Fairfax County Spotted Lanternfly Management Plan

A Fairfax County, Va., publication

Urban Forest Management Division

Department of Public Works and Environmental Services

Fairfax County, Virginia 22035

703-324-1770, TTY 711

www.fairfaxcounty.gov/publicworks/trees

October 31, 2022

To request this information in an alternate format call 703-324-5500, TTY 711.

Fairfax County is committed to nondiscrimination on the basis of disability in all county programs, services and activities. Reasonable accommodations will be provided upon request. For information, call 703-324-5500, TTY 711.

Purpose

Forest Pest staff are monitoring spotted lanternfly (SLF) (*Lycorma delicatula*) countywide in conjunction with the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) Cooperative Agricultural Pest Survey (CAPS) and Virginia Department of Agriculture and Consumer Services (VDACS). This document provides direction in the management of SLF in Fairfax County and is intended to be dynamic as new management strategies become available.

Spotted lanternfly has the potential to cause severe nuisance to residents by feeding on trees, shrubs and herbaceous plants in unusually large numbers and leaving a sticky, smelly mess when they leave. While plant mortality is not a widespread concern, the nuisance created by these insects could cause some reactionary behaviors, leading to unnecessary pesticide use and the potential removal of valuable tree canopy and other vegetation. It is important that Fairfax County be prepared to best manage this pest. This can be accomplished by monitoring to find the pest quickly and following up with targeted education and management efforts.

Life History

Spotted lanternfly is an insect that is native to China, India, and Vietnam. It is not a problem insect in its native land where it cohabits with its predators, parasites, and pathogens. However, as with many other insects arriving to the United States from other parts of the world and finding no established natural enemies here, it has become very invasive.

Spotted lanternfly has spread rapidly in the Northeastern United States. It is a planthopper whose nymph and adult stages are excellent jumpers. Adults also use their two pairs of colorful wings when they jump, sometimes gliding long distances with strong winds. The female spotted lanternfly lays her inconspicuous egg masses on objects that, if undetected, can be transported anywhere. Nymphs and adults will land on humans and objects and be moved to new locations as well.

Range

First detected in 2014 in Pennsylvania, SLF has spread to Connecticut, Delaware, Indiana, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Virginia, and West Virginia as of September 2022. Cornell University maintains a regularly updated map of the SLF range.

Dispersal

Without human assistance, SLF has been observed to travel approximately half-mile per year. SLF moves much more successfully by “hitchhiking” on vehicles, outdoor furniture, tools, firewood, nursery stock, and any other objects moved by human activity. As of September 2022, no established infestations of SLF have been confirmed in Fairfax County. The closest established populations in Virginia are in neighboring Loudoun and Prince William Counties, as well as Montgomery and Prince George’s counties in Maryland.

Host Preference

Spotted lanternfly will feed on numerous tree, shrub, and herbaceous plant species, however at a particular point in their lifecycle itappears to strongly favor invasive tree-of-heaven (TOH)(*Ailanthus altissima*). Spotted lanternfly typically finds TOH first then spreads to other plant species: native oaks,

walnut, maples, and grape vines. SLF feeds on host trees by sucking sap from leaves, branches, and the trunk.

Life Cycle

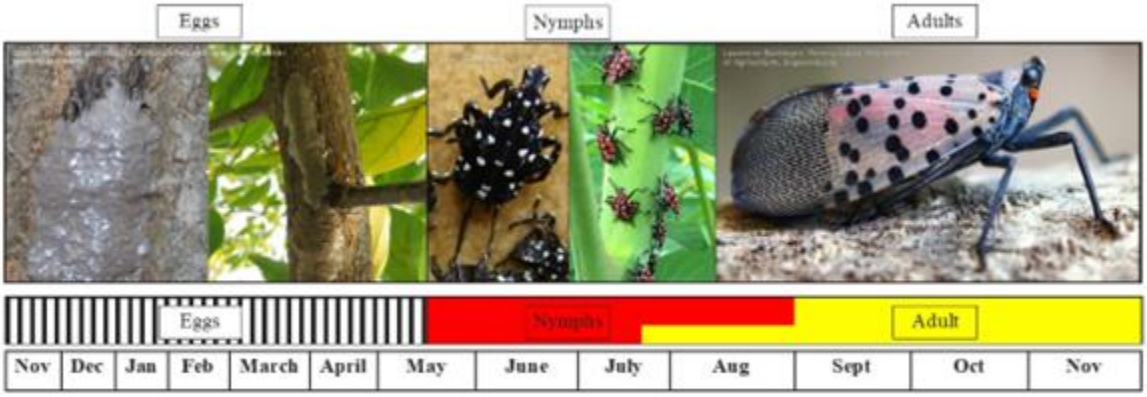

Figure 1. Diagram of SLF Life stages throughout the year.

