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Spotted Lanternfly

Lycorma delicatula (White) (Hemiptera: Fulgoridae)

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Origin & Distribution:

The spotted lanternfly (SLF) originates from China where its presence has been documented in detail dating as far back as the 12th century. In modern times, it was first recorded from a sample collected in Nankin, China. SLF is native to China, India, Japan, Korea, and Vietnam. In September 2014, the first detection of spotted lanternfly in the US was confirmed in eastern Pennsylvania. In 2017, the range expanded to 13 Pennsylvania counties and a single county in both Delaware and New York; the geographical range is likely to expand further. SLF is likely to have arrived from China up to two years earlier than first detected on shipping materials, pointing to its ability to overwinter successfully. It is highly invasive and can spread rapidly when introduced to new areas. This is attributed to its wide host range (more than 70 host plant species) and a lack of natural native enemies.

Adult Spotted Lanternfly. Photo by Doug Pfeiffer, Virginia Tech Entomology

Description:

The first stage nymph is wingless, black, and has white spots on the body and legs. The last nymphal instar develops red patches over the body while retaining the white-spot pattern.

Adult SLF are approximately 1" long and ½" wide. The legs and head are black, while the abdomen is yellow with broad, black bands on top and bottom. Its forewings are light-brown/grey with black spots and the wings tips are reticulated black rectangular blocks outlined in grey. The hind wings are a scarlet red with black spots and tips of reticulated black blocks, separated by a white stripe. At rest, the SLF shows light-brown, grayish wings with black spots held "tent-like" over its body. Adult females are distinguished by the presence of a red spot on the end of the abdomen.

SLF egg masses (oothecae) contain 30-50 eggs, are 1-1.5" long and ½-¾" wide, grayish-brown in color, and covered with a grey, waxy coating (newly laid oothecae are somewhat shiny). Old oothecae appear as rows of 30-50 brownish seed-like deposits in 4-7 columns, measuring roughly 1" long.

Life Cycle:

The SLF is univoltine and overwinters as eggs in oothecae. Eggs hatch in spring and early summer (late April-May) and undergo four nymphal instars before adults begin appearing in July, becoming abundant in August. Adults begin laying eggs in September and continue through November until the onset of winter begins to kill off any remaining adults.

Signs & Symptoms:

Newly emerging nymphs disperse from the oviposition site and appear to be broad generalists as they feed on a wide range of plant species—almost every plant they encounter while on the ground. Nymphs are most often observed on leaves and branches of host plants. Look for nymphs on smaller plants and vines during the summer.

Nymph and adult SLF typically gather in large numbers on host plants. They are easy to spot at dusk or night as they migrate up and down the trunk of the plant. During the day, they are harder to see as they tend to cluster near the base of the host plant if adequate canopy cover exists.

Adult SLF are found on tree trunks, stems, and sometimes near leaf litter at the tree base. Although winged, adults are poor flyers but very strong jumpers and thus prefer to move up trees by walking. They favor Tree-of-Heaven (*Ailanthus altissima*) and grapevine (*Vitis vinifera*) as host plants on which to feed. In the fall, adult SLF focus on Tree-of-Heaven as a host for feeding and egg laying, although not exclusively. Adults will lay eggs on other smooth-trunked trees or any vertical smooth surface, natural or manmade. Look for adults starting in late August-September. Copulation and oviposition can be observed from evening to night from mid-September to November. Look for egg masses on rocks and other smooth surfaces from October to early spring.

Both nymphs and adults are phloem feeders—they suck sap from young stems and leaves, which can cause withering of whole trees. This reduces photosynthesis, weakens the plant, and eventually contributes to the host plant's death. Feeding can also cause the plant to weep or ooze, resulting in a fermented odor. Wounds will leave a grayish-black trail along the trunk.

The insects excrete large amounts of a sugar-rich fluid called "honeydew" which covers the stems and leaves of trees as well as the ground underneath infested plants. This fluid hastens the growth of sooty mold that can reduce photosynthesis, weaken the plant and cause eventual death. Blackened soil and even mold patches, appearing as a yellowish-white mat, may form at the base of the tree and often produce a vinegar smell. Honeydew secretion often attracts other insects such as yellow jackets, hornets, bees, ants and flies.

Quarantine & Status:

SLF to date has been found only in parts of eastern Pennsylvania and adjacent New York and Delaware, where affected counties are under quarantine. This fact sheet is to aid in the detection of possible new infestations, since SLF is expanding its range, and the insect can have an important economic impact. SLF has great potential to impact the country's grape, orchard, logging, tree- and wood-product, and green industries. If suspected specimens of SLF are found in Virginia, please contact the Insect Identification Laboratory, in the Entomology Dept at Virginia Tech (idlab@vt.edu) or the Virginia Department of Agriculture and Consumer Services. In addition, suspect insects that resemble SLF can be taken to the nearest Virginia Cooperative Extension county office for identification at no charge.

Spotted Lanternfly nymphs on Tree of Heaven. Photo by Eric R. Day