

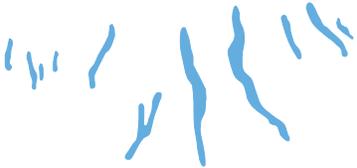
**FINGER LAKES**  
**PRISM**  
Partnership for Regional  
Invasive Species Management

## 2014-2015 Annual Report



HOBART AND WILLIAM SMITH COLLEGES

FINGER LAKES  
INSTITUTE



[fingerlakesinvasives.org](http://fingerlakesinvasives.org)



Cayuga Lake at dawn. Photo credit: Lisa Cleckner

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### Acknowledgements

I am thankful to our host organization, the Finger Lakes Institute at Hobart and William Smith Colleges, and our New York State (NYS) partners which include the NYS Department of Environmental Conservation (DEC) Invasive Species Coordination Unit, the NYS Invasive Species Council, the NYS Invasive Species Research Institute, the NYS Invasive Species Clearinghouse at Cornell University, the Cornell Cooperative Extension (CCE) Invasive Species Education Program and iMapInvasives.

I am also very thankful to our Steering Committee, Agriculture, Aquatic, Education & Outreach, and Terrestrial Working Group members for their dedication, expertise, and commitment to furthering the mission of the FL-PRISM. There is no 'Partnership' without our partners and we are grateful for their service (Appendix A).

The FL-PRISM is funded by the Environmental Protection Fund, through the NYS Department of Environmental Conservation.

*Thank you to Dr. Lisa Cleckner and Emily Staychock for their careful review, comments, and edits of this report.*

# Introduction



*Hilary R. Mosher*

## Letter from the Coordinator

Partners,

I would like to thank you for your collaboration and dedication to invasive species management, control, education & outreach, and prevention during our inaugural year of funding for the FL-PRISM. Each of you brings a wealth of energy and expertise to our region and we are very fortunate to have you in our partnership.

The subsequent report will highlight some of the amazing work that has been done over the past year by those in the FL-PRISM. It will also identify some impediments to the success of the program, hypothesize potential solutions, and finally describe a vision for the 2015/2016 season.

My role as Coordinator began in March 2014. I first set out to connect with others who have been instrumental in the field of invasive species management in the Finger Lakes region to start to build a clear picture of efforts and challenges in the region. My questions were met with a strong enthusiasm and a willingness to move the partnership forward. Our partners are among the best in the State and FL-PRISM is successful because of the fervent advocates and connected experts we have in the region.

The first full partnership meeting hosted over 100 people who readily signed up for the Steering Committee and/or one of four working groups based on their interest area. In a time when people are overcommitted and often doing double the workload, Finger Lakes partners stepped up to help the FL-PRISM set the pace for invasive species coordination in the region.

The Finger Lakes region encompasses 7.3 million acres of land and is the biggest PRISM region. The region is home to the Erie Canal; the shoreline of Lake Ontario; numerous hiking, biking, and ATV trails; and the scenic lakes, which give our region its name. Fortunately, the FL-PRISM has an understanding of the following:

- the importance of prevention as the first line of defense;
- coordination and partnership as a nexus for information sharing;
- leveraging of resources as an example of synergy in action;
- early detection and rapid response as a means of keeping infestations low on the invasion curve to protect our ecosystem, human health impacts, and impact to our economy;
- education and outreach as the most cost-effective means of building capacity with community members and partners;
- communication as a key element for the success of our program;
- control measures and habitat restoration to build resilience in our ecosystems; and
- the need for legislation and support for our initiatives through funding opportunities, supportive legislation and the ability to network.

We have many things for which to be proud in our Finger Lakes PRISM region. I look forward to continuing to work with you all in the 2015-2016 years!

In service,

Hilary R. Mosher, Coordinator, FL-PRISM

## Background

In response to the 2005 report to the NYS Invasive Species Task Force, eight Partnerships for Regional Invasive Species Management (PRISMs) were formed statewide to address the economic, ecological, and human health impacts of invasive species within New York (Figure 1). Developed based on the Cooperative Weed Management Areas (CWMA) from the western United States, the PRISMs represent a unified strategy in dealing with invasive species.

The FL-PRISM covers the 17 counties of the Finger Lakes and brings together the resources of a diverse range of organizations to prevent, detect, control, and manage invasive species; ultimately reducing their proliferation and impacts. With the cost to control invasive species within the United States estimated at \$137 billion annually (Pimentel *et al.* 2000), the FL-PRISM allows for sharing and leveraging of limited resources within the partnership while representing a highly-visible program that builds community awareness and participation.



Figure 1. Partnerships for Regional Invasive Species Management (PRISMs) in New York State

Prior to securing funding, the FL-PRISM consisted of a group dedicated to forwarding the mission of invasive species management. This first meeting of the FL-PRISM was held on March 22, 2007 at the Montezuma Audubon Center in Savannah, NY, and was facilitated by John Dickerson. Key questions and concerns over boundaries of the FL-PRISM, mission, vision, and naming of the PRISM were topics for this opening meeting, which had nearly 70 people in attendance. In September 2007, the first press release was distributed asking for commitment from key partners who were interested in learning more about invasive species and partnership

opportunities. Gregg Sargis was the acting-chair of the interim steering committee which consisted of members from the Finger Lakes Institute, The Nature Conservancy, DEC Region 8, Sea Grant/Invasive Species Task Force, Cornell Cooperative Extension of Monroe County, NYS Department of Transportation (DOT), Finger Lakes-Lake Ontario Watershed Protection Alliance (FOLLOWPA), New York State Federation of Lake Associations (NYSFOLA), NYS Ag & Markets, and Maple Hill.