Signs and Symptoms

Spotted lanternfly egg masses are nondescript, and while nymphs and adults are quite active at times, they also can hide very well in thick vegetation. New SLF infestations often go unnoticed until their populations increase enough to cause a nuisance. Impact to host plants include wilting, leaf curling or yellowing, and dieback. SLF excretes honeydew (digested tree sap) which typically quickly grows sooty mold. As the name implies, sooty mold is a black mold, and blocks sunlight from plants that are covered in honeydew. The honeydew also can stain cars, patio furniture, and other surfaces, and can be hard to remove. The presence of honeydew and sooty mold are sometimes the first indicators of a new SLF infestation.

Impacts due to infestation

Long term impacts to forest resources have not been observed. Grape vines and younger plants of select species have exhibited plant mortality, however trees are not significantly impacted by feeding from SLF. Most residents will experience SLF as a highly variable nuisance. Excessively large numbers of insects on one tree or plant can be alarming, especially when their numbers rise and fall quickly in a short period of time. Removing honeydew and sooty mold from patios, furniture, and anything left outside is tedious. Honeydew is harmless to people, but its sweetness attracts ants, flies, bees, and wasps. The nuisance caused by SLF can diminish the enjoyment of being outdoors.

SLF Assessment in Fairfax County

Spotted lanternfly infestations have not been confirmed in Fairfax County as of September 2022. Since 2019 the Forest Pest Branch, in collaboration USDA-APHIS and VDACS, has conducted an extensive SLF monitoring program across the county. The annual detection effort focuses on principal roads, county, and other public property where TOH is found. Over the years the use of sticky bands has been replaced with a more targeted detection method using “circle traps”. In 2020 the Forest Pest Branch initiated a TOH removal program for trees on county property to limit and slow the eventual spread of SLF. In 2021 an intensive SLF survey “blitz” was added that specifically focused on the railroad corridor between Prince William County and Alexandria. SLF is expected to spread within Fairfax County soon. Based on

the experiences observed and documented in nearby infested jurisdictions, some Fairfax County residents could experience considerable nuisance, some vegetative damage, and to a far lesser degree, vegetative mortality.

Outreach and Education

Spotted lanternfly outreach and education is an important tool to prepare the public for the eventual arrival of SLF. Urban Forest Pest Management makes many efforts to provide accurate, current information about SLF and the county's management practices and policies to county residents and businesses by using various types of media.

- Publications
- Podcasts
- Public service announcement videos
- Postcards and mailings
- County web content
- Newspaper articles and radio interviews
- School programs
- Community seminars
- Industry workshops
- Public webinars made available on YouTube
- Social media

Urban Forest Pest Management utilizes these media resources to reach the many audiences and demographics of the county so that residents and business owners can be informed about:

1. The history, biology, and activity of SLF
2. Homeowner management options
3. How we can all help to slow the spread of SLF
4. Answers to frequently asked questions

Outreach is an essential element of a successful SLF Management Plan

Spotted Lanternfly Monitoring and Management Efforts

Multiple monitoring and management options should be considered to facilitate detecting the presence of SLF as soon as possible. Monitoring for all SLF life stages and proactively mapping suitable habitat are important activities that will guide management efforts. Specific outreach recommendations regarding monitoring and management efforts will change over time based on severity and location of SLF infestations.

One aspect of the apparent lifecycle of SLF is especially advantageous in monitoring for and managing the pest before it even arrives. The strong preference for using TOH as a host plant means that monitoring efforts are more likely to be successful, and that removing TOH reduces the likelihood of a given area becoming infested.

Mapping of TOH populations on Fairfax County property was initiated in 2020. Management efforts for TOH can begin at any time, with direct management of SLF populations beginning following confirmation of an established population in Fairfax County. Monitoring and management methods that may be used are described below.

Monitoring Methods

Monitoring efforts are critical to detect new pests as soon as possible and to delineate the extent of their populations when found to be present. Management efforts rely on monitoring data to determine appropriate method and intensity of management efforts as well as prioritizing treatment areas where warranted. Monitoring is also needed to assess the effectiveness of management efforts implemented. Monitoring for SLF uses multiple methods, described below.

