SLELO PRISM

St. Lawrence Eastern Lake Ontario Partnership for Invasive Species Management

"Teaming Up to Stop the Spread of Invasive Species"

2021 Fall Newsletter

Biological Diversity Climate Resiliency & Invasive Species

About the Cover

SLELO PRISM– Rob Williams & Megan Pistolese-Shaw

According to the United Nations, invasive species have devastating impacts on native biota, causing decline or even extinction of native species, thus creating an imbalance of natural biological diversity [1]. Additionally, invasive species are considered the second largest threat to biological diversity after habitat loss [2]. Therefore, biological diversity becomes a vital factor in the ability of an ecosystem to remain healthy and to be resilient against stressors including invasive species and climate change. The work being done in New York through the Partnerships for Regional Invasive Species Management (PRISM) network aims to protect biodiversity and enhance resiliency.

There are volumes–of literature that expose how invasive species reduce biological diversity. One such study, published in Global Change Biology, is the result of an expert survey on how likely global trends this century will affect the variety of life on Earth, its ecosystems, and – as a result – the lives of humans. An expert-based assessment found that a 20-30% increase in invasive species could cause massive global biodiversity loss [3]. There are also many research summaries conducted by the Northeast Regional Invasive Species & Climate Change (RISCC) network that showcase the influences that climate change and invasive species have on biodiversity and ecosystem health. One summary, in particular, states that synergies between biological diversity and climate drivers will likely compound invader's impacts in the future" [4].

The impacts of invasive species can be seen in many forms, such as an invasive pest decimating an entire tree species in a forest, or an aquatic invasive species altering the trophic balance within a freshwater lake that leads to system imbalance. Protecting our lands and waters from the impacts of invasive species helps to maintain the diversity of the flora and fauna that support the many important functions of an ecosystem. Furthermore, **if we genuinely seek to keep our lands and waters healthy and resilient to future stressors, then we must go beyond the management of invasives and make restoration and resiliency a top priority in our invasive species work.**

An example of restoration and resiliency work currently underway within the SLELO region focuses on three eastern Lake Ontario tributaries: Deer Creek, Sandy Creek, and Little Sandy Creek. In each system, we are re-establishing streamside native flora that we believe will help to make these systems more resilient to a changing climate by using diverse native plants to shade and therefore cool lentic water temperatures. In each case, populations of invasive plants (*Phragmites australis) and/or (Fallopia japonica)* have been eradicated or greatly suppressed. Another example is our Salmon River Initiative where 8.68 acres of streamside (*Fallopia japonica*) were suppressed followed by the re-establishment of native grasses, live staking of shrubs, and planting of native tree seedlings. These types of projects help to cool stream edge water temperatures.

Through prevention, avoided impacts and improved management, we can achieve a goal to create and sustain more resilient, climate adaptable connected land and waterscapes at a scale that includes but moves far beyond our backyards. New York's PRISM network is in a unique position to lead the way towards preventing and managing invasive species well beyond backyard conservation. The work being done through this network has the power to restore impacted ecosystems and enhance the health of largescale connected land and waterscapes.

Click to view resource details.

Invasive species threaten the lands and waters that we all enjoy; but there are simple actions that you can take every day to reduce their impacts.

Take the '**Pledge to Protect**,' a fun, engaging, and rewarding way to participate in invasive species prevention and management. We'll give you the tools and simple actions that you can take everyday to make a big impact in protecting your outdoor spaces, forests, trails, waters, backyards and your community.

WHAT YOU'LL GET

* **A digital and downloadable toolkit with ways to identify, manage and report invasive species.**
* **Monthly emails showcasing simple actions you can take to fulfill your pledge.**
* **Bragging rights-collect badges and win prizes for completing action items.**
* **Access to a social media toolbox to celebrate your pledge.**

Controlling Invasive Shrubs in the Fall & Winter

SLELO - Megan Pistolese –Shaw

Fall and winter are ideal seasons to control invasive woody plants. During these seasons, plants switch from drawing nutrients to their leaves and start drawing nutrients to their roots as part of the senescence process.

This switch in energy storage makes it an ideal time to apply herbicides because the plant will naturally draw the chemical to its roots. Below are quick ID tips, along with some control methods and disposal guidelines you can use to control invasive woody plants

CONTROL METHODS

Below are some removal and disposal methods you can follow to control small populations of invasive woody plants.

Manual Removal: Plants less than 3/8 inch diameter can be removed by hand. A Root Talon can be used to remove plants too large to hand pull.

