

SLELO PRISM

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

2018 Annual Report

Protecting our
lands and
waters from
the impacts of
invasive
species.



The Nature Conservancy



Protecting nature. Preserving life.



Department of
Environmental
Conservation

Teaming Up to Stop the Spread of Invasive Species

Copies of this report can be obtained
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www.sleloinvasives.org

Under the menu item:

Resources/Information Sharing/Downloads / 2018 Annual Report

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Cover photo:

Grenadier Island

© TNC/Mat Levine

2018 Strategic Accomplishments

SLELO PRISM Partners strive to protect the ecological integrity of the Eastern Lake Ontario region and Northern New York's natural & cultural resources from the threat of invasive species. In 2018, partners collaborated on making the following accomplishments, a.k.a. strategic measures:



- ❖ *Participated in the development of the New York State Invasive Species Comprehensive Management Plan.*
- ❖ *Participated in ecological restoration efforts on 36 acres of island grassland habitat.*
- ❖ *Intercepted aquatic invasive species on 91 occasions preventing their spread to other waterbodies.*
- ❖ *Assisted with the release of 825 insects (*Hypena opulenta*) as a biological control to aid in suppressing one of New York's most aggressive invasive species, (*Cynanchum rosicum*).*
- ❖ *Partnered on projects to implement natural climate change solutions in the Thousand Islands Region and on Tug Hill.*
- ❖ *Successfully identified and eradicated an early detection of a prevention species commonly known as porcelain berry.*
- ❖ *Completely eradicated Japanese knotweed from a Priority Conservation Area known as Eldorado Nature Preserve. **
- ❖ *Promoted 72 educational and outreach events across a five-county region directly engaging 2236 individuals.*
- ❖ *Engaged 127 volunteers in our Volunteer Surveillance Network and Adopt-A-Trap efforts.*

Nice Work Partners!

**To be considered eradicated there must be no reoccurrence for a minimum of 3 years.*

Acknowledgements

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The Nature Conservancy as Host Organization



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The New York State Department of Environmental Conservation,
Invasive Species Coordination Section



The New York State Invasive Species Council and the New York State Department of Agriculture and Markets



The numerous partner organizations and their representatives who contribute their expertise, time and resources to the development and success of the SLELO PRISM.

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Executive Summary



As the host organization for the SLELO PRISM, The Nature Conservancy is working towards a climate resilient future that includes sustainable working forests in both a rural and urban context, natural infrastructure that protects our drinking water and provides benefits to surrounding communities, and innovative strategies for mitigating the impact of pests, pathogens, and invasive species that threaten our natural resources. The Nature Conservancy pursues non-confrontational, pragmatic, science-based solutions to achieve this mission. This makes it essential for us to work collaboratively with partners, communities, businesses, government agencies, multilateral institutions, individuals, and other non-profit organizations such as land trusts and conservation organizations. The Nature Conservancy also works in close cooperation with private landowners and local stakeholders, such as foresters and anglers, to ensure sound ecological management while continuing to support the local economy.

Past successes of the SLELO PRISM align nicely with the New York State Environmental Conservation Law and the mission of the NYS Invasive Species Council, Article 9, Title 17 to address invasive species impacts. SLELO partners represent a cohesive and collaborative relationship established to deliver prevention, early detection, rapid response, ecological restoration and education and outreach initiatives.

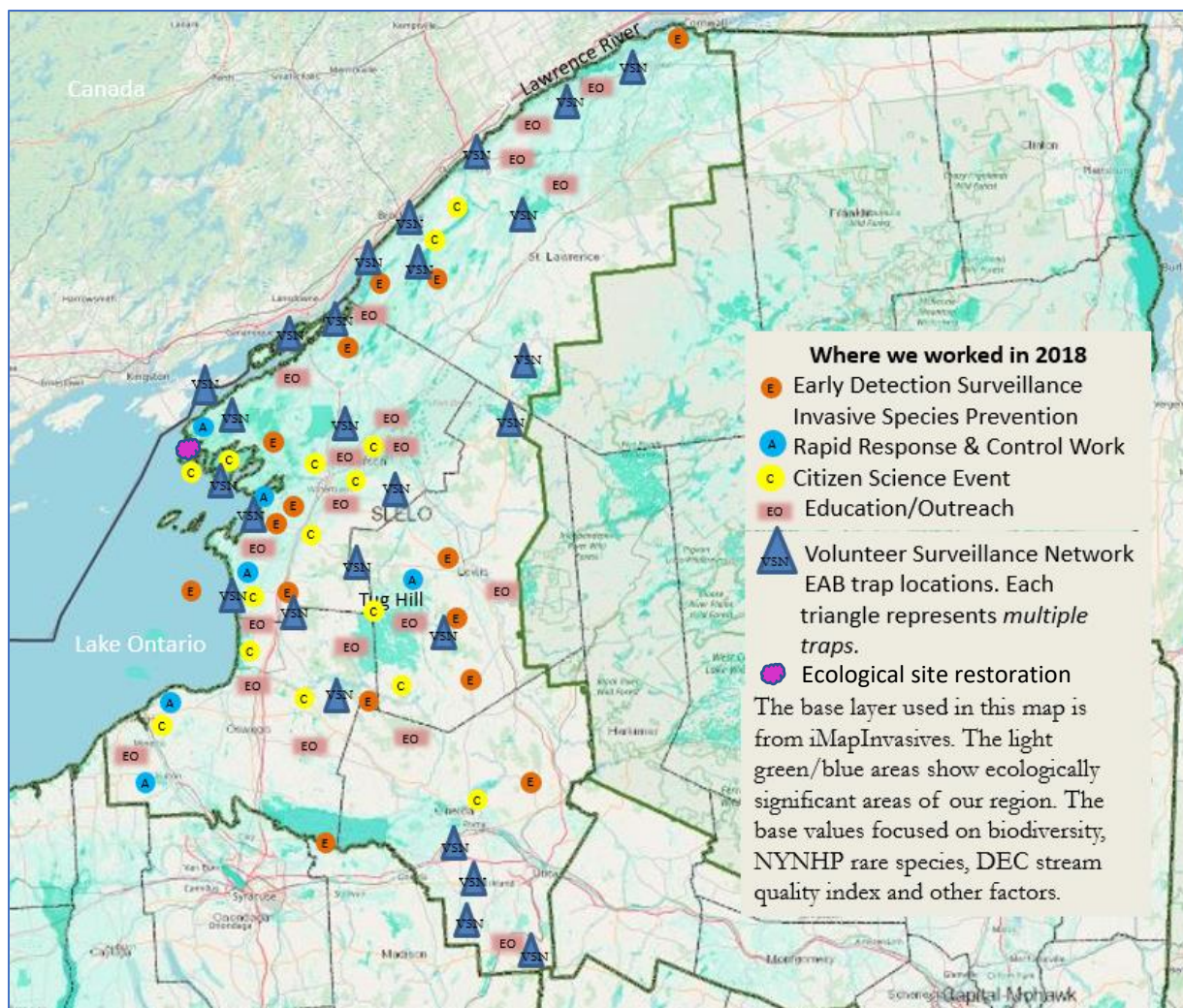
We achieve success by working together.



