SLELO PRISM
St. Lawrence Eastern Lake Ontario Partnership for Regional Invasive Species Management
Teaming Up to Stop the Spread of Invasive Species

AIS Spread Prevention Team Send a Clean, Drain, Dry Message to Boaters

By: Megan Pistolese & Rob Williams

Thanks to the New York State Aquatic Invasive Species Spread Prevention Grant Program, the SLELO PRISM has recently implemented an Aquatic Invasive Species (AIS) Spread Prevention Program, and the season is already underway.

Our AIS spread prevention team, Shannon Malone, Jacqueline Novak, Bryna Daykin and Kaitlyn Linerode, are hard at work educating boaters about aquatic invasive species and sending the message to Clean, Drain, Dry watercrafts and equipment to help stop the spread of aquatic invasive species.

Over the next three years, the SLELO AIS spread prevention team will be stationed at four strategic locations along Eastern Lake Ontario: Oswego Harbor, Henderson Harbor, Sackets Harbor, and Cape Vincent. They will provide watercraft inspections in search of aquatic hitchhikers, as well as conduct short voluntary surveys that will help provide information and guidance for invasive species management initiatives.

Although the season got to a late start, a total of 402 boaters have already been engaged by the team; of those engaged, 12% were from out of state, 88% reported that they take steps to prevent the spread of invasive species, 27% had aquatic organisms on their boats, and 92% received "Clean, Drain, Dry" literature. Surveys also revealed that route 3, 81 and 12-E are the most frequented; and locations recently boated included: Canada, Finger Lakes, Adirondack Lakes, PA, NJ, FL, LA and CT. Kudos to our new AIS Spread Prevention Team!

SLELO Partners are hopeful that this Aquatic Invasive Species Spread Prevention Program, when combined with other partner steward programs, will help to "close the gate" on the spread of AIS to and from the Great Lakes and inland waters.

2016 Boat Launch Stewards: Ccockwise from top left: Kaitlin Linerode, Jacqueline Novak, Shannon Malone and Bryna Daykin. Photo credit, Rob Williams.

Early Detection Team

By: Ashley Gingeleski & Ben Hansknecht

The 2016 SLELO PRISM Early Detection Team is hard at work. Benjamin Hansknecht and Ashley Gingeleski are hitting the ground in search for priority invasive species at 12 different Priority Conservation Areas (PCA's) within our PRISM, with a special project focus in the west branch of Fish Creek in search of Carolina fanwort (*Cabomba caroliniana*).

Fish Creek runs south from Kasoag Lake and connects to Oneida Lake. Carolina fanwort has established itself in Kasoag Lake, and there is concern about the spread of this invasive species downstream via Fish Creek.

Oneida Lake has public access points in Madison, Oswego, Oneida, and Onondaga counties and is a popular water body for fishing and recreation. Survey sites along the west branch of Fish Creek will include fishing access areas and bridge overpasses that intersect the waterway. Shore tosses using the rake toss method to survey the aquatic plant life will be conducted where canoe access is limited. Early detection work such as this is a significant part of invasive species management, as preventing the spread of potential emerging invasive species populations requires less effort than managing established populations.

Benjamin Hansknecht and Ashley Gingeleski searching for priority invasive species! Photo Credit: George Stowers

Rapid Response Efforts

By: Ed Miller & Mike Parks

Pictured above Ed Miller . Photo credit: Mike Parks.

Mike Parks and Ed Miller, also known as our Rapid Response Team, are working hard in efforts to control priority invasive species such as, black and pale swallow wort (*Cynanchum rossicum syn. Vinetoxicim rossicum*) and giant hogweed (*Heracleum mantegazzianum*), within Priority Conservation Areas (PCA's).

Our team has completed treating giant hogweed for this season, treating an estimated 31 sites. Treatment includes manual and chemical measures. Our rapid response team is also responsible for the confirmation of reported invasive species sightings and has a busy summer ahead.

The SLELO PRISM is partnering on a statewide collaboration to eradicate giant hogweed. To report a local hogweed sighting please call the PRISM's main office at 315-387-3600 extension 7725. Outside of our region, reports can be submitted by calling the Hogweed Hotline at 1-845-256-3111

Early detection and rapid response efforts play a key role in SLELO PRISM's management strategies; efforts such as these aid in preventing the spread of invasive species—a core value in our mission. Thanks to all our seasonal workers and partners for your efforts!

eDNA & Video Surveillance

By: Nate Fedrizzi – eDNA Project Coordinator

Though impossible to see with the naked eye, organisms are constantly shedding DNA into the environment. These invisible traces of waste, skin, mucus, gametes and more contain valuable information about the organisms that leave them behind. Recent advances in genetic sampling methods have made it possible to put this environmental DNA, commonly called **eDNA**, to work as a promising new tool for environmental conservation.