Cut & Bag Treatment: Cut truck/stems 6-inches above the ground to leave room for a non-transparent black colored plastic bag to be zip tied to the stump. Be sure to dig down around the stump and cover the bottom of the bag with soil to secure it.

Cut Stump Treatment: Cut trunk/stems near the soil and immediately apply glyphosate or triclopyr to the exposed vascular tissue using a paint brush.***This technique is best practiced in the fall. Always follow chemical labels and wear protective gear.*

DISPOSAL GUIDELINES

Follow these guidelines to dispose of removed invasive plant debris to avoid spreading further.

- Do not compost actively flowering or fruiting plants or bring to a transfer station that may compost the material.
- To reduce the chance of spreading, it is best to chip or burn removed stumps and debris on site.
- Be sure to remove any fallen fruits to avoid repopulating the treatment site. Laying a large tarp down to catch falling fruit at the removal site can be helpful.
- Vines that are tightly wrapped around the tree or located in the tree canopy should be cut at the base, left on the tree, and will eventually dry up and fall apart.
- Learn More Disposal Tips

Great Lakes Collaboration

Rob Williams, SLELO

Collaborating across teams was the theme when The Nature Conservancy in New York teamed up with multiple partners on a project to detect nascent populations of aquatic invasive plants in Great Lakes Ports and to determine why the invasive plants become established where they do.

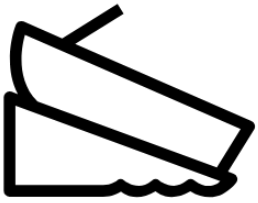
Project partners included TNC's Great Lakes Team, Michigan State University, Western NY, SLELO, and Finger Lakes PRISMs, NYS DEC, and the FLLOWPA program. Work occurred in high-risk New York Ports to include Oswego harbor, Irondequoit Bay, Genesee River, eastern Lake Erie, and the Buffalo River. A nice example of collaboration with multiple partners and organizations on a common effort. Many thanks to Pippa Kohn, Brittney Rogers, Rob Williams, David Kline, Andrew Tucker, Lindsey Chadderton, Erick Elgin, and the volunteers for all their work on this project.

Above: Erick Elgin from Michigan State University providing expert aquatic macrophyte identification. Photo © TNC-Brittney Rogers

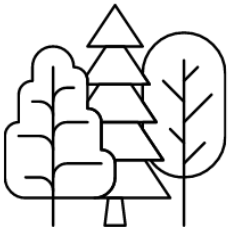
Stats Snapshot

0 Tier One species found during our summer early detection surveys.

32,349 pounds of water chestnut removed from waterbodies within SLELO.



430 interceptions of aquatic invasive species at boat launches.



156 Highly Probable Areas surveyed for invasive and notable native species.

86 acres are under active management.

22,984 people engaged in invasive species awareness since January 2021.

Tributary eDNA Project and Volunteer Opportunity

The Nature Conservancy and SLELO PRISM—Jacob Wojcik

PROJECT IMPORTANCE:

The practicality of eDNA stems from the fact that all biological life will shed some amount of their genetic material into their respective environments (water, soil, air, etc). So even without seeing whole organisms, eDNA provides the ability to determine if they are present or at least are in the vicinity of where the detection was made. This project will allow us to determine the presence, or non-presence, of target native and invasive species.

From the native fishes perspective, this project will serve as an important contribution to observations made on the spawning behaviors of native Coregonines, or "whitefish", in Lakes Superior and Michigan. Researchers in these upper Great Lakes observed these fishes utilizing tributaries to fulfill the spawning portion of their life history. These findings have called into question if our (Lake Ontario) whitefishes are performing this behavior as well.

As for the invasive species in our region, this project will allow us to get an idea about where invasions may be occurring and what steps we can take next to manage them. This project has the potential of continuing to highlight the effectiveness of eDNA analysis as an early detection tool for invasive species.

