LANCASTER COUNTY MIDDLE SCHOOL ENVIROTHON
PA INVASIVE INSECTS EFFECTING FORESTS

This past year it has almost been impossible to not hear about the Spotted Lanternfly in the news. It is an invasive insect that was first spotted in Berks County in 2014 and has since spread. In November 2017, Lancaster County was added to the Spotted Lanternfly Quarantine Zone, which is made up of 13 counties in Southeast Pennsylvania. The Spotted Lanternfly is poised to become a major threat to the agricultural industry in Pa, with potential to impact the grape, fruit and hardwood tree, and nursery industries.

With fall fast approaching there are some steps that you as a homeowner can take to address Spotted Lanternflies.

Identify
The first step is to identify the Spotted Lanternfly. By the fall you should only be seeing the adult Spotted Lanternfly but you can begin to see them as early as July. It is about 1 inch long and when at rest you can see its black head and grayish wings with black spots. The tips of the wings also have small black rectangular blocks and when it does fly the hind wings are red with black spots.

The Spotted Lanternfly will begin laying eggs at the end of September and continue till early December. The egg masses are about 1 inch long and have a light gray, mud like covering, which over time can look dry and cracked. As the season goes on the egg masses lose their covering and reveal seed-like eggs. The egg masses are laid on smooth surfaces such as trees, stones, and manmade items such as vehicles, yard furniture, or any other items stored outside.

Management
The best management a homeowner can do in the fall is to identify egg masses and get rid of them. If you find eggs on trees or other objects you can scrape them off with a plastic card like a credit card or another flat object into a bag or container filled with isopropyl alcohol or hand sanitizer. The egg masses can also be smashed. If you find adult Spotted Lanternflies you can swat at them or vacuum them up to get rid of them. It is best starting with mechanical approaches, physically dealing with the pest instead of pesticides. If you have a bad infestation or want to use pesticides it is best to consult with a professional like a local landscape company or Penn State Extension.

Another good management tool is to manage tree-of-heaven (Ailanthus altissima) an invasive tree that is the preferred host plant of the Spotted Lanternfly. The trees resemble black walnut, hickory, and staghorn sumacs. The bark has a cantaloupe like appearance and when its leaves and other plant parts are crushed it is said to smell like rotten peanut butter. If found on your property tree-of-heaven should be removed. You can leave some of the male tree-of-heaven to be used as trap trees. These trees will attract Spotted Lanternfly and the trees can then be treated with an insecticide. Again, it is recommended that you contact a professional that can help you set up a plan of action and to identify tree-of-heaven.