By collecting water samples directly from the environment, eDNA methods can reveal which species have passed through a given area during a certain window of time. These snapshots of local biodiversity can be particularly useful in areas where traditional sampling is difficult, such as deep aquatic habitats. Environmental DNA is also useful for the identification of small or cryptic populations, which can be difficult to detect using other methods. This makes eDNA sampling a valuable tool for the early detection of aquatic invasive species, as it enables detection of "target assessment species" before populations become too large, and eradication is still a viable management strategy.

While eDNA methods have been available for some time, the high cost of genetic sampling had previously limited its use as an early detection tool. Recent declines in cost have changed that equation, and opened the door to new environmental search strategies. The SLELO partnership is collaborating with The Nature Conservancy to investigate the potential of eDNA sampling as a feasible early detection tool for invasive species in the Eastern Lake Ontario watershed.

The eDNA project will assess downstream and upstream sites at four key tributaries of Lake Ontario: the Salmon River, Oswego River, Chaumont River, and French Creek. Samples will be collected regularly throughout the summers of 2016 and 2017, and subsequent genetic analyses will be performed at Cornell University in the lab of Dr. James Casey. The effort will also invite public participation through citizen science volunteer opportunities. This project also includes an underwater video surveillance component, which aims to enhance public outreach through visual media. If successful, this project may serve as a model for the early detection of invasive species that can be replicated throughout the region.

To date, eDNA has revealed only the round goby (*Neogobius melanostomus*) near the Oswego Harbor and Salmon River. Other sample site results are pending. Underwater video surveillance also reveals the goby along with yellow perch (*Perca flavescens*), largemouth bass (*Micropterus salmoides*), pumpkinseed sunfish (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*) and common crayfish (*Cambarus spp*).

Pictured above: Nate Fedrizzi preparing a high definition, color submersible camera for video surveillance. Pictured below: Nate Fedrizzi filtering a water sample for DNA. Photo Credits, Rob Williams, SLELO PRISM.

Species Profile:
Invasive Waterfleas

By: Megan Pistolese

The boating season is underway but before you grab your shades and head out for a day on the water, take note that your boating and water recreational activities may have some unplanned impacts. As you travel from one waterbody to another you could be unknowingly spreading aquatic hitchhikers such as the invasive species, spiny waterflea *(Bythotrephes longimanus)* and the fishhook waterflea *(Cercopagis pengoi)*.

A species of zooplankton, spiny and fishhook waterfleas get their names from their distinctive barbed and hook-like tail spines which make them an unfavorable food source to predator fish species— as these sharp obstructions can harm the soft flesh of fish and other predators. This characteristic gives spiny and fishhook waterfleas a competitive edge over native waterfleas as their populations are able to grow virtually free of natural predators. Populations of spiny and fishhook waterfleas can also grow rapidly due to their capability to reproduce both sexually and asexually, as well as through cloning. These qualities create an invasive species population that can reproduce quickly without natural predation which is a recipe for some negative impacts.