~Rob Williams
PRISM Coordinator

Where we worked in 2018

(Figure 1) Showing spatial distribution of partner efforts.



In 2018, SLELO partners made a concerted effort to be more present in the extremities of our region. Towards this end, our partners completed over fourteen activities in the northern most and southern most areas of the SLELO region. This included activities as far north as Massena New York and as far south as Rome New York. Our efforts included prevention, early detection, rapid response, restoration, citizen science and education/outreach.

83

Number of places we worked in 2018 around the SLELO region.



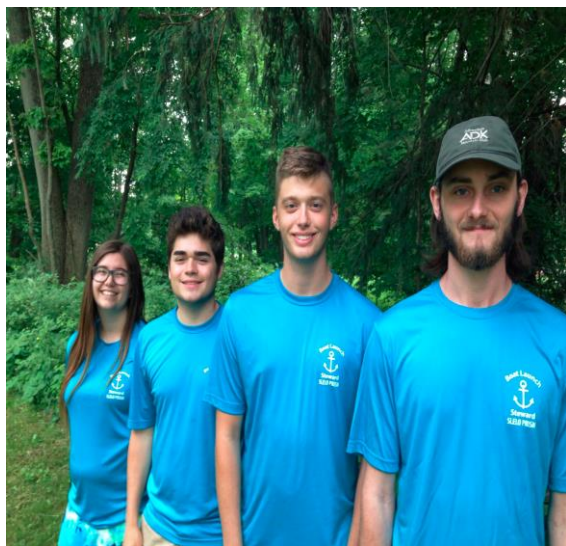
Goal 1 – PREVENTION

Prevent the introduction and spread of invasive species into the SLELO PRISM's Priority Conservation Areas.

Eastern Lake Ontario Aquatic Invasive Species Spread Prevention

2018 marks the third 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), AIS stewardship specialists (Boat Launch Stewards), (Figure 2) were strategically placed at high use/high priority boat launches along Eastern Lake Ontario. Metrics collected in 2018 are presented in (Table 1).

Table 1: Metrics from watercraft inspections



2018 Boat Launch Stewards (left to right) Casey Harkleroad, Alex Linerode, Evans Jones, Ben McCrobie.

2018 Metrics - Boat Launch Stewards

- 948 boaters engaged (3-year total = 2,605).
- Engaged boaters from 15 states and 2 provinces.
- AIS interceptions = 91 in 2018 (3-year total 256).
- 10% of all watercraft are contaminated with AIS (3-yr average).
- 91% of all participants received AIS "Clean-Drain-Dry" literature.
- Top 3 travel routes identified: Route 3, Route 81, Route 12-E.
- Furthest areas recently boated: Canada, Florida, Texas and Alaska.

91

Number of AIS interceptions made in 2018

Participation with the New York State Invasive Species Advisory Committee

The New York State Invasive Species Advisory Committee (ISAC) was formed to provide information, advice and guidance on invasive species issues to the New York State Invasive Species Council. This includes discussions and recommendations regarding the prevention of invasive species introductions into New York State along with spread prevention across PRISM regions. In 2018, the SLELO PRISM Coordinator served in dual capacity on the committee as the New York PRISM Representative and the Secretary to the committee.

Participation with the Development of the NYS Invasive Species Comprehensive Management Plan

In 2018, the New York State Department of Environmental Conservation (DEC) and the New York State Department of Agriculture and Markets (DAM), co-chairs of the Invasive Species Council, announced the adoption of an Invasive Species Comprehensive Management Plan for the State of New York. The overarching goal of the plan is to minimize the introduction, establishment and spread of invasive species throughout the State. By participating in various workshops and meetings, SLELO PRISM representatives played a valuable role in the development of this plan.

Collaboration at Scale

As a follow-up to work completed in previous years, the SLELO PRISM received expanded assistance from the New York State Department of Environmental Conservation Invasive Species Coordination Section and the United States Fish and Wildlife Service to address possible aquatic invasive species in the Oswego River. Additionally, SLELO partners collaborated with the Atkinson Center for a Sustainable Future along with two other PRISM's on a Lake Ontario eDNA assessment of high use ports along the southern shore of Lake Ontario and the eastern end of Lake Erie.



Goal 2 – Early Detection

Search for new and recent invaders and respond strategically before they become established.

Timing is critical when responding to the initial detection of an emerging invasive species in any area. Detecting and responding to the invasion of an unwanted plant, animal or other organism before it can become established is the first step in eradicating or effectively managing a newly-arriving invasive species.

Scouting for Invasives Within Priority Conservation Areas

During our strategic planning sessions, our partners identified 25 Priority Conservation Areas or PCA's. Each year, two seasonal employees (Figure 3) make up our early detection team. This team is tasked with conducting early detection surveillance on half of our PCA's resulting in a two-year rotation for completing surveillance on all PCA's.

190

Number of Highly Probable Areas searched by our Early Detection Team



Figure 3 above: SLELO PRISMs 2018 Early Detection Team, Emma Gutierrez and Sarah Kirkpatrick

Priority Conservation Areas (PCA's)

In 2018, early detection surveillance was conducted on eleven Priority Conservation Areas including 150 Highly Probable Areas (HPA's) and 40 forest pest HPA's totaling 190, Appendix D.

