SLELO PRISM

St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management

Teaming Up to Stop the Spread of Invasive Species

Winter 2015-16 Newsletter **Volume III - Issue 4**

821 Hemlock Trees Inspected for Woolly Adelgid

By: Megan Pistolese & Rob Williams with contributions from Caitlin Muller

Hemlock Woolly Adelgid (*Adelges tusgae*), is a small, aphid-like insect native to Asia that poses a threat to eastern hemlock trees in our region. First found in New York in the mid 1980's this invasive insect has now spread to 25 counties throughout the state.

The Hemlock Woolly Adelgid (HWA) attaches itself to the base of the needles on hemlock trees and feeds on the tree's carbohydrates, water and other nutrients. This disrupts the nutrient flow, making infested trees more susceptible to other agents of stress, such as drought or other pests. Eventually whole limbs will die back, killing the host tree from the bottom up between four to seven years after a HWA infestation.

Infested trees will show symptoms including browning and loss of needles, and distinctive small white woolly masses located on the underside of branches at the base of tree needles.

HWA woolly masses on infested hemlock tree, photo credit Connecticut Agricultural Experiment Station, Bugwood.org

As per its name, once HWA settles in on a hemlock it secretes this waxy white substance that is visible on infested trees year round. These woolly masses are most apparent during the spring when they form to protect egg clusters. They also serve as a clever mode of transportation as they easily stick to the feet of birds who often land on the branches of hemlock trees allowing HWA to spread easily.

The hemlock tree is an important species to our region as it provides ecological diversity and wildlife habitat. This tree has also been valued as a source of tannin in the leather industry, as well as a wood source for framing, roofing, crate manufacturing and pulping.

HWA crawlers on woolly masses, photo credit Michael Montgomery, USDA Forest Service, Bugwood.org.

Members of the St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO PRISM) are concerned about the HWA spreading into this region, particularly the southern Tug Hill Region. During the summer of 2015, the SLELO PRISM early detection team embarked on an intense effort to survey hemlock stands in the area for the presence of the Hemlock Woolly Adelgid. This effort was focused in southern Tug Hill within the lower half of the SLELO PRISM region. The PRISM's two-person early detection team inspected a total of 821 hemlock trees within 14 Priority Conservation Areas. So far no HWA have been observed.

The SLELO PRISM's early detection team will continue similar efforts in the future. For more information about the SLELO - PRISM partnership or for information on invasive species in our area, visit the SLELO website at www.sleloinvasives.org

SLELO PRISM Fostering Partnerships Abroad

By: Rob Williams

To effectively prevent and manage invasive species, especially on a lake-wide scale, collaboration becomes a key ingredient. Through our PRISM we have engaged our neighbors across Lake Ontario in dialog that will benefit our mutual efforts. By working with the Ontario Invasive Plant Council (OIPC) based in Peterborough, Canada, we have over the past two years shared in an exchange of information that looks at what is being done on both sides of the lake and identifying opportunities to strengthen our ability to limit the spread of invasives. Recently both the OIPC and our PRISM collaborated on sharing invasive species information and actions, from the past and present, at the Eastern Lake Ontario Symposium (June 2015) sponsored by SLELO and more recently at the OIPC Conference and General Meeting held in October at the Royal Botanical Gardens in Burlington, Ontario. Rob Williams, PRISM Coordinator, presented to over 90 representatives from both the Ontario Invasive Plant Council and the Invasive Species Council of British Columbia.

Additionally, in 2014 our PRISM received 300 copies of a "Clean Equipment Protocol" developed by the OIPC that addresses the need for universal decontamination of construction equipment which, when transported, can carry seeds and plant fragments to new locations. Through a cooperative effort our PRISM established an insert for this document and disseminated all 300 copies to heavy equipment contractors along Eastern Lake Ontario.

Lake Ontario looking southeast from the waterfront in Burlington, Ontario, photo credit, Rob Williams

Salmon River Restoration Results

Suppression Results and Field Observations:

- 8.68 total acres of Japanese knotweed treated a minimum of three times over a three year period.
- Moderate to excellent suppression at most sites.
- Eradication at only a few sites (no regrowth during the third year).
- Plant mortality at predominately shade sites was noticeably greater than at sunny sites.
- Stem injection delivery resulted in a more rapid "initial" die-off, but long term there were no observed differences in mortality between injected sites and foliar treated sites.
- Soil type played no role as there was no observed difference in mortality between sites with rock soils verses silty-loam soils.