The FL-PRISM launched terrestrial, aquatic, and education & outreach working groups. The working groups developed a 2008 work plan with five major objectives including: strengthen partnership, funding sources, education and outreach, eradication and control, and monitoring and inventory. Without funding and a structure to support the FL-PRISM, the group stopped convening as a unit. The last recorded meeting minutes were from a meeting that took place on March 8, 2008.

In late 2013, the FL-PRISM contract was awarded to the Finger Lakes Institute at Hobart and William Smith Colleges. On March 3, 2014, Hilary Mosher began part time as the FL-PRISM Coordinator, one month before the end of the first year's contract. On May 19, 2014, Mosher started full time as the FL-PRISM Coordinator.

## Finger Lakes Region

With breathtaking vistas and a wealth of historical perspectives, the Finger Lakes hosts travelers, recreationists, and avid enthusiasts from across the world. Native American legend explains that the Creator looked upon this land with special favor and when reaching out to bless it, left an imprint of His hand on the landscape. Hence, the Finger Lakes were created, per legend.

Of course, geological history has a different, more scarring tale to tell about its origin. During the Pleistocene, a glacial sheet, over a mile thick in locations, gorged out the land and created enormous crevices. These filled in to become lakes as the glaciers melted across the landscape. The incredible gorges, waterfalls, and natural panoramas of the area were born from this geological process. Notably, the Finger Lakes region offers state parks such as Letchworth and Watkins Glen, ranked numbers one and three respectively in the 2015 "USA Today's Reader's Choice Award" for Best State Park (Appendix B), as well as the Finger Lakes National Forest, and the gorges of Ithaca (Figure 2), among others.

Some other prominent features of the Finger Lakes region include:

- Harriet Tubman Home in Auburn, NY
- Waterloo, the birthplace of Memorial Day
- The home of aviation pioneer Glenn Curtiss, in Hammondsport



Figure 2. Map of the Finger Lakes.

- Elmira, home to Mark Twain in his later years
- The Corning Museum of Glass
- Hornell, a major railroad center
- Conesus, the oldest producer of pure grape sacramental wine in the Western hemisphere
- Seward House of Auburn, a National Historic Landmark
- Seneca Falls
- Hemlock-Canadice State Forest covers two lakes and spans 6,684 acres
- Hemlock is also home to the state's oldest pair of nesting bald eagles dating back to the 1960s
- Montezuma Audubon Center
- Institutions of higher education (Appendix C)

The FL-PRISM region encompasses over 7.3 million acres with the City of Rochester to the west, the City of Syracuse to the east, and Elmira-Corning to the south. According to Census data, 2,351,253.00 people live in the Finger Lakes region of New York State (NYS) which consists of Broome,

Cayuga, Chemung, Chenango, Tompkins, Tioga, Steuben, Wayne, Yates, Cortland, Livingston, Madison, Monroe, Onondaga, Ontario, Schuyler, and Seneca counties. The mean household income of the region is \$63,978 and the average individual percent poverty rate is 13.39% (Census Data, 2010). Outside of New York City and Long Island, traveler spending in the Finger Lakes is second to only the Hudson Valley, and generates 5% of the state's tourism revenue.\* Tourism results in \$2.6 billion dollars spent in the



Picturesque Cayuga Lake. Photo credit: Lisa Cleckner

Finger Lakes region annually\* (Finger Lakes Tourism, 2010, available [here](#)).

There are over 40 State Parks and Historic Sites within the region ranging from Hamlin Beach State Park in Monroe County to Green Lakes State Park in Onondaga County. Additionally, the Finger Lakes boast [Zurich Bog](#), a National Natural Landmark with its unique wetland preserve that is home to several threatened and endangered species on 650 acres in the town of Arcadia. The Finger Lakes is also home to the Finger Lakes National Forest in Hector, NY, a beautiful 16,212 acre retreat in the watersheds of Seneca and Cayuga Lakes.

\*This data excludes the economic impact of Broome, Madison, and Chenango Counties.

### Problem Statement

Invasive species (IS), as defined by the NYS DEC, pose a significant threat to the Finger Lakes region given the multitude of vectors for transmission. Especially of concern to our region are the massive populations of giant Russian hogweed (*Heracleum mantegazzianum*), common reed (*Phragmites australis*) located along almost every major transportation corridor, and an actively managed population of Hydrilla (*Hydrilla verticillata*) in the Cayuga Lake watershed. These invasives and others are taking foothold in our region even as other populations are poised for invasion via the Erie Canal and other transmission routes. It is imperative that we protect our ecosystems and safeguard our picturesque region from additional outbreaks of new or invading species. With funding now available to coordinate the FL-PRISM, there has been increased communication and leveraging of resources via participation on county water quality coordinating committees, local task forces, and regional invasive species councils. The FL-PRISM has hit the ground running, dedicated to collaboration, coordination, and control of invasive species before they cost our region millions of dollars more and degrade our fragile ecosystems.

### Mission

The mission of the Finger Lakes Partnership for Regional Invasive Species Management (FL-PRISM) is to reduce the introduction, spread, and impact of invasive species within the Finger Lakes PRISM region through coordinated education, detection, prevention, and control measures (adopted by the Steering Committee, June 2014).

### Vision

The FL-PRISM is recognized as the primary organization for invasive species detection, prevention, control, and education and outreach within the 17-county region of the Finger Lakes. The FL-PRISM will work collaboratively with its partners and the public to provide education and mitigate the impacts of invasive species within our region.

## FL-PRISM Steering Committee, Working Groups, and Staff

The FL-PRISM consists of multiple partners working together to help stop the invasion of plants, animals, diseases, and vectors of transmission for invasive species. The staff includes Dr. Lisa Cleckner, director of the Finger Lakes Institute, Hilary R. Mosher, FL-PRISM coordinator, and Emily Staychock, Cornell Cooperative Extension (CCE) Invasive Species Education Program (funded by CCE).

