SLELO PRISM

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

Teaming Up to Stop the Spread of Invasive Species

The Resources We Protect

By: Rob Williams, I.S.P.C.

Invasive species of plants, animals, insects and microorganisms are among the most serious threats to native species, habitats, ecosystems and even public health. They are introduced usually through human activity and once established locally almost always out-compete, damage or eliminate native species, resulting in serious disruptions in ecosystem processes and balance. These processes include such things as the interdependency on food and habitat, hydrology, nutrient cycling, natural succession, soil erosion and water quality.

Above: Grenadier Island on the St. Lawrence River. Grassland Conservation Area. Photo by Mat Levine.

The St. Lawrence Eastern Lake Ontario region is host to many types of important natural areas to include: freshwater resources, wetlands, fens, grassland conservation areas, alvars and forests.

From a freshwater resource perspective the importance of our region cannot be underestimated. Eastern Lake Ontario connects the Great Lakes with inland waters and vice versa. Recent aquatic invasive species spread prevention initiatives have determined that boaters who enter and exit eastern Lake Ontario travel around the entire eastern United States from Canada to Florida, westward to the Ohio River and southwestward to Texas. In other words, eastern Lake Ontario and the inland waters of the SLELO region are highly probable areas regarding the potential spread and introduction of invasive species.

Preventing the introduction and spread of invasive species is the most cost-effective primary management strategy. It involves the identification of new threats, their likely pathways, along with implementing measures to prevent their arrival or control their spread into the region. It involves an early detection component and the ability to respond rapidly and effectively. Educating the public and preparing local communities is the cornerstone of any effort to combat invasive species. The more people that are aware of invasive species issues and the better prepared that our communities are to deal with invasive species, the better equipped we will be at minimizing the impacts of invasives on our culture, economies and our ecosystems.

SLELO PRISM partners have been focused on delivering a strategic work plan that identifies long-term goals and strategies that will help our partners effectively mitigate the impacts of invasive species on critical lands and waters or Priority Conservation Areas (PCAs) within our region. Strategic initiatives have involved four key areas: prevention, early detection/rapid response, public education and the sharing of information.

Above: Chaumont Barrens Alvar Preserve showing rare Prairie

A peek inside this newsletter will expand upon some of our initiatives that collectively help to protect the areas we consider to have high conservation value, to us, to visitors and to nature.

Underwater Video Reveals Native Fish

By: Rob Williams

As part of our Eastern Lake Ontario eDNA initiative, we are utilizing underwater video technology not only as a hands-on citizen science tool but also to determine its practicality as an early detection tool. Over this past summer nine species of fish have been videotaped from four locations, documenting at least one invasive species (Round Goby).

Noteworthy is the capture of native species, the Bowfin (*Amia calva*), top right photo, which is considered a primitive fish species, and the River Redhorse (*Moxostoma carinatum*), bottom right photo. Sightings of these native fish species give more purpose to the eDNA initiative considering that it is the native species that invasives displace. Species observed via underwater video include:

Blacknose dace – *Rhinichthys atratulus*
Pumpkinseed – *Lepomus gibbosus*
Yellow Perch – *Perca flavascens*
Crayfish (native) -*Decapoda spp.*
River Redhorse - *Moxostoma carinatum*
Round Goby – *Neogobius melanostomus*
Bowfin – *Amia calva*
Largemouth Bass – *Micropterus salmoides*
Bluegill – *Lepomis macrochirus*
Round Goby – *Neogobius melanostomus*
Brook Silverside – *Labidesthes sicculus*
Sculpin – *Cottus sp.*

Photo Credits: both photos compliments of the SLELO PRISM eDNA Initiative.

Aquatic Invasive Species Spread Prevention Results

By: Rob Williams

2016 marks the first season of an intense effort to reduce the introduction and spread of aquatic invasive species (AIS). Through a $100k grant from the NYS DEC Invasive Species Spread Prevention Grants Program (NYS Environmental Protection Fund), four AIS stewardship specialists were strategically placed at high-use/high priority boat launches along Eastern Lake Ontario, and the data collected tells a real story.