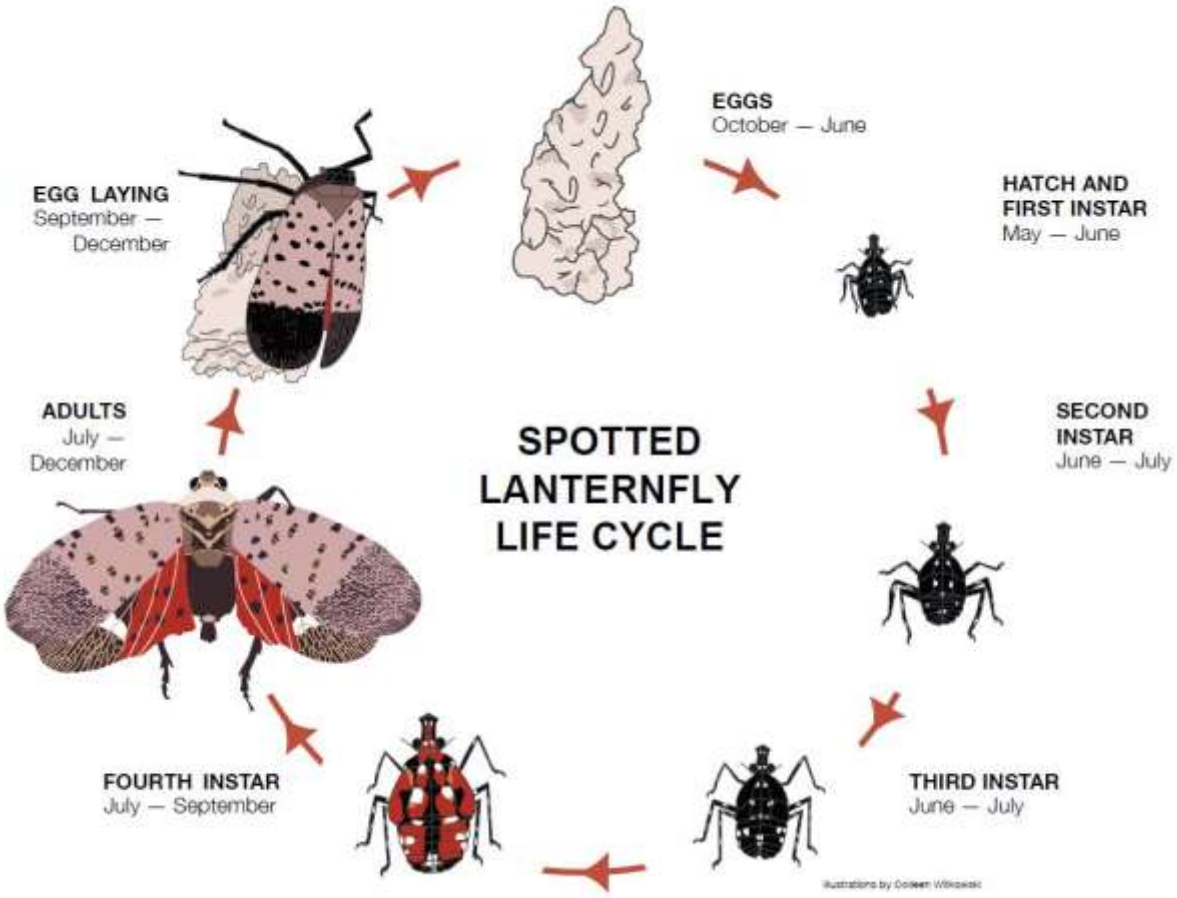
Contain
Managing the Spotted Lanternfly on your property is a great way to help limit its spread and damage. It is currently in 13 counties of Pennsylvania but that doesn't mean it won't keep spreading. It is important to remember that if you travel outside of the Spotted Lanternfly Quarantine Zone there is the chance you can

spread this pest. Before leaving make sure to check your car and any equipment or items you are bringing with that could have been outside at some point. Egg masses, nymphs, and even adults could try and hitch a ride.

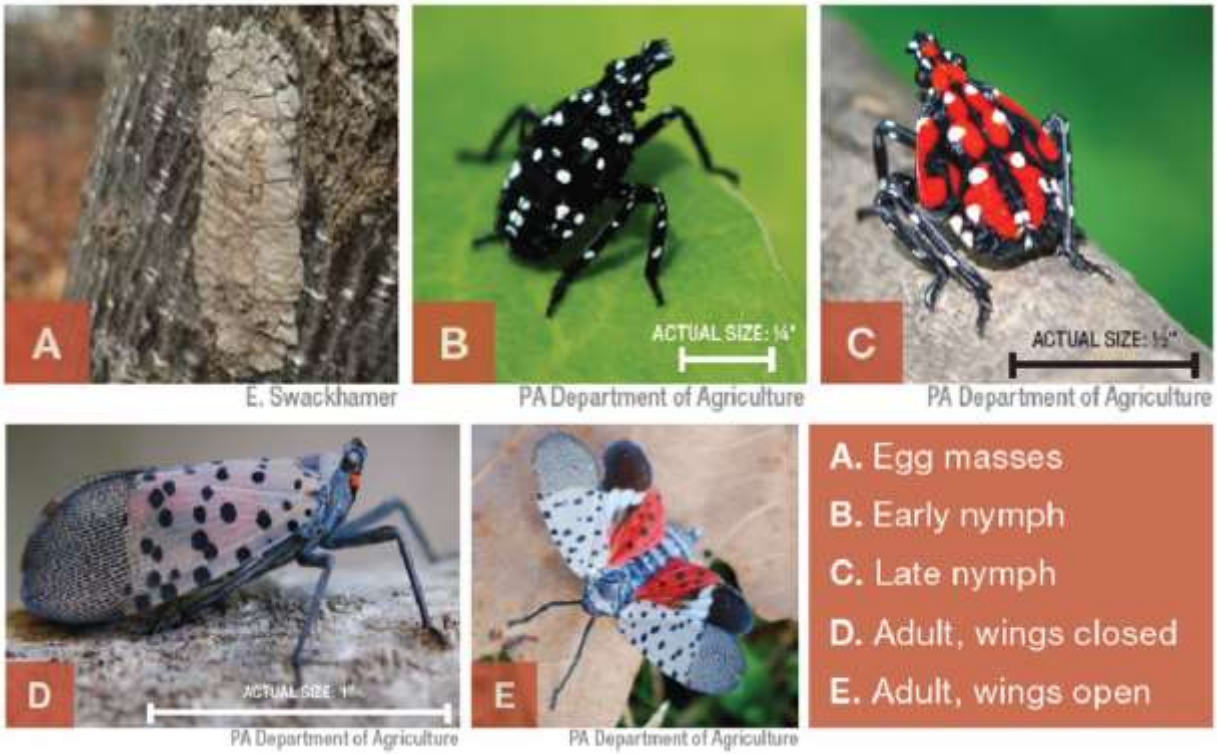
If you do spot a Spotted Lanternfly remember to report it. You can go online to https://extension.psu.edu/have-you-seen-a-spotted-lanternfly to report your sighting, you can email badbug@pa.gov, or call 1-866-253-7189. For more information contact your local Penn State Extension office or Conservation District.