The partnership committees are divided among five working groups and encourage on-the-ground education & outreach, prevention, and control of invasive species through public forums, trainings, outreach, presentations, and invasive species surveys throughout the region. The FL-PRISM has a Steering Committee (SC), Agricultural Working Group (AgWG), Aquatic Working Group (AWG), Education & Outreach Working Group (E&OWG), and a Terrestrial Working Group (TWG). The purpose of each working group along with the priorities of each group is listed below.

### 1. Steering Committee (SC)

#### Purpose:

To guide the five year strategic planning process, plan and set overall direction for priority areas and priority IS and ensure that major goals and timeline are achieved. The SC will set the annual work plan and monitor progress by tracking timelines and evaluation procedures. The SC will provide strategic direction and coordination for the four working groups and serve as a link to the NYS IS Council and IS TF through the varied expertise and connections of the SC.

#### Structural Statement

The steering committee is made up of representatives from the Finger Lakes with an interest in the governance of the FL-PRISM. The steering committee will ensure consistency and non-bias in decision-making for the Finger Lakes region.

#### Strategies to accomplish purpose:

- Establish a good working relationship with partners and working groups;
- Work in partnership with the working groups to develop priorities such as identifying key invasive species to monitor and control, and key target locations in the FL region;
- Adopt a monitoring strategy for IS in the FL-region based on the outcomes from the WGs;
- Adopt an Early Detection Rapid Response (ED/RR) plan that will help communities detect and respond to IS introductions, based on outcomes from the WGs;
- Develop the annual and work plan that brings together various stakeholders to establish the synergy necessary

to tackle IS within the community through clear and concise strategies for prevention, control and remediation;

- Help communicate the priority IS list and methods of IS introduction, include information about vectors of transmission and information about where IS are coming from, and where they are moving to, disseminated via FL-PRISM website; and
- Develop a marketing and communication strategy, including a robust and all-inclusive website, to enable the community to recognize and consider FL-PRISM as the entity for information, management ideas, ED/RR, and all things invasive in the region. This will provide a key element for citizen science or community members to submit their questions or report early detection of organisms. Invasive species reporting will utilize tools such as iMapInvasives.

## 2. Agricultural Working Group (AgWG)

### Purpose:

To create agriculture-specific priorities for invasive species management and prevention, determine highly probable locations and conditions appropriate for invasion and develop agricultural invasive species management plan. This working group will develop an agriculture-focused work plan, support best management practices intended to reduce or control invasive species, and support the steering committee as needed.

### Strategies to accomplish purpose:

- Establish good working relationships with partners such as farmers, Cornell, DEC, Ag and Markets, and others;
- Working in concert with the E&OWG and the SC, determine the target audience in order to provide an Ag IS-specific toolbox with items to effectively and efficiently educate people about the impact of Ag IS and how to detect, prevent, mitigate and report Ag IS;
- Develop or identify a monitoring strategy, including monitoring protocols, for Ag IS in the FL-region
- Create an ED/RR plan that will help communities detect and respond to Ag IS coming into the region;
- Develop or identify a mitigation strategy with best management practices to reduce impacts and help farmers deal with impacts;
- Develop or identify a prevention, management, and work plan that brings together various stakeholders to establish the synergy necessary to tackle Ag IS within the community through clear and concise strategies for prevention, control, and remediation;
- Develop or identify a protocol for the FL-region to deal with Ag IS issues at locations such as hedgerows, fallow

fields, etc. to provide consistent and clear messaging;

- Develop or identify a priority list and methods of introduction, which will include information about vectors of transmission, information about where Ag IS are coming from and where they may go, and how to prevent them to be disseminated via FL-PRISM website;
- Synthesize and disseminate data to the public via the FL-PRISM website;
- Create material on priority Ag IS for the FL-region (fliers, handbooks, datasheets, etc.);
- Establish the FL-PRISM website as the premier location for all information on invasive species in the FL-PRISM region; and
- Develop a matrix to use when determining priority organisms and locations for IS invasion and management

### Priority invasives of concern:

#### Plants

1. Autumn and Russian olive, *Elaeagnus umbellata*, *Elaeagnus angustifolia*
2. Canada thistle, *Cirsium arvense*
3. Field bindweed, *Convolvulus arvensis*
4. Japanese knotweed, *Polygonum cuspidatum* Siebold & Zucc.
5. Johnson grass, *Sorghum halepense*
6. Spotted knapweed, *Centaurea maculosa*
7. Swallow-wort, *Cynanchum spp.*
8. Velvetleaf, *Abutilon theophrasti* Medic.
9. Wild parsnip, *Pastinaca sativa*

#### Diseases

1. Basil downy mildew, *Peronospora belbahrii*
2. Grape crown gall, *Agrobacterium tumefaciens*
3. Late blight, *Phytophthora infestans*
4. Phytophthora blight, *Phytophthora capsici*
5. Plum pox virus, *Potyvirus*

#### Insects

1. Brown marmorated stink bug (BMSB) (*Halyomorpha halys*)
2. Garlic bloat nematode (*Ditylenchus dipsaci*)
3. Golden nematode (*Globodera rostochiensis*) - not an insect but should be included
4. Spotted wing drosophila (*Drosophila suzukii*)
5. Swede Midge (*Contarinia nasturtii*)

## 3. Aquatic Working Group (AWG)

**Purpose:**

- Develop aquatic- specific invasive species priorities, determine highly probable areas, create an aquatic invasive species management strategy, and create a work plan;
- Help in the prevention of new invasive species introductions into the region, help focus on early detection/rapid response of AIS, and help support the steering committee as needed;
- Serve as the direct point of reference for AIS and establish a simple and effective means for preventing, detecting, reporting, controlling, and managing priority AIS of concern;
- Develop a robust website that serves as a clearinghouse for AIS issues (prevention, detection, response, management, control) in the Finger Lakes region; and
- A containment and management of established invaders within the region and provide information about conferences, workshops, and literature to the E&O WG