THE OPPORTUNITY:

SLELO PRISM and The Nature Conservancy are very excited to introduce and invite participation for our 2021 Tributary eDNA project. eDNA, or "Environmental DNA", is a burgeoning scientific tool with a lot of promise for answering important ecological questions. We will be collecting water samples within 15 tributaries spanning from Oswego, NY all the way up to Massena, NY. These samples will be analyzed to observe potential detections of native and invasive species. **If you are interested in assisting with these efforts, visit sleloinvasives.org/eDNA**

VOLUNTEER TASKS:

There are many tasks that volunteers will be able to assist with. The primary ones are:

- Photography/Videography
- Collecting Water Samples
- Sample Transport

Elizabeth Snow-NYS Parks © Jacob Wojcik

Tools for Invasive Species Surveys

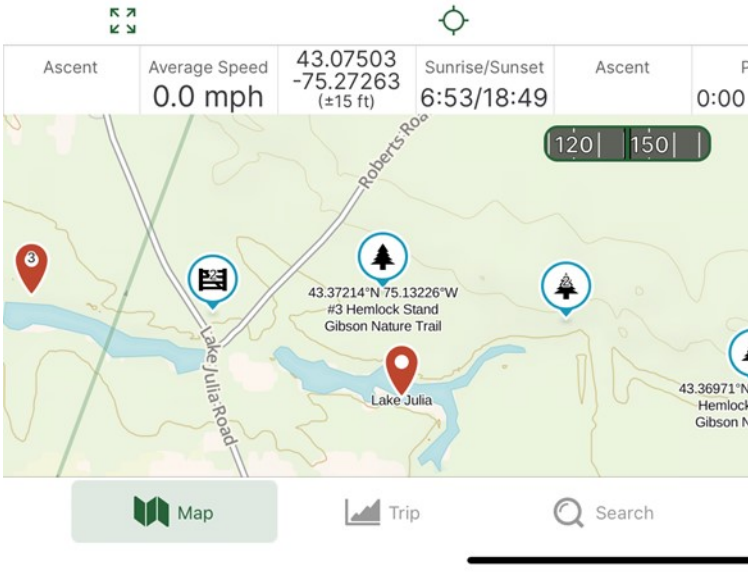
Frank Williams-SLELO Conservation Volunteer

As a member of the SLELO Volunteer Surveillance Network, I conduct seasonal field surveys. There are three apps I've found that really help me in planning out and recording field work; GPS Camera 55; Layout; and GAIA GPS.

GPS Camera 55 Field Survey: is an app for your mobile phone that puts the GPS coordinates, date, time, and other location data into the borders of the photograph. You can control what information is displayed in the app settings. This helps me keep a good record when I take many photographs in a day or when I need to sort out my photos by location. This information is also helpful when you want to upload more photos for iMapInvasives observations.
You can do a lot with the free version, but I found the premium version gives you lots more versatility. *Screenshot pictured top right.*

Layout Collage by Instagram: One of the limitations currently with the iMap app is that you can only upload one photo per observation. Some observations may need more photos to give the observation the proper detail. I take my photos with GPS Camera 55 Field Survey, and then make a collage using the *Layout* app by Instagram.
The photo shown here was of a heavy Gypsy Moth infestation on a tagged tree in a park. This collage helped put all the information in one photo. *Screenshot pictured middle right.*

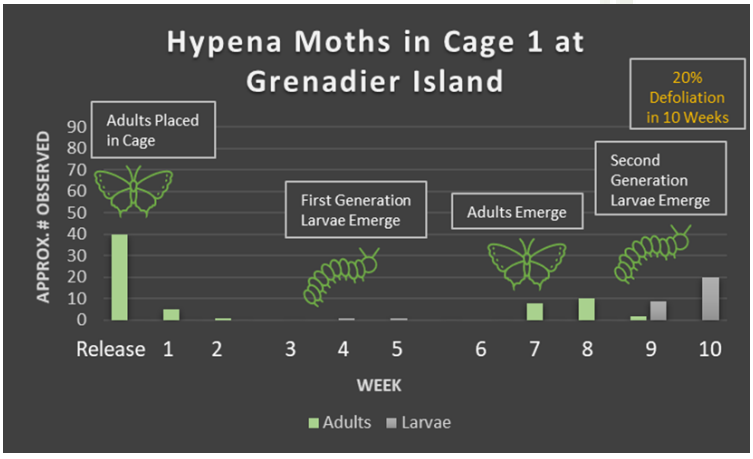
GAIA GPS Hiking App: You can plan out routes, record your hikes and leave markers where you find invasive species or set markers on places to visit. The example shown is a route I made with GAIA GPS as I hiked a trail looking for Hemlock stands at the Lake Julia Preserve. I left markers where I found the Hemlock stands. You can also add photos to these markers. As you zoom in on the markers you will see all the GPS coordinates. *Screenshot pictured bottom right.*

