

Ohio State University Extension

Be Alert for Spotted Lanternfly

Jamie Dahl, Forest Outreach Coordinator, Central State University.

Ashley Kulhanek, Educator, Agriculture and Natural Resources, Medina County, The Ohio State University.

The spotted lanternfly (SLF) (*Lycorma delicatula*) is a new non-native invasive insect pest to the United States. Spotted lanternfly is thought to be native to China, Japan, Vietnam and Taiwan. However, it has been reported as a serious non-native, invasive pest in Korea. In the United States, it was discovered in 2014 in southeastern Pennsylvania, Berks County. Spotted lanternfly has the potential to cause harm to the tree fruit, grape, and hops industries.

Though quarantined by the United States Department of Agriculture (USDA) Animal Plant Health Inspection Service (APHIS) and the Pennsylvania Department of Agriculture, as of March 2020 the insect has spread to additional counties within Pennsylvania and to Virginia, Delaware, Maryland, Massachusetts, New York, New Jersey, and West Virginia. For more information on its spread, please see the references at the end of this factsheet.

As with any new invasive species, early prevention and detection are crucial to manage spread and impact of these non-native pests. As of March 2020, SLF has not been confirmed in Ohio. Nonetheless, residents are asked to be vigilant and report any suspected finds to the [Ohio Department of Agriculture](#), to a [local Extension office](#), or via the [Great Lakes Early Detection Network \(GLEDN\) mobile app](#).



Image 1. Spotted lanternfly with wings fully extended. Source: Pennsylvania Department of Agriculture, www.bugwood.org

Host Range

The preferred host of SLF is Tree of Heaven (*Ailanthus altissima*) another introduced invasive species. SLF, however, feeds on a wide variety of plants throughout its life cycle, with nymphs reported as having a more diverse palate than their adult counterparts. Spotted lanternfly nymphs and adults have been reported feeding on wild and domestic grapes, hops, fruit trees, willow, various hardwood trees, pines, shrubs, and vines.

Identification

Spotted lanternfly is not a fly, but a type of planthopper (order Hemiptera, family Fulgoridae). These insects have four wings and a piercing-sucking mouthpart that is used to pierce their food source and suck out nutritive fluids. Spotted lanternfly is a large, sap-feeding planthopper that feeds from the phloem tissue of host plants. Adults measure approximately 1 inch long and ½ inch wide at rest, and 1½ to 2 inches wide with wings spread. The front wings are a translucent gray with black spots, transitioning to a black tiled pattern at the tips. The hind wings are red with patches of black and white (**Image 1**).

When at rest, the forewings lay tent-like over the body. The red coloration of the hindwing shows through, resulting in a pinkish appearance with black spots (**Image 2**).



Image 2. Spotted lanternfly, *Lycorma delicatula*. Source: Lawrence Barringer, Pennsylvania Department of Agriculture, www.bugwood.org



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES



Image 3 (Top left). Spotted lanternfly egg mass. Source: Lawrence Barringer, Pennsylvania Department of Agriculture **Image 4 (Top right).** Spotted lanternfly nymph, first instar. Source: Emilie Swackhamer, Penn State University **Image 5 (Bottom left).** Spotted lanternfly nymph, instar stages 1-3 appear black with white spots. Source: Lawrence Barringer, Pennsylvania Department of Agriculture **Image 6 (Bottom right).** Spotted lanternfly nymph, fourth and final instar develops red spots. Source: Lawrence Barringer, Pennsylvania Department of Agriculture. All photos: www.bugwood.org.

Life Cycle/Life History

Based on what has been observed in Pennsylvania, the spotted lanternfly has a one-year lifecycle. Adults lay eggs in late fall through the first freeze. Eggs are laid on host plants or any flat surface in clusters of 30-50 eggs arranged in 4-7 columns of aligned, seed-like eggs. These columns of eggs, measuring approximately 1 inch in length, are covered in a mud-like substance by the female (**Image 3**). This coating begins as a light gray but darkens and cracks with age. In general, first hatch begins in late April to early May in Pennsylvania, but emergence may vary by state and by location (personal correspondence, Maria Smith, 2020). Data is still being collected to determine the number of growing degree days (GDD) for egg hatch. This may vary in different states and regions as SLF spreads.

While nymphs are flightless, they are strong jumpers and use this ability to disperse to a wide variety of host plants to feed (**Images 4-6**). Adults typically emerge beginning in mid-July. As winged adults, they are weak flyers but can and do fly, in addition to jumping, to disperse. Adults also feed on several host plants; however, they do show a strong preference for Tree of Heaven (*Ailanthus altissima*) and grapevine (*Vitis* sp.). Adults mate in early fall to continue the cycle.