**Strategies to accomplish purpose:**

- Establish good working relationships with partners such as NYS OPRHP, DEC, NYSFOLA, and others;
- Develop invasive species prevention protocols for lakes without stewards;
- Determine the FL-PRISM target audience and provide an AIS-specific toolbox to effectively and efficiently educate people about the impact of AIS and how to detect, prevent, mitigate and report AIS;
- Develop a monitoring strategy, including monitoring protocols, for AIS in the FL-region;
- Create an ED/RR plan that will help communities detect and respond to AIS coming into the region;
- Develop a mitigation strategy with best management practices to mitigate impacts and help communities deal with impacts;
- Develop a prevention, management, and work plan that brings together various stakeholders to establish the synergy necessary to tackle AIS within the community through clear and concise strategies for prevention, control, and remediation;
- Develop a protocol for the FL-region to deal with AIS issues at locations such as boat launches, marinas, and at all the waterbodies in the region to provide consistent and clear messaging (Lake Ontario, Sodus Bay, Finger Lakes, Oneida Lake, Erie Canal, small glacial lakes, etc.);

- Develop a priority list and method of introduction, which will include information about vectors of transmission, information about where AIS are coming from and where they could potentially spread, and AIS prevention to be disseminated via FL-PRISM website;
- Synthesize and disseminate watercraft steward/boat steward data to the public via the FL-PRISM website;
- Develop a consistent marketing strategy to convey the importance of watercraft stewards to the public (i.e., Clean, Drain, Dry!, Stop Aquatic Hitchhikers!);
- Create material on priority AIS for the FL-region (fliers, handbooks, datasheets, etc.);
- Establish the FL-PRISM website as the premier location for all information on invasive species in the FL-PRISM region; and
- Develop a matrix to use when determining priority organisms and locations for AIS invasion and management and create information about regional AIS and then lake-specific AIS

**Invasive Species Protection Zones:**

- Boat launches
- Primary inlets and tributaries
- Marinas and bait shops
- Highly Probable Areas of Invasion (HPA) as defined by the AWG

**Priority invasives of concern:***Macrophytes*

- Hydrilla, *Hydrilla verticillata*
- Water chestnut, *Trapa natans*

*Macroalgae*

- Starry stonewort, *Nitellopsis obtuse*

*Invertebrates*

- Asian clam, *Corbicula fluminea*
- Bloody red shrimp, *Hemimysis*

*Fish and Fish Diseases*

- Round goby, *Neogobius melanostomus*

*Harmful Algal Blooms (HABs) as an indirect effect*

- Asian clam and other connections to HABs

**4. Education and Outreach Working Group (E&OWG)****Purpose:**

- Establish a strong connection between FL-PRISM, the general public, volunteers, institutions of higher education, NGOs, agencies and other stakeholders;
- Promote FL-PRISM in a way that fosters awareness of our mission, generates interest in being a partner,

and enhances visibility within agencies and the Finger Lakes region to increase general knowledge (detection, prevention, control) of invasive species;

- Educate the Finger Lakes community on invasive species issues and provide the tools necessary to make sound management decisions;
- Determine appropriate means for education and outreach based on resources available; and
- Demonstrate to the general public and others the mutual benefit of investing human and economic resources in the FL-PRISM

#### **Strategies to accomplish purpose:**

- Generate and increase invasive species awareness and education within the FL-PRISM;
- Create a network of information sharing for marketing collateral and resource sharing across the FL-PRISM;
- Create a strong web-presence for the FL-PRISM to include necessary resources for managers, general public, lake associations, etc. on dealing with invasive species;
- Create fact sheets and information for professionals and educators;
- Develop a list of venues/events to offer opportunities to raise awareness about the FL-PRISM and invasive species;
- Sponsor education and outreach conferences, symposiums, and public forums to increase invasive species awareness across the region;
- Offer technical training on IS identification and management options for professionals and educators in the region;
- Create a list of experts in the field to draw upon for a speaker series (GAP analysis);
- Support the Agricultural, Aquatic, and Terrestrial WGs to ensure that their priorities and products are delivered to the general public and the FL-PRISM; and
- Develop a process to ensure that FL-PRISM publications are consistent and appropriate for the region (vetted through Steering Committee)

### **5. Terrestrial Working Group (TWG)**

#### **Purpose:**

- Guide terrestrial-specific invasive species priorities, determine highly probable areas for invasion and engage in invasive species research;
- Develop a terrestrial-focused work plan and invasive species management plan;
- Assist in the prevention of new invasive species into the region, focus on early detection/rapid response of

invasive species and support the steering committee as needed;

- Contain and manage established invaders within the region and provide information on terrestrial invasive species of concern, conferences, workshops, and literature to the E&O committee;
- Engage in regional research on terrestrial invasive species (TIS); and
- Promote the FL-PRISM as a central clearinghouse for TIS in the FL-PRISM region

#### **Strategies to accomplish purpose:**

- Prevent new invasions through rapid detection and remediation of new invasions of plants;
- Manage invaded areas;
- Promote native planting (i.e., as landscaping) thereby decreasing potential for invasion;
- Collaborate and network with regional invasive species educational institutions;
- Inventory, survey, and map populations of invasive plants;
- Restore sites where weed management and control have occurred; and
- Monitor changes and evaluate management results

