



Forest Health *Notes*



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Pest Watch: The Spotted Lanternfly is Heading Our Way!

The spotted lanternfly (*Lycorma delicatula*) is currently not known to exist in North Carolina. This non-native invasive pest is native to China and was first found in the U.S. in eastern Pennsylvania in 2014. Since then, it has spread to three additional states: New York, Delaware, and in January 2018, Virginia. While this sucking insect prefers tree-of-heaven (*Ailanthus altissima*), it has an extremely wide host range, including: pine, hardwoods (maple, poplar, willow), fruit trees (apple, *Prunus* spp.), and grapevine.

IDENTIFICATION: How will I recognize the spotted lanternfly?



Nymphs (the immature stage) of the spotted lanternfly are quite striking. The young nymph stage is black with white spots on its body and legs (left image). The oldest nymph stage is black with red patches on its body and is also spotted (right image). All nymphs are wingless.

Nymphs are present from the late spring through summer.

Images: L. Barringer, Pennsylvania Dept. of Agriculture, Bugwood.org.



Adults of the spotted lanternfly are 1" long and ½" wide. They have a black head and black legs and their abdomen is yellow on the outer edges with a broad black band down the center. When at rest, its forewings are folded tent-like over its body and are light brownish-gray with black spots. The tips of the forewings have small reticulated black blocks. Underneath the forewings, the hindwings are bright scarlet red with black spots and white and black banded tips.

Adults may be present from late summer through November.

Images: L. Barringer, Pennsylvania Dept. of Agriculture, Bugwood.org.





Egg masses are grayish-brown and 1-1.5” long and ½ - ¼” wide. When they are newly laid, they are somewhat shiny. Upon hardening, they look like dried mud. Each egg mass contains 30-50 eggs. After hatching, individual eggs can be seen in 4-7 columns and look like brown seed-like deposits. Egg masses can easily be transported long distances, like gypsy moth.

Egg masses can be seen from mid-October to early spring.

Images: Pennsylvania Dept. of Agriculture, Bugwood.org (left); K. Law, USDA APHIS PPQ, Bugwood.org (right).

BEHAVIOR: Where on the plant should I look for spotted lanternflies?

The spotted lanternfly is notorious for congregating on host plants. During the day, they may be difficult to find, as they cluster near the base of the plant. They are more easily observed at dusk and night, when they migrate up and down the trunk of the plant. Even though adults have wings, they are poor fliers (though they are strong jumpers) and prefer to ascend a plant by walking.

LIFE CYCLE: When can I find them?

Spotted lanternfly nymphs emerge in late spring or early summer and feed on a wide variety of plants—reportedly, almost every plant they encounter. Nymphs can be found on stem and leaves of their host. By late August, the adult stage begins to be present. Adults prefer tree-of-heaven (not exclusively) and mate and lay eggs from mid-September through November. Females lay eggs on smooth-bark trees or other smooth vertical surfaces, increasing chances of accidental dispersal if manmade items bearing egg masses are transported long distances. Egg masses can be found anywhere between mid-October and early spring. The spotted lanternfly has one generation a year.



LEFT: Spotted lanternflies congregate in sometimes very large numbers at the base of host plants. **RIGHT:** Feeding by the spotted lanternfly may cause the host plant to ooze sap.

Images: L. Barringer, Pennsylvania Dept. of Agriculture (right); Pennsylvania Dept. of Agriculture (right); Bugwood.org.

DAMAGE: How does the spotted lanternfly injure trees?

Spotted lanternflies are sap-sucking insects that feed on phloem using their piercing-sucking mouthparts. Their feeding weakens the plant, reduces photosynthesis, and eventually contributes to the plant’s death. Sometimes, feeding causes the plant to ooze sap, often accompanied by a fermented odor.

Because they are sucking insects, the spotted lanternfly also excretes large amounts of honeydew, which may be noticed when sooty mold grows on it. Blackened soil and patches of the dark mold growing on leaves and stems often have a vinegar smell and its presence on leaves can reduce photosynthesis and weaken the plant. Honeydew often attracts other insects like yellow jackets, bees, ants, and flies.