Visual Surveys- Visual surveys are accomplished by checking all parts of a particular host plant or tree for any life stages of SLF. Beginning at ground level, look all around the tree and any ground vegetation for SLF life stages. During the day SLF may be found hiding in these areas. Moving up the trunk, look all around the tree for any egg masses, nymphs, or adults. Using binoculars, continue moving up the tree to look at all branches in search of any SLF life stage.

Windshield Surveys- Windshield surveys involve driving around looking for suitable host tree species, stopping to do visual assessments whenever TOH or other possible host trees are observed. This is best accomplished with two people, one concentrating on safely operating a motor vehicle while the passenger searches for suitable host trees in a defined geographical area of interest.

Inventory Blitz- One day group efforts to check as many places as possible utilizing visual surveys are conducted to get a snapshot of SLF presence across a broader area of Fairfax County than traps and individual visual survey efforts.

Traps- Circle traps are made of window screen fabric and are wrapped around trees to funnel insects climbing upward into a collection bag at the top of the trap. Circle traps are deployed July through October each year and checked weekly with all data logged into ESRI data collection apps while in the field. Trap locations are selected for access, proximity to likely points of introduction like transportation corridors, and presence of preferred tree species (TOH, walnut, maple, river birch, etc.)

Citizen Science- Reports from residents can be very helpful and represent additional data points that could not be collected by utilizing staff time alone. Reporting tends to increase immediately following outreach and education efforts. Postcard mailings are used to educate residents near transportation corridors or in the vicinity of SLF sightings or infestations.

Mapping Ideal Habitat- Mapping of TOH populations on Fairfax County property was initiated in 2020. All information about TOH populations is recorded in ESRI field data collection apps and is used to prioritize removal efforts.

Management Methods

There are several management options for combatting spotted lanternfly infestations. Management efforts should follow the integrated pest management (IPM) model, which involves considering mechanical, cultural and chemical methods to find the most effective, least environmentally impactful methods of reducing SLF populations. Encouraging residents to squash any SLF nymphs or adults or to scrape any egg masses they can safely reach is an important mechanical means of management.

Cultural controls include removing TOH to reduce suitable habitat for SLF. Chemical control involves applying pesticides, which requires care, precision, and training. In the case of SLF, evidence from other localities in the Mid-Atlantic Region has shown that contact insecticides are effective on early-stage nymphs, and that systemic insecticides are effective for later instar nymphs and adults. No chemical treatments have been found to last a whole growing season, nor have treatments been shown to completely remove SLF from properties. The first few established infestations of SLF in Fairfax County are more likely to receive relatively intense chemical treatments, possibly deploying more traps in the vicinity to find SLF that are naturally dispersing. If trends observed across the Mid-Atlantic region continue, SLF populations will eventually reach a level at which chemical control methods are no longer effective or beneficial. Those trends also show that large scale tree/plant mortality is not occurring, and that after a few years populations decline significantly.

Management efforts for SLF in Fairfax County are expected to be implemented by individual property owners. Fairfax County UFMD will provide outreach materials and educational opportunities about SLF to inform management activities on private property. Fairfax County is also partnering with Virginia Cooperative Extension Service, VDACS, and other local groups to coordinate messages, share monitoring results, and advertise the issue through various media to increase awareness and to promote early knowledge and action. Any management efforts on county property will be performed by contractors and will be overseen by Fairfax County UFMD.

Monitoring and management efforts proposed by Fairfax County UFMD are described in four stages in this document: 1) Prior to initial detection of SLF, 2) Upon discovery of any life stage, 3) Upon discovery of an established infestation, and 4) Upon designation as "generally infested" by authorities.

Strategy to detect and manage SLF populations within Fairfax County

Prior to Initial Detection SLF:

Monitoring- Install traps to detect nymph and/or adult SLF life stages. Map TOH populations.

Management- Remove TOH populations on county property. Removals will be completed by contractors and overseen by Fairfax County UFMD. TOH removal is a relatively complex process requiring at least 3 years of follow-up monitoring and possible retreatment to ensure that TOH populations are completely removed. These efforts will only be implemented in areas where long term monitoring and control are feasible.

Education- It is important to raise awareness of the impending issue through multiple outreach channels (webinars, postcards, press releases, social media posts, etc.) to encourage resident reports and increase the likelihood of finding SLF as quickly as possible. Increasing public awareness translates to increased workloads for site visits, so it is important to ensure staff are prepared to follow up quickly and fully document any resident reports.

