

Title: Suffolk County Properties Survey for Invasive Spotted lanternfly, *Lycorma delicatula*, (Plus Mapping of Stands of *Ailanthus*); Survey for Longhorned Tick, *Hemaphysalis longicornis*

Project Managers:

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Abstract

The Asian longhorned tick and spotted lanternfly are two new invasive pests that are in the Northeast. Spotted lanternfly is in multiple counties in southeastern Pennsylvania and in several places in upstate NY. A discovery of this pest was also made in a nursery shipment from PA in Dix Hills and was thankfully killed, and a dead specimen was shipped with a fertilizer delivery to Islandia. The longhorned tick, a carrier of multiple diseases in other parts of the world, and parthenogenic, is now in eight states including areas close to Long Island, i.e. northern New Jersey, Staten Island and Westchester County. We surveyed approximately five properties a week for the presence of spotted lanternfly, *Lycorma delicatula* (mapping pockets of favored oviposition host, *Ailanthus*). We also surveyed approximately five locations per week containing favored conditions/hosts for the potential presence of the longhorned tick, *Hemaphysalis longicornis*. We resurveyed properties we deemed especially likely for longhorned tick. So far we have found no evidence of either longhorned tick or spotted lanternfly on the 237 locations surveyed so far. We will continue to survey this spring. Information on these pests has been disseminated at 17 venues as of the end of this month (January 2019) and we will continue to do so at all appropriate meetings hence (we will provide updates on numbers periodically).

Background and Justification:

The longhorned tick, *Hemaphysalis longicornis*, is a recently recognized invasive tick. Originally native to Asia, there are a number of serious potential consequences of its establishment. In its native habitat it is a serious pest of livestock, it is able to reproduce without males, and multiple lifestages coexist and quest together in a cluster. In addition to being capable of transmitting all of the diseases of both the black legged tick and lone star tick, it also, in its native habitat, is capable of causing the mammalian meat allergy known as alpha gal. Fortunately, no associated diseases have been found in the populations established in the United States as of yet, but this pest is of grave concern to livestock, horses and humans since this tick readily feeds on them. The agronomic impact for livestock producers in particular has the potential to be very serious. The tick was probably established at least several years before the multigenerational infestation detected in August of 2017 in New Jersey and has the capability of explosively expanding its range. They are happiest in tall grasses or sedges, particularly wet meadows, or where there is more than two inches of precipitation per month. Unlike black legged ticks they prefer full

sun habitats. Low humidity is unfavorable, though, and they spend much of their time at the base of the grasses they inhabit or in the leaf litter under low humidity conditions. The adult tick is easily recognized by its triangular head, and two parallel longitudinal furrows on the area just below the head, but some care must be taken to distinguish it from infrequent captures of rabbit ticks or bird ticks, *Haemaphysalis leporispalustris* and *H. cordeilis*, respectively.

The spotted lanternfly is a large, invasive plant hopper (not leaf hopper) which sucks sap and excretes honeydew on a monumental level, weakening host plants and providing a substrate for sooty mold. This insect poses a threat to grapes and hops, two important crops on Long Island, as well as apples, peaches and other fruits and nut trees. Apples and grapes have a combined value of \$358.4 million in New York State. In parts of PA where infestations are heaviest, growers are complaining of dead grape vines. The amount of sap that can be removed by extensive infestations also weakens the plants that are being fed on, leading to susceptibility to other insects and diseases as well as less ability to resist cultural stresses such as drought. The preferred host plant is Ailanthus (tree of heaven) so crops that have this weed tree nearby may be especially at risk. The spotted lanternfly actually prefers smooth barked trees, especially tree of heaven (growing all along the Long Island Expressway), for its initial egg laying, but the colorful nymphs (one instar has markings like an Asian long horned beetle) feed on many different kinds of plants thus potentially impacting the nursery industry. Black walnuts, as well as apple trees, maples and grape vines are also preferred for egg laying. Like the gypsy moth, lanternflies are spread by human activity and because of our high population density on LI they have ample opportunity to move around. Since they lay their eggs on vehicles, firewood, outdoor furniture, large stones, etc., popular camping areas are also prime places for movement and distribution of the spotted lanternfly and also tend to have large populations of Ailanthus. The sheer numbers of clustered lantern flies and their continuous honeydew production also have been reported to have extreme annoyance value so that could also potentially adversely impact the economics of agritourism experiences such as pick your own fruit and recreational tourism such as camping.

Learning objectives:

1. To establish an effective survey of ailanthus stands and their surroundings on various Suffolk County Properties and other appropriate locations in order to establish the presence or absence of spotted lanternfly activity. Weekly surveys will be performed, for several properties at a time, throughout the scouting season.
2. To establish an effective survey of various wet meadow environments on Suffolk County Properties and their surroundings on various Suffolk County Properties and other appropriate locations in order to establish the presence or absence of long-horned tick activity. Weekly surveys will be performed, for several properties at a time, throughout the scouting season. We will additionally double check these areas for true chiggers since they prefer the same conditions as the long-horned tick.
3. Provide incidental mapping of where ailanthus stands are on county properties or other areas examined for future reference, so that they can be scouted in future years.