So far the data has revealed that 1,031 boaters were engaged, of which 14% were from out of state. Aquatic organisms were found on 26% of all water craft (up to 41% in the late season); 59% were fishing vessels, 40% were recreational and 1% were utility boats. The top three travel routes were NYS Route 3, NYS Route 81 and Route 12-E in northern New York. Interestingly (and in terms of the potential to import and export aquatic invasive species), boaters were asked where they have recently boated and/or where they are headed to next. The responses were: Canada, Florida Keys, Alabama, Louisiana, Finger Lakes, Adirondack Lakes, Pennsylvania, New Jersey, Connecticut, Texas, Hudson River and the Ohio River. The owners of watercrafts and trailers with visible plants and organisms are educated and encouraged to clean, drain and dry all equipment prior to entering another waterbody.

Photo Credit: Rob Williams; Pictured clockwise from top left: Kaitlyn Linerode, Jacqueline Novak, Shannon Malone, & Bryna Daykin .

Fanwort has Invaded Kasoag Lake

By: Mary Augustus

Located in Oswego County in Williamstown, NY, Kasoag Lake has been invaded by an aquatic invasive species called Fanwort (*Cambomba Caroliniana*). Kasoag Lake is a manmade publicly accessible lake composed of four joining bodies of water. Since its creation in 1810, the lake has served as a place of enjoyment for residents and visitors.

In 2011 an intriguing, bright green plant was detected. That plant turned out to be an aquatic invasive species known as Eurasian water milfoil, and little did we know it would become a very difficult plant to manage. Kasoag Lake has had a problem with this particular aquatic invasive species throughout the Lake for many years. The Kasoag Lake Association members collectively donated the funds necessary to have an herbicide treatment in 2014 in attempt to eradicate the Eurasian water milfoil . The results of this treatment created a disturbed area, which invited a whole new problem…fanwort.

By 2015, part of Kasoag Lake known as "Shingle Mill Creek" was unusable by boaters because fanwort had taken over that part of the lake. In response to the infestation, forty volunteers from the Kasoag Lake Association attempted to hand pull the Fanwort. However, since fanwort is primarily spread by plant fragmentation, the project was called off almost immediately to avoid further spread of the already out of control population.

In an another attempt to get a handle on the infestation, the Kasoag Lake Association members donated over $20,000.00 for herbicide treatment this past summer. In addition, the SLELO PRISM hosted a training workshop and aided in early detection surveys of Fish Creek, which connects Kasoag Lake with Oneida Lake, to determine if fanwort had spread there. Although the treatment did help to eliminate some of the fanwort, there will always be a battle fighting this aquatic invasive species.

The members of the Kasoag Lake Association have become involved in the stewardship of our beloved lake and we will continue to learn how we can best manage this species and stop its spread to other waterbodies. All it takes for fanwort to spread is a plant fragment that hitchhikes on a boat, gets caught on a fishing line or floats downstream. Fanwort is a rapid-growing aquatic invasive species that will be a serious threat to our beautiful lakes if it's spread isn't controlled. Be a steward of our lakes and Clean, Drain, Dry your watercrafts.

Fanwort infestation on Kasoag Lake: Photo Credit, Lauren Googin

Species Profile:
Mile-a-Minute Vine

By: Sue Gwise, Cornell Cooperative Extension

Mile-a-minute vine (*Polygonum perfoliatum*) is an invasive summer annual that is established in all the Mid-Atlantic States, southern New England, North Carolina, Ohio and Oregon. In New York it has been found in the southeastern portion of the state in Suffolk, Nassau, Westchester, Rockland, Orange, Putnam and Dutchess Counties.

The common names for this plant give us a clue as to its invasive and irritating characteristics. 'Mile-a-minute' describes its ability to grow very quickly- up to six inches per day! As a result it outcompetes and literally smothers native species and interferes with forest regeneration by forming dense mats. Another alias for this plant is 'Asiatic tear-thumb'. This refers to its origins in India and eastern Asia and to its ability to literally tear into skin. The stems, petioles and leaf veins are covered with reflexed prickles, or barbs, that are about 1 to 2 mm long.