Early Detection of Porcelain berry (*Ampelopsis glandulosa* var. *brevipedunculata*)

In 2018 a prevention-list species was discovered in St. Lawrence County. This was the first confirmed observation of porcelain berry (*Ampelopsis glandulosa* var. *brevipedunculata*) (Figure 4) in Northern New York and one of the very few confirmed observations in upstate New York. Although the plants were not found in one of SLELO's PCA's it is important that these plants be eradicated to prevent further spread. Working with the landowner, all specimens were removed and properly disposed of.



Figure 4 – above: Porcelain berry (*Ampelopsis glandulosa* var. *brevipedunculata*), observation in St. Lawrence County.

Early Detection of Tench (*Tinca tinca*)

Tench, an invasive Eurasian fish species, was discovered in the SLELO region of the St. Lawrence River last summer near Raquette Point in Akwesasne. Specimens (Figure 5), were obtained during resident fish sampling permitted by "She:kon Friends of the River - Mohawk Council of Akwesasne. This new observation is the furthest upstream observation, 82 miles upstream from the original Richelieu River introduction. The specimens have been given to the New York State Museum.



Figure 5 – above: Tench captured in the St. Lawrence River. Photo by members of the Mohawk Nation at Akwesasne



Goal 3 – RAPID RESPONSE, CONTROL & MANAGEMENT

Control invasive plants using three basic levels of control; Eradication, Containment/Exclusion, Suppression.

The SLELO PRISM response team consists of two individuals of which one is a New York State licensed herbicide applicator another as apprentice (Figure 6). Their job is to respond to invasive species that are in low abundance and control them to varying degrees. Multiple techniques are used to include manual, mechanical and chemical. Below is a summary of control work completed during the 2018 field season also shown in Table 2, and percentages of effort in Figure 7.

Giant Hogweed: (*Heracleum mantegazzianum*)

46 sites visited
32 active with plants
12 sites with no plants
1,439 plants treated
2 sites foliar treatment
30 sites manually controlled (hand dug)

Swallow-wort: (*Cynanchum spp.*)

83 sites being managed
17 PCA's
36 acres on Carleton Island

Japanese Knotweed: (*Fallopia japonica*)

4 sites being managed
2 PCA's and Tug Hill I.S.P.Z
Phragmites: (*Phragmites Spp.*)
4 sites being managed on 4 PCA's

In 2018, a small population of Japanese knotweed was eradicated from the Eldorado Nature Preserve with no new plants emerging for 3 or more consecutive years.

94%

of all hogweed sites were treated manually to reduce the use of herbicides



Figure 6 left: Ed Miller of SLELO's Rapid Response Team hand digging a young giant hogweed plant.

Table 2, summary of control work completed during the 2018 field season.

Priority Conservation Area or Location	Species Controlled	Number of sites and treatment type
Multiple	Giant Hogweed	30 sites manual-2 sites herbicide
Black River Bay Boat Launch	Swallow-wort	1 site herbicide
Black River Trail	Swallow-wort	2 sites herbicide
Chaumont Barrens	Swallow-wort	28 sites herbicide
Carleton Island	Swallow-wort	1 site herbicide
Deer Creek WMA	Swallow-wort	27 sites herbicide
	Japanese Knotweed	1 site herbicide
Eldorado-Black Pond	Swallow-wort	2 sites herbicide
	Japanese Knotweed	1 site herbicide
	Phragmites	3 sites herbicide
Isthmus Boat Launch	Swallow-wort	1 site herbicide
Invasive Species Prevention Zone	Japanese Knotweed	2 sites herbicide
	Phragmites	1 site herbicide
Limerick Cedars	Swallow-wort	3 sites herbicide
Lakeview WMA	Swallow-wort	1 site herbicide
Little John WMA	Phragmites	8 sites herbicide
Mud Bay Boat Launch	Swallow-wort	4 sites herbicide
Ontario Bay Initiative- Couch	Swallow-wort	5 sites herbicide
Pine Grove Boat Launch	Swallow-wort	1 site herbicide
Point Peninsula WMA	Swallow-wort	2 sites herbicide
Selkirk Fen	Phragmites	2 sites herbicide
Three Mile Bay WMA	Swallow-wort	2 sites herbicide
Three Mile Creek	Swallow-wort	1 site herbicide
Tryon Road	Swallow-wort	1 site herbicide
Upper & Lower Lakes WMA	Swallow-wort	1 site herbicide
Total: 133 sites treated (includes additional call-in sites)		

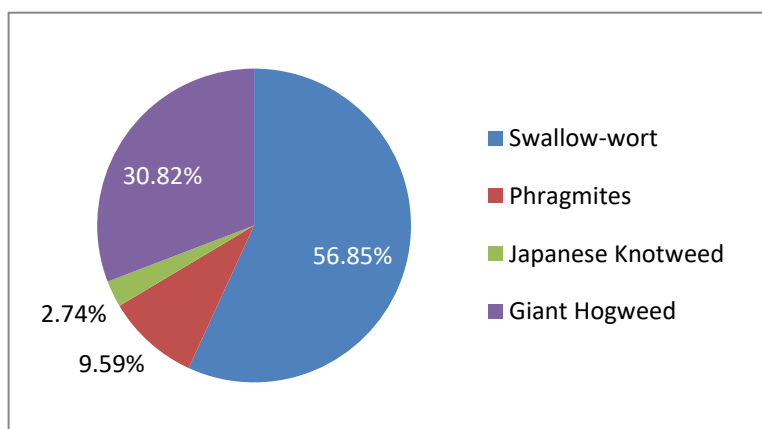


Figure 7, left. Percentage of control efforts as related to species.

Releasing Biological Controls

In 2018, the SLELO PRISM participated in the release of a biological control designed to suppress swallow-wort populations. In collaboration with the United States Department of Agriculture, Animal Plant Health Inspection Service (USDA-APHIS), SLELO partners assisted with the release and monitoring of 825 (*Hypena opulenta*) (Figure 8). *Hypena opulenta* is a moth native to the Ukraine that feeds exclusively on swallow-wort. Two field cages were placed in Henderson New York and were populated with *Hypena* larvae (Figure 9). Each cage was monitored weekly until October with several adults emerging (Figure 10).