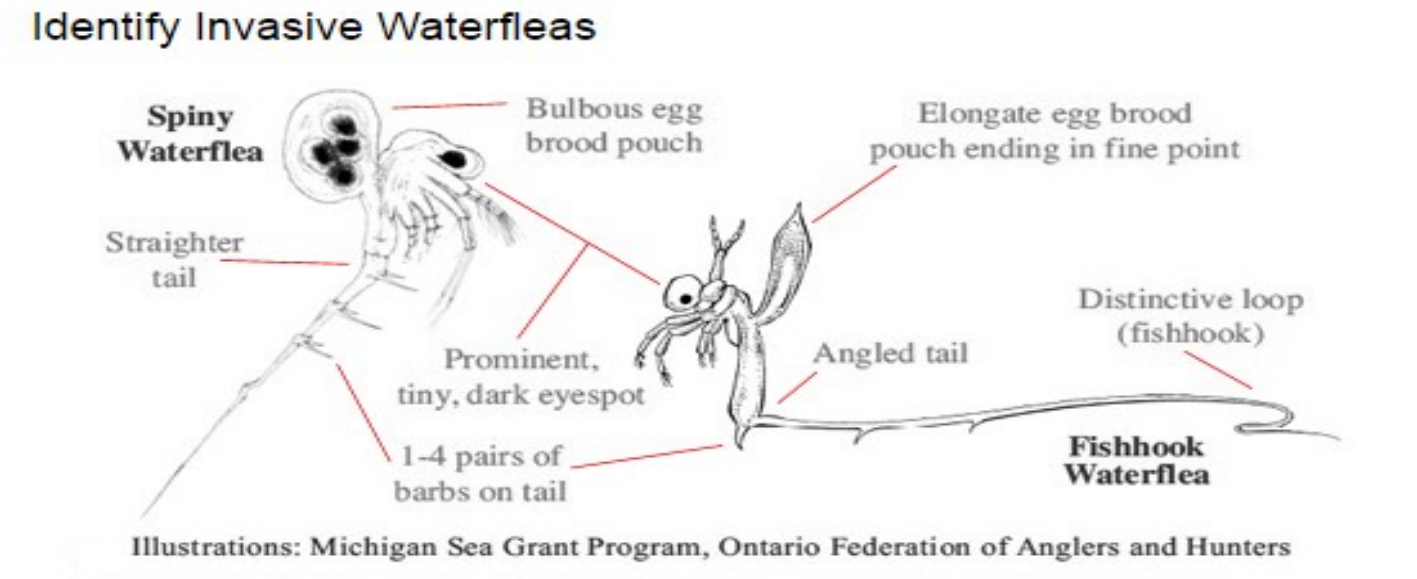
Despite their small size, these invasive waterfleas can have a big impact on aquatic food webs as they prey on other zooplankton—a major food source in the aquatic ecosystem. Food web disruptions impact the entire aquatic ecosystem as various species from each trophic level, such as game fish, often lose a vital food source.

Spiny and fishhook waterfleas not only alter aquatic food webs, they also hinder recreational angling and commercial fishing as their tails contain small barbs that easily catch and jam up fishing reels and clog commercial netting and trawl lines.

Invasive waterfleas stuck to a fishing line. Photo credit: http://usfoundation.net/blog/spiny-water-flea/

If you notice something that has an off-white cotton like appearance on your fishing line you may have picked up some of these critters, below are a few identifying factors of spiny and fishhook waterfleas.

For More Information Visit:
(http://www.invadingspecies.com/invaders/invertebrates/spiny-and-fishhook-waterflea/)



An Update on Water Chestnut Biocontrol Research at Cornell University

By: Audrey Bowe, Research Assistant at NYISRI

Research on the biocontrol of water chestnut (*Trapa natans*) made a great advance last week with the arrival of several hundred potential biocontrol agents, *Galerucella birmanica*, at Cornell University from the Wuhan region of China. The beetles were hand collected in the field by the project's principle investigator Dr. Bernd Blossey of Cornell University, and Chinese collaborator Dr. Jianqing Ding of the Wuhan Botanical Garden, during a research trip to China last week. Upon arriving in the US, the biocontrol candidates were transported to Cornell's Sarkaria Arthropod Research Laboratory (SARL), a quarantine facility where experiments can be conducted without risking the escape of beetles into the wild.

Dr. Blossey and his research team (which includes Dr. Andrea Davalos and several research assistants) have been preparing for the arrival of *G. birmanica* since last fall. Water chestnut plants have been propagated in outdoor tanks to provide a reliable source of food for the beetle colony while in the quarantine facility.

Over the next few weeks, Dr. Blossey's team will conduct a series of experiments, including host-specificity tests to determine whether these beetles are able to feed and/or develop on any plants other than water chestnut. This is a key requirement of the biocontrol approval process.

During these experiments, *G. birmanica* adults and larvae will be offered native plants and plants of economic importance in a series of feeding tests and observations will be recorded. These results will be the backbone of an application for field release to federal and state authorities should *G. birmanica* be considered sufficiently host specific. Preliminary tests conducted by our collaborator Dr. Ding indicate that *G. birmanica* is highly specific to water chestnut, and we are hopeful that this will hold true in our coming experiments. This research is supported by EPF funds administered through the NYDEC and has been endorsed by the SLELO PRISM as a research priority.

Pictured above: water chestnut plant. Photo credit: Mat Levine.

Pictured above: (*Galarucella birmanica*). Photo by: www.galerie-insect.org.
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Swallow-wort Biological Control Agent– Update

By: Megan Pistolese, with Contributions from Lindsey Milbrath & Rob Williams

Another biocontrol agent, *Hypena opulenta*, a type of moth native to Ukraine, is awaiting approval for use in the United States to suppress pale and black swallow wort (*Cynanchum spp.),* pictured below.