Site Restoration Results and Field Observations:

- 51,500 sq. feet restored to native grass using annual ryegrass, perennial ryegrass and little bluestem mix at 21 locations.
- 20% live stake survival using native on-site plant materials.
- Tree seedling planting being pursued as supplemental restoration.
- Site restoration ranges from moderate to good. Two monitored sites DOT-1 and DSR-2 show little or no Japanese knotweed re-growth and very good native plant and grass growth. This same observation is noticed at additional sites treated along the river. Site DSR-1 shows good suppression, but some Japanese knotweed re-growth.
- First native plants to grow at upstream sites included; jewelweed, smartweed, ferns, grass and maple seedlings.

Education & Outreach:

- Presentations to key stakeholders including the New York State Department of Environmental Conservation, the SLELO PRISM Partnership and representatives of the Salmon River Fish Hatchery.
- Four hundred informational pamphlets were disseminated at multiple distribution points to include: tackle shops, fish cleaning stations, stores, overnight accommodations and at the main entry gate at the Douglaston Salmon Run property.
- Informational flyers targeting conservationists and anglers were posted at all DEC kiosks at fishing access sites along the river with permission from DEC.
- River steward efforts (person-to-person dialog) along the river reached a total of 65 anglers.

SLELO PRISM would like to thank the numerous landowners who gave permission to access their property along the river , as well as multiple partners and staff who helped make this project successful.

To view a detailed Project Report visit our resources page on the top menu bar, path: resources – information sharing – download/reports.

Fanwort Native or Not
That is the question!

By: Rob Williams

Fanwort *(Cabomba caroliniana)* is an aquatic macrophyte (rooted aquatic plant) that has been receiving increased attention lately and like many aquatic plants can be aesthetically displeasing when there is an abundance. The question is, "is this plant native or non-native to our region and therefore should it be considered and managed as an invasive?"

Let's start with the plant: Fanwort generally grows in less than ten feet of water, and is found in ponds, lakes and quiet streams. Fanwort **stems** are long with fan-like underwater leaves about two inches in diameter. The **submersed leaves** are arranged oppositely or in whorls along the stem. The **floating leaves** are small and somewhat diamond-shaped. Fanwort **flowers** are white to pink to purplish an color, and are about 0.5 inches in diameter.

Literature sends a mixed message. Some literature states that this plant is native to North America and some say it is native to South America and southeastern United States (i.e. Florida). According to Natural Heritage, fanwort is in fact native to North America but its northern range has likely been extended due to aquarium dumping, as well as, naturally expanding its range through waterfowl vectoring. If we were still living in Pangaea then range expansion from one location to another would become the definition of non-native. This now begs the question, should fanwort be given the same priority as, for example *Hydrilla verticillata,* an aquatic plant native to Africa and Australia which is considered highly invasive?

So how shall we proceed? Since this plant is currently listed as "prohibited" on the NYS Prohibited and Regulated Species list with relatively high invasiveness, and since non-native is defined as being non-native to an ecosystem in question, and since we, that being the Eastern Lake Ontario/St. Lawrence Region may "technically" be in the range expansion zone, then perhaps as a PRISM it's safe to elevate fanwort to the *"let's keep an eye on it and respond strategically"* level.

Photo credit: Leslie J. Mehrhoff, University of CT., bugwood.org

SLELO PRISM Prevention Species

Hydrilla
(*Hydrilla verticillata*)
Mile a Minute Vine
(*Polygonum perfoliatum*)
Didymo
(*Didymosphenia geminate*)
Asian Long Horned Beetle
(*Anoplophora glabripennis*)
Hemlock Woolly Adelgid
(*Adelges tsugae*)

New Zealand Mud Snail
(*Potamopyrgus antipodarum*)
Hemimysis
(*Hemimysis anomala*)
Asian Clam
(*Corbicula fluminea*)
Kudzu
(*Pueraria lobate*)
Water Hyacinth
(Eichornia crassipes)