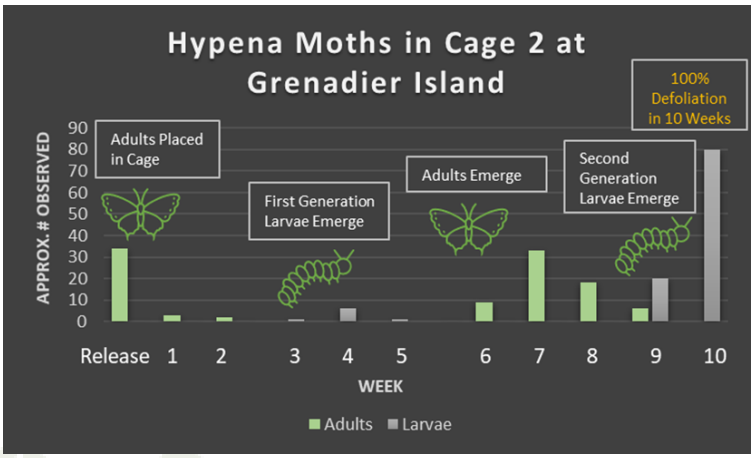


These apps are great field survey and hiking aids. You can do a lot with the free versions of all three of these apps, but if you can afford the premium subscriptions I highly recommend it.

Hypena opulenta Release

This year, we completed another biocontrol release of *Hypena opulenta* moths. This moth is native to the Ukraine and feeds exclusively on pale and black swallowwort in its larval form. Adults were placed in 4 cages (2 at Wehle State Park, 2 at Grenadier Island) on June 1st. These cages were monitored for a new generation of *Hypena* larvae and defoliation of the swallowwort. Last year, 100% defoliation occurred in 4 weeks at Wehle State Park and we released the larvae from the cages. This year, the number of larvae produced was very low and this resulted in low defoliation at both sites. Since *Hypena opulenta* normally produce two generations per year, we decided to leave them in the cage to produce a second generation. We had never done this before, but we thought this would improve the chance that mating would occur and a larger 2nd generation would result. As can be seen in the graphs, this paid off at Grenadier Island, with defoliation of cage 1 at 20% and cage 2 at 100% after 10 weeks. Unfortunately, the cages at Wehle State Park did not produce a second generation. All 4 cages were removed on August 16.





Black River Feasibility Study Update

A survey was conducted on the Black River Trail last year to determine the feasibility of invasive species removal, control and restoration work. We divided the trail into 29 compartments and collected data such as plant species composition, abundance and location of culverts and tributaries. Results of the survey revealed over 200 plant species are present along this trail included several tier 3 and 4 invasive species. Analysis of the data resulted in a prioritization score for each compartment. This score was based on floristic quality and can be used to manage portions of the trail according to resource limitations. These scores along with many stats such as number of total species, woody, non-woody species, native, and invasive species are included in the newly completed Black River Feasibility Study Report. The report concluded that invasive species management and restoration is feasible if resources are designated according to compartment prioritization scores. It also recommends that removal efforts use mechanical/manual methods to limit potential chemical exposure to the public. In addition, native plant species found on the trail are recommended for use during restoration.

Terrestrial Restoration & Resilience Initiatives

SLELO- Robert Smith

Summary of Suppression Work

This year, Miller's Turf successfully completed another year of control work at 16 Priority Conservation Areas (PCAs) and multiple giant hogweed sites. Summary results are as follows:

Giant hogweed: 40 sites with no germination, 1 site root cut, 6 sites herbicide treatment, and 1 site with no permission to treat.

Swallow-wort:
77 sites on 13 PCAs, Area: 78,9 acres

Japanese knotweed:
7 sites on 5 PCAs, Area: 0.48 acres

Phragmites:
5 sites on 3 PCAs, Area: 0.72 acres

Oriental bittersweet:
3 sites on 2 PCSs, Area: 6.1 Acres

Yellow Iris:
1 site on 1 PCA, Area: 43.6 square feet

2021 Early Detection Field Survey Update

Field survey work was completed mid-October. We surveyed around 160 Highly Probably Areas (HPAs) at 11 Priority Conservation Areas (PCAs). Aquatic surveys were completed at nine of these PCAs and Terrestrial Surveys were completed at six of these PCAs. There were many Tier 3 and 4 species found, such as swallowwort, phragmites, Japanese knotweed, Eurasian watermilfoil, European frog-bit, and many others, and we visited a couple of Tier 2 giant hogweed sites that we were aware of, but no Tier 1 species were found on any of the PCAs surveyed this year. We are currently reviewing all the data that we inputted into iMap Mobile Advanced and SAS Pro and will be creating a report that will include what we found at all the PCAs that we surveyed this year.