#### **Invasive Species Protection Zones:**

- Areas where the infestation is low on the invasion curve and our effort can make a difference—i.e., Japanese knotweed in the Finger Lakes National Forest is in very low abundance;
- Easily accessible areas for recreation where plants can be spread—highly probable areas (HPAs) for invasion;
- Edge of ecological important communities;
- Transportation corridors/right-of-ways;

#### **Priority invasives of concern:**

- Emerald ash borer, *Agrilus planipennis*
- Giant hogweed, *Heracleum mantegazzianum*
- Hemlock woolly adelgid, *Adelges tsugae*
- Japanese knotweed, *Polygonum cuspidatum* Siebold & Zucc.
- Oriental bittersweet, *Celastrus orbiculatus*
- Swallow-wort (pale and black), *Cynanchum spp.*
- Wild parsnip, *Pastinaca sativa*

# FL-PRISM Goals and Accomplishments from 2014-2015 Fiscal Year

## 1. Coordination with Partners

### Partnership and collaborative work

The FL-PRISM actively recruited partners from the region through networks, use of the Cornell listserve, presentations at various meetings, and cold calling targeted members. During the first full partnership meeting, partners were given an opportunity to sign up for one of five working groups. Through these groups, the FL-PRISM has made strides to involve partners, allow for open communication and opportunities for engagement across the region. We are proud of our accomplishments for the region and are optimistically looking to the 2015-2016 year.

### Partnership Meetings

During the 2014-2015 fiscal year, the FL-PRISM hosted two full partnership meetings (April 29th, and November



Participation at the NYS B.A.S.S. Federation Awards Banquet. The FL-PRISM is partnering with NYS B.A.S.S to slow the spread of invasives throughout the region. Photo credit: Hilary Mosher



The first partnership meeting was held in the Hirshson Ballroom at Hobart and William Smith Colleges on April 29, 2014. Photo credit: Hilary Mosher

21st) with nearly 100 people in attendance at each event. The Steering Committee has met seven times and held a two-day strategic planning retreat in October. The working groups have met four times each and have developed a structural document, early detection, rapid response flow chart and are in the process of completing a draft strategic plan. We look forward to meeting once a quarter for each of the five working groups to develop strategic actions towards fulfilling the mission of the FL-PRISM while allowing information sharing and leveraging of resources and events across the region.

### Partner Survey

At the first full partnership meeting, attendees were asked to provide information about goals and expectation of the FL-PRISM through an electronic survey. Twenty-six responses were received over an eight week time period from May through June 2015. Respondents reported that loss of biodiversity, impacts to water quality, impacts on ecosystem health, alteration of ecosystem processes & services, and impacts on economics to be of high importance while cost of management to be of low importance (Figure 3).

Respondents were asked to determine the importance of a number of activities for the FL-PRISM. Pursuing funding for PRISM activities, creating and distributing educational material, hosting invasive species educational workshops and assisting with eradication efforts were of high importance to the group while performing invasive species research, organizing volunteer projects and hosting invasive species educational workshops were rated as being of low importance (Figure 4).

Respondents were also asked to rate the invasive species of concern to the region. Hydrilla was the species that most people were concerned with followed by EAB, HWA, and water chestnut (Figure 5).



Partners came out to the Finger Lakes Research Conference, November 21, 2014 and stayed for the full partnership meeting to hear updates on the regional efforts in invasive species. Photo credit: Hilary Mosher

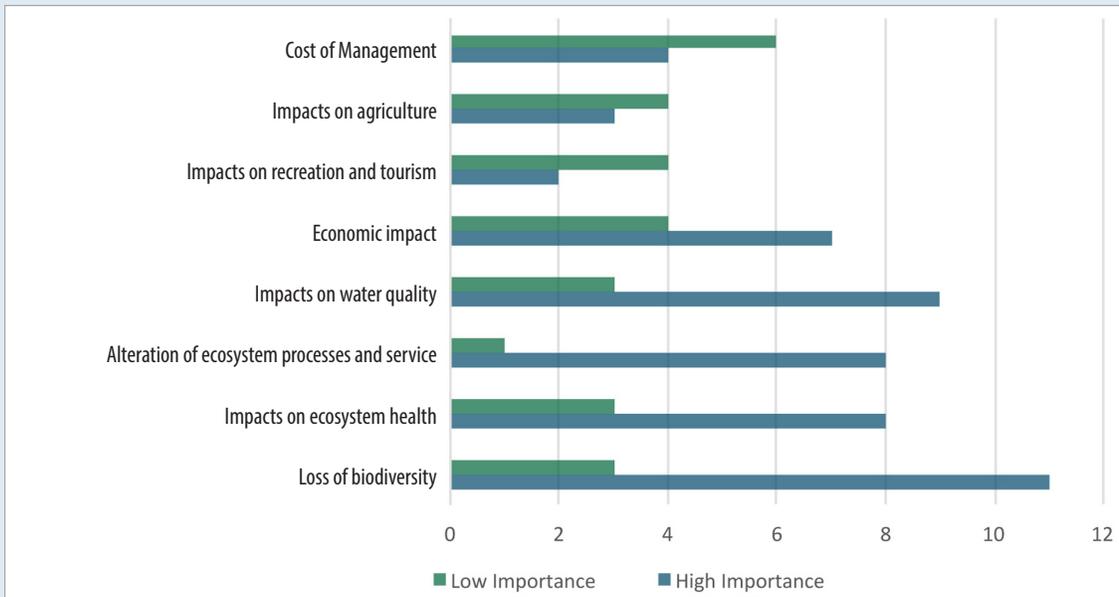


Figure 3. Number of respondents for the FL-PRISM survey taken in the spring of 2014 and their ranking for importance or lack of importance for eight areas.