Spotted Lanternfly Egg Masses - Fresh Freshly laid egg masses, which are about 1” long and laid on hard surfaces, including trees, stones, patio furniture, etc. The egg masses are covered in a white putty-like substance, which age over time to look like cracked mud. Image by Erica Smyers.

Spotted Lanternfly Egg Masses - Old Old egg masses, which have the putty or mud-like covering worn off. Here, you can see each individual seed-like egg. Image by Pennsylvania Department of Agriculture.



Life Cycle of Spotted Lanternfly The life cycle of spotted lanternfly, beginning from egg to adult. There is one generation per year in Pennsylvania. Adults die in the winter, and the eggs overwinter and hatch in the spring. Taken from Penn State Extension “Spotted Lanternfly: what to Look For” document.



Life Stages of Spotted Lanternfly All life stages of the

spotted lanternfly, from egg to adult. Taken from Penn State Extension “Spotted Lanternfly: what to Look For” document.

https://extension.psu.edu/spotted-lanternfly-what-to-look-for

https://extension.psu.edu/spotted-lanternfly

https://lancasteronline.com/search/?sd=desc&l=25&s=start_time&f=html&t=article%2Cvideo%2Cyoutube%2Ccollection&app=editorial&nsa=eedition&q=Spotted+lanternfly

https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/quarantine/Pages/default.aspx

https://www.media.pa.gov/pages/Agriculture_details.aspx?newsid=616

https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/program-information/Pages/default.aspx

https://www.brandywine.org/conservancy/blog/invasive-species-spotlight-tree-heaven-ailanthus-altissima-and-spotted-lanternfly

GYPSY MOTH

Gypsy moth (Lymantria dispar) is a serious forest pest and is responsible for killing millions of oak and other species of trees across the state. Although oak species are preferred, gypsy moth caterpillars feed on hundreds of other tree and shrub species, including:

- Apple
- Alder
- Aspens
- Basswood
- Birches
- Hawthorn
- Hemlock
- Tamarack (larch)
- Pines
- Spruces
- Willows
- Witch hazel

It usually takes more than one year of defoliation before trees die, however, conifers that are defoliated may be killed after a single season of defoliation.

Although the boom and bust cycles of the gypsy moth are less severe than during the past, they still require control during years their populations are high.

Management of Gypsy Moth Infestations in Pennsylvania Forests

Perhaps the longest-standing effort to manage forest pests on Pennsylvania's forest lands has been the DCNR's Bureau of Forestry's gypsy moth program.

The gypsy moth has been causing significant forest damage in Pennsylvania since the 1970s. The most recent outbreak occurred between 2013 to 2017, and this pest has been the principal agent of tree mortality on state forest land since the 1970s.

The DCNR Bureau of Forestry uses an integrated pest management approach to monitor and treat gypsy moth populations to lessen tree mortality and prevent significant defoliation.

The bureau and cooperating counties conduct annual egg mass surveys to monitor gypsy moth populations, and plans a suppression program when populations exceed threshold levels.

The bureau uses applications of Bacillus thuringiensis subspecies kurstaki (Btk), a natural biological insecticide, and tebufenozide, an insect growth regulator, to control gypsy moth populations via aerial application using airplanes and helicopters on state land and on private lands when requested by counties.

Tips for Homeowners With Gypsy Moth Infestations

Survey your property for egg masses in the summer and fall. The gypsy moth has one generation per year in Pennsylvania.

Females lay their eggs as light tan egg masses (100-1,500 eggs/mass) on trees, stones, and other substrates during June and July. Eggs hatch from mid-April to early May the following spring.