(Figure 8) above left: PRISM Coordinator Rob Williams assisting with the release of (*Hypena opulenta*) larvae into one of two field cages established in Henderson New York. (Figure 9) above right: close-up photo of (*Hypena opulenta*) larvae being readied for release.

(Figure 10) right: Adult (*Hypena opulenta*) in one of the two field cages located in Henderson New York.

All photos by © TNC/Emma Gutierrez.

825

Number of (*Hypena opulenta*)
released in the SLELO region.



Water Chestnut Control

Partners of the SLELO PRISM collaborated on the hand harvesting of countless water chestnut plants (*Trapa natans*) within the SLELO PRISM region. Noteworthy is that all sites are still producing plants, although some chemically treated sites show reduced abundance and new populations are being identified primarily in backwater, previously undetected areas. Numerous individuals participated this year on hand pulls sponsored by the New York State Department of Environmental Conservation, Soil and Water Conservation Districts, Office of Parks Recreation and Historical Preservation, the Oneida Lake Association and other SLELO PRISM partners (Figure 11).

17.3 tons
Amount of water chestnut plants hand-harvested in the SLELO region.

Figure11: Volunteers at water chestnut pulls throughout the SLELO PRISM region. © TNC/Megan Pistolese



Conservation Outcomes from Control Activities:

Control efforts help reduce the spread of invasive species and foster the growth of native species which support the ecological balance and resiliency towards future invasions.



Goal 4 – EDUCATION / OUTREACH / CITIZEN SCIENCE

Increase public awareness and understanding of invasive species issues.

Increasing public awareness and understanding of invasive species issues is a goal of SLELO's educational efforts. In 2018 SLELO partners held **73 events directly engaging 2,223 individuals**. Efforts included educational and outreach along with citizen science efforts. A complete list of events in 2018 are shown in Appendix C. Figures 12,13,14 show metrics of our efforts.

2018 E/O Efforts at a Glance

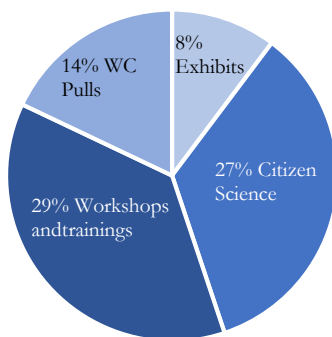


Figure 12, Above: In 2018, 29% of our efforts were targeted towards workshops and trainings. 27% towards citizen science. 14% targeted water chestnut pulls and 8% through displays and exhibits.

2018 E/O Efforts by County

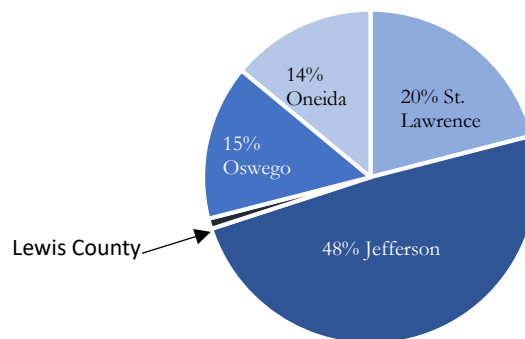


Figure 13, Above: SLELO efforts by PRISM county: 48% Jefferson. 20% St. Lawrence. 15% Oswego. 14% Oneida and 3% Lewis County.

2018 E/O Efforts Per Season

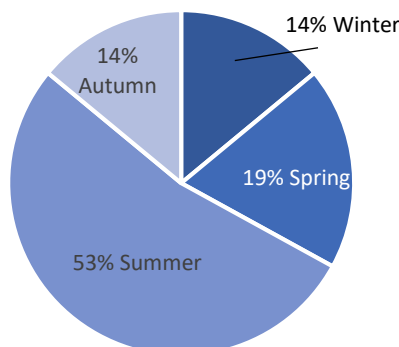


Figure 14, Left: In 2018, 19% of our efforts occurred in the spring. 53% during the summer. 14% in autumn and 14% in the winter.

Production of Conservation Efforts and Volunteer Surveillance Network Videos

During the 2018 field season, two high quality videos were produced using drone footage, volunteers, captions and background music to deliver two important messages. Video 1 captured the importance of protecting nature from invasive species and the accomplishments of the SLELO PRISM partnership. Video 2 was designed to attract volunteers to participate in SLELO PRISM activities. Produced under a contract with Westfield Productions® (Figure 15), both videos are scheduled for release early in 2019 and can be viewed at:

<https://protect-us.mimecast.com/s/Kx1SCDkZxRIJr1LMfWsb2b>



Figure 15 above, The production crew from Westfield Productions, video-taping one of SLELO PRISM's volunteers for inclusion in one of two new videos. ©TNC/Rob Williams



Goal 5 – COOPERATION

Facilitate opportunities for sharing resources, including funding, personnel, equipment, information and expertise.

Working together towards a common cause is perhaps one of the SLELO Partnership's strongest attributes. Our partners are interested in the subject matter, there is a tremendous amount of expertise within the partnership, and we are engaged, motivated and work extremely well together. Cooperative highlights from 2018 include:

- In 2018, we collaborated with other PRISM's and state agencies to provide ideas and input on the New York State Invasive Species Comprehensive Management Plan.
- We collaborated with the Atkinson Center for a Sustainable Future along with two other PRISM's on a Lake Ontario eDNA project targeting multiple aquatic invasive species.
- We collaborated with the Cornell Biocontrol Lab to learn more about *Hypena opulenta*—the biocontrol agent for invasive swallow-wort.
- The St. Regis Mohawk Tribe's Water Resources/ Environmental Unit at Akwesasne reported the first detection of the invasive fish Tench (*Tinca tinca*) resulting in partners creating a strategy to track the spread of Tench.
- Seasonal employees from various partner organizations collaborated on various activities such as water chestnut hand pulls at multiple locations.
- Our Education and Outreach Committee collaborated to promote education and awareness activities.
- We implemented special projects through our partners to complement our invasive species work.
- Partners continued to promote a cooperative forum at monthly meetings.
- Partners were invited to participate and/or volunteer at events/exhibits & public speaking engagements.



