Identification and Biology of
Spotted Lanternfly (*Lycorma delicatula*)

The spotted lanternfly (*Lycorma delicatula*) is an invasive insect pest of fruit, ornamental, and woody trees. Spotted lanternfly is native to China, Bangladesh and Vietnam, but was first discovered in southeastern Pennsylvania in late 2014. Since this initial discovery, it has spread to at least eight additional states. The spotted lanternfly damages trees by feeding on them, and its waste product, honeydew, encourages the growth of mold that harms the health of the host plant. Tree-of-heaven (*Ailanthus altissima*) is a preferred host, but this pest could potentially devastate grape (*Vitis spp.*) and logging industries.

Identification

The spotted lanternfly is a planthopper, with the adult being approximately 1 inch long and 0.5 inch wide at rest (Fig. 1). Its forewings are gray in color with distinctive black spots and outlined wing tips, while the hind wings are red and black in color and contain a white band. Wings are held closed over the body unless in flight. Its abdomen is mostly black, with yellow bands between segments. The early (1st – 3rd instar) immature stages are covered with white spots on a black body (Fig 2), and then develop red patches as they mature (4th instar) (Fig. 3).

Are They Found in Illinois?

Yes, spotted lanternfly was found in Illinois for the first time in Cook County in September 2023. The Illinois Department of Agriculture is working to determine the extent of the affected area. The following link contains a spotted lanternfly distribution map that is continuously updated: bit.ly/2QqDOD5. Quarantine measures are in place in several states to help stop the spread of spotted lanternfly to new areas within the U.S.

Life Cycle and Biology

The spotted lanternfly has one generation per year in its current U.S. distribution. Inconspicuous egg masses containing 30-50 eggs are laid by females on multiple surfaces, including tree bark, stones, and man-made structures, from September until early November (Fig. 4). The eggs overwinter until the nymphs emerge around late April or early May (Lee et al., 2019). Young spotted lanternfly nymphs feed on tender plant tissue from a variety of plant host species, some staying in the canopy of the

Fig. 1. The adult spotted lanternfly, shown resting on tree-of-heaven (top) and with its wings spread out (bottom). Photos: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Fig. 3. An immature spotted lanternfly. Photo: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Fig. 2. Early instar spotted lanternfly nymphs. Photo: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Fig. 4. Inconspicuous egg masses laid by a spotted lanternfly female on tree bark. Photo: Lawrence Barringer, Pennsylvania Department of Agriculture

Fig. 5. Aggregation of spotted lanternfly adults. Photo: Lawrence Barringer, Pennsylvania Department of Agriculture

tree where they hatched while others move to the ground and feed on the plants found there. There are four nymphal instars; once spotted lanternfly reaches the fourth instar, it begins feeding on woody plant tissues from a narrower range of plant hosts. Adults emerge by late July and mating occurs in late August through the fall. Spotted lanternfly can be distinguished by its appearance and also its behavior; both nymphs and adults are strong jumpers, capable of jumping several feet at a time.

Host Plants

Spotted lanternfly feeds on at least 103 species of plants in the U.S. In addition to tree-of-heaven and grapes, red and silver maple (Acer sp.), black walnut (*Juglans nigra*), and other hard- and soft-wood tree species serve as common hosts. Because spotted lanternfly feeds on such a broad range of hosts, it can impact multiple habitats (i.e. agricultural, residential) in a single landscape (Urban 2019).

Damage

Spotted lanternfly feeds on plant sap, weakening its host plant as a result. In addition, plants can be indirectly damaged when the spotted lanternfly excretes significant quantities of "honeydew," a sticky, sugary substance, onto the surfaces of the plants where they have been feeding. This leads to the formation of sooty mold, which acts as a sunblock, preventing photosynthesis in the host plant and plants surrounding the infestation. The honeydew and sooty mold may also build up on patios, backyard furniture, and vehicles.

A weakened host plant may become more susceptible to droughts, other pests, or pathogens (Urban 2019). Grapevines are particularly sensitive to lanternfly feeding damage and numerous vineyards in Pennsylvania have reported yield losses (Urban 2019). Currently, spotted lanternfly is not known to transmit plant pathogens, but it is a nuisance pest to homeowners and business owners due to its tendency to congregate in large numbers on trees and the surfaces of synthetic objects (Fig. 5).

Management

In areas experiencing high populations of spotted lanternfly, a combination of mechanical control, host reduction, and chemical control is recommended to help contain and manage this insect at each life stage.

Reporting

If you believe you have found the spotted lanternfly in Illinois, send a photo and a detailed email to lanternfly@illinois.edu including where, when, and the specifics of the location. In addition, contact the Illinois Department of Agriculture at (815) 787-5476.

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