Porcelain Berry
(*Ampelopsis spp.*)
Water Soldier
(*Stratiotes aloides*)
Rusty Crayfish
(*Orconectes rusticus*)
Silver, Big head and Grass Carp
(*Ctenopharyngodon spp.*)
European Boar
(*Sus scrofa Linnaeus*)

Chinese Spotted Lanternfly (*Lycorma delicatula*)

By Paul Hetzler

Chinese lanterns, bright and cheery, can lend a festive air to an evening out on the patio. As far as I know these decorative lanterns are harmless. Chinese spotted lanternflies are also bold and colorful, but they do cause harm, and a lot of it.

Spotted lanternflies were unknown in North America until 2014 when they showed up in Pennsylvania on a shipment of stone from China. Who knew the Keystone State was that short on rocks? Had we been aware of this deficit, we would have sent North Country rocks down there and saved a lot of grief.

If only it were a laughing matter. The spotted lanternfly (SLF) is a significant pest of numerous tree species, including pine, as well as grapes, tree fruits and non-woody plants. In short, just about anything green. Should it spread, it represents a serious threat to many agricultural crops.

Prolific breeders, SLF females lay yellowish-brown (later turning gray), foam-like egg masses similar to those of the gypsy moth. This is probably how they stowed away on that pallet of stone.

Lantern Fly egg mass, photo credit, Holly Raguza, bugwood.org

The juveniles or nymphs look nothing like adult SLF. Black with white spots, juveniles molt several times before maturing, becoming red with distinctive white spots in the last phase of their "childhood."

Lantern Fly Juvenile Stage: Photo Credit, Lawrence Barringer, PA Dept. of Agriculture, bugwood.org.

Its name can be confusing since the adult closely resembles a moth yet it's called a fly. But it's not even a fly. Belonging to the order Hemiptera, it is related to walking stick bugs, giant water beetles and leafhoppers, and in fact is a type of planthopper. Like all hemipteras, spotted lanternflies have piercing mouthparts, and they use these to great effect draining sap from plant tissue.

While some of the worst invasive pests such as Asian longhorn beetles and emerald ash borers have harmless native doppelgangers, the lanternfly is nearly impossible to confuse with any other insect. Here is a USDA description: **"Adults are about an inch long by a half inch wide, with large, visually striking wings. Forewings are light brown with black spots in front and a speckled band at the rear. Hind wings are scarlet with black spots in front and white and black bars at the rear. Abdomen is yellow with black bars."**

Adult Lantern Fly, photo credit:, Holly Raguza., bugwood.org

If you've heard of tree-of-heaven or ailanthus you know it's an invasive weed-tree from Asia, so bad it makes boxelder look desirable (if you can believe that). Unfortunately for us, lanternflies attack ailanthus before any other species. One would think this is a good thing: an invasive pest takes out an invasive plant—problem solved. However, SLF will feed on a tremendous range of hosts when it runs out of its favorite food. Since ailanthus does not grow in New York's northern tier, at least to our knowledge, the lantern fly would move right to desirable species without first showing up on tree-of-heaven. We wish it preferred tag-alders, something we have in abundance.

Where tree-of-heaven does grow it can serve as a sort of early-warning device since that's where SLF will show up first. In addition it may be possible to use the trees to fight SLF. Infested ailanthus could be treated with a systemic product that would kill insects that feed on it.

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The Relationship between Botulism E and Invasive Species

By: Irene Mazzocchi, Fish and Wildlife Biologist, NYSDEC Region 6

In 2015, Region 6 wildlife staff responded to calls regarding dead birds washing up on the shoreline of Eastern Lake Ontario. As in the last nine years, Botulism E was confirmed as the cause of these recent deaths. Thousands of fish-eating birds have died from Botulism E across the Great lakes since 2006.

Dead Common Loon, Botulism E suspect, photo credit Irene Mazzocchi.