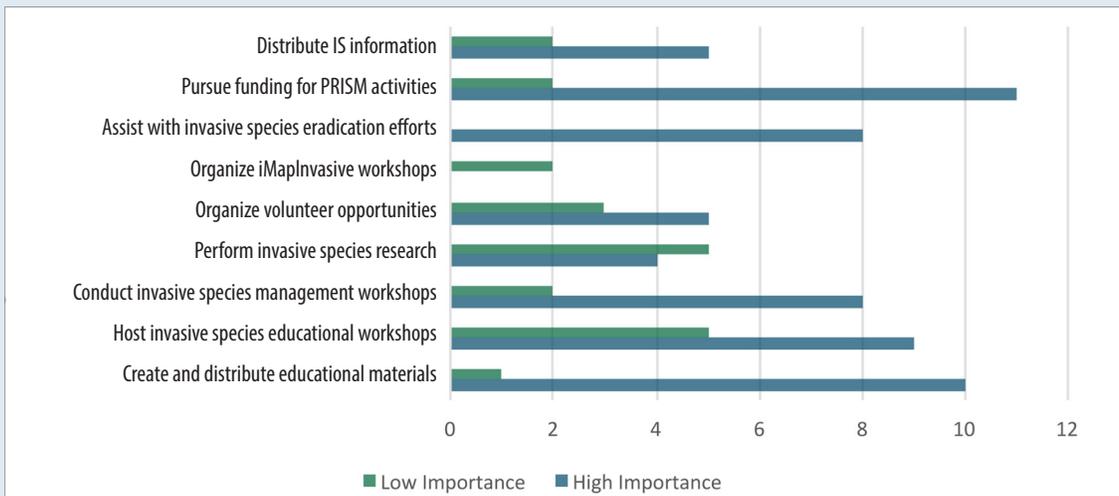


Figure 4. Number of respondents for the FL-PRISM related activities survey taken spring, 2014 and their order of importance.

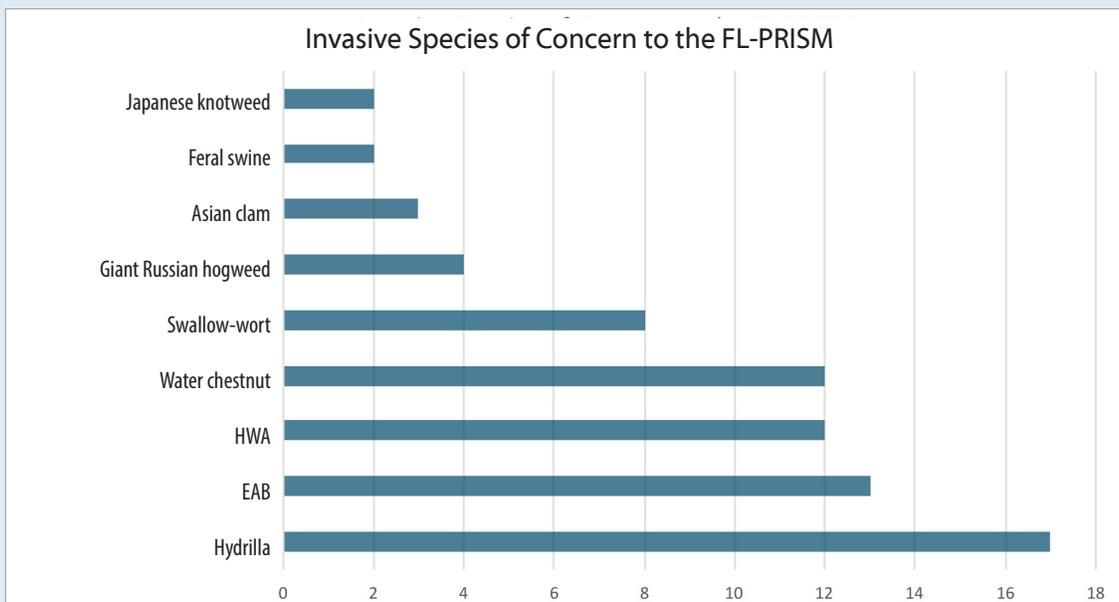


Figure 5. Ranked invasive species of concern in the FL-PRISM based on responses to the survey conducted spring, 2014.



Left: Water chestnut removal with Katie Des Jardin and Brad Mudrzynski, (The College at Brockport), Greg Lawrence, (NYS DEC), and Hilary R. Mosher, (FL-PRISM) in Braddock Bay. Photo credit: Katie Lovering. Right: Partners from NYS DEC, TNC, and the College at Brockport remove water chestnut from Braddock Bay. Photo credit: Katie Lovering

## Coordinator Projects

### Braddock Bay:

The FL-PRISM Coordinator facilitated a large-scale water chestnut removal in Braddock Bay, an important wetland in the Lake Ontario Area of Concern. The College at Brockport, NYS DEC Region 8, Genesee Valley Audubon Society, The Nature Conservancy, NYS Parks, and citizen volunteers pulled nearly five tons of water chestnut from the waters. Over 200 volunteer hours were charted in a multi-week event that spanned five working days. Pontillos Pizzeria, Genesee Valley Audubon Society, Dunkin Donuts, Tim Hortons, and Wegmans Food, Inc. graciously sponsored food donations.

### Event Cost

- Volunteer hours (n=10) for 5 days at 5 hours per day times approximately \$15 an hour = \$3750
- Boat use from citizen volunteers: 3 boats x 5 days x 5 hours = \$7500
- Gasoline use from volunteer boat use: 2 boats x 5 days x 5 hours = \$100
- Food = \$500
- Total Event Cost = \$11,850\*

\*Does not include paid employee time, use of boats, and boat gas by NYS DEC, TNC, NYS Parks and other paid, agency people.

### Listserves:

The FL-PRISM listserv contained 179 names for distribution prior to March 2014. Currently, the listserv contains 245 members, a 27% increase over the past year. This is the primary way to communicate with the community about invasive species and events within the FL-PRISM.