Quick Links to Learn More

- Field Reports
- Black River Feasibility Study Report
- *Hypena opulenta* Release Information

Aquatic Restoration and Resilience Initiatives

SLELO PRISM – Brittney Rogers

Extensive efforts are underway to prevent the spread of invasive species, and while these efforts are important, without innovative and restorative plans being implemented for those already established, unintended negative anthropogenic impacts will continue to destabilize these systems. Small scale projects that restore critical corridors can have large impacts for ecological integrity and resilience in transboundary landscapes.

Through the summer of 2021 aquatic initiatives focused on the following;

- The 2021 Watercraft Inspection Steward Program, again co-administered with the Thousand Islands Land Trust, where 10 stewards were extensively trained and stationed across nearly 30 launches within the SLELO region. Data and results of this years program will be released in the final report in November.
- Working in collaboration with NYSDEC and many partners from across NY to begin updating the NYS Watercraft Inspection Manual, set to be released in the spring of 2022.
- Phase II of the Aquatic Restoration initiative, in which three acres of Japanese knotweed and phragmites found in the Phase I study in riparian areas in South Sandy Creek and Sandy Creek were treated. Next steps include dead biomass being removed and native species seed being spread to enhance the health of these systems.
- The Tributary eDNA Project is well underway, being conducted in collaboration with colleagues in The Nature Conservancy. With funding from the Arconic Foundation we are able to sample in 15 tributaries in the SLELO region and have partnered with SUNY Oswego to analyze samples. We hosted a series of eDNA focused webinars that can be found on our website and YouTube channel. For more information about this project, see article "Tributary eDNA Project and Volunteer Opportunity"
- early detection field surveys in aquatic PCAs continued through mid-October. Data is still going through our strict review process and will be released before the years end. Preliminary results can be found in the Terrestrial Update.

Listen to Recordings of eDNA Webinars and Volunteer with us!

At the 2021 NAISMA Conference, Brittney showcased the results of the SLELO PRISM Black River Trail Feasibility Study, a highly visited recreational trail along a 3.5 miles stretch of riparian areas of the Black River, and the Phase I results from our Aquatic Restoration Initiative. This presentation was given to share information on the work we are doing, and how we have shifted our focus to emphasize the importance of native species and connected landscapes like the Algonquin to Adirondacks or A2A region.

Partner Spotlight

Thomas Allgaier– Invasive Species Coordinator NYS Department of Agriculture & Markets (AGM)

Good news is hard to come by recently. But for the SLELO region in 2021 New York State Department of Agriculture and Markets (NYS AGM) has not detected any new Invasive Species as of the end of September. In 2021, AGM Horticultural Inspectors have completed numerous inspections in the SLELO region. None of the trapping or visual target species for our 2021 Cooperative Agricultural Pest Survey (CAPS) program were detected. And no Spotted Lanternfly.

The year 2020 was hard on everyone worldwide. In the SLELO region, AGM had a few invasive species detections. Last year, *Heterodera glycines*, Soybean Cyst Nematode was found in a farm field in Jefferson county, and *Fiorinia externa*, Hemlock Scale was found on a fir tree in Jefferson county.

These issues were mitigated at the detection sites and follow-up monitoring indicated no remaining populations. Our Horticultural Inspectors regularly survey and trap for many different invasive species. They also provide outreach on invasive species to all the registered nursery growers and dealers in the state. Our partners at Cornell Cooperative Extension are also out there in their assigned counties surveying and scouting agricultural crops, fields, vineyards, and orchards as cooperators in the CAPS program or other exotic pest surveys.

The first North American detection of Elm Zigzag Sawfly (*Aproceros leucopoda*) was reported by a citizen scientist in July 2020 not far from the SLELO region in Sainte-Martine, Quebec, Canada. This Asian native will defoliate elm trees. It is not yet known to be in the United States, but this is yet another invasive species that may migrate south from Canada into New York state as several others have.

In contrast, 2021 has been a good year for SLELO PRISM. There have been no detections of any of the invasive species pests I have mentioned. Additional good news is that this is the final year of Plum Pox Virus (PPV) Survey in the Hudson Valley. AGM will continue to monitor for new introductions of PPV from our northern neighbor. Later this year we will be repealing most of the Plum Pox Virus regulations and quarantine, except for the propagation ban in Niagara County. This year Spotted Lanternfly (*Lycorma delicatula*) has been found in several new counties in New York. Thankfully none in the SLELO PRISM region. Unfortunately, there are now 13 counties in the state that have documented populations of Spotted Lanternfly.

