SLELO PRISM

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

Teaming Up to Stop the Spread of Invasive Species

Drones, a New Conservation Tool

By: Mat Levine – Conservation Land Manager at The Nature Conservancy

Unmanned aerial systems (UAS) – or drones as they are commonly called – are a promising new tool for conservation professionals. The technology is readily available and innovative applications ranging from acquiring real-time aerial imagery to detecting flora and fauna are being developed by conservation organizations around the world. In Central and Western New York the Nature Conservancy is testing the efficiency of drones to monitor remote conservation lands, invasive species and wetland restoration outcomes.

The new drone – a micro UAS weighs just 2.75 pounds. It is equipped with an ultra-high definition camera and safety features including automatic return to home functionality. Staff have been busy testing the drone's capacity since its acquisition in February 2016. Late winter flights at a wetland restoration site in Ontario County produced 3D wetland elevation maps and detailed videos of site conditions. A fly-over of The Thousand Acre Swamp preserve in Monroe County gave land managers an in depth view of the forested floor in an expansive maple and ash wetland.

The Nature Conservancy is working with the SLELO PRISM to test drone capacity to detect invasive Japanese Knotweed (*Fallopia japonica)* along stream corridors in Northern New York this coming summer. Similarly, The Adirondack Park Invasive Plant Program PRISM is in the early stages of employing a micro UAS to detect patches of invasive Phragmites (*Phragmites australis).* Multiflora rose (*Rosa multiflora)*, honeysuckle (*Lonicera spp)*, and other invasive species that leaf out early in the season are potential candidates for easy detection by UAS fly-overs.

Drones – and in particular micro UAS – can be an efficient tool for: 1) Detecting natural resource conditions, and 2) Producing a diversity of real-time 2D and 3D maps. In addition, detection of invasive species is a particularly promising area for drone applications. Other potential uses include: easement monitoring, trash dumping infractions, forest mortality surveys, flood assessments and even search and rescue. With the technology readily available and reasonably affordable (micro UAS typically range from $500 to $5000) conservation practitioners have a new multi-tool to hang on our belt.

The Nature Conservancy's new drone taking flight. Photo compliments of Mat Levine

Fish Creek Fanwort Assessment "A Cooperative Effort"

By: Rob Williams

Fish Creek is a stream located in Oneida and Oswego counties originating at Kasoag Lake in Oswego County, near the town of Williamstown. The creek meanders southeasterly for approximately 47 miles terminating into Oneida Lake. Both Kasoag Lake and Fish Creek are public fishing areas and although neither waterbodies are on our PRISM's Priority Conservation Area list, Oneida Lake is, and preventing the spread of invasive species into Oneida Lake is a priority for SLELO PRISM.

Fanwort *(Cabomba caroliniana) an invasive aquatic macrophyte* was recently discovered in Kasoag Lake. The Kasoag Lake Conservation Association has taken the initiative to conduct control measures beginning in 2016. There is however concern that fanwort may have found its way into the outlet of Kasoag Lake (Fish Creek), and therefore poses a threat to downstream areas including Oneida Lake.

Photo Credit: Lower Hudson PRISM: http://www.flowgrow.de/db/images/wasserpflanzen/detail/cabomba-caroliniana-var-caroliniana-4f7a014f37c6c.jpg

In autumn of 2015 the SLELO PRISM was approached to assist with conducting a rather intensive assessment of Fish Creek to determine the downstream extent of the fanwort population, if any, and to determine its proximity to Oneida Lake. With PRISM resources already being stretched and given the 47 mile assessment area, partners have come together to form an ad-hoc work group in support of this assessment.

This summer the SLELO Early Detection Team will begin an assessment of several Highly Probable Areas (HPAs) along the length of Fish Creek in search of remote fanwort populations within the creek. This effort may be supplemented with volunteers; this will expand the search in high risk areas along the creek. Our hope is that no additional populations of fanwort will be discovered within Fish Creek.

Pictured above: Fish Creek from Kasoag Lake to Oneida Lake. Red dots depict initial HPA's to be surveyed.