The invasive zebra and quagga mussels, and round gobies all play a role in the build-up of and spread of the Botulism E toxin. The role that these invasives play goes as follows: zebra and quagga mussels filter plankton, making the water more clear; this allows sunlight to penetrate deeper thus increasing algae production. Accumulation of dead algae on the lake bottom promotes the growth of the toxic strand of Botulism E. Mussels ingest this toxin and are not effected; however, the toxin is passed onto round goby and other fish that eat the infected mussels, allowing botulism to bioaccumulate through the food web while impacting birds that may feed on the infected fish.

Common loons and long-tailed ducks appear to be extremely sensitive to the Botulism E toxin and make up a large number of the dead birds observed on the shorelines of Lake Ontario. In addition, species such as Red-breasted Mergansers, Red-necked Grebes, and Great Black-backed Gull have also died from this disease.

In the fall of 2015, the bodies of over 87 birds washed up along the eastern basin of Lake Ontario including: 63 common loons, 16 long-tailed ducks, and several other bird. Although, the numbers of birds killed by Botulism E in 2015 are not as high as seen in past years, (2006 had 226 recorded bird mortalities and in 2007 there were 235 bird mortalities), this disease is still causing a negative impact on fish eating bird populations.

Even though there is no immediate solution to this issue, educating the public about Botulism E and the role that invasive species play in the spread of this toxic is key. Furthermore, efforts are underway to reduce the potential spread of this disease to other wildlife by removing infected bird carcasses from the landscape.

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Chinese spotted lanternfly (*Lycorma delicatula*)

For obvious reasons, Penn State entomologists have taken the lead in researching Spotted Lantern Fly (SLF), and are working in conjunction with federal and Pennsylvania State Departments of Agriculture. Among other things they want to find its natural enemies, be they predators, parasitoids or diseases. While a parasitic wasp from China holds promise as a natural control agent, its release here is a long way off, possibly over a decade.

The message of course is that we need to keep SLF out of the area. To do this we need to spread the word about SLF and how to identify it. Citizen-science projects will be invaluable.

SLF doesn't fly far, but as noted it can travel by way of its inconspicuous egg masses, which the female SLF will lay on any smooth surface. Eggs are laid well into the late fall, and while the masses are brownish when fresh, they darken over time and become harder to see.

If you know of any recent visitors to Berks, Bucks, Chester, Lehigh or Montgomery Counties in Pennsylvania, encourage them to thoroughly inspect their vehicle, as well as any items they may have picked up or bought while away.

Anyone who thinks they may have found a spotted lanternfly or an egg mass should immediately contact their local New York State Department of Environmental Conservation or Cornell Cooperative Extension office.

For accurate and up-to-date information on the spotted lanternfly, go to any one of these websites:

- http://extension.psu.edu/pests/spotted-lanternfly
- https://www.aphis.usda.gov/publications/plant_health/2014/alert_spotted_lanternfly.pdf
- http://www.agriculture.pa.gov/Protect/PlantIndustry/spotted_lanternfly/Pages/default.aspx#.VkYdA0iPsaU

PARTNER SPOTLIGHT

CENTRAL NEW YORK REGIONAL PLANNING & DEVELOPMENT BOARD

By: Kathleen Bertuch

The Central New York Regional Planning & Development Board (CNY RPBD) is a regional organization serving Cayuga, Cortland, Madison, Onondaga and Oswego Counties. CNY RPDB provides a range of services to local municipalities through five core program areas: Community Development, Economic Development, Energy Management, Environmental Management, and Transportation Planning.

Through its Environmental Planning program, CNY RPDB has been involved in invasive species management for several years. Past accomplishments include: developing an Aquatic Invasive Species Inventory for our member counties, securing the first pesticide application permit for Water Chestnut control on the Oneida River, supporting volunteer water chestnut removal efforts on Seneca River and other local water-bodies, advancing invasive species education and outreach to public and municipal audiences through our regional watershed planning and implementation programs, assisting in the development of Onondaga County's long-term Emerald Ash Borer strategy, and securing funds to inoculate high-value ash trees on public property . CNY RPDB is an active member of the FL-PRISM, serving on both the Aquatic Invasive Species Work Group and the FL-PRISM Steering Committee.

