

Spotted Lanternfly not yet spotted in Arkansas – but keep looking!

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Adult Spotted Lanternfly ([Photo by Macronatura.ES, Adobe Stock - 965798323](#)).

Lycorma delicatula, the **Spotted Lanternfly** (SLF), is an invasive insect species native to eastern Asia, first reported in the U.S. in 2014, and has been steadily increasing its range in North America. Despite their name, SLF are not true flies, but are true bugs in the order Hemiptera (family Fulgoridae). Like their smaller cousins, the aphids, spotted lanternflies drink plant sap and excrete copious amounts of honeydew. They are able to feed on over 150 host plant species, and represent a significant threat to many important agricultural and ornamental plants and trees. While these insects have not yet been confirmed in Arkansas, citizens here should become familiar with their appearance and habits, to be able to recognize them when and if they do arrive in the Natural State.

Origin and spread

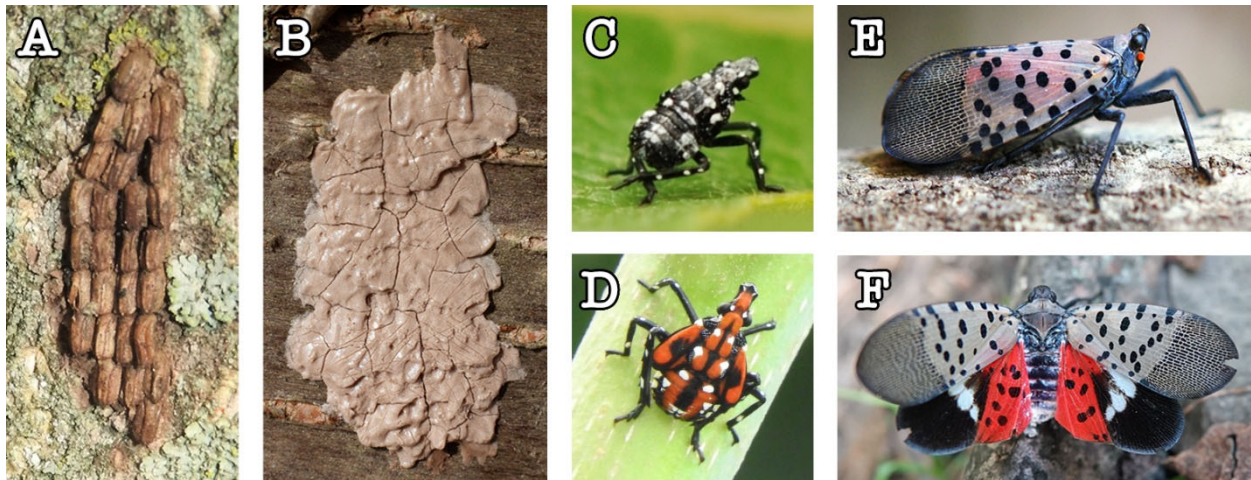
Indigenous to parts of eastern China and Vietnam, SLF have been accidentally introduced to South Korea and Japan, and into the United States. They have emerged as a challenging pest to control because they face few natural predators in new territories and are able to feed on a large variety of novel host plants. Unlike many tropical members of its family, SLF prefer cooler temperate conditions. Climate data from the insect's native range in Asia have suggested that SLF can potentially become established in most of New England and the mid-Atlantic states, as well as much of the central U.S. and parts of the Pacific Northwest and even into California. Arkansas remains on the southern edge of the most suitable habitat, but still well within its predicted territory to survive.

Globally, much of Europe, as well as southern Africa, Australia and South America could also be habitable by these invaders. Spotted lanternflies are able to spread to nearby vegetation by hopping or by short distance flight, but rarely move far without help.

Human-assisted movement is the likeliest factor in their long-distance expansion into new areas. SLF produces inconspicuous egg masses attached to trees, rocks, firewood, construction or farming equipment, shipping containers, recreational vehicles or outdoor items such as grills and patio furniture. They probably arrived in North America from Asia as an egg mass on an item moved via commercial trade. Adults and nymphs can also hitchhike in or on passenger vehicles and trucks.