Following detection of SLF:

Monitoring– Continue using traps to detect nymph and/or adult SLF life stages. Continue to map TOH populations. Begin visual surveys within a quarter of a mile (1320 feet) of a location of positive find. Coordinate with VDACS to have the first find officially identified so that the county can be added to the national map. Additional circle traps may be added in the vicinity of the initial find. Citizen scientists may be invited to help in concentrated "blitz" efforts to thoroughly search for SLF in a given area.

Management- Continue to remove TOH on county properties.

Education- Continue increasing awareness as before detection. Postcards will be mailed to addresses within the quarter of a mile radius of positive finds, including confirmed reports from residents.

Following detection of established infestation:

Monitoring- Continue to trap to detect nymph and/or adult SLF life stages in other parts of Fairfax County. Delineate extent of infestation using high accuracy GPS antennae and ESRI field data collection apps. Continue to map TOH populations.

Management- Early infestations are more likely to be managed using chemical controls while infestations are still of treatable size. Specifically, early instar nymphs can be treated with contact insecticides. Later instars and adults are treatable through systemic insecticide use. It is not always possible to use chemicals, such as in environmentally sensitive areas or when residents prefer nonchemical treatment options. In those cases, mechanical controls like circle traps or sticky bands can also be used to lessen SLF infestations Any infestations found on county property will be treated by contractors and overseen by VDACS with UFMD assistance.

Education- Continue increasing awareness as before detection. Share educational resources regarding management with private property owners, if found on private property. Mail postcard to all addresses within a quarter of a mile of initial infestations.

Following "Generally Infested" Designation:

Monitoring– UFMD trap monitoring efforts may cease unless needed to determine efficacy of management efforts.

Management- As Fairfax County becomes generally infested, management efforts will turn more toward education and outreach to help residents tolerate the presence of SLF and to ameliorate impacts from their presence. At this point chemical treatments will be least effective, and residents should not expect SLF to be completely controlled by any management efforts. Contracts for treatment on county property will be considered on a site-by-site basis, determined by UFMD in consultation with state, regional and federal collaborators.

Education- Continue increasing awareness as before detection. Share educational resources with private property owners, if found on private property.

Post Treatment Evaluation

All sites at which contracted work occurs will be visited by Fairfax County UFMD to determine that work was satisfactorily completed. Contracted work may include TOH removal or insecticide treatments of SLF nymphs and adults. Fairfax County UFMD may potentially inspect VDACS control efforts. If any traps are installed to monitor for SLF, those will be checked on a weekly basis until the first hard freeze.

Regulatory

Spotted lanternfly can be moved long distances by the transport of infested materials containing egg masses and other life stages. Regulatory quarantine restrictions are put in place to limit and control the movement of pest and plant materials of concern from inside a quarantine zone to outside. As of July 2022, VDACS has established a quarantine in 12 counties and 10 cities in Western, Central, and Northern

Virginia, including Prince William County. Under the quarantine, the movement of articles capable of transporting spotted lanternfly is restricted. All states with known SLF infestations have their own quarantine to limit or slow the spread of this pest. Quarantines change over time and may be expanded as established populations are found. Cornell University maintains a regularly updated map of the SLF range as well as quarantine areas.

Conclusion

SLF is an invasive insect with no established natural enemies or controls in the United States. They are very mobile, and their population may fluctuate drastically from place to place and from year to year. SLF will not kill most trees and yard plants. However, it is expected that SLF will become a general nuisance because of the amount of honeydew they produce in large numbers. This honeydew may reduce enjoyment or prohibit use of outdoor areas, and can damage surfaces. Active infestations of SLF have been found in Prince William and Loudoun Counties, as well as other municipalities around Virginia. VDACS has recently expanded its SLF quarantine to counties and cities in western, central, and northern Virginia. In case of infestation, the county will share guidelines for individuals to manage SLF at their homes and businesses. The recommendations will prioritize non-chemical methods over the use of pesticides as overuse or incorrect application of pesticides will negatively impact other insects like bees and other significant pollinators. The county has publicized information on SLF on various platforms (newswire, social media, and YouTube). The county website includes the latest information about the pest and management options. Research on SLF and management strategies is ongoing. Monitoring, management, and recommendations to the public may change as the scientific community gains a better understanding of this pest.