SLELO PRISM is a tremendous collaboration that empowers professionals to take leadership in regionally specific invasive species priorities.

~Patricia Shulenburg, Save The River.

Volunteer Surveillance Network (VSN)

Prevention and early detection play a key role in our mission. Detecting invasive species before their populations become too large to control increases the potential for successful management strategies including possible eradication. Nearly 40% of new invasive species infestations are found by citizens who have learned to identify invasive species. SLELO PRISM has been actively recruiting and training volunteers to survey for priority invasive species (Figure 16) and report observations via iMapInvasives.org through our Volunteer Surveillance Network (VSN). In 2018 we established VSNs for the following species: fanwort (*Cabomba caroliniana*), emerald ash borer (*Agrilus planipennis*), hemlock wooly adelgid (*Adelges tsugae*) and tench (*Tinca tinca*).

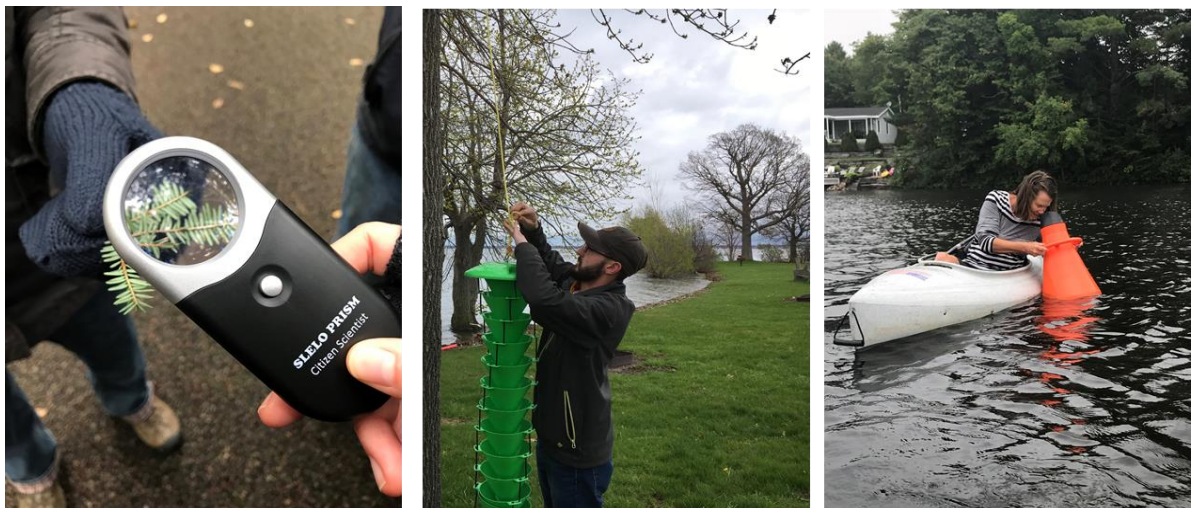


Figure 16, above left to right: Volunteers inspecting hemlock branch, hanging an EAB trap and searching for fanwort. ©TNC/Megan Pistolese

127

Number of volunteers that participated with our Volunteer Surveillance Network, Adopt-A-Trap effort and with our rusty roundup effort in 2018

Adopt-A-Trap Project

2018 marked the second year of the SLELO Adopt-a-Trap Project. Forty volunteers (Figure 17) collaborated to deploy and monitor a total of 60 emerald ash borer (EAB) green-funnel traps distributed throughout each county within the SLELO PRISM region in addition to Grindstone Island. The DEC Diagnostic Lab confirmed EAB in five of the 60 traps deployed, and a new observation in Sandy Creek was reported & confirmed by experts via iMap Invasives.



Above, Figure 17, 2018 Adopt-A-Trap trainers. ©TNC/Megan Pistolese



"Volunteering with SLELO has reminded me that there is never enough time to give back to our environment, and to savor the days when I am trying to make a small part of our outdoors cleaner, less polluted, or more enjoyable for others."

~Ed DeMattia, Volunteer

Rusty Roundup

In 2017 rusty crayfish (*Orconectes rusticus*) were re-confirmed in Oneida Lake and for the first time in the Mohawk River headwaters to the Delta Lake Reservoir. This past summer an event was organized to collect juvenile rusty crayfish from the Mohawk River where the crayfish were observed in 2017. Twelve volunteers (Figure 18) from the Leaders in Environmental Action for the Future (LEAF) program were provided by The Nature Conservancy to assist in the collection of crayfish. Approximately two dozen juvenile crayfish were captured.



Figure 18, above: LEAF Volunteers using hand nets to collect juvenile rusty crayfish from the Mohawk River, headwaters to the Delta Lake Reservoir. ©TNC/Rob Williams



Goal 6 – INFORMATION MANAGEMENT & SHARING

Collect, utilize, and share information regarding invasive species

Providing and sharing information in a way that is easily accessible is an important aspect of regional collaboration. To manage and share information among SLELO partners and the public, and to maintain continuity in reporting, our partners maintained several initiatives in 2018 including:

- **Partner Roundtable Reports:** All partner meetings begin with a roundtable opportunity for partners to share information and end with an open dialogue as well.
- **Field Reports:** Field reports are sent directly to partners and posted on the SLELO website. <http://www.sleloinvasives.org/field-reports/>
- **In-Situ Treatments Page:** In 2018, treatment pages were added to our website that share information and maps of rapid response and treatment areas. <http://www.sleloinvasives.org/field-reports/2018-in-situ-treatments/>
- **iMap Invasives:** 204 observations were recorded into iMap during the 2018 field season. Observations included 9-aquatic animal, 7 insects, 19 aquatic plant, 166 terrestrial plant.
- **SLELO PRISM Website:** The SLELO PRISM website has become an important medium for managing and sharing information. The popular site is used to post relevant information. In 2018 there were over 56,000 visitors to our website. <http://www.sleloinvasives.org/>
- **Seasonal Newsletter:** Four issues of the SLELO PRISM newsletter were published in 2018. This was accomplished with a commitment from our Education and Outreach Committee and can be viewed at <http://www.sleloinvasives.org/newsletter/>
- **Participation with Statewide Webcasts:** Partners participate in and facilitate monthly New York statewide webcasts.