### Social media:

The FL-PRISM created a Facebook page and has a Twitter presence. Facebook has 124 people who follow information on the page and follow the posts specific to invasive species in the region. Twitter has had 163 tweets, following 421 twitter-users and has 131 followers.

### Media Outlets:

The FL-PRISM created brochures, helped edit the Weeds Watch Out in collaboration with Cornell Cooperative Extension of Onondaga County. Projects were highlighted in various media outlets including the Rochester Democrat and Chronicle, the Messenger Post, WETM 18 News, WXXI, and Fox News Rochester.

**Website Platform:**

A common theme at the various working groups was the need for an on-line location for regionally-specific invasive species information. With this in mind, the FL-PRISM secured a contractor to create a fingerlakesinvasives.org website to promote all things invasives in the region. By January, 2015, the website was fully functional and partners are able to find information relevant to the region through this media (Figure 6).

**County Soil & Water Conservation Districts** implement County Water Quality Strategies to address nonpoint source water pollution and other water quality issues through a County Water Quality Coordinating Committee. While some committees are more active than others, the FL-PRISM has had representation at nearly two-thirds of the active water quality meetings during the year (Table 1).



Figure 6. The Fingerlakesinvasives.org website created by MyDigitalNature with content shared from ADKInvasives.org, with permission and information from the Finger Lakes.

**Table 1. Participation at County Water Quality Coordinating Committee**

Broome	No information about meetings available
Cayuga	Actively participating
Chemung	No information about meetings available
Chenango	No information about meetings available
Tompkins	Actively participating in outreach meetings
Tioga	No information about meetings available
Steuben	Actively participating
Wayne	Actively participating
Yates	No information about meetings available
Cortland	No information about meetings available
Livingston	Actively participating
Madison	No information about meetings available, recently put on meeting notes
Monroe	Presented at meetings, on list for meeting agenda and notes
Onondaga	Presented at meetings, on list for meeting agenda and notes
Ontario	Presented at meetings, on list for meeting agenda and notes, participation by proxy (Finger Lakes Institute)
Schuyler	Actively participating
Seneca	Actively participating



*Identifying Terrestrial Invasive Species at Muller Field Station, Honeoye, NY. Photo credit: Nadia Harvieux, Finger Lakes Institute*



*Volunteers learned how to identify common plants and how to detect Hydrilla during the Floating Classroom Hydrilla Hunt, Cayuga Lake, NY. Photo credit: Hilary Mosher.*

## Partner Projects

### Hemlock woolly adelgid partnerships

Hemlock woolly adelgid has been found in nearly every county within the Finger Lakes. Our waterbodies are in danger of water quality issues related to the demise of hemlocks due to this infestation. As such, trainings and surveys were held across the region during the winter of 2014 and into 2015. Opportunities to engage the partnership were numerous as individuals in the Finger Lakes region discovered infestations in some of the most remote hemlock groves. It is imperative that the partnership communicate moving forward as we look to safeguard our keystone terrestrial species in our watersheds.

### Conesus Lake Invasive Species Prevention and Response Plan

The Conesus Lake Watershed Council has approved a Conesus Lake Watershed Invasive Species Prevention and Response Plan. In light of the discoveries of Hydrilla and similar invasive species in nearby waterways, the Watershed Council decided that a plan was needed to help protect Conesus Lake from the harmful effects of invasive species. The Plan facilitates collaboration among watershed partners toward the prevention and management of invasive species and establishes the

framework for a multifaceted prevention approach that targets multiple pathways, vectors, and key stakeholders for invasive species transport. A coordinated monitoring program comprised of agency partners and volunteers and a proactive response protocol work in tandem as an early detection and response system that aims to act on new infestations before they progress beyond local means of eradication or control.

## 2. Recruit and Train Volunteers

### Coordinator Projects

The FL-PRISM engaged in various recruitment and training opportunities across the region. Examples of some of the educational events and activities are listed below. Volunteer training included invasive species identification workshops and iMapInvasives training across the region. Over 150 people were given access and training on reporting invasive species in the region (Table 2). Between the period of 4/1/14 to 3/17/15, there were 3820 total observations reported in iMapInvasives for the region. Tompkins County had the most observations with 2392 reported, followed by Monroe County with 419 observations. Starry stonewort was the organism observed most (n=1247) followed by Eurasian watermilfoil (n=1081), and common reed (n=146) ([www.imapinvasives.org](http://www.imapinvasives.org)).

**Table 2. iMapInvasives Trainings in the Finger Lakes-PRISM, 2014**

Date	Trainer	Description	Location	Participants
3/26/2014	Jennifer Dean	SUNY ESF Class-Tech in Envir Education (Folta)	Syracuse, NY	10
4/25/2014	Jennifer Dean	NYS DOT Region 9 - Herbicide Update Class	Binghamton, NY	18
5/3/2014	Tom Hart	2014 - NYSFOLA - obs -RIT Capstone	Hamilton, NY	6
6/2/2014	Jennifer Dean	2014 Finger Lakes PRISM Training	Homer, NY	16
6/9/2014	Hilary Mosher	2014 - Finger Lakes Extra Training	Penn Yan, NY	25
7/28/2014	Hilary Mosher	Ganandogan, NYS Park Stewards	Victor, NY	12
8/13/2014	Hilary Mosher	Cornell Cooperative Extension of Yates County	Penn Yan, NY	20
9/10/2014	Hilary Mosher	2014 - College at Brockport Plant Biology with Kathryn Amatangelo	Brockport, NY	26
10/3/2014	Jennifer Dean	SWCD NYS Conservation Skills Workshop	Cortland, NY	6
1/22/2015	Hilary Mosher	SUNY Morrisville	Morrisville, NY	14
			<b>TOTAL</b>	<b>153</b>

**Teacher Training**

During New York Invasive Species Awareness Week, the Finger Lakes Institute hosted a three-day K-12 teacher training 'Invasive Species Identified!' for science teachers across the region. Eighteen teachers learned about sampling techniques, invasion curve and iMapInvasive mapping in the region between Geneva and Honeoye, NY. The three-day training wrapped up with teachers sharing ideas for collaborative projects to incorporate invasive species education in their classrooms and their communities. Ideas included having students "Adopt-a-Spot" in their community to monitor for invasives; creating identification guides and dichotomous keys to differentiate between important native species and harmful invasive look-alikes; creating a short video documentary on the toll of aquatic invasives to our freshwater ecosystems; and establishing a citizen science invasive species mapping project using iMapInvasive.