Life Cycle

Lycorma delicatula overwinter in the egg stage, but don't hatch until early summer. Egg masses may be bare (**A**), but are usually covered by a pale grayish-brown putty-like substance that dries and cracks with age, and may resemble a patch of mud (**B**). Newly hatched SLF nymphs are 1/8-1/4" long, and may be mistaken for ticks. The first three instars are black with white spots, growing slightly with each molt, eventually reaching about half an inch long (**C**). The final nymphal stage is bright red with black and white spots, and small wing pads and are around 3/4" (**D**). The adult form is approximately 1 inch long and 1/2 inch wide, with light brownish-gray forewings that have black spots. Legs are long; antennae are red-orange and bulbous, located below the eyes (**E**). When the wings are open (**F**), hindwings are visible with a striking combination of bright red and black, with a white band in between. The insect has a black head and legs, and a yellow abdomen marked with broad black bands.



(A) Uncovered eggs (photo by Richard Gardner, bugwood.org).

(B) Covered egg mass (photo by Luke Hearon, [flickr.com](https://www.flickr.com/photos/lukeharon/), CC BY 2.0)

(C) First through third instar nymph form (photo by L. Barringer, PA Dept. Agriculture, bugwood.org).

(D) Fourth instar nymph (photo by Richard Gardner, bugwood.org).

(E) Adult with wings closed (photo by Rebekah D. Wallace, University of Georgia, bugwood.org).

(F) Adult with wings spread (photo by L. Barringer, PA Dept. Agriculture, bugwood.org).

Adult females are typically slightly larger than males, and have longer legs. Mature adults will begin mating in late summer, and produce eggs in early fall until the first hard frost kills the adult population. Females lay eggs once per season, depositing eggs in segmented rows about 1 inch long, one or two egg masses, each with 30-60 eggs. Egg masses are deposited on vertical surfaces, including tree trunks and rocks, as well as man-made items, which may be moved, facilitating their spread into to new territories. Because the eggs are covered with a secretion that resembles dried mud, they may not be conspicuous to observers. Individual SLFs will hatch and develop at different rates, even within the same geographic area, so it may be common to see all the distinct instar forms at once during the summer.

Feeding & Damage

The spotted lanternflies are generalists that can feed on the sap from more than 150 plant species, including woody trees, shrubs and herbaceous plants. More than 50 of these species common in North America. While it does not kill all plants it feeds upon, heavy infestations can weaken them and make them susceptible to other stressors. Like all hemipterans, they possess piercing-sucking mouthparts, and feed by tapping into plant phloem in stems, leaves, and trunks. They do not feed directly on fruits.

Because plant sap is high in sugar but low in nitrogen, SLF must ingest a large volume of phloem, filter out the relatively small amount of essential nutrients, then excrete large quantities of sugar-rich honeydew. This honeydew collects as a sticky, unsightly residue on the tree trunks and other vegetation, as well as on patio furniture, cars parked beneath trees, and many other surfaces and items. This sticky residue promotes the growth of sooty mold. Bees, wasps and other insects may actively feed on this sugary secretion, especially during dry conditions when few flowers are in bloom. When feeding heavily, they can cause “weeping wounds” of sap oozing from puncture sites and down trunks, which may ferment and give off a disagreeable odor.

During heavy infestations SLF tend to gather and feed in large groups. Adults and nymphs of all stages feed copiously. Depending on the severity of infestation, this can weaken the plant by reducing photosynthesis and stressing it due to loss of water in hot weather and causing wilting of leaves and smaller branches. Excessive feeding can lead to branch dieback, thinning of crowns, and eventual host plant mortality.



Aggregation of spotted lanternfly adults feeding on a tree trunk.
(photo by Richard Gardner, bugwood.org)

Host Plants

Adult spotted lanternflies have a strong preference for tree-of-heaven (*Ailanthus altissima*). This deciduous tree was also introduced from China as an ornamental in the 18th century, and itself quickly became invasive due to rapid growth and reproduction. As they feed, SLF can sequester defensive chemical compounds from this tree that make them unpalatable to predators such as birds. Spotted lanternflies also show a strong affinity for grapevines (*Vitis* spp.). They represent a serious threat to vineyards, as grapevines are one of the few host plants it can kill outright. Heavy feeding can also weaken vines, reduce fruit sugar content, and diminish yield. Hops (*Humulus lupulus*) and black walnut (*Juglans nigra*) are also highly attractive to SLF.

