

Stopping the Spread of Spotted Lanternfly

by Danae Wolfe

IT WAS AN overcast Friday morning in late May when I made my way to Cleveland with entomologist and Ohio State University Extension Educator Ashley Kulhanek to photograph an infestation of spotted lanternfly (*Lycorma delicatula*). In the back-alley parking lot of a manufacturing facility stood a tree-of-heaven with grapevines tangled throughout its branches.

At first glance, nothing seemed out of the ordinary—just an invasive tree-of-heaven capitalizing on disturbance to grow where other plants couldn't. But upon closer inspection, we saw them. First a few, then dozens of small black-and-white-spotted insects crawling on the branches and leaves of the tree and entangled vine, two of the preferred host plants for spotted lanternflies. The invasive insect was first spotted at the Cleveland site in 2021 by a tree care company that was clearing branches from power lines. Despite treatment, eggs hatched the following spring, prompting staff from the Ohio State University Extension to keep an extra close eye on the infestation.

Some may say it was only a matter of time before spotted lanternflies invaded Ohio, but Kulhanek says that's exactly the kind of thinking that gives us permission to let down our guard. "We can't give up just because it's hard to contain," she says. "Every early detection buys us time to learn how to manage invasives better."

Spotted lanternfly was first discovered in North America in 2014 in Pennsylvania but is believed to have arrived a few years prior on a cargo ship from China. Since that time, spotted lanternfly has spread to 11 Eastern and Midwestern states, including Connecticut, Delaware, Indiana, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Virginia, and West Virginia. This pest



Top: An adult spotted lanternfly is easily distinguished by its coloration. **Above:** Black first-instar nymphs—shown here on a grapevine—display white spots.

is a concern because of its potential to threaten the agricultural industry.

WHAT IS SPOTTED LANTERNFLY?

Indigenous to China, India, and Vietnam, spotted lanternflies are planthoppers that feed by piercing and sucking sap from host

plants, like all true bugs. The preferred host for the invasive insect is the tree-of-heaven (*Ailanthus altissima*)—also native to Asia—though the pest is known to associate with more than 170 different fruit, ornamental, and woody trees and plants, including grapes.

Spotted lanternflies lay gray egg clusters on a variety of surfaces, both natural and non-natural, in the fall before the first freeze. After overwintering as eggs, nymphs emerge from late April through early June and go through four instars, or juvenile life stages. First-instar nymphs are black with white spots, eventually donning bright red colors. By late July into November, adults have emerged and will begin mating and laying eggs to restart the life cycle.

The forewings of adult spotted lanternflies are a dull gray to light brown with black spots, but when they take flight, their more colorful red, white, and black hindwings can be seen. The abdomen is bright yellow with thick black bands.

During our visit to Cleveland, Kulhanek and I found first-instar nymphs. As I climbed around pallets of raw material photographing the small bugs, Kulhanek spoke with employees of the factory about the infestation. She pulled a stack of identification cards from her pocket and handed them to the employees we saw walking through the parking area. She even provided a brief impromptu lesson on the importance of training all on-site staff about what to look for and how to ensure they aren't inadvertently transporting the nymphs on their vehicles or bodies.

After a few phone calls to colleagues and assurance that the Ohio Department of Agriculture was aware of the infestation and had a plan of action for its management, Kulhanek collected a few nymphs in a vial to help aid homeowners, gardeners, and farmers on how to identify the pests during educational programming she conducts throughout the state.

WHAT MAKES THEM DESTRUCTIVE?

Spotted lanternfly stresses and weakens plants by feeding on the phloem, the part of the vascular system that transports nutrients. As it feeds, the pest also excretes a sugary substance called honeydew, which facilitates the growth of sooty leaf mold. With its fondness for grapevines, entomologists worry about the westward movement of spotted lanternfly. Research published earlier this summer in *Nature* suggests that, without preventive management, the pest has a



Ohio Entomologist and Extension Educator Ashley Kulhanek shows a Cleveland factory employee a vial with a spotted lanternfly nymph as part of an effort to educate and help citizens identify the pests and help control their spread. The nymph was collected from the tree-of-heaven in the background, a favorite host for the insect.

high probability of reaching California by 2033, which could devastate the state's economically important wine industry. Other tree crops susceptible to damage from the pest include almond, apple, cherry, peach, plum, walnut, apricot, maple, black walnut, birch, and willow.

HOW TO HELP

If you live in the Eastern and Midwestern regions, keep a sharp eye out for spotted lanternfly adults and newly laid egg masses when you head outside for garden cleanup this fall.



Spotted lanternfly egg masses are gray and can be found on trees as well as non-plant surfaces.

If found, egg masses—which resemble gray plaster—should be scraped from surfaces into a container and covered with rubbing alcohol or hand sanitizer. Adults (and nymphs throughout spring and summer) should be swiftly squashed. In areas with known infestations, be sure to inspect vehicles before exiting parking lots or work areas. Also inspect clothing, outdoor gear, and even pets!

If you spot the bug, be sure to check with your local Extension office, Department of Natural Resources, or Department of Agriculture on what steps to take to report and destroy the pest. Each state has its own protocol for handling new infestations of the invasive insect and guidelines when transporting materials to and from quarantined areas.

Like many invasive insects before it, spotted lanternfly poses a real horticultural threat. But knowing how to identify and report the pest can help appropriate agencies swiftly manage infestations and prevent its westward spread.

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