4. Provide our findings, incidental or otherwise as a 30-minute update at various conferences to make people aware of the potential issues and to provide a question and answer session at the end.
5. Evaluation: Survey conference participants on their new knowledge base of these potential problems
6. Reach out by fact sheet to county, municipal, and other local entities and to make our results known through conference presentations, social media associated with extension or other stakeholders (hops or grape growers, etc.)

Procedures:

We chose at least 5 sites each week to be evaluated for spotted lanternfly and/or long-horned ticks over a period of ten months, of which five months have been completed. We took weekly data on our findings at these sites and entered coordinates of ailanthus stands. In the future we will also enter coordinates of black walnut stands since this tree is also a preferred oviposition site. A written report evaluating the results was prepared by CCE Pest Management Program. We presented our results and additional information was presented at conferences, in newsletters, social media and other outreach to stakeholders such as growers, parks, pest control operators and individuals involved in invasives work. No statistical analysis of data was possible so far since we have found no populations of either pest.

Results and discussion:

Although we covered 237 locations, some of them multiple times, we found neither spotted lanternfly nor Asian longhorned ticks. This result was more unexpected for the ticks than for the lantern flies. We also found fewer sites with stands of Ailanthus larger than a few trees than we expected, with one of the largest occurring near the Suffolk County Robinson Dog Walking Park, stretching beyond the edge of the park and spreading east and west for half a mile along Montauk highway. A considerable stand is located at the Cedar Point Campground in East Hampton, and another at the campus of Suffolk County Community College in Selden. Another larger stand was along the bluff edge of Lake Ronkonkoma, near the intersection of Warner road. A positive sidebar is that we were able to disrupt a great number of gypsy moth egg masses in our quest for both pests. The egg masses visually resemble older lanternfly egg masses but the texture is quite different, with the egg masses of gypsy moth containing randomly placed tiny “tapioca” embedded in a mass of beige hairs. Although we have yet to encounter spotted lanternfly egg masses, their eggs under a grayish plaster of Paris like covering are more like rows of rice or seeds. We also incidentally discovered a population of dog tick larvae and nymphs which are normally difficult to encounter at Indian Island County Park and Campground (also surrounded by a larger population of Ailanthus). Interestingly, the population of lone star ticks during our 2018 survey period was almost non-existent and normally this is the most common tick on Long Island. We were surprised by this finding which may be attributable to the unusually wet weather. The long horned tick prefers wet environs, and also likes to quest on sedges but we were unable to locate any populations even though we scouted many areas with these conditions.

A dual pest factsheet was created for distribution at conferences and meetings entitled “Don’t Invite Us To Your Party” with brief messages about both pests and contact information should the pests be suspected or encountered (see attached file). These will be available in quantity for groups or landscape professionals who wish to distribute them, therefore increasing awareness and numbers of eyes looking for the pests. Approximately 600 factsheets will be distributed by the end of January. Information on the pests has been disseminated at 17 meetings and conferences by the end of January and we will continue to report on lantern fly and long horned tick at all meetings and conferences in the upcoming year. Additionally, we will re-scout our locations and add new locations in the 2019 scouting season in an effort to keep these pests on the radar and to eradicate or document their presence. We still have 210 parkland sites that we wish to scout for both lantern flies and for long horned ticks in 2019.

The impact of spotted lanternfly infestation would be disastrous to the over 2,000 acres of premium wine grapes on Long Island, some 300 acres of hops, and over \$14 million worth of fruits, tree nuts and berries grown on Long Island. The other major point of impact would be to the nursery industry. Suffolk County accounts for half of the sale of nursery, greenhouse, floriculture and sod products. statewide, at a total upwards of \$195 million. This is approximately three-fourths of Long Island’s total agricultural sales and about half of the statewide sales and helps support the green industry throughout the lower Hudson, the metropolitan area as well as the Long Island region. It is therefore critical that we continue to monitor and eradicate this pest before it can get established.

The impact of Asian long horned tick on livestock can be severe. In New Zealand, the long horned tick has had a large economic impact on livestock through hide damage and anemia from sheer numbers of ticks feeding on the animals. Although Long Island is not a region that produces a great deal of livestock, organic farms do have valuable animals, there are specialty operations producing grass fed beef or buffalo meat, and there are horse farms, plus small recreational animal farms such the Holtsville Ecology Center, the Suffolk County Farm, Long Island Game Farm, and Hallockville Farm Museum, to name a few.

Finally, the potential impact of these invasive ticks on humans is frightening to contemplate, especially since reproduction in North America is entirely parthenogenic (<https://extension.psu.edu/asian-longhorned-tick-haemaphysalis-longicornis>). Long Island is already subject to out of control deer populations and attendant lone star tick populations. The long horned tick has the potential to outstrip lone star reproductive capabilities and, in other locations, the adults have been documented on deer while nymphs and larvae have been documented on rodents and on birds. They have been documented feeding on humans and they are vector competent for many diseases, although none have been discovered in populations in the U.S. as yet. Survey of suitable habitats for long horned tick continues to be critical in order to prevent what could be a perfect storm and to ensure that the human population is both aware and takes appropriate precautions in an already tick filled environment.