Nymphs tend to show a broader range of feeding preference than adult SLF. Feeding is typically opportunistic and lighter, though high infestations can still cause stress. Other suitable hosts include many hardwoods, such as silver and red maple, birch, willow, sycamore, oak, pine, poplar, beech, ash, and hickory. A number of valuable fruit-bearing and ornamental plants may also be hosts, including apple, cherry, peach, blueberry, mulberry, fig, lilac, rose, sumac. Virginia creeper, which is very common in the south, can serve as a host. Nymphs have also been observed feeding on basil and cucumber, but their preference for these appears to be quite low.

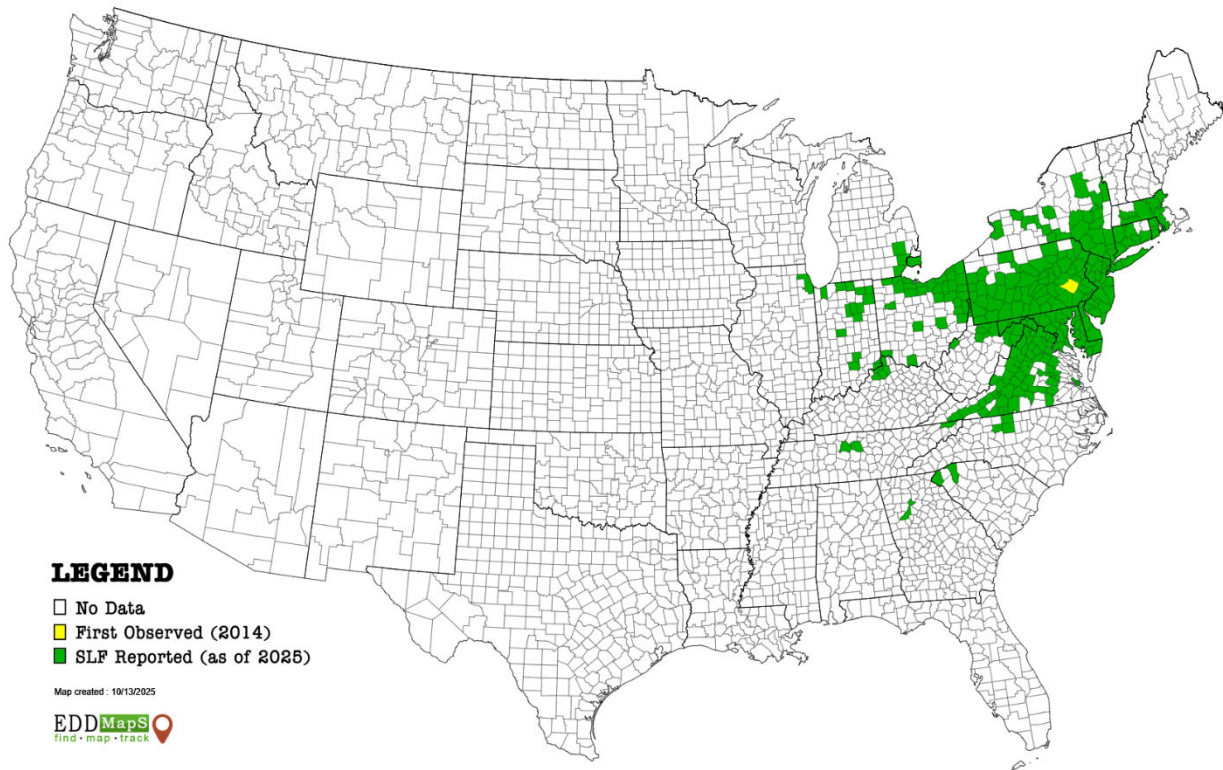
Control

The relationship between spotted lanternfly and tree-of-heaven suggests that managing one invasive species in an area can help control the other. Removing tree-of-heaven from a local ecosystem may help control the spotted lanternfly by encouraging more native predators to consume them. The attractiveness of tree-of-heaven could also be used to lure SLF to aggregation sites to help control their numbers with targeted insecticide applications as well.

