Spotted lanternfly task force brings together expertise of scientists, agencies

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Nina Jenkins, senior research associate in entomology in Penn State's College of Agricultural Sciences, inspects a monitoring band for spotted lanternflies at a research site at Blue Marsh Lake property in Berks County, Pennsylvania. Credit: Brian Walsh, Penn State Spotted lanternfly task force brings together expertise of scientists, agencies

Since its unwelcome arrival in Pennsylvania several years ago, the spotted lanternfly has been eating away at agricultural commodities,

landscapes and the commonwealth's bottom line.

Putting an end to the pest's feast is the charge of the Cooperative Spotted Lanternfly Program in Pennsylvania. The task force, which has been meeting since the initial pest sightings, includes scientists and extension specialists from Penn State's College of Agricultural Sciences and government regulatory officials from the Pennsylvania Department of Agriculture and the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, referred to as APHIS.

Native to Asia, the spotted lanternfly—now confirmed in 26 Pennsylvania counties and reported in surrounding states—feeds on the sap of fruit and landscape trees, grapevines, and woody ornamental plants. Economists warn that this insect, if not contained, could drain Pennsylvania's economy of at least $324 million annually and cause the loss of about 2,800 jobs.

Each task force partner has specific, yet complementary, duties. The college and Penn State Extension are leading research and education efforts. At the same time, the state and federal agriculture departments are focused on operations and regulatory work, including enforcing a state quarantine order, monitoring locations where the pest has been reported and treating properties in high-volume transportation corridors. All partners conduct outreach to inform citizens and businesses about the spotted lanternfly.

"Our collective goal is to slow the spread of the spotted lanternfly, suppress populations and eradicate them where possible," said Melanie Pickel, supervisory plant protection and quarantine officer for USDA-APHIS. "We use principles of integrated pest management, which is a well-documented, common-sense approach to controlling and managing pest populations. Our data-driven approach allows us to adapt to the spotted lanternfly situation as it evolves."

Research is yielding insights into pest's biology, behavior

Researchers are working tirelessly to gather scientific data on how to contain and manage this pest around homes, parks, buildings, nurseries, vineyards and fruit farms, noted Julie Urban, research associate professor of entomology at Penn State.

Projects include studies on disrupting the lanternfly female reproductive cycle; investigations of the pest's flight behavior, where it might travel and the conditions it needs to flourish; and research on its feeding preferences. Scientists also are evaluating the effectiveness of biological control agents.

"Spotted lanternfly is a complex pest, and it takes a village to fully understand what we are seeing and how this can inform management," Urban said. "At the same time, we understand how critical this information is to those impacted by this pest. We are making discoveries and are sharing those findings with the public and government and industry stakeholders."

For example, research on the effectiveness of various commercial insecticides in controlling spotted lanternfly populations is shared with growers and other stakeholders. Experiments focused on effective management techniques for homeowners also are ongoing, with updates provided on the Penn State Extension website and in printed pieces.

Penn State is part of an interdisciplinary spotted lanternfly research group, funded by the USDA Specialty Crops Research Initiative and made up of the USDA Agricultural Research Service, USDA-APHIS, Virginia Tech, the University of Delaware, the University of Rhode Island, Temple University, Rutgers University, Cornell University and

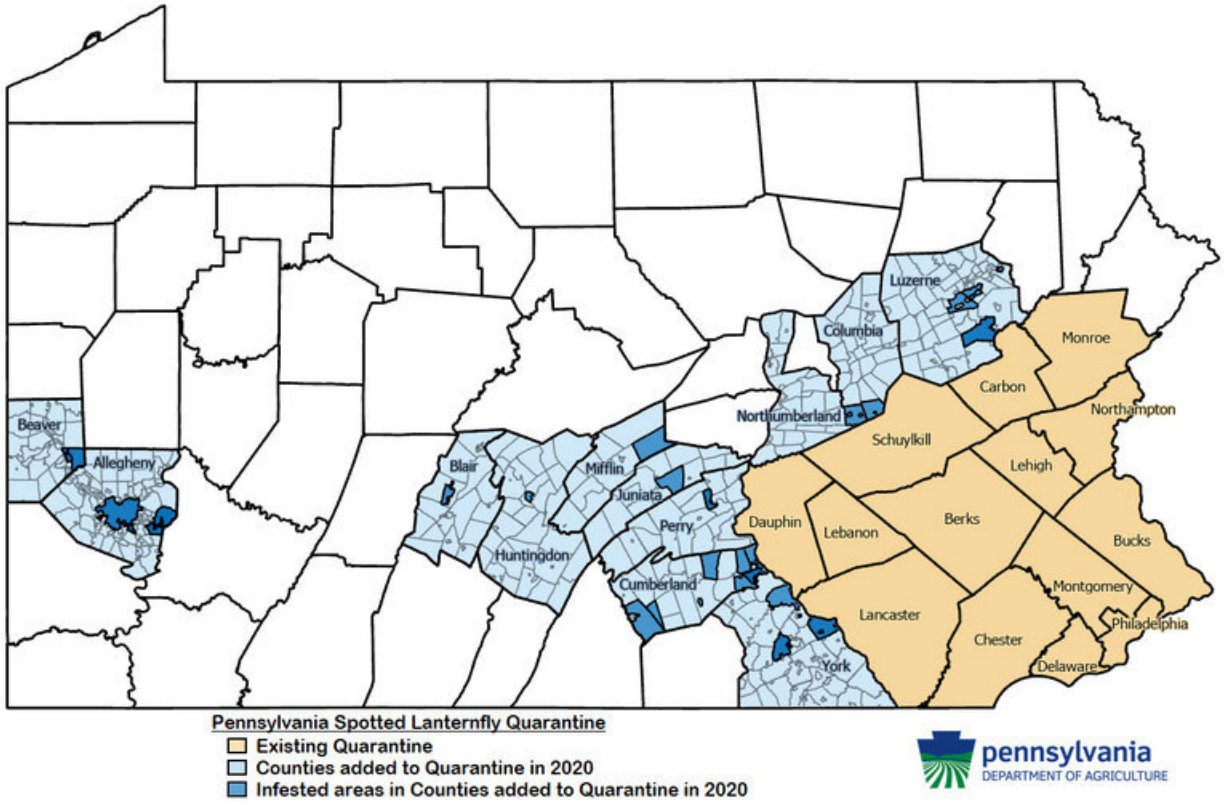
the Northeastern IPM Center.