Goal 7 – ECOLOGICAL RESTORATION

Develop and implement effective restoration methods

Restoring and protecting the biological diversity of unique habitats and cultural resources from the negative impacts posed by invasive species is the core purpose for our work. This, and sustaining the habitat which supports rare, threatened or endangered species, is at the forefront of our mission. Areas that have been treated for invasive species may be considered as disturbed areas and can be restored more effectively with intentional planting of native species boosting the resiliency of these sites.¹

Treatment Sites – General:

As a general practice and where appropriate, the SLELO team plants native grass seed to expedite the growth of ground cover to reduce the susceptibility of the site to the infestation of a non-native species. In some instances, native tree seedlings are planted along with live staking of resident plant material.

Carleton Island Grassland Restoration:

In collaboration with our partners at the Thousand Island Land Trust (TILT), the SLELO Rapid Response team assisted with a second year of swallow-wort suppression on a 36-acre grassland site on Carleton Island (Figure 19). Selected areas were planted with native grass seed to make treatment sites more resistant to future introductions and establishment of invasive plants.

Figure 19 right: Sarah Kirkpatrick of our Early Detection Team and Ed Miller of our Rapid Response Team broadcasting 100% weed free, native seed at a Carleton Island Site. ©TNC/Mike Parks



¹ Salon P.R. and C. F. Miller. 2012. A Guide to: Conservation Plantings on Critical Areas for the Northeast
USDA, NRCS, Big Flats Plant Materials Center, Corning, NY.



SPECIAL PROJECTS and PARTNER INITIATIVES

Deliverables that help to meet contractual obligations and deliver invasive species management.

Tug Hill Forest / Climate Resiliency Project:

In 2018, the SLELO Rapid Response Team assisted with invasive species control to benefit an on-going, restoration and resiliency project on Tug Hill. This project includes a large-scale tree planting effort, focusing on species diversity to promote both climate and invasive species resilient forest succession. One goal is to accelerate regeneration and enhance species diversity by planting 45,000 tree seedlings from 26 different species over two years. Long lived legacy trees include; sugar maple and red spruce. Northern edge species included oaks, native pine and hickory (Sargis 2018)².



The SLELO PRISM is a very effective organization with many accomplishments in prevention, control and outreach. I am pleased to be considered a partner and look forward to working together well into the future.

*~Joe Chairvolotti, Oswego County
SWCD*

Implementing Climate Change Solutions at Zenda Farms Preserve:

This unique project focused on preventing the establishment and spread of invasive species (swallow-wort) from nearby properties through site restoration and enhancement of native species richness on Zenda Farms. The project includes site preparation, over-seeding, tree planting and hands-on education emphasizing climate resiliency and was successfully implemented by our partners at the Thousand Island Land Trust.

Great Lakes Seaway Trail Invasive Species Education

The project goal is to increase public stewardship of Great Lakes Seaway Trail's and SLELO-PRISM's freshwater resources. Interpretive panels were created and placed at strategic locations along Eastern Lake Ontario to help reduce the introduction and spread of high profile aquatic invasive species.

² Sargis Gregg. 2018 Improving the health and resilience of our forests. Powerpoint.



RESEARCH PRIORITIES

As requested by the New York State DEC Invasive Species Coordination Section, the NYS Invasive Species Council and the NYS Invasive Species Research Institute.

Research items previously submitted by the SLELO PRISM Partnership were advocated for again in 2018. Our partners continued to support the following research items by prioritizing through the New York State Invasive Species Research Institute:

New York as a Continental Hub.

A research item submitted by the SLELO PRISM Partnership is related to obtaining a better understanding of New York's role as a continental hub for the import and export of invasive species. Questions to pose include; are we doing everything we can to prevent imports and exports of invasive species, how might this affect North America and are there additional partners we should engage?

Pheromone Based Bait

A new research item submitted was for the development of a species-specific pheromone-based bait and netting protocol for confirmation, capture and removal of invasive fish.

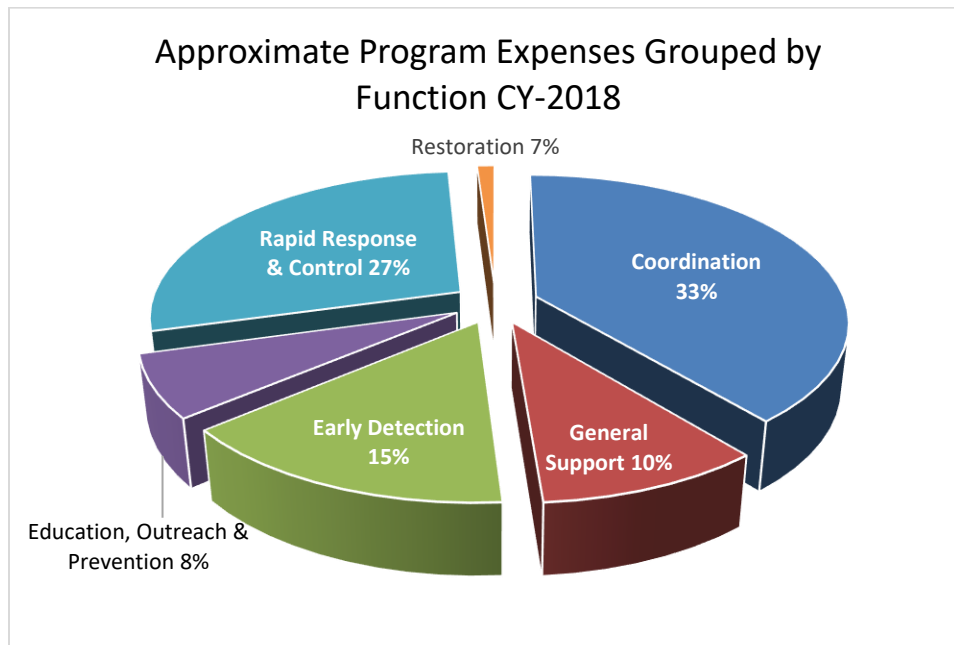
Biological Controls

Identifying and bringing biological controls to realization requires research and if found these biological controls can offer long term suppression of invasive species. To date the SLELO PRISM partners have advocated for the development of biological controls for water chestnut (*Trapa natans*), Swallow-wort (*Cynanchum spp.*) and Japanese knotweed (*Fallopia japonica*).