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www.sleloinvasives.org

Urban Conservation: A Pollinator Pathway Project

By: Megan Pistolese

In our highly urbanized world nature tends to take the back seat when it comes to landscape design. This is because the vegetation used for urbanized landscape plans are most often chosen for aesthetic reasons rather than the ecological value held for pollinators and other important wildlife. Loss of habitat to urbanization has caused a rapid decline in pollinator populations; this is a problem because pollinators are responsible for the reproductive success of many agricultural crops and wild plants that we all rely on for survival. Furthermore, urban landscapes are often low in vegetative biodiversity which provide optimal environmental conditions for invasive species to thrive which in turn creates the potential to further degrade the ecological value of an urban landscape. To help increase the ecological value of urban areas and to reduce the susceptibility of these areas to the establishment of invasive species, an urban conservation initiative called a Pollinator Pathway can be implemented.

Photo Credit: Minnie Bredouw, Sarah Bergmann:

A Pollinator Pathway is a series of small "pollinator friendly" native gardens that are strategically placed throughout an urbanized area that provide habitat for pollinators. The main purpose of the project is to plant native species in these gardens to attract and provide pollinators with distinct pathways in an otherwise scattered or barren landscape.

The concept for the Pollinator Pathway was created by a women named, Sarah Burmann; more information on her can be found at: www.pollinatorpathway.com.

The SLELO PRISM and the Cornell Cooperative Extension of Jefferson County have partnered to create a Pollinator Pathway Project in Watertown and surrounding areas. This project differs slightly to Bergmann's original concept as it holds an additional effort to promote natural competition by increasing vegetative biodiversity and abundance in efforts to deter encroachment of invasive species. A workshop for the project was held on Saturday, March 5th at the Cornell Cooperative Extension with excellent participation (53 total attendees) and a strong show of support from the community.

The workshop provided interested attendees with information on how to create a pollinator pathway in their own backyards; participants were also encouraged to document their gardens on YardMap a citizen science project hosted by the Cornell Lab of Ornithology (visit www.yardmap.org for more information).

Project workshop: Photo Credit: Megan Pistolese

***Get Involved! Contact Project Coordinators*:**
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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
(*Potamopyrgusantipodarum*)
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*)

Species Profile:
Eurasian Watermilfoil (*Myriophyllum spicatum L.*)

By: Megan Pistolese

Eurasian watermilfoil (*Myriophyllum spicatum L.*) is a submerged aquatic plant native to Europe, Asia, and North Africa. It invades slow moving deep and shallow freshwater bodies. It was accidently introduced to North America between the 1800's and 1940 (nyis.info). *M. spicatum* is widespread throughout the United States and has become very abundant in northeastern parts of the country.

Eurasian watermilfoil is difficult to distinguish from native milfoil species, but there are a few distinctive characteristics to look for. *M. spicatum* has **more than 12 pairs of leaflets**, while native watermilfoil typically has fewer that 12 leaflet pairs. Another unique characteristic of *M. spicatum* is its terminal leader (tip of bud)- it often has a reddish-brown hue.

Photo Credit: Watershed Management Division, http://www.watershedmanagement.vt.gov/lakes/htm/ans/lp_ewm.htm

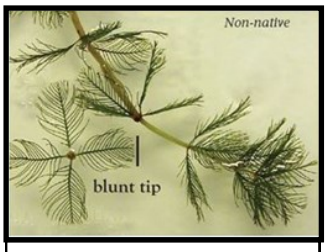

Photo Credit: Wisconsin Department of Natural

Photo Credit: Watershed Management Division, http://www.watershedmanagement.vt.gov/lakes/htm/ans/lp_ewm.htm

The stems of *M. Spicatum* are slender, and commonly grow between 3-10 feet in length sometimes as long as 33 feet. *M. spicatum* has 4-5 leaves that whorl around the stem and contain 9-21 thread like leaflets that resemble bones on a fish spine Flowers are tiny, inconspicuous, and located in the axils of flower bracts with 4 petals or without; flower spikes rise 2-4 inches above the water.

Flowering occurs in early summer continuing for several months; each plant can produce four small nutlike fruits between 2-3mm in size (nyis.info).

Huron River Watershed Council, http://www.hrwc.org/category/invasi

Photo Credit: Vojtech Herman, gobota-ny.newenglandwild.org

Eurasian watermilfoil has a competitive advantage as it tolerates lower water temperatures than most natives which gives it the ability to overwinter and photosynthesize earlier than native plants. This allows *M. spicatum* to grow dense matts along the water surface blocking out sunlight and monopolizing space needed for more beneficial aquatic vegetation. Loss of native vegetation reduces the overall health of the aquatic ecosystem— as it causes a decline in the biodiversity and abundance of important primary and secondary food sources and reduces the habitat available for aquatic wildlife, such as native fish species, to spawn and forage for food. The negative ecological impacts caused by a *M. spicatum* infestation can also result in many economic losses, such as, impairment of recreational activities leading to loss in tourism revenue, and reduced property values.