Signs, Symptoms, and Damage of Spotted Lanternfly

The spotted lanternfly is a plant-feeder, using its piercing mouthparts like a straw to suck plant sap from the phloem tissue of tree trunks and on the branches of trees, shrubs,

and vines. Feeding creates wounds that weep sweet sap (**Image 7**). The sap is attractive to other insects, including hornets, yellow jackets, flies, and ants.

In areas of infestation, adults and nymphs can congregate and feed in mass. This feeding has the potential to reduce vigor of the host plant with potential for long-term conse-



Image 7 (Left). Sap running from spotted lanternfly feeding injury. Source: Pennsylvania Department of Agriculture **Image 7 (Right).** Sap running from spotted lanternfly feeding injury. Source: Pennsylvania Department of Agriculture. Both photos: www.bugwood.com.

Grapevine is considered the most vulnerable crop to economic losses from SLF (Harper et al., 2019). In grapevine, SLF feeding has been shown to reduce vine vigor, possibly leading to increased susceptibility to winter injury, reduced fruit set, and in some cases, vine death (**Image 9**).

The feeding action also results in honeydew production. Honeydew is a concentrated sugar waste from the insects themselves. The sugary secretions promote the growth of fungus, including black sooty molds that can impact aesthetic value in landscapes and attract other insects that feed on honeydew (**Image 10**).

Signs

- Adult insects
- Nymphs
- Egg masses on **ANY** hard surface, such as trees, branches, logs, rocks, lawn furniture, tires, cars, houses, equipment, firewood, toys, recreational vehicles, and more.

Symptoms

- Weeping sap from feeding wound
- Honeydew build up
- Black sooty mold or other fungal growth on sap
- Swarming yellow jackets or hornets attracted to the sugary sap



Image 9 (Top). Spotted lanternfly adults feeding on commercial grape vine. Source: Heather Leach, Penn State University **Image 10 (Bottom left).** Ant feeding on honeydew from spotted lanternfly. Source: Lawrence Barringer, Pennsylvania Department of Agriculture, www.bugwood.org **Image 11 (Bottom right).** Mold growing around base of tree where sap has accumulated from feeding wounds. Source: Lawrence Barringer, Pennsylvania Department of Agriculture, www.bugwood.org

Prevent the spread

Although SLF has not been reported in Ohio yet, it has been found in nearby bordering counties in Pennsylvania. Any suspected detection should be reported immediately to the Ohio Department of Agriculture for confirmation.

To prevent the spread, be aware of egg masses. SLF lay eggs on a main host, Tree of Heaven, but also lay eggs on any tree, log, plant, or smooth surface such as stones, vehicles, campers, yard furniture, farm equipment, and other vertical surfaces including metal, sign posts, train tracks and more (Dara et al., 2015; from Moylett and Molet, 2018). It is imperative that people traveling into infested areas check vehicles and objects carefully before leaving a quarantine zone. To prevent the spread of SLF and other known or unknown invasive insects, never move firewood.

Please see references below for more information on spotted lanternfly. This fact sheet was created in April 2020. Please continue to check for updates as we learn more.

Useful References

- Harper, J.K., Stone, W., Kelsey, T.W., and Kime, L.F. (2019). *Potential Economic Impact of the Spotted Lanternfly on Agriculture and Forestry in Pennsylvania*. Retrieved from <https://www.rural.palegislature.us/documents/reports/Spotted-Lanternfly-2019.pdf>
- Leach, H., Biddinger, D., Krawczyk, G., and Centinari, M. (2019). *Spotted Lanternfly Management in Vineyards*. Retrieved from <https://extension.psu.edu/spotted-lanternfly-management-in-vineyards>
- Moylett, H. and T. Molet. (2018). CPHST Pest Datasheet for *Lycorma delicatula*. USDA-APHIS-PPQ-CPHST. Retrieved from <http://download.ceris.purdue.edu/file/3555>
- Penn State Extension. (2018). *Spotted Lanternfly Management for Homeowners*. Retrieved from <https://extension.psu.edu/spotted-lanternfly-management-for-homeowners>
- Pennsylvania Department of Agriculture. (2018). *Spotted Lanternfly*. Retrieved from https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/Pages/default.aspx
- United States Department of Agriculture. (2014). *Pest Alert: Spotted Lanternfly (Lycorma delicatula)*. Retrieved from https://www.aphis.usda.gov/publications/plant_health/2014/alert_spotted_lanternfly.pdf
- Urban, J.M., Smyers, E., Barringer, L., and Spichiger, S.E. (2018). *National Pest Alert: Spotted Lanternfly*. USDA, National Institute of Food and Agriculture, Regional IPM Centers. Retrieved from <https://www.ncipmc.org/projects/pest-alerts1/spotted-lanternfly-lycorma-delicatula>