The leaves are alternate in arrangement and have a triangular or heart-shaped appearance. The leaf surface is smooth, waxy, light green in color, and 3 to 8 cm long. Look for an ocrea (leaf -like sheath pictured below) that circles the stem at the base of the leaf petiole.

Photo Credits (left) Todd L. Mervos, CAES; (right) Leslie J. Mehrhoff, Bugwood.org

This, along with the recurved barbs, (pictured above) indicate a positive ID of mile-a-minute vine. Wild buckwheat leaves are very similar, but they do not have the recurved prickles.

Since mile-a-minute is an annual, its roots do not overwinter. It reproduces by seeds that establish in April. The plant grows rapidly May through August. By the end of the season one plant can be 7 meters (23 feet) long. Inconspicuous greenish white to yellow flowers are present in June, July and August. The resulting fruit is borne in upright clusters of berry-like achenes that are round, Purplish blue to black and shiny (pictured above). The fruit ripens throughout the autumn season. Seeds can survive in the soil for up to seven years and they can float for up to nine days. This aids their distribution in riparian areas. Like most invasive plants, mile-a-minute vine is commonly found on disturbed sites. It prefers full sun and moist, well-drained soil and it will tolerate some shade.

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

They key to controlling this invader is to control the seeds- do not let seeds develop! Hand pulling is effective early in the season before the plants become too dense; the barbs harden and become sharper as the plant matures! Plant material that has been removed should be dried and then burned. Mowing before seed development is also an option as are herbicides.

A weevil that feeds exclusively on mile-a-minute has been released in several parts of the US. By feeding on the leaves it stunts the growth of the plants and delays seed development. It has been shown to reduce the number of seedlings that grow in the spring. As with most invasive organisms, a successful biological control agent offers the best option for control.

Invasive Species Anglers Should Know About

By: Megan Pistolese

Fall is upon us and the Salmon Run fishing season is underway. But while you're out there this season enjoying the great outdoors and the thrill of catching a prized fish, remember that the fish you are trying to catch relies on the overall health of the ecosystem they call home, which may become threatened by the impacts of invasive species. There are thousands of invasive species that have invaded our country, but out of those large numbers there are a select few that can have a real impact on our local fisheries that anglers should know about such as: Japanese knotweed, rusty crayfish and didymo.

Japanese knotweed is a perennial plant native to Asia with bamboo-like stems, large ovate leaves, and distinctive white flowers (pictured below).

Japanese knotweed, photo credit: Leslie J. Mehrhoff, University of CT, Bugwood.org

Japanese knotweed was intentionally introduced through the nursery trade, later becoming recognized as invasive. It is particularly damaging to riparian and wetland habitats, and poses a serious threat to the ecology of the Salmon River. Knotweed is capable of completely dominating the plant populations in the areas it invades. This in turn can suppress the growth of more beneficial trees and shrubs, potentially altering habitat conditions , such as stream water temperatures, as well as reducing the availability of food for plant eating insects and the species that rely on them such as game fish. Knotweed is easily spread by plant fragmentation so be sure to avoid walking through it .

Rusty crayfish are a crustacean native to the Ohio River Valley. Crayfish are difficult to identify and for positive identification contact your local fishery management agency. Rusty crayfish do however, have a few distinguishing characteristics; they are generally larger in size than native crayfish and have more robust claws with black tips, and rusty-like spots on each side of their carapace (shell) that look as though you picked up the crayfish with paint on your forefinger and thumb (depending on environmental conditions, these spots may not always be visible). Rusty crayfish have the ability to negatively impact fish populations by disrupting the food web, eating fish eggs, and reducing the aquatic vegetation habitat needed for spawning and nesting. Anglers can help stop the spread of rusty crayfish by not using them as bait.