Eurasian watermilfoil is well established in the region and is not considered a high-priority species for the SLELO PRISM, instead our focus is on preventing the spread of this invasive species. Therefore, it is important that boaters and other water recreationists take special care and keep their watercrafts and equipment clean and free of any plant debris before entering and leaving a waterbody.

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Kudos SLELO Partners !

Recently the SLELO PRISM was represented at a national Science & Stewardship Conference in Austin Texas.

Sponsored by The Nature Conservancy, professionals from coast to coast participated in a week long dialog about science and stewardship including topics on invasive species.

The conference also hosted a poster session whereby project related posters were submitted and juried. Having recently completed a four year project known as the Salmon River Initiative, a poster summarizing this project was prepared and submitted. Competing among 38 submissions from all over the country, our Salmon River Initiative poster received first place recognition. ➡

~ Rob Williams

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Eurasian Watermilfoil (*Myriophyllum spicatum L.*)

Although there are no methods that completely eradicate Eurasian watermilfoil, there are ways in which it can be managed. Early detection and rapid response initiatives are the most effective means of control. Shoreline property owners and lake associations can play key roles in the control of *M. spicatum* by learning how to identify Eurasian watermilfoil and quickly taking action if it is detected. Furthermore, the introduction of excess nutrients and sediments in aquatic ecosystems encourages the growth of *M. spicatum*; therefore, taking measures to reduce nutrient inputs is an integral component to any Eurasian watermilfoil management strategy (Oswego County Environmental Management Council). Since *M. spicatum* is easily spread by plant fragmentation special care should be taken to prevent fragments from floating to new locations; collected plant matter should be burned, buried, composted or disposed of in landfills. Below are a few control methods that can be implemented:

Physical Control: Small populations of *M. spicatum*, such as near docks and swimming areas, can be hand-pulled or removed with rakes; for best results multiple harvests are required throughout the growing season. A benthic barrier can also be used to block out sunlight by covering the infestation with opaque fabric—this method is best used for small areas and steps should be taken to avoid suppressing desired native vegetation. Benthic barriers may require a permit from NYS DEC.

Mechanical Control: Larger *M. spicatum* infestations can be controlled by mechanical harvesters; to avoid spreading the target plant, equipment should be cleaned thoroughly before and after treatment.

Chemical Control: Aquatic ecosystems are sensitive to chemical applications; therefore it is important to contact your local Department of Environmental Conservation for information on appropriate chemical treatments and possible permit requirements. Use of chemical treatment is most effective in still water during the spring while *M. Spicatum* is actively growing.

Biological Control: An herbivorous weevil (pictured below) known as, *Euhrychiopsis lecontie*, has been found to reduce *M. Spicatum* populations.

Euhrychiopsis lecontie, photo credit: Robert L. Johnson, Cornell University, bugwood.org

Citations:

Nyis.info: New York Invasive Species Information: http://nyis.info/index.php?action=invasive_detail&id=27

Oswego County Environmental Management Council: Eurasian Watermilfoil Alert Flyer.

For More Information Visit:

The DEC of Vermont Watershed Division: http://nyis.info/index.php?action=invasive_detail&id=27

Controlling the Spread of Invasive Species on NYPA Transmission Right-of-Ways

By: Chris Sherwood

The New York Power Authority (NYPA) operates 18 generation facilities and manages 16,000 acres of transmission Right-of-Ways that traverse most regions of New York State. 1400 miles of high voltage transmission lines of 115kv, 230kv, 345kv and 765kv must be maintained to ensure the safe and reliable flow of energy to New York's consumers. NYPAs main priorities are to maintain the integrity of the supporting structures that carry those large volumes of power, as well as the vegetation growing on and along the transmission Right-of-Ways. This is done by a vigorous inspection and maintenance of the transmission assets, as well as the implementation of an extensive Integrated Vegetation Management (IVM) program that requires frequent activities along NYPAs Right-of-Ways. Some of the Line Department activities can include: comprehensive line patrol, tower steel replacement, insulator or conductor repairs, road repairs and hazard tree removals to name a few. The vegetation management aspect includes an inventory of the presence of target invasive species within the Right-of-Ways and is used to plan IVM work for the subsequent year. The IVM work itself includes: Low Volume Foliar application (backpack spraying) of herbicide to target species, cut and stump treatment of target species and some selective mowing with track type forestry mulchers.

