

THE PURDUE LANDSCAPE REPORT

Spotted Lanternfly is on the Move!

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Spotted lanternfly (SLF) has been the subject of a lot of media attention in the last few years. In the east, states like Pennsylvania and New York have been dealing with heavy infestations since the insect was first detected in 2014. In Indiana, this invasive planthopper arrived three years ago, infesting two counties on the eastern side of the state. Since then, the Indiana Department of Natural Resources and Purdue University have been working together to mitigate the spread of this insect as well as educate Hoosiers on what they can do to help. Spotted lanternfly is still on the move, and this update will help refresh you on how this bug works, and where they are headed.



Figure 1. Upper left: early-instar SLF; upper right: late-instar SLF; bottom left: adult SLF with egg mass; bottom right: uncovered SLF eggs. Photo credits: Gregory Hoover, Elizabeth Barnes, and Bob Bruner

Life cycle

Spotted lanternfly is an annual insect, having only a single generation in a year under normal conditions. The insect goes through incomplete metamorphosis; immature stages, called

nymphs, resemble smaller, wingless versions of the adults. Nymphs will begin to appear in April or May, developing through four instars, until they reach adulthood in late summer. With each instar, the period in between molting, the nymph will grow larger, develop wingpads, and eventually change color. Early instars are black with a white dot pattern, while later instars will be bright red with black and white patterning (Fig. 1). Late instar nymphs are often compared to milkweed bugs or lady beetles. Once they complete development in the late summer or early fall, they will mate and lay egg masses covered in a protective substance that makes them resemble mud. Eggs masses will overwinter until the spring, while adult insects will die as temperatures cool. In Indiana, depending on temperature, adults can be seen as late as early November.

Impact

Spotted lanternfly is a sap-feeding insect, using syringe-like mouthparts to drain nutrients directly from plant tissues. Like other sap-feeding insects, the activity of SLF wounds the plant, creating openings for various pathogens to exploit. Feeding by SLF has been shown to reduce overall health of their hosts, reducing their capacity to survive overwintering, and potentially kill the host plant depending on species. They also produce a sugary waste known as honeydew; while honeydew itself is not harmful, it acts as a growing substrate for sooty mold, which can have a serious impact the photosynthesis of understory foliage as well as attract other nuisance insects.

Spotted lanternfly is a generalist herbivore and can feed on over 100 different species of plant and tree in Indiana. However, this insect has shown strong preference towards certain species, often with devastating consequences. The most preferred host is tree-of-heaven, an invasive tree species in North America. Tree-of-heaven is the primary host of SLF in their shared native range, and the insect appears to experience high reproductive success on it even when they share a new environment. Grapes are also highly preferred by SLF, and infestations will typically result in overfeeding and the death of the plant. Black Walnut, American river birch, and various maple species are also at risk of severe

damage from this insect. Evidence has also suggested that maple, when used for syrup production, will experience reductions in yield and quality when attacked by spotted lanternfly.

Where are they now?

Spotted lanternfly has been present in Indiana since 2021, first arriving in Huntington and Switzerland Counties. In Huntington, the infestation occupies a stand of tree-of-heaven next to an industrial parking lot. Tree-of-heaven moved into the neighboring residential area, allowing SLF to also spread with it. The more rural infestation in Switzerland County was traced to a vehicle transported from Pennsylvania, and the insect has taken advantage of patches of tree-of-heaven in nearby wooded areas. While both infestations have strongly associated with the insect's primary host, there is some evidence that SLF is beginning to take advantage of other nearby plants, such as maple. In the last year, SLF moved a significant distance and has been detected in several more counties, including Elkhart, St. Joseph, Porter, Allen, Dekalb, and Noble Counties. Most of the activity has been found on tree-of-heaven along rail lines, supporting the idea that the insect is dispersed by rail traffic moving westward out of infested areas.

It's important to remember that trains aren't the only vehicles that can have SLF passengers. These insects, and their egg masses, can be found on just about any surface, including the car you drive to work, the RV you used for recreation, semi-trucks that cross the country, and more. Purdue Entomology and Indiana DNR are encouraging everyone to inspect their vehicles

when traveling through any of the infested areas. Also check all recreational vehicles and trailers for spotted lanternfly egg masses; if found, scrape them off into a bag or bucket filled with soapy water. This fall and winter, we also want to encourage everyone to please burn any firewood where you buy it, and please don't move it off your property if you chop it yourself—especially if you are burning tree of heaven. Egg masses will stick to firewood and can survive our winters very well.

What can I do?

We are still learning about the spotted lanternfly's distribution through Indiana, and we need the help of citizen scientists to effectively track the insect's movement. If you believe you've seen spotted lanternfly, please report it using any of the resources listed below. You can also feel free to reach out to Bob Bruner, Exotic Forest Pest Educator, by emailing them at rfbruner@purdue.edu, or you can report sightings by calling 1-866-NOEXOTIC. Keep an eye out, and have a great time at state fair!

Resources:

Indiana Department of Natural Resources Reporting Tool:

<https://www.in.gov/dnr/entomology/pests-of-concern/spotted-lanternfly/>

Early Detection and Distribution Mapping Systems:

<https://www.eddmaps.org/>

Great Lakes Early Detection Network:

<http://www.gledn.org/>

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