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Spotted Lanternfly

By Dr. John J. Riggins, Forest Entomologist

Introduction

Another non-native forest pest, the spotted lanternfly (*Lycorma delicatula*), was confirmed for the first time in the U.S.A. in September of 2014 by the Pennsylvania Department of Agriculture in Berks County, Pennsylvania. The Spotted Lanternfly (Fig. 1) is actually not a fly, but rather a planthopper (Order Hemiptera: Family Fulgoridae) from China, Korea, India, Vietnam, and other parts of eastern Asia. The spotted lanternfly is already known to damage numerous plant species which are native to the US. It has the potential to greatly impact U.S. orchard, vineyard, and logging industries because it attacks many hosts, including grapes, apples, pines, stone fruits and more than 70 additional species.

Figure 1: Side view of spotted lanternfly adult. Photo credit: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Lifecycle

Nymphs hatch from egg masses (which are usually adhered to smooth bark, stone, or other vertical surfaces) in late April to early May. Nymphs complete four immature stages. The first stage is black with white spots and wingless. As it grows, spotted lanternfly nymphs develop red

patches. Immature nymphs spread from the initial site by crawling to nearby plants and feeding on them.

Adults emerge in July in PA. With wings folded while at rest, adults have a black head and gray wings with black spots (Fig. 2). The tips of the wings are patterned with small black rectangular blocks with grey outlines. While flying or when startled, adult spotted lanternflies will unfurl hind wings that are red and black divided by a white stripe. Spotted lanternfly abdomens are yellowish white with black stripes. Adult spotted Lanternflies are relatively weak flyers and strong jumpers. After feeding on numerous species of woody and non-woody plants for the rest of the summer, adults switch hosts in the fall to feed on Tree of Heaven (*Ailanthus altissima*). Tree of heaven is a non-native invasive tree, which is the preferred host for fall feeding and egg laying. However, spotted Lanternflies will lay eggs on nearly any smooth surface, such as other smooth-barked trees, stones, siding, or other vertical smooth surfaces. It is likely that spread of spotted lanternfly will be accommodated by human movement of egg masses that are stuck to vehicles, campers, and other mobile outdoor manmade items. Egg laying begins in late September and continues until winter.

Figure 2: Top view of spotted lanternfly adult with colorful wings unfurled. Photo credit: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Signs and Symptoms:

Nymphs are noticeable on smaller plants and vines during springtime, so observant folks might spot them from the ground during this time of year. Spotted lanternfly nymphs and adults use straw-like piercing-sucking mouthparts to pierce the stems and leaves of plants and feed on sugar-rich plant sap, and affected trees will exhibit trunk wounds that weep sap and create dark streaks down the trunk (Fig. 3). Heavy populations can also cause honey dew (sugary insect waste) secretions to rain down, blackening the soil or other surfaces under affected trees with

sooty mold and creating a sticky mess on cars and houses. Increased activity of ants, bees, wasps, and other insects taking advantage of the honeydew and weeping wounds can also indicate the presence of large numbers of spotted lanternfly in trees overhead.

Figure 3: Weeping sap and bark staining caused by spotted lanternfly feeding damage. Photo credit: Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

Egg masses (Fig. 4) look like small (up to 1.5” x ¾”) grayish-brown globs of glue, and can be found stuck to *Ailanthus alitissima* (Tree of Heaven) and other smooth bark trees, as well as other smooth outdoor surfaces such as lawn furniture, stone and brick work, and outdoor recreational vehicles. Newly laid egg masses are somewhat shiny and coated in a waxy secretion. Egg masses are present in October and will hatch in the spring.

Figure 4: Shiny wax coating on a fresh greyish-brown spotted lanternfly egg mass attached to tree bark. Photo credit: Holly Raguza, Bugwood.org

Control

Pennsylvania officials instituted a quarantine, and are evaluating other means of controlling this new pest, including attempts for eradication. Citizens and officials of Pennsylvania have killed nearly 19,000 spotted lanternflies via hand removal of egg masses in the infested area. Other efforts are focusing on early detection, as this will be vital to minimize spread and subsequent damage. Neonicotinoids, pyrethroids, and organophosphates are chemical insecticides with reported efficacy against spotted lanternfly. Adults and most nymphs are also reportedly attracted to spearmint oil, which could be used to monitor or possibly control the spotted lanternfly. Sticky traps attached to the base of the tree trunks is also reportedly a good management strategy. A parasitic wasp, *Anastatus orientalis* has reportedly attacked up to 69% of spotted lanternfly eggs in China, and is considered a potential biocontrol agent against the spotted lanternfly in South Korea. Much testing would be needed before the wasp could be utilized as a biocontrol in the USA.

Importance to Mississippi

Thankfully, the spotted lanternfly is still far away from the valuable timber in Mississippi. However, it's potential ability to spread rapidly by attaching egg masses to vehicles, coupled with an ability to attack many host plants, some of which include pines, maples, dogwoods, stone fruit trees, willows, mulberries, walnuts, roses, and Virginia creeper (see the whole list here: http://extension.psu.edu/pests/spotted-lanternfly/news/2015/host-plants-used-by-spotted-lanternfly) offer the frightening possibility of yet another destructive forest pest marching its way over our borders.

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