The role of community scientists in response to invasive species is increasing every day. Public reporting of invasive species is a key component to the work we all do to keep New York, and the SLELO PRISM region free of new Invasive Species and to monitor the populations of invasive pests we do find. Reporting invasive species using iMapinvasvies is just one of the many ways to work collaboratively to address the issues these and other invasive species may cause to the economy, human health, and the environment. All of us here at NYS AGM deeply appreciate all the efforts SLELO puts forth to make every year a good year when it comes to reducing the threats of invasive species.

Support Community Science

- **Join** a state-wide early detection effort for spotted lanternfly.
- **Join** the SLELO PRISM invasive species Volunteer Surveillance Network.
- **Learn** more about iMapInvasives.

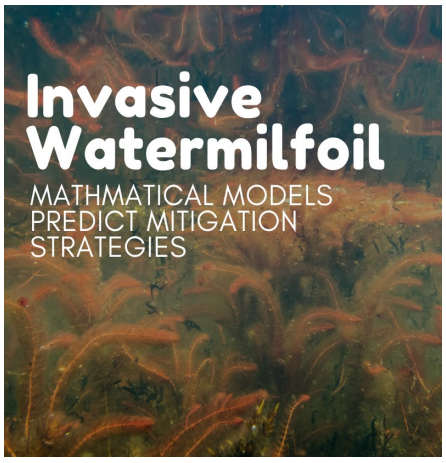
Upcoming Invasive Species Events and Announcements

- November 1st—7th attend viewings of the new documentary titled, UNINVITED: The Spread of Invasive Species .View a trailer, a schedule of virtual and in-person viewings, or learn how to host your own viewing on the NYSDEC website.
- November 15th 11am-12pm CCE Agriculture, Food and Environmental Systems In-Service *Invasive Species Talks* get details and register .

<<Notable Announcements>>

iMapInvasive's Water Chestnut Challenge Featured in the Natural Areas Journal.

- **Webinar Recording**
- **Informational Document**



Research shows how models predict the success of weevil augmentation

Managers' Memo

Managing for Resilience

As of this year, the SLELO Program has met our ten-year mark of formal existence. Although many individuals were engaged or shall I say pioneers of our PRISM prior to 2011, that year was the onset of formal activities and delivery of our program. Since then, SLELO's portfolio of invasive species work remains comprehensive and our focus of managing lands and waters for resilience has strengthened. Managing for resilience not only helps to improve the native flora and fauna or the biological diversity of our Priority Conservation Areas (PCA's), but managing for resilience helps these areas to be more able to withstand change, especially from a warming climate.

In addition to our core program of prevention, early detection, rapid response, etc., our efforts have grown to include ecological restoration and resilience management. This allows us to build components into our work that offer longevity to conservation— and it's this longevity that offers resilience to external stressors. Simply controlling an invasive plant does very little to biologically stabilize an area, and often creates additional disturbance to the site. Adding the component of restoration and using native plants (terrestrial and aquatic) that are tolerant of the a changing climate is what creates resiliency and longevity.

As we move forward in our efforts to lessen the impacts of invasive plants and animals to our natural systems, be assured that we will be focusing on longevity of our conservation work to restore biological diversity and make these systems more resilient to whatever stressors await.

~Rob Williams

SLELO PRISM Partner List

- NYS Department of Environmental Conservation
- The Nature Conservancy in New York
- Cornell Cooperative Extension Offices
- NYS Office of Parks, Recreation & Historic Preservation
- NYS Department of Transportation
- Soil & Water Conservation Districts
- Fort Drum Military Installation
- CNY Regional Planning & Development Board
- NY Power Authority
- Tug Hill Commission
- Tug Hill Tomorrow Land Trust
- Thousand Islands Land Trust
- Indian River Lakes Conservancy
- Save The River
- NY Sea Grant
- Ducks Unlimited
- Onondaga Audubon
- US Coast Guard Auxiliary
- St. Regis Mohawk Tribe-Environmental Unit
- Algonquin to Adirondack Collaborative

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NYS Invasive Species Council
NYS Department of Environmental Conservation
The NYS Environmental Protection Fund

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Articles contributed by SLELO partners

SLELO PRISM

The Nature Conservancy — *SLELO PRISM Host Organization*

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Eastern Lake Ontario Swallow-wort collaborative