Swallow wort pods photo credit: John M. Randall, The Nature Conservancy, Bugwood.org. Black flowers of black swallow-wort photo credit: Rob Boutledge, Sault College, bugwood.org. Pink flowers of pale-swallow wort photo credit: Lower Hudson PRISM.

Biological control agents are often considered to be an effective long-term management approach to established populations of invasive species.

In 2013, biocontrol agent *H. opulenta* was released in Canada, and research has shown that it has the ability to survive brutal winter conditions. However, defoliation of tested swallow-wort infestations have been minimal due to low population levels of the biocontrol agent.

Lindsey Milbrath and other researchers at the USDA-ARS weed biocontrol lab in Ithaca, NY are hopeful that *H. opulenta* could serve as a viable tool for swallow-wort control initiatives in the United States. Model projections predict that *H. opulenta* may be slightly less effective in particular field situations, such as sunny open fields, due to swallow-wort's tolerance to damage under high light conditions. In order for field trials to occur in the US, a series of federal permits must first be filed and accepted; therefore a timeframe for *H. opulenta* as a biocontrol agent in the US is currently unknown. It is indicated that the permitting process is nearing a resolution and field trials will hopefully begin soon.

Adult month , *H. opulenta.*
Photo credit: Jeromy Biazzo, USDA-ARS

Salmon River Riparian Restoration

By: Megan Pistolese

On Friday June 3rd, volunteers came together to restore sites that had been treated for Japanese Knotweed as part of our partnership's Salmon River Initiative.

A total of 100 eastern white pine (*Pinus strobus*) transplants were planted along the Salmon River in Pulaski. Restoration efforts such as this help reduce the susceptibility of treated or disturbed sites to the reestablishment of invasive species. The trees that were planted, along with previously planted native grasses and live stakes using on-site native plant material, will help to expedite the restoration process. Thanks to the landowners and volunteers who helped with this effort! (To view the Salmon River Initiative Final Report visit www.sleloinvasives.org under Resources tab-Info Sharing-Downloads/Reports.)

Salmon River Restoration Project Volunteers; From left: Megan Pistolese, Garrett Brancy, Nate Fedrizzi, Rob Williams, Preethi Moorthy, and Brian Usobiaga
Photo Credit: Louis Guerrieri, tree planting volunteer.

Spring iMapinvasives Training

By: Megan Pistolese

iMapinvasives 2016 training. Photo credit; Megan Pistolese, SLELO PRISM.

A record number of individuals (38) participated in this year's iMapinvasives training event held in Watertown, on June 9th. Participants learned how to identify SLELO PRISM priority species along with basic and advanced iMap data entry skills. iMapinvasives also has a new "mobile app" that is very user friendly and allows users to upload observations while in the field. Trainings such as this empower citizens by giving them a platform to report invasive species observations which in turn provides vital information used for invasive species management strategies.

Thank you to Sue Gwise and our partners at the Cornell Cooperative Extension of Jefferson County, Jennifer Dean from the Natural Heritage Program and to The Nature Conservancy, CWNY for making this year's iMapinvasives Training Workshop a success!

Fanwort Workshop Success

By: Megan Pistolese

SLELO PRISM hosted a Fanwort Workshop on Friday June 17th as a response to a sighting of the invasive species fanwort (*Cabomba caroliniana*) in Kasoag Lake. The SLELO early detection team has completed a search of highly probable areas (HPA's) along the west branch of Fish Creek (a connecting water way between Kasoag Lake and Oneida Lake) to determine if fanwort may be moving towards Oneida Lake. The workshop was organized to help local area volunteers to identify fanwort and to increase volunteer monitoring for this species of concern. Thirteen volunteers participated in the workshop. Thanks to all who contributed to the success of this event.

Above: Scott Kishbaugh,
NYS DEC explaining identifying characteristics of fanwort:
Photo by: Megan Pistolese

Early detection team demonstrates a rake toss.
Photo credit, Megan Pistolese

Thank you to the Williamstown Town Hall for the use of their facility for this workshop.

Upcoming Partner Events

- **Emerald Ash Borer Workshop**. Friday July 15th,from 9am-2pm. Wellesley Island State Park, 44927 Cross Island Rd. Fineview, NY . Learn about the impacts of EAB and join a volunteer monitoring network.
  Pre-register by contacting: Megan Pistolese, 315-387-3600; megan.pistolese@tnc.org.

- **Port Ontario Citizen Science Event**. Saturday July 16th, 8:30am. Pine Grove Boat Launch, 7101 State Rt. 3 Pulaski, NY . Bring a kayak , canoe, personal floatation device, water and a lunch.
  Contact: John DeHollander, 315-592-9663; john.dehollander@oswegosoilandwater.com .

