

Spotted Lanternflies and Beekeeping

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The spotted lanternfly (*Lycorma delicatula*) is an invasive insect that was first detected in the United States in 2014 in Pennsylvania. It has since spread to several states, frequently as a result of human activity and movement. It was first detected in Middle Tennessee in September 2023. It is currently found in Davidson, Wilson and Sullivan counties and has not yet become widely distributed in Tennessee. Spotted lanternfly feeds on many species of plants, which can impact farm producers and nursery growers as well as beekeepers.

What are Spotted Lanternflies?

The spotted lanternfly (SLF) is a type of planthopper that is native to Asia. The nymph and adult forms feed on more than 100 species of host plants in the United States. Despite their colorful nymphs and adults, they have spread to several states.

- Eggs: laid in masses of up to 60 eggs; brown, with a gray, waxy protective covering (Figure 1)
- Nymphs: first, second and third instars are black with white spots; fourth instars are red with black and white spots (Figure 1)
- Adults: 1 to 1 5/8 inches long; forewings are tan with black spots; hindwings (visible when forewings are spread) are colorful with red patches and black spots (Figures 1 and 2)

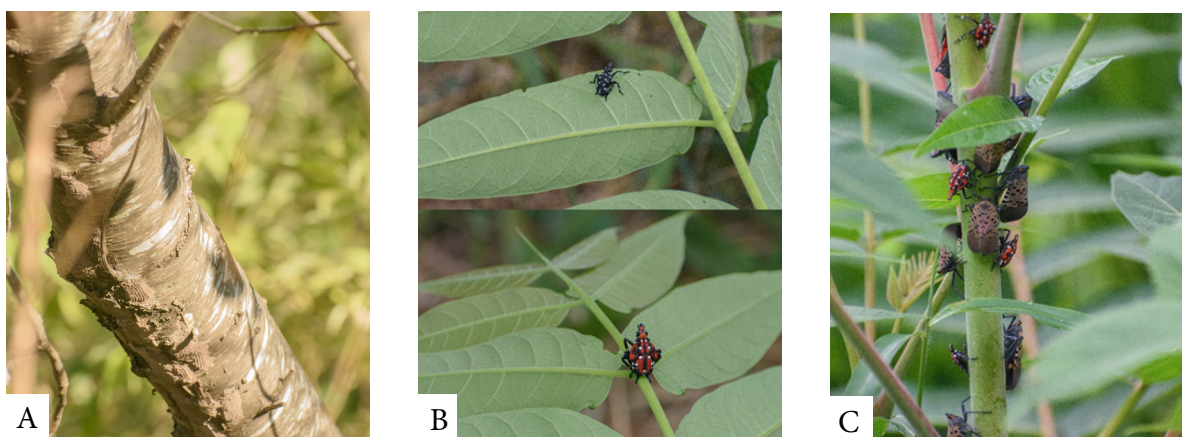


Figure 1. (A) Eggs are quite inconspicuous, while nymphs (B and C) and adults (C) are more colorful.
Photo credit: Rebekka Horn, University of Tennessee.



Figure 2. Adult spotted lanternflies have striking markings on their hindwings, which are visible when they spread their forewings. Please consult photos carefully before reporting a finding of spotted lanternflies. Photo credit: Midhula Gireesh, University of Tennessee.

Eggs hatch in the spring, and the nymphs develop through the spring and early summer (Figure 3). Adults become populous in the late summer and early fall, often aggregating and becoming noticeable on the trunks of trees. The first, second and third instars of spotted lanternflies feed on the tender plant tissue of a wide range of host plants. However, the fourth instars and adults have been described as preferring tree-of-heaven (*Ailanthus altissima*), maples (*Acer* spp.), grapevines (*Vitis* spp.), black walnut (*Juglans nigra*) and willow (*Salix* spp.). In Pennsylvania, mating and egg laying has been observed September-November. Egg masses can be laid in the upper canopy of a tree, under peeling tree bark, in hollow trees, on the underside of lumber and man-made structures. In Middle Tennessee, egg masses were found on numerous substrates such as railroad ties, under rock ledges, on tree-of-heaven, bush honeysuckle, poison ivy, downed tree limbs and logs.

For more information on the biology of spotted lanternfly, please reference the corresponding UT Extension Publication W1032 Spotted Lanternfly.