Expenses by Function:

In 2018 program expenses were estimated and grouped together based on functional/programmatic categories (Figure 20). This allows for a general understanding of the current program focus and does not reflect a financial report.

Figure 20: Program expenses grouped by function.



Function	Description
Rapid Response and Control Activities	Licensed seasonal pesticide applicator and field technician, control related sub-awards.
Program Coordination	Activities and expenses related to administering the program including full-time staff.
Education, Outreach and Prevention	Events, supplies and materials related to education, outreach, prevention and related special projects.
Early Detection Surveillance	Seasonal employees x2 to conduct early detection surveillance.
General Support	Travel, communications, etc.
Restoration	Site preparation, native grass seed, seedlings, plant materials, Tug Hill work.

References

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Figures with accompanying photo credits:

- Figure 1: Spatial distribution of partner efforts. Created by Megan Pistolese.
Figure 2: 2018 Boat Launch Stewards. ©TNC/Rob Williams.
Figure 3: 2018 Early Detection Team. ©TNC/Rob Williams
Figure 4: Porcelain berry. Photo by Anthony Beane.
Figure 5: Tench. Photo by the Mohawk Nation at Akwesasne.
Figure 6: Apprentice Ed Miller ©TNC/Mike Parks.
Figure 7: Percentage of species control by our Rapid Response Team.
Figure 8: Releasing *Hypena opulenta* ©TNC/Sarah Kirkpatrick.
Figure 9: *Hypena opulenta* larvae ©TNC/Emma Gutierrez.
Figure 10: Adult *Hypena* ©TNC/Emma Gutierrez.
Figure 11: Volunteers at various water chestnut pulls ©TNC/Megan Pistolese.
Figures 12,13,14: Education and outreach efforts. Created by Megan Pistolese.
Figure 15: Video production at Eldorado Nature Preserve ©TNC/Rob Williams.
Figure 16: Volunteers ©TNC/Megan Pistolese.
Figure 17: Adopt-A-Trap project trainers ©TNC/Megan Pistolese.
Figure 18: Rusty roundup LEAF volunteers ©TNC/Megan Pistolese.
Figure 19: Carleton Island Restoration ©TNC/Mike Parks.
Figure 20: Estimated program expenses by function, created by Rob Williams.

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Spotted lanternfly photo by Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org.
Group photo page 19 by Frank Williams. Hemlock inspection page 23 by Emmanuel Vaucher.

Tables:

- Table 1: Metrics collected from boaters along Eastern Lake Ontario, 2018.
Table 2: Summary of control locations and species controlled.

Appendix A: List of Current PRISM Partners

Principle Partners:

- New York State Department of Environmental Conservation
- The Nature Conservancy, CWNy
- Cornell Cooperative Extension
- New York State Department of Transportation
- New York State Department of Parks Recreation and Historic Preservation
- Sea Grant of New York
- Thousand Islands Land Trust

At-Large Partners:

- St. Lawrence County Representative, Cooperative Extension
- Jefferson County Representative, vacant
- Lewis County Representative, Soil & Water Conservation District
- Oneida County Representative, vacant
- Oswego County Representative, Soil & Water Conservation District

Cooperating Affiliates:

- Ducks Unlimited
- Tug Hill Tomorrow Land Trust
- Tug Hill Commission
- Fort Drum Military Installation
- Save The River Organization
- Audubon Central New York
- Private Consultant
- New York Power Authority
- CNY Regional Planning and Development Board
- United States Coast Guard Auxiliary

Appendix B: SLELO PRISM's Current Species Lists

PREVENTION SPECIES

✓ Mile-A-Minute Vine	(<i>Polygonum perfoliatum</i>)
✓ Didymo	(<i>Didymosphenia geminata</i>)
✓ Hydrilla	(<i>Hydrilla verticillata</i>)
✓ Asian Long horned Beetle	(<i>Anoplophora glabripennis</i>)
✓ Hemlock Woolly Adelgid	(<i>Adelges tsugae</i>)
✓ Silver, Big Head and Grass Carp	(<i>Ctenopharyngodon spp.</i>)
✓ New Zealand Mud Snail	(<i>Potamopyrgus antipodarum</i>)
✓ Hemimysis	(<i>Hemimysis anomala</i>)
✓ Asian Clam	(<i>Corbicula fluminea</i>)
✓ Kudzu	(<i>Pueraria lobata</i>)
✓ Feral swine	(<i>Sus scrofa</i> Linnaeus)
✓ Porcelain Berry	(<i>Ampelopsis spp.</i>)
✓ Water Soldier	(<i>Stratiotes aloides</i>)
✓ Rusty Crayfish	(<i>Orconectes rusticus</i>)
✓ Water Hyacinth	(<i>Eichornia crassipes</i>)
✓ Fanwort	(<i>Cabomba caroliniana</i>)
✓ Slender false brome	(<i>Brachypodium sylvaticum</i>)
✓ Water lettuce	(<i>Pistia stratiotes</i>)
✓ Tree-of-heaven	(<i>Ailanthus altissima</i>)
✓ Spotted lanternfly	(<i>Lycorma delicatula</i>)
✓ Tench	(<i>Tinca tinca</i>)

TARGET MANAGEMENT SPECIES

✓ Black & Pale Swallow-wort	(<i>Cynanchum spp.</i>)
✓ Water Chestnut	(<i>Trapa natans</i>)
✓ Giant Hogweed	(<i>Heracleum mantegazzianum</i>)
✓ Emerald Ash Borer	(<i>Agrilus planipennis</i>)
✓ Phragmites	(<i>Phragmites australis</i>)
✓ Purple Loosestrife	(<i>Lythrum salicaria</i>)
✓ Japanese Knotweed	(<i>Polygonum cuspidatum</i>)
✓ Glossy Buckthorn	(<i>Rhamnus spp.</i>)
✓ Japanese Stiltgrass	(<i>Microstegium vimineum</i>)
✓ Wild Chervil	(<i>Anthriscus silvestris</i>)
✓ Leafy Spurge	(<i>Euphorbia esula</i> L.)
✓ Yellow Iris	(<i>Iris psuedacorus</i>)
✓ Asian Jumping Worm	(<i>Amyntas spp.</i>)