Penn State Extension educators, volunteer Master Gardeners and Master Watershed Stewards, and other staff and faculty regularly engage with the public, government officials, growers and other industry stakeholders to provide research and management updates.

Pennsylvania Department of Agriculture expands quarantine

In March, Pennsylvania added 12 counties to the area quarantined for spotted lanternfly. The 14 counties previously quarantined were areas where the insect was widespread. The new counties have isolated infestations, according to Shannon Powers, spokesperson for the state Department of Agriculture.

The quarantine, which restricts transport of insects or their eggs and requires permits for businesses that travel in and out of quarantined areas, is designed to slow the spread of spotted lanternfly while allowing commerce to continue. "The quarantine is intended to raise awareness of the dangers of transporting insects and their eggs to a new home," Powers said.



Credit: Pennsylvania Department of Agriculture

The commonwealth's spotted lanternfly duties also involve surveying statewide, responding to reports of the insect in nonquarantined areas, treating high-traffic areas that pose the highest risk for spreading the insect, and funding research.

Powers said outreach has resulted in a significant increase in reported public sightings. From Jan. 1 to July 17, 2019, the department received about 5,600 reports; for the same period in 2020, it logged more than 33,000 reports.

Reporting spotted lanternfly locations not only informs field inspectors

on infestation areas but also provides researchers with essential information, such as insect numbers, life stages and the host plants on which the pest is feeding.

APHIS 'knocking down' populations in high-traffic corridors

The federal focus is on controlling pest populations and the pest's preferred host, tree of heaven, at major shipping operations and high-traffic corridors.

"We are focusing on transportation pathways because spotted lanternflies are great hitchhikers," said Pickel. "When we detect small pest populations early—before they become established—we can respond quickly and potentially eradicate the pest in those areas."

Initially, the department focused on controlling the spread of the insect in communities and residential areas along quarantine boundaries. With a larger area to manage, it is focusing on high-traffic-volume areas to "knock down" spotted lanternfly populations before they spread.

"As new, highly specific biological and chemical approaches are developed for the spotted lanternfly, the program considers their use in broad and targeted applications, with a mindful eye on minimizing environmental and nontarget impacts," Pickel said, emphasizing the program's goal of using a research-led approach.

Citizens can make a big difference

"There is a lot of activity happening regarding the spotted lanternfly, from regulatory to on-the-ground control to research, but we still need help from the public to control this pest," said Heather Leach, Penn State

spotted lanternfly extension associate.

First and foremost, citizens are encouraged to learn how to identify the spotted lanternfly. They also should inspect their vehicles, trailers, outdoor furniture and any item stored outside for nymphs, adults and egg masses.

"Homeowners can control the insect on their properties by scraping and destroying eggs, carefully using bands or traps on trees, removing preferred hosts, and using registered insecticides for control when appropriate," she said.

Finally, Leach emphasized the importance of reporting the insect and egg masses in locations outside of the quarantine. Residents dealing with significant infestations can find management recommendations at extension.psu.edu/spotted-lanternfly.

"Each partner brings an important aspect to the spotted lanternfly problem," said Emelie Swackhamer, a horticulture extension educator based in Montgomery County. "The team has educated millions of residents and continues to provide the newest and best research-based advice. With the public's help, we can slow the spread of this destructive pest."

More information: To learn more and to report sightings, visit extension.psu.edu/have-you-seen-a-spotted-lanternfly, agriculture.pa.gov/spottedlanternfly or hungrypests.com, or call the spotted lanternfly toll-free hotline at 888-422-3359.

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