Rusty crayfish, photo credit, Ontario's Invading Species Awareness Program, invadingspecies.com

Didymo is a microscopic diatom (single-celled algae) that is currently found in the Delaware River. It looks and feels like wool. It forms large mats on the bottoms of rivers, streams and lakes. It has the ability to destroy critical habitat for fish and their prey species and disrupts spawning areas. Didymo is easily transported by fishing waders and equipment. An introduction of didymo would be particularly devastating to the Salmon River in Pulaski New York. To help reduce the spread of didymo, please clean fishing gear and shoe bottoms and refrain from wearing felt-bottom waders while fishing.

Didymo, photo credit, Minnesota Sea Grant,

The 2016 SLELO PRISM Field Season at a Glance

The SLELO PRISM had a successful field season. Our efforts are summarized below:

EARLY DETECTION SURVEILLANCE

- Completed early detection assessments on twelve priority conservation areas.
- Assisted with early detection surveillance for fanwort (*Cabomba caroliniana*) on 49 miles of the West Branch of Fish Creek/Kasoag Lake.
- Surveyed for emerald ash borer near the St. Lawrence River and hemlock woolly adelgid in eleven highly probable areas in the southern Tug Hill Region.

SPREAD PREVENTION/CONTROL

- Treated 60 giant hogweed sites using three different methods (15 sites now considered eradicated).
- Treated 5 different invasive species within 11 priority conservation areas.
- Assisted in the control and removal of over 192 cubic yards of water chestnut plants in multiple areas.

EDUCATION/OUTREACH

- Delivered 10 educational and outreach events on various invasive species topics across all five PRISM counties.
- Developed 13 new brochures showcasing all SLELO PRISM target & watch Species, including brochures featuring what anglers & boaters should know about invasive species and a brochure highlighting the PRISM network.

SPECIAL PROJECTS

- Implemented our first ever Aquatic Invasive Species Spread Prevention/Boat Launch Steward Project.
- Implemented year-1 of our Environmental DNA and Underwater Video Aquatic Species Project.
- Provided resources for a "Play, Clean, Go" boot brush initiative.
- Provided resources to the Kasoag Lake fanwort initiative.
- Created and posted permanent Japanese knotweed signs at various locations.
- Provided resources for Aquatic Invasive Species disposal stations.

VOLUNTEER MONITORING AND CITIZEN SCIENCE

- Conducted five citizen science events focusing on Emerald Ash Borer, Pollinator Pathways, Integrated Pest Management, Fanwort, & Hemlock Woolly Adelgid.
- Engaged volunteers for both our eDNA project and our Boat Launch Steward Project.

SITE RESTORATION

- Planted native seed on just over 50, 000 square feet of treatment areas.
- Planted 100 Eastern White Pine trees along the Salmon River Corridor.

Featured to the left is a group photograph of the partners who attended the July SLELO PRISM partner meeting. Thanks to all who regularly attend our meetings.

Photo Credit: Rob Williams; Clockwise from the left: Kate Breheny (Save the River), Megan Pistolese (SLELO educator), Maria MoskaLee (DEC), Shannon Malone (SLELO boat launch steward), Bryna Daykin (SLELO boat launch steward), Mike Parks (SLELO rapid response member), Victoria Rose, Carla Malmgren (Tug Hill Commission), Bonnie Parton (DEC), Nate Fedrizzi (SLELO eDNA technician), Ben Handsknecht & Ashley Gingeleski (2016 SLELO early detection team) Chris Sherwood (New York Power Authority) Chris Balk (DEC), Stephanie Larkin (DEC), Water Chestnut Assault Team in yellow shirts (Joe Dyson, Peter Vitiello, Kiersten Williams, and Allie Henderson) *Ed Miller (SLELO rapid response member) Knelt in front: Kaitlyn Linerode & Jacqueline Novak (SLELO boat launch stewards), Irene Mazzocchi (DEC) & Sue Gwise (CCE).*

Upcoming Partner Events

NYSDEC Great Lakes Action Agenda (GLAA) is hosting work groups for stakeholders and interested parties in the SLELO Region on the following date:

- **Northeast Lake Ontario Work Group:** October 25th, 10:30am-2pm @ Keewaydin State Park Marina Pavilion 45165 NY route 12 Alexandrea Bay.

