checkbox"/> Garden tools     | <input type="checkbox"/> Tractors and trailers    |
| <input type="checkbox"/> Cold frames                                  | <input type="checkbox"/> Backhoes         | <input type="checkbox"/> Trees, shrubs and plants |
| <input type="checkbox"/> Fencing                                      | <input type="checkbox"/> Lawnmowers       | <input type="checkbox"/> Other                    |

#### Children's Playthings

---

- |                                       |   |                                |
|---------------------------------------|---|--------------------------------|
| <input type="checkbox"/> Play houses  | <input type="checkbox"/> Bicycles, scooters | <input type="checkbox"/> Other |
| <input type="checkbox"/> Kiddie pools | <input type="checkbox"/> Sandboxes          |                                |