Appendix C: SLELO PRISM's 2018 Education & Outreach Events

2018 E/O Events	Date/Location	Total Engaged	2018 E/O Events	Date/Location	Total Engaged
Save the River Keeper Program	January 16 th /Indian River Central School	144	Big Bay-Poddy Gut Shaw pull	June 29/Oneida Lake	24
THTLT HWA Snowshoe Hike	Saturday, January 20 th Amboy	14	Lakeview WCP	July 10 th /Mannsville	23
HWA Workshop	Saturday, January 27 th Rome	6	Port Ontario WCP	July 12 /Pulaski	24
Save the River Project Wet	2/5 Minna Antony Nature Center	13	Grindstone Marsh WCP	July 9th-12 th /Pulaski	17
IRLC HWA workshop	February 23/ IRLC office Redwood	16	NUN Forest Pest Workshop	July 12 th /Jacques Cartier	13
Save the River Atlantic Salmon AIS talk	February 28 th Jefferson/ Lewis BOCES	10	iMap training	July 13 th /St. Lawrence County	20
CCE Spotted Wing Drosophila workshop	March 15 th / Canton	23	Exhibit	July 13 th /Canton	15
Save the River Jr. River Keepers	March 19 th / Clayton	17	Exhibit	July 15 th / Potsdam	15
Tug Hill Commission Local gov. conference	March 29 TH /Watertown	30	Woodhenge Walk/Talk	June 16 th /Adams Center	12
Presentation @ THC Gov. Conf.	March 29 th /Watertown	40	THTLT E/O event at Hospice	July 16/ Watertown	19
Save the River Jr. River Keepers	March 19 th / Carthage	120	Oneida Lake Lewis Point	July 14 th / Oneida Lake	4
CCE EAB Management workshop	April 12 th / Canton	50	Oneida Lake Marina WCP	July 14 th / Oneida Lake	19
Environmental Education Event	April 19 th /Carthage	120	Utica Marsh WCP	July 18 th / Utica	8
Thompson Park Earth Day	April 21 st Save the River/TNC Jefferson Co.	17	Mexico Point WCP	July 19 th / Mexico	9
Save the River iMap training	April 24 th / Watertown	17	Pollinator pathway wrkshp	July 17 th /Pulaski	17
4-H Science Days	April 24 th Oriskany CCE Oneida County	17	Big Bay Oneida Lake WCP	July 29 th / Oneida Lake	8
2018 E/O Events	Date/Location	Total Engaged	2018 E/O Events	Date/Location	Total Engaged
Adopt a trap training	April 25 th /Altmar	29	Pollinator Pathway workshop	July 30 th /Williamstown	15
CCE EAB Management	April 12 th /Canton	50	Battle Island WCP	August 3 rd / Fulton	4

Environmental Education Event	April 19 th Carthage Middle School	120	CCE MaMa workshop	August 2 nd / Massena	14
Save the River iMap training	April 24 th /Watertown	16	River Fest	August 4 th /Black River	44
EAB Community Ash Trap Tree Survey Workshop	May 3 rd /Akwasasne	20	TILT Day Camp/ Save the River Jr. Keepers	August 9 th / Clayton	24
Southwick Beach Dune fest	May 29 th / Henderson	83	TILT Swallow Wort Workshop	August 9 th / Clayton	22
Save the River/ On the Water Program	May 30 th /Wellesley Island	41	Save the River Jr. River Keepers	August 14 th / TI Park	12
Save the River/ On the Water Program	5/31 Wellesley Island	36	Save the River Educators Program	August 20 th / Wellesley Island	10
American Wildlife Cons. Foundation Conference	May 24, Altmar	34	Colton AIS workshop	August 30 th	16
IRLC Pollinator Pathway	May 31 st IRLC Redwood	15	Save the River Jr. River Keepers	August 31 st / Wellesley Island	12
Save the River/ On the Water Program	June 5 th / Wellesley island	33	Save the River riverkeepers	September 1 st /Wellesley island	4
Save the River/ On the Water Program	June 6 th / Wellesley island	56	Colton Milfoil Pull	September 12 th -16 th / Colton	20
Save the River/ On the Water Program	June 12 th / Wellesley island	46	Environmental Days	September 20 th Fort Drum	300
Save the River/ On the Water Program	June 14 th / Wellesley island	40	Conservation Days	September 25 th Pulaski	200
Save the River/ On the Water Program	June 15 th / Wellesley island	40	CCE Master Gardener Training	October 5 th Watertown	8
IRLC Water Quality Conf.	June 8 th /Redwood	16	Potsdam local gov. conf. presentation	October 4 th Potsdam	18
Woodhenge Walk/Talk	June 16 th Adams Center Jefferson county	12	CCE Tree planting workshop	October 13 th Canton	18
iMap training	June 18 th / Rice Creek Field Station	15	HWA Walk and Talk	October 25 th Camden	9
Zenda pollinator pathway Workshop	June 20 th Zenda Farm-Clayton	8	CCE Master Gardener Training	October 31 st Canton	13
Save the River Riverkeeper	June 23 rd Cornwall	10	HWA Walk and Talk	November 6 th Sandy Creek	6

Appendix D - Summary of Priority Conservation Areas where early detection took place in 2018.

Priority Conservation Area	Number of Highly Probable Areas Searched	Prevention Species Found
Whetstone Reservoir	12	None found
Black Lake	5	None found
Oneida Lake and Three Mile Bay	27	None found
Salmon River Estuary	12	None found
Mud Bay	17	None found
Chaumont Bay	4	None found
Eldorado Preserve	11	None found
Black Pond	11	None found
French Creek	20	None found
Tug Hill I.S.P.Z.	24	None found
Guffin Bay	7	None found
Forest Pest Surveillance	40	None found
Eleven PCA's	190	n/a