

# BIRDS ARE ONE LINE OF DEFENSE AGAINST DREADED SPOTTED LANTERNFLIES

*But to harness their full bug-eating potential, it'll likely help to remove the  
invasive tree-of-heaven.*

By Carlyn Kranking Reporter, Audubon Magazine

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It's not a fly (despite its name), and it's not a moth (though some call it that). Others have simply dubbed it a "bad bug," and, well, that's pretty much spot-on.

The invasive spotted lanternfly, native to Asia, is a plant-eating threat to the U.S. environment and economy. First detected in Pennsylvania in 2014, it has now spread to at least 14 states in the Northeast, Mid-Atlantic and Midwest, damaging crops and native plants in the process.

Early on, people generally thought the bug lacked natural predators here, meaning it could reproduce with virtually no limits, says Robin Irizarry, program associate for Audubon Mid-Atlantic. But birders, who spend plenty of time observing wildlife, soon noticed that wasn't the case. In Philadelphia-area birding group chats, Irizarry saw others send photos of birds eating the invasive bugs. That got people excited.

"Then, as we all started thinking about it, more and more incidents started coming up," Irizarry says. In August 2020, he started a page on iNaturalist where community scientists could post photos of birds, other insects, and spiders eating the spotted lanternfly. The page currently has 78 observations of 33 different species chowing down.

Soon, these observations had a greater purpose: They contributed to a broader research initiative to examine if and how spotted lanternflies could be controlled by predation. Early results suggest there may even be a way to encourage wildlife to eat more bad bugs. This study, led by Ph.D. candidate Anne Johnson at Pennsylvania State University, examined hundreds of predation events. She created an email address and a Facebook page, called Birds Biting Bad Bugs, and asked people to send in observations. Combined with data from Irizarry's iNaturalist page, she has compiled 660 predation events to date. So far, birds are the most-reported predator, though insects also frequently preyed on these bugs. The most common avian predator? Chickens.

"That's potentially an observer bias," Johnson says, since people who keep chickens can see them so easily. Following that, Northern Cardinals, Gray Catbirds, Blue Jays, and Tufted Titmice were some of the other most-seen eaters. Among insects, the praying mantis took the lead.

Spotted lanternflies are such a concern because they eat through woody plants, especially in vineyards. The bug could potentially cause \$325 million in annual losses in Pennsylvania alone, according to a 2019 report. Plus, they excrete a sugary substance called honeydew, which attracts sooty mold. When this mold covers leaves, it can inhibit photosynthesis. As spotted lanternflies congregate on trees and drink their sap, they leave the plants more susceptible to disease and death.

Though the lanternflies suck sap from over 70 kinds of trees, it appears they prefer to eat tree-of-heaven, another non-native species from China. This prolific tree is fast-growing and quick-spreading— groups of tree-of-heaven clump together, and they produce chemicals in their leaves, roots, and bark that can prevent other plants from growing. Johnson wondered if, by feeding on tree-of-heaven, spotted lanternflies stored these chemicals in their bodies to deter predators, just like monarch caterpillars feeding

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on milkweed.

“Animals that are defended in some way often have these bright colors with contrasting black patterns,” Johnson says. And spotted lanternflies have red wings with black spots. “That led us to think that spotted lanternfly probably had some sort of defense against predators that was helping it be so pervasive in its new, introduced environment here.”

To test this hunch, she created two batches of suet—one made with spotted lanternflies that fed on the tree-of-heaven, and the other made with spotted lanternflies that couldn’t access the invasive tree. So far, birds have shown a preference for the bugs that didn’t eat tree-of-heaven, she says. This could mean that the presence of this non-native tree and its toxins is discouraging some potential predators from eating spotted lanternflies.

The toxins aren’t dangerous to birds, but they’re enough to make the bugs taste bitter, Johnson says. State officials have recommended that people remove the tree-of-heaven to help curb the spread of the spotted lanternfly. But Johnson’s research suggests an added benefit: “If you get rid of the tree-of-heaven, then the birds can eat them no problem, it seems,” she says.

Predation, however, is just one line of defense out of many that will be needed to control this invasive pest, and states where the bug is now spreading believe it will take an all-hands-on-deck response. “I don’t think there’s any silver bullet,” says Julie Urban, research associate professor in entomology at Penn State, who’s studying how to keep female spotted lanternflies from reproducing. “It’s going to take a lot of different tools put together to really prevent them from further spreading.”

They’re not great fliers, but the bugs or egg masses can hitch a ride on vehicles or shipments and expand their range. Some counties in Pennsylvania, New Jersey, Delaware, Maryland, and Virginia have issued quarantines, and others are asking for reports of sightings to help track the bug’s spread. Spotted lanternflies are so destructive that agricultural officials across multiple states have asked residents to kill the bugs on sight (“Stomp it Out,” as the New Jersey Department of Agriculture says), or scrape egg masses off trees, eliminating 30 to 50 eggs at once.

Penn State Extension recommends that homeowners use traps, especially if they have high populations on their property. But certain ones are better than others: Some birds have gotten caught in sticky traps, adhesive surfaces on trees that can snare anything they touch. Experts caution against using these.

“If you have to do anything, make sure that it’s not something that’s going to have unintended consequences like that,” Irizarry says. “You might be accidentally trapping a bird that would have been out there eating spotted lanternflies and doing something good.”

Instead, try circle traps, the most effective kind according to Penn State. Circle traps, which wrap around a tree and funnel spotted lanternflies through mesh into a container, can be bought online or made at home, using these instructions from Penn State. Plus, Johnson says, “encouraging birds and beneficial insects into your yard is a great way to provide some more natural control.”

Ultimately, the United States might already be past the point of being able to eradicate the spotted lanternfly, Johnson says. But something can still be done. Birds and insects remind us, as Irizarry says, “we have some natural allies in this.”