- **Hemlock Woolly Adelgid Workshop**. Saturday November 12th, 11am-3pm. 4-H Amboy Education Center, 748 Rt. 183 Williamstown, NY. Come learn about the impacts of HWA and join a volunteer monitoring network.
  Pre-register by contacting: Megan Pistolese, 315-387-3600; megan.pistolese@tnc.org .

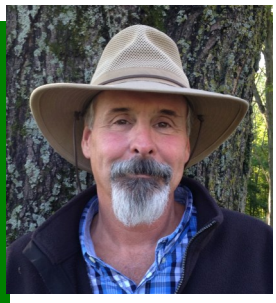
Welcome To Our Partnership

By: Megan Pistolese

SLELO PRISM is proud to welcome the U.S. Coast Guard Auxiliary (CGAUX) Division 1 to our partnership. The CGAUX is present in all 50 states as well as Puerto Rico, the Virgin Islands, American Samoa, and Guam. The CGAUX is recognized by Congress, and consists of civilian volunteers who are committed to promoting and improving recreational boating safety, and enhancing the safety and security of US ports, waterways and coastal regions. The CGAUX will be a beneficial partner to the SLELO PRISM as they focus efforts on improving the knowledge, skills and abilities of recreational boaters— an initiative that provides a clear pathway not only for safety issues but also for invasive species awareness. The Auxiliary will be handing out invasive species information on behalf of the SLELO PRISM.

SLELO PRISM Prevention "Watch" List

Mile-A-Minute Vine	(*Polygonum perfoliatum*)
Didymo	(*Didymosphenia geminate*)
Hydrilla	(*Hydrilla verticillata*)
Asian Long horned Beetle	(*Anoplophora glabripennis)*
Hemlock Woolly Adelgid	(*Adelges tsugae*)
Silver, Big Head and Grass Carp	(*Ctenopharyngodon spp.*)
New Zealand Mud Snail	(*Potamopyrgus antipodarum)*
Hemimysis	(*Hemimysis anomala*)
Asian Clam	(*Corbicula spp*)
Kudzu	(*Pueraria lobata*)
European Boar	(*Sus scrofa* Linnaeus)
Porcelain Berry	(*Ampelopsis spp.)*
Water Soldier	(*Stratiotes aloides*)
Rusty Crayfish	(*Orconectes rusticus*)
Water Hyacinth	(*Eichornia crassipes)*
Fanwort	(*Cabomba caroliniana*)



COORDINATOR'S COLUMN

Strength of Partnerships

New York's Partnerships for Regional Invasive Species Management represent a unique approach to solving the invasive species crises in North America. As New York continues to be a continental hub for the import/export of goods and products (the bases for invasive species introductions), the importance of this effort and approach is unprecedented. The success of PRISMs is strengthened by the capacity of their member organizations to build and sustain strong, lasting partnerships and to focus strategically on the threats posed by invasive species.

As I've mentioned in past columns, I can't speak highly enough about our partners. Our collective interest in the subject matter is unsurpassed; there is a tremendous amount of expertise within our partnership. We are engaged, motivated and work extremely well together. This type of collaboration represents the strength of our partnership and our host organization creates the foundation upon which we exist.

As a collective, our contributions and accomplishments continue to grow. We have established one of the most diverse and effective partnerships in New York State collaborating to solve invasive species problems.

We have embraced a new partner over each of the past three years to strengthen our collaborative efforts. We have implemented our first ever aquatic invasive species (AIS) spread prevention team along Eastern Lake Ontario which, when combined with other partner's teams, "begins to close the gate" on the spread of AIS between the Great Lakes and inland waters. We have restored significant portions of the Salmon River corridor— a world class cultural resource and fishery including habitat that supports rare and NYS Protected species. We have introduced new innovative science to solve AIS problems using environmental DNA. We have successfully advocated for the research needed for two biological controls for high profile invasive species.

PRISMs across New York play a vital role in solving problems and protecting ecosystems. From the Great Lakes to the Adirondacks, Long Island and across the Finger Lakes we, along with our host organizations, are on the front lines of protecting valuable natural assets. As a PRISM leader I am humbled to represent such a strong and robust partnership based initiative in the St. Lawrence and Eastern Lake Ontario region.

~ 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
- US Coast Guard Auxiliary

Acknowledgements:
NYS Invasive Species Council
The NYS Environmental Protection Fund

C/O The Nature Conservancy, CWNY