Although the primary duty of NYPA is to safely and reliably produce power and send it to where it is needed, NYPA also takes pride in being stewards of their Right-of-Ways and have been recognized for this effort. That is why we make all reasonable attempts to limit the spread of invasive species when we are doing any maintenance work. NYPA adheres to the New York Utility Company Best Management Practice (BMP) for Preventing the Transportation of Invasive Species. Basically this includes cleaning equipment that could be contaminated before leaving a work site for another area. We take care that all debris, soil, mud or any material that could contain seeds, roots, or other plant parts must be swept, brushed, or knocked off.

Our management efforts also include the **restoration of any disturbed sites by reseeding with a native seed mix** once our work is completed. Furthermore, tree debris from hazardous tree removals are left at the removal site to help stop the spread of invasive forest pests such as the Emerald Ash Borer.

NYPA has also been proactive in the research of invasive species movement on our transmission Right-of-Ways. For example, we have partnered with the Electric Power Research Institute (EPRI) to conduct studies to see what invasive species are being spread and the effects that preventive practices, such as cleaning equipment, has on their movement. The research is ongoing and being conducted by SUNY ESF. Preliminary results show purple loosestrife and Morrow's honeysuckle as being some of the most easily spread invasive species. Cleaning of equipment and removal of plant debris from the clothing and shoes of personnel has shown a 50% to 80 % reduction in the amount of invasive plant material spread. NYPA has also begun mapping detected invasive species on our GIS database in effort to better monitor the presence of invasive species and to preplan for post-work clean up and management efforts. We are also beginning to map pollinator plant species this year to promote and preserve them on our Right-of-Ways in hopes that natural competition from native vegetation will reduce the susceptibility of the landscapes in which we work.

As we move forward at NYPA, the management of invasive species on our Right-of-Ways will be at the forefront of our planning and maintenance activities. Since invasive species have been present in the areas that we work for some time now, it is important to our mission that we are aware and able to identify and control their spread. Continued research is needed to help NYPA get real science based data to better manage these invasive species and to find cost effective ways to do so. NYPA is committed to future research and ongoing vigilance as we manage our Rights-of –ways for future generations.

New York Power Authority

COORDINATOR'S COLUMN

Past Reflections on the Present

As a kid I grew up in a home where a small stream passed through our backyard, I believe it was called Military Run. I'm not sure how it got its name since there were no military facilities nearby, but never-the-less it was a fun place. My brother and I would spend hours searching around, picking up various critters and building dams. I guess now that would be properly referred to as: ecological exploration, biological sampling and hydrologic engineering. We had so much fun that even our friends would join us, frequently.

They say that your present is usually based on past experiences and I'm led to believe that the aforementioned outdoor experiences coupled with human interaction has led me to where I am now. As a kid, that stream was my focus area and now I feel as if the entire St. Lawrence Eastern Lake Ontario region is the place in which I explore, sample, learn and interact.

From the St. Lawrence Seaway south to the Rome Sand Plains I have witnessed the great immensity of the natural assets the region has to offer. The region's globally unique alvar communities demonstrate how plants and wildlife adapt to extreme environments. The mostly undeveloped forests of Tug Hill offer wildlife habitat and opportunities for the outdoor enthusiast. Our shoreline dunes, wildlife management areas, preserves and natural waterways are abundant and offer vast diversity of habitat, landscapes, plant and animal life along with opportunities for us to learn and interact. The biological diversity contained within these natural areas, is truly unique and impressive.

As we head into another robust field season with over 62 planned activities, I am excited by the effort and interest of our partners as we work together tirelessly to explore, sample and interact to protect our lands and waters from the continued threat of invasive species. I look forward to the upcoming season and working with the partners of the SLELO PRISM on a multitude of initiatives. Surrounding us are great places and great people.

~ 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
The NYS Environmental Protection Fund

C/O
The Nature Conservancy, CWNY