

## What Problems Can Be Caused by Spotted Lanternfly?

If SLF were to establish in Idaho issues being experienced by areas in the eastern US where it has recently arrived would also be faced here.

The major damage associated with SLF is the effect of its feeding on plants. This includes wilting, leaf curling, oozing sap and plant dieback or complete death resulting from sap-sucking on foliage, stems and woody parts of plants. Unlike many of our invasive pests, feeding done on flowers, fruits and vegetables tends to be less significant than that done on the rest of the plant.

Similar to some of our other sap-sucking plant pests, like aphids and mealybugs, SLF produces copious amounts of sugary excrement called "honeydew" which can rain from the areas of the plant where they are feeding, fouling nearby plant stems and leaves, or coating other objects (like cars and furniture) sitting beneath trees that are being attacked. A black fungus called sooty mold grows on the honeydew and does further harm to affected plants and negatively impacts crops.

### Plants to which SLF are attracted and will damage while feeding include:

Fruit crops such as almonds, apples, apricots, cherries, hops, nectarines, plums, peaches and – especially – grapes

Hardwood trees – valuable to the logging industry or the ornamental trade – including maples, oaks, poplars, sycamores, walnuts and willows

Softwoods like pine used for lumber and Christmas trees



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Pennsylvania, the first state in the US with a major SLF infestation, is currently losing about \$50 million annually due to damage caused by this pest. Projections for future impacts, as it spreads to more areas within that state, approach \$500 million per year, if effective control cannot be achieved.

## Looking for Control Options to Use Against Spotted Lanternfly

SLF has not been in the US for very long at this point. Because of its rapid spread and potential for large amounts of damage throughout the country, much research is already under way to help understand its biology, its impact and to uncover tools that might be successful in mitigating the pest's effect.

Some of the first attempts to manage SLF populations included scraping egg masses off of trees and other objects to destroy them. Taking advantage of the insect's propensity to crawl up tree trunks many have been killed by wrapping tree trunks with sticky bands to trap the mobile nymphs and hold them there until they starve.



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Currently more than 35 commercially available insecticides are being evaluated to determine their efficacy against SLF. One possible scenario involves injecting a Tree of Heaven with systemic insecticide and using it as a "trap" tree to draw SLF to it. The attracted insect feeds (on a pest plant) and then succumbs to poisoning without the need to treat the actual crop plants or areas with crop plants that need protection.

Two naturally occurring, native, soil-borne fungi, *Beauveria bassiana* and *Batkoa major*, which cause disease in insects, but are harmless to vertebrates, appear to attack SLF. Scientists are trying to determine whether or not they can be used as part of an integrated pest management program.

Also, two tiny parasitic wasps that feed on SLF in China, *Dryinus browni* and *Anastatus orientalis*, are being studied for use as possible "beneficial insects" that might someday be released in the US, if they can be proven effective against SLF and safe to our native organisms.



John L. Richards, Bugguide.net



For more information on other invasive insect species of concern in Idaho and how you can help keep them out please go to the Idaho State Department of Agriculture website at <http://www.agri.idaho.gov/Categories/PlantsInsects/RegulatedAndInvasiveInsects/Insectpestwatchlist.php>

# Spotted Lanternfly

(*Lycorma delicatula*)



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A beautiful insect that can be a  
**DEADLY**  
problem to agriculture and the  
environment



Eric R. Smith,  
VA Polytechnic Institute, Bugwood.org

An invasive  
insect pest from Asia  
that found its way to  
the US in 2014 and is  
rapidly on the move!



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## The Life Stages of Spotted Lanternfly

### Egg

Eggs are laid by the adults during late summer/fall. Tree bark is a preferred substrate, but they will lay them on any available relatively smooth surface. Each egg is actually "barrel-shaped" but groups of eggs (usually 30-50 of them) are covered with a protective substance that makes the egg mass look like a smear of mud. This is the stage in which SLF passes the winter months.



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### Nymph

Nymphs emerge from the eggs in spring and begin to feed by sucking on plant juices from leaves, stems and branches. All nymphs are wingless and when young are black with white spots. During this stage, which may last several months, they grow and shed their skins several times – the nearly mature nymphs changing to a red, black and white color pattern.



Richard Gartner, Bugwood.org



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### Adult

When the nymph transforms into an adult (there is no pupa or "cocoon" between these two stages) it has fully formed wings – the front ones being gray with black spots and the hind ones marked with a bold pattern in black, white and red. They are stationary when feeding or ovipositing, but when disturbed or interested in moving to a new location they can travel by hopping and flying.