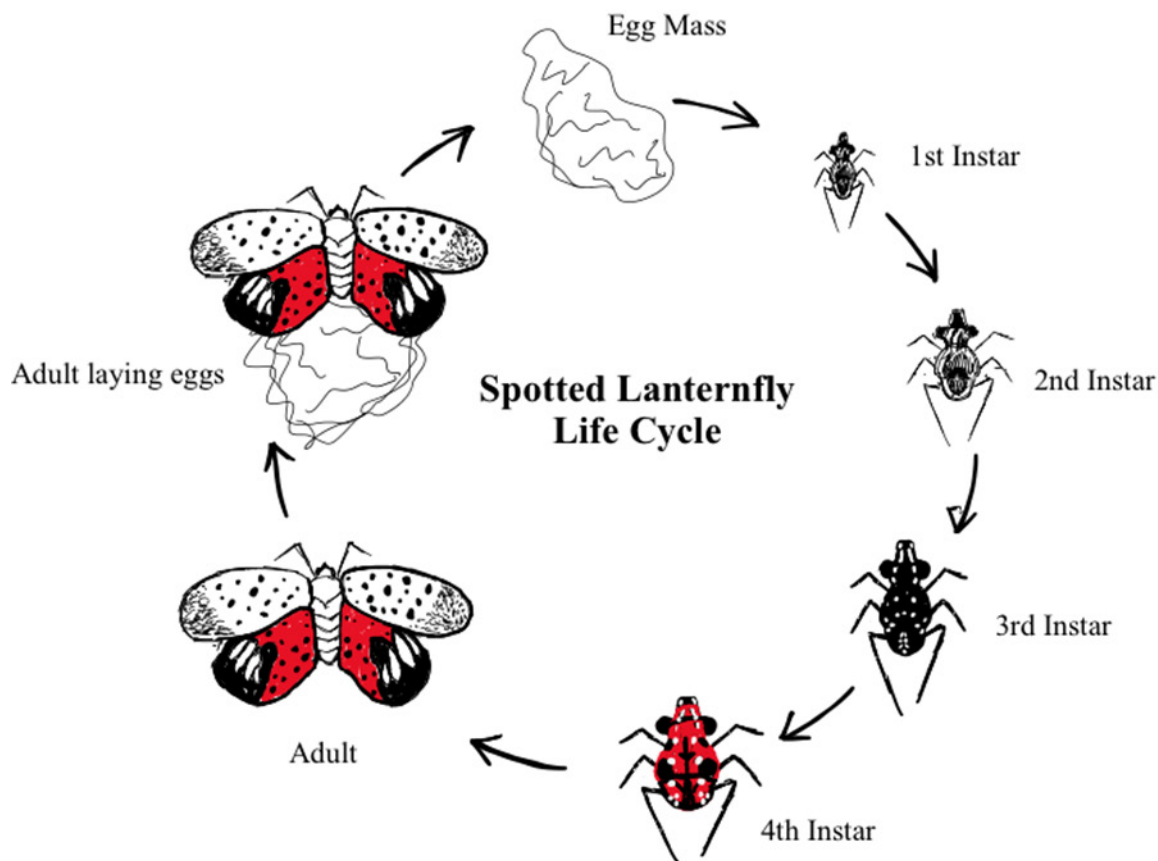


Figure 3. Spotted lanternfly lifecycle. Adapted from the Pennsylvania State University, illustrated by Rebekka Horn, University of Tennessee.

Impacts & Management for Beekeepers

While feeding on plant fluids, spotted lanternflies produce “honeydew” – a sugary waste excretion that can result in sooty mold, creating cosmetic damage. This feeding also can stress trees and some crops, especially when plants are young or under vulnerable conditions. Honey bees can and will collect honeydew and convert it into honey, which is referred to as honeydew honey (as opposed to blossom honey or nectar honey, which is derived from the nectars of plants). The honeydew honey resulting from spotted lanternflies may vary in flavor due to the host plant the spotted lanternfly fed upon; however, SLF honeydew honey is often described as medium to dark brown in color and having a smoky aroma and taste. This honeydew honey is safe for consumption by the bees and by humans, but some people dislike the non-traditional flavor and aftertaste. Please note that heavy usage of a smoker when harvesting blossom/nectar honey also can result in smoky notes to extracted honey. Spotted lanternfly honeydew honey is known to crystallize upon storage.

One challenge for controlling the spread of spotted lanternfly is the difficulty of detecting the inconspicuous egg masses. Mechanical removal of SLF, particularly in the egg mass stage, has been recommended as a control option; however, achieving eradication of this pest solely through manual removal is near impossible. Biological control via natural enemies has not yet been shown to be effective, but more research is needed. SLF are susceptible to broad spectrum insecticides, but these chemicals should be used with caution due to potential impacts on honey bees and other beneficial insects. Preliminary work by Penn State University has shown very low levels of SLF-control pesticides in honeydew honey that has not raised concern, but additional studies are needed to investigate the impacts of systemic insecticide treatment of various host tree species on honey bees through the potentially contaminated nectar and pollen.

Fortunately, Tennessee beekeepers can learn from other states who have been dealing with the spotted lanternfly for several years. Here are some tips for consideration:

- Be part of the solution—be vigilant and educate others to help slow the spread and infestation of SLF.
 - Scrape and kill any egg masses, nymphs or adults you find.
- If you are in an area where SLF are established in high numbers and you do not like the taste of smoky honey, harvest your honey early.
 - It is likely SLF adults will become populous in the summers in Tennessee, so plan to extract by early July to reduce the proportion of SLF honeydew honey in your honey crop.
 - Remember that everyone has different tastes and some people like the flavor of this special honeydew honey.
 - » Philadelphia Bee Company creatively marketed their SLF honeydew honey as “Doom Bloom” Honey!
- Keep an eye out for egg masses on your beekeeping equipment and follow regulatory policies before moving beehives.
 - Remember that beehives need to be inspected by a TDA inspector before moving across state lines or a local inspector before moving within the state of Tennessee. For more information about TDA inspections, visit their website.
 - Please refer to Cornell University’s list of transportable items before moving non-beekeeping items from an infested area to a non-infested area.
- Use insecticides cautiously and appropriately.

If you suspect you have seen a spotted lanternfly, please take multiple, high-quality photos before smashing or collecting the individuals and report it to the Tennessee Department of Agriculture (TDA) through their “Report a Pest” submission form (listed below).

Resources Mentioned

UT Extension Publication W1032 Spotted Lanternfly tiny.utk.edu/W1032

TDA inspections: tiny.utk.edu/TDA_apiary_inspection

Cornell University’s list of transportable items: tiny.utk.edu/cornell_slf_checklist

TDS Report a Pest submission form: <https://www.tn.gov/content/tn/protecttnforests/resources/report-a-pest.html?fbclid=IwAR107ZeaF4Tj5Zk3nn26o1ZZF5xkuB3ofBVvocQ8nGtF59AMXU7GHhBierl>

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