**This work group provides a unique opportunity to connect with other groups and agencies working locally and to address issues that impact the overall quality of New York's Great Lakes Basin.*

2016 Cornell Agriculture & Food Systems In-service will be held at the ILR Conference Center in King-Shaw Hall on Cornell's campus from Tuesday, November 1 through Thursday, November 3, 2016. Information on the general schedule, lodging and more is available on the web at http://aginservice.cce.cornell.edu.

Hemlock Woolly Adelgid Workshop: Saturday, November 12th from 11am-3pm at the 4-H Amboy Education Center located at 748 rt. 183 Williamstown, NY. The event is free and open to the public. Please contact Megan Pistolese to **pre-register** at 315-387-3600 x 7724 megan.pistolese@tnc.org

Save the River's Educator Workshops:
Two workshops will be held on Wednesday, November 2 in room 20104 at the Jefferson Lewis Program for Exceptional Students located on state route 3 in Watertown NY:

- **Elementary School Educator Workshop:** will be held on Wednesday November 2 9am-11:30am.
- **Middle and High School Educators Workshop:** will be held on Wednesday November 2 12:30pm-3pm.

To attend please preregister by Friday October 28th with Kate Breheny at 315-686-2010 kate@savetheriver.org

**Save the River's Educator Workshops aim to introduce educators to Save the River, their mission, and opportunities to integrate the Jr. River Keeper Program into the classroom.*

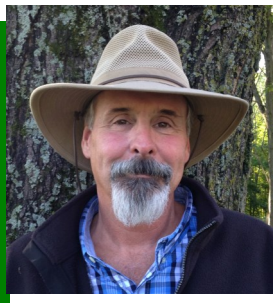
SAVE THE DATES

Save the River's 28th Annual Winter Environmental Conference: Save the date for Saturday, February 4th 2017 at the 1000's Islands Harbor Hotel 200 Riverside Drive Clayton NY . For more details call 315-686-2010.

2017 Eastern Lake Ontario Invasive Species Symposium: Save the date for Wednesday, June 7th 2017. More information to be announced.

SLELO PRISM Prevention Species "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

A "Pitch" for Restoration

Protecting important habitats including the ecological and biological diversity within high value natural areas often involves suppressing or eradicating low abundance populations of invasive species within these Priority Conservation Areas (PCAs). And as we all know, this type of control work (whether it be manual, mechanical or the use of herbicides) sometimes results in the creation of a disturbed area, especially when doing more than simple "spot" treatments. Many invasive species, especially terrestrial plants, are opportunistic and tend to populate areas that have been disturbed, including areas disturbed as the result of prior invasive species management. It therefor becomes important to encourage resource managers to close the loop between treatment and restoring sites to their native ecological characteristics and functions.

Restoration efforts may incorporate natural succession or intentional restoration measures. Both techniques require encouraging or using species native to the particular ecosystem in question to help restore resilience and guard against re-infestations. Ideally a site restoration plan should be considered prior to taking a rapid response action. However, some rapid response actions may begin as a small scale effort only to transform into a larger scale effort requiring restoration measures.

Some considerations for restoration initiatives may include:

- ◊ Setting clear objectives and a clear vision for the site in question including how *people* interact with the site.
- ◊ Identify the ecosystem function that you are trying to enhance or maintain.
- ◊ Develop a list of what naturally grows there (native species) and determine the availability of plant materials and/or species either purchased or transplanted.
- ◊ Choose Certified "weed free" nursery stock that is adapted to the region you are working in.
- ◊ Collaborate with partners and stakeholders.
- ◊ Monitor your results and share the lessons learned.

Examples of successful restoration projects include: The Salmon River Restoration Project (Japanese knotweed) the Connetquot River Preserve Project (Southern Pine Beetle), and the Catlin Creek Project (Northern Snakehead). A well thought out restoration plan will increase the success of the project along with establishing a higher resiliency towards the return of invasive species at the site being restored.

~ 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

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NYS Invasive Species Council & Advisory Committee
The NYS Environmental Protection Fund

C/O
The Nature Conservancy, CWNY
As Host Organization