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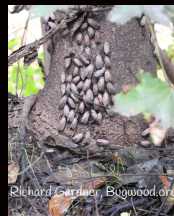


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## History of Spotted Lanternfly as a Pest

This species is native to China, India, Vietnam and Taiwan, where it seems to be kept in check by natural predators, parasites and diseases, and was not encountered outside of its historical range until relatively recently. In 2006 it was discovered in Korea and very quickly became a major pest there.

The first specimens recorded in the US were found on property in Berks County, Pennsylvania in 2014. Quarantine and attempted eradication programs were quickly put into place, however, they were not effective enough to stop the establishment and movement of SLF populations. Within six years the new invasive has been recorded in 26 counties in PA and living individuals have been collected in New Jersey, Delaware, Virginia, West Virginia, Maryland, New York, Connecticut and Ohio. Dead SLF have also turned up on airplanes and in cargo shipments received in California, Oregon and Michigan.



Richard Gartner, Bugwood.org



Richard Gartner, Bugwood.org



**Hitchhiking – A method of transportation that never goes out of style – Especially for invasive animal and plant pests!**

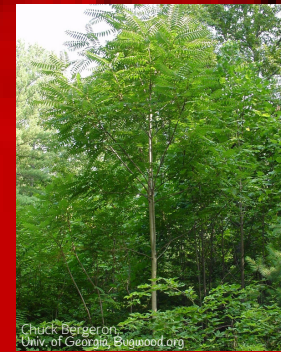
Even though SLF can travel by hopping and flying, its range of spread by those methods is fairly limited. Like many of the other invasive pests we've been battling over the past several decades (for example European Gypsy Moths, Japanese Beetles, Brown Marmorated Stink Bugs, cheatgrass and Asian Jumping Earthworms to name a few) organisms that have evolved to take advantage of more efficient dispersal methods tend to have much more success in establishing new populations at greater distances from the original infestation, often in much shorter time frames. Gypsy Moths, for example, hatch from eggs laid by flightless females (so each new generation begins at the same location where the moth emerged from its cocoon). Its young caterpillars can be carried short distances on the wind, while larger larvae can walk, but generally not very far. In situations where Gypsy Moths lay eggs on a vehicle or toys or furniture that are outside and may later be moved to a new location (with the egg mass unnoticed by the person initiating the move) it is possible for those eggs to be moved hundreds or even thousands of miles to give rise to a new population there. SLF has an egg-laying behavior similar to Gypsy Moth and this ability to "hitch a ride" is undoubtedly responsible for at least part of its quick spread outside of Pennsylvania into other parts of the US.

**Would you notice those SLF egg masses on the side of this picnic table?**



Emilie Swackhamer, Penn State Univ., Bugwood.org

## One Invasive Species Damaging Another Invasive Species



Chuck Bergeron, Univ. of Georgia, Bugwood.org



Chuck Bergeron, Univ. of Georgia, Bugwood.org



Richard Upton, Bugwood.org

Although SLF can feed on many species of plants (see next page) its preferred host is one called Tree of Heaven (*Ailanthus altissima*). Just like SLF Tree of Heaven is native to China, but unlike SLF it was intentionally introduced to the US in 1784. At the time it was considered a desirable tree in urban ornamental situations and for a while it became quite popular. Over time it eventually fell out of favor when it was discovered how prolific it was and how it quickly spread into, and took over, areas where it was not wanted. Also its flowers generally have a noxious odor. Gradually it moved into the category of an unwanted, invasive pest plant, but by then it was established and thriving in large parts of the US. Efforts to control, remove or eradicate it are constantly attempted on a local level but for the most part have failed.

It is interesting, therefore, to consider the biology of SLF in the current situation. Since it preferentially feeds on Tree of Heaven (something we do not want) it could be looked at as a potential tool in pest management of that invasive plant. Being realistic, however, the damage that SLF can potentially do to our economy and native ecology far outweighs any benefits it could bestow in the fight against the invasive Tree of Heaven in the US.

### What YOU Can Do To Help in This Fight When you are OUTSIDE Idaho:

Be aware of this pest – that it exists and is a potential threat to our state, what it looks like, where it is currently found, and how you might inadvertently help it get to Idaho (by allowing adults, nymphs and especially eggs to stow away on your vehicle or in/on objects you might transport back to our state after you visit one of the states already infested). Before returning to Idaho carefully inspect for all stages of the culprit and destroy any that you find.

### When you are INSIDE Idaho:

Be familiar with the appearance of SLF eggs, nymphs and adults and if you ever see anything that may be the invader please report your sighting to Idaho State Department of Agriculture or U of Idaho Extension. If possible obtain a clear photo or a specimen for evaluation. SLF cannot bite or sting humans so collecting one would pose no danger to you.