SPREAD: How does it spread?

The egg masses of the spotted lanternfly are laid on the bark of trees and occasionally smooth, man-made items such as bricks or stone. Cutting and moving wood or moving man-made items that have an egg mass on it can transport the spotted lanternfly long distances. It can also be moved when infested plant materials are moved from place to place. It is suspected that the spotted lanternfly originally was transported to the U.S. as egg masses in a shipment of stone. Always check firewood or smooth man-made items for the presence of any life stage of this insect or, better yet, don't move it at all if it can be avoided.

MANAGEMENT: What can be done?

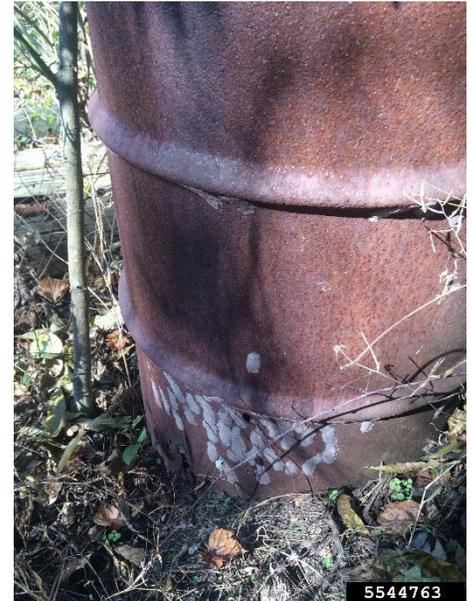
The spotted lanternfly is a new pest; therefore, there is little known about the insect and how to manage it.

PESTICIDES: Research is currently underway to compare available pesticides. Preliminary results suggest that bifenthrin, pyrethrin, carbaryl, and dinotefuran (as a bark spray) are the most effective in managing spotted lanternfly. Pesticides should target the nymph and adult stages; therefore, treatments would occur from late spring through late fall (May through November in Pennsylvania). There is still much more work to be completed before we fully understand the best products and timing of those products. Always read and follow all pesticide label guidelines.

HOST REDUCTION: Though not confirmed, some believe the spotted lanternfly needs to feed on tree-of-heaven at some point to complete its life cycle. Based on this premise, removing or reducing tree-of-heaven groves could reduce spotted lanternfly populations in nearby host plants.

STICKY BANDS: Nymphs of the spotted lanternfly may also be caught in sticky bands on trees, similar to management for the cankerworm. These sticky bands should be up when nymphs are present, which is May-August in Pennsylvania. In North Carolina, emergence may occur earlier given the warmer temperatures.

PREVENTION: Preventing the movement of spotted lanternfly from place to place is key. Avoid moving items that may harbor the spotted lanternfly or its egg mass. Inspect items and if found, egg masses should be destroyed.



The spotted lanternfly may lay its egg mass on smooth, man-made items such as stone, brick, or the barrel pictured here. If such items are moved, the spotted lanternfly can easily be transported long distances to new areas.

Image: L. Barringer, Pennsylvania Dept. of Agriculture, Bugwood.org.

REPORT IT: What should I do if I think I've found the spotted lanternfly?

N.C. Forest Service personnel should report suspected spotted lanternfly infestations to N.C. Forest Service Forest Health Branch personnel for confirmation.



Additional Information

For additional information, please visit these links:

NCDA&CS Pest Alert:

<http://www.ncagr.gov/PLANTINDUSTRY/plant/entomology/documents/SpottedLanternflyPestWatch.pdf>

Spotted lanternfly management (Penn State Extension)

<https://extension.psu.edu/spotted-lanternfly-ipm-management-calendar>

Checklist of items to check for spotted lanternfly egg masses

http://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/spotted_lanternfly/Documents/S LF%20Checklist%2011-12-2014.pdf

Firewood movement

www.dontmovefirewood.org/

For other non-native forest pests of concern to North Carolinians, please visit

http://www.ncforestservice.gov/forest_health/forest_health.htm

*The North Carolina Forest Service is a division of the North Carolina Department of Agriculture and Consumer Services.
Steve Troxler, Commissioner*