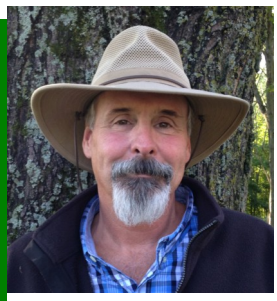
CNY RPDB is excited to have the opportunity to serve as a partner to the SLELO PRISM. It is our intent to provide an additional vehicle for improving coordination between the efforts of the Finger Lakes and SLELO PRISM s while providing direct support to SLELOs ongoing and highly regarded program objectives including education, outreach, training, staff support and funding assistance in coordination with other CNY RPDB program opportunities as need and opportunities arise.

CNY RPDB will maintain a strong focus on invasive species efforts along shared boundary areas in Oswego County, one of the CNY RPDB's member counties. The Seneca/Oneida River and Oneida Lake exemplify areas that CNY RPDB will work to enhance coordination and communication between the two PRISMs. Potential benefits that may be recognized by both groups may include additional funding and staff support for complimentary projects in adjacent counties that advance regional invasive species management and eradication needs.

Currently, CNY RPDB is working with the FL-PRISM and the Finger Lake Institute, municipal representatives and the Oneida Lake Association to secure funding for a watercraft steward program on four sites around Oneida Lake, including one site in Oswego County. CNY RPDB recently shared information on SLELOs knotweed eradication project with the Onondaga Environmental Health Council and the FL-PRISM as the basis for opening discussions on expanding the range of those successful efforts.

As a very new partner, CNY RPDB is learning more from SLELO than we are actively contributing, but we look forward to becoming a stronger partner in SLELOs efforts to address invasive species threats on land and in the water.

Central New York Regional Planning & Development Board



COORDINATOR'S COLUMN

Reflecting on Achievements and Gratitude

Question: Are we headed in the right direction in terms of collaboration? Is our compass pointed in the appropriate direction? And if so, how might we make that determination.

I think its important to continuously compare our annual accomplishments against our work plans and then link them into our five-year Strategic Plan.

As in past years, 2015 has been another successful year in our mission to protect native habitats, biodiversity and our many natural assets. Nearly all of our accomplishments are achieved through commitment and robust collaboration within our partnership.

So true is this commitment that this year we have obtained a significant increase in our education and outreach efforts. We've had a successful rapid response effort to a new invasive aquatic species, water hyacinth *(Eichornia crassipies)*; we have also completed our four-year Salmon River Initiative and initiated a comprehensive and focused forest pest initiative. There were numerous subtasks involved with these objectives, and it was through the help of our partners that they were achieved allowing SLELO PRISM to meet our strategic goals.

So, back to our compass bearing. Each year we prepare an Annual Plan of Work that breaks down our activities not only by the individual strategic plan goals that they are attached to, but also by the percentage of time/effort put into these activities compared to all the goals outlined by our partners. I won't reflect on all of our goals as many of them have remained constant, but I would like to reflect on a few notable achievements.

Between 2012 and 2015 our cooperation efforts doubled from 5% to 10%. Restoration efforts more than doubled from 2% in 2012 to 6% in 2015. Prevention has held a steady course averaging 10% of our overall effort and the real kicker is our Education and Outreach which (this year alone) exceeded our targets by 70%. These numbers show that we are indeed headed in the right direction.

A *shout out* for our Education sub-committee (who aside from their own work) have met regularly to benefit our PRISM and also to our Steering Committee who have also taken time from their own priorities to benefit the partnership.

And of coarse a big **Kudos** to all of the SLELO PRISM partners for your commitment to our natural assets and to our partnership. It is collaboration that makes us successful.

~Rob Williams

SLELO PRISM Partners

- Cornell Cooperative Extension Offices
- The Nature Conservancy
- NYS Department of Environmental Conservation
- NYS Office of Parks, Recreation & Historic Preservation
- NYS Department of Transportation
- NY Sea Grant
- Ducks Unlimited
- Soil & Water Conservation Districts
- Fort Drum Military Installation
- Tug Hill Tomorrow Land Trust
- Tug Hill Commission
- Save The River
- Audubon - Central NY Chapter
- Thousand Islands Land Trust
- NY Power Authority
- CNY Regional Planning & Development Board

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NYS Invasive Species Council
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C/O The Nature Conservancy, CWNY