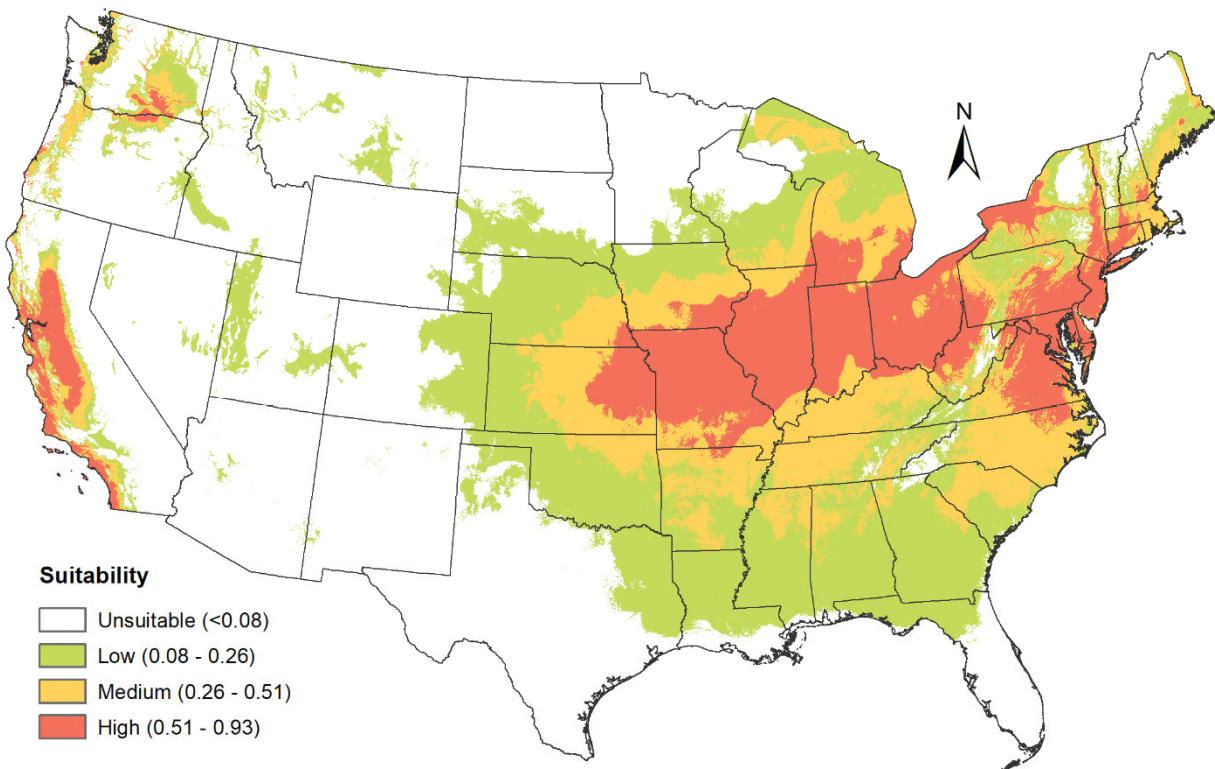
It is important to prevent spotted lanternflies from hitchhiking to new locations. Human-assisted movement is the primary way this species has spread so rapidly. Confirmed populations have already established in the metro areas around Atlanta, GA, and Nashville, TN. Adults and nymphs, as well as egg masses, can be transported on passenger cars, RVs, construction equipment, shipping containers or rail cars. If you travel through areas with active SLF populations (especially in late summer), check vehicles and trailers for uninvited passengers or egg masses. Inspect any outdoor items before they are transported. Firewood should never be moved long distances, due to movement of multiple potential pest species.

Keep an eye out for egg masses on your trees (especially on tree-of-heaven), stones, bricks and other smooth surfaces. Document them with clear photos, and destroy eggs by scraping them into a zippered plastic bag, add rubbing alcohol and then dispose of them in the trash. Submit photos of egg masses to local authorities. Photograph and/or capture nymphs or adults that you suspect may be spotted lanternflies for identification by a qualified entomologist.

Until spotted lanternfly is confirmed in Arkansas, no insecticidal recommendations will be made.



Currently reported distribution of SLF (eddmmaps.org)



Potentially suitable range for SLF in United States ([Wakie, et. Al, 2020](#)).