**Partner Projects****Cayuga Lake Watershed Network (CLWN)**

During 2014, the CLWN co-sponsored and publicized two winter Hemlock Woolly Adelgid training/survey sessions in Ithaca's Six Mile Creek watershed. CLWN provided

information and materials to leaders of the Cayuga Lake West Shore Residents Association for both HWA and Hydrilla ID training for their members. During 2014, they co-sponsored and publicized 6 Floating Classroom's regular and Hydrilla-specific training ecotours. Nearly 200 people were in attendance for all the events.

**Honeoye Valley Lake Association (HVLA)** conducted rake toss surveys with about five volunteers participating for a total of two surveys. The surveys took place in June and August. The survey consisted of eight locations approximately ten yards from shore with three replicates. One location is at the public boat launch.

**The Hydrilla Task Force of the Cayuga Lake Watershed (HTF)** assisted NYSDEC and The Nature Conservancy staff with the annual NY Hydrilla Hunt training webinar on August 7, 2014. Members of the HTF (James Balyszak and Bob Johnson) provided updates on the project and Hydrilla identification/monitoring. Additional public meetings, pre- and post-treatment, were hosted by the HTF Outreach Committee on July 8, 2014 and November 18, 2014, respectively. Over 100 people were in attendance for all three events.



Education and Outreach at the B.A.S.S. Master Elite Tournament, Union Springs, NY. Photo credit: Hilary Mosher

### New York State Department of Environmental Conservation

Mark Gooding (Forester 3, Region 8) held four invasive species training sessions with nearly 85 people in attendance. He presented on the emerald ash borer (EAB) ID, signs/symptoms, regional infestation, and quarantine update. The trainings lasted for one hour and were indoors.

### Rebecca Hargrave, Contract for NY Logger Training (NYLT)

Hargrave conducted NYLT session on Invasive Species Awareness and Strategies to Control Inadvertent Spread. The targeted audience was loggers and ESFPA members with 14 attendees and a five hour training.

### U.S. Fish and Wildlife Service at Montezuma Wildlife Refuge- Total volunteer hours: 1906

- 10/1/2014 and 10/2/2014 - Hobart and William Smith undergraduate students from an Invasion Biology class visited the refuge and were given a presentation about invasive species and refuge management more specifically directed at swallow-wort species, and then went into the field to practice identification and to conduct lab experiments for class. Results from their experiments were presented to refuge staff. A total of 13 students were in the class. Students spent approx. 2.5 hours per day at the refuge on 10/1 and 10/2. They also spent approx. 2.5 hours on 10/8 finishing their work.
- 10/17/2014 - Students from SUNY Morrisville spent approximately two hours helping to treat common buckthorn on the refuge. They were also given a short presentation in the field regarding refuge invasive species management. There were 20 students in this class. Total number of students that helped was 51.
- The MARSH (Montezuma Alliance for the Restoration of Species and Habitat) program is a volunteer program with weekly events from early spring through late fall. This is a collaborative program between the

refuge, DEC and Audubon center staff with a large focus on invasive species monitoring and treatment. The number of volunteers varies from week to week, with an average of ten volunteers. The typical MARSH workday is approx. four hours. Work activities on the refuge included mapping the density of common frog-bit on 1210 acres within different impoundments, removing approximately one acre of Japanese stiltgrass, and monitoring 21 acres for the presence of Japanese stiltgrass. The volunteers also help with restoration activities as well. MARSH volunteers totaled 66 participants in 2014-15 (refer to Table 5).

### 3. Identify and Meet the FL-PRISM Education and Outreach Needs

The FL-PRISM established an Education & Outreach Working Group and developed priorities and strategies to accomplish goals of the group. With a framework in hand, the group engages the community in important education and outreach through a targeted strategy specific to the region.

### Coordinator Projects

In addition to the iMapInvasives training and ID session, education and outreach was conducted at B.A.S.S. Master Elite Tournament (10,000 attendees), National Hunting and Fishing Days (2,000 attendees), Empire Farm Days (5,000 attendees), along with presentations at various meetings and conferences such as Workshop for Regional Governments, Environmental Management Councils, and Conference on the Environment (Table 3).

Outreach at the National Hunting and Fishing Days, Avon, NY September 2014. Photo credit: Hilary Mosher



**Table 3. Presentations given by the FL-PRISM staff during the 2014/2015 Fiscal Year.**

DATE	PRESENTATION LOCATION	Presenter
Bi-monthly	Monroe County EAB Task Force Meetings, Highland Park, Rochester, NY	Hilary Mosher
5/15/14	Regional Government Workshop, Bushnell's Basin, Pittsford, NY	Hilary Mosher
5/2014	NYSFOLA Annual Conference, Hamilton, NY	Lisa Cleckner
6/7/14	Finger Lakes Issues Briefing, Seneca Falls, NY	Hilary Mosher
6/20/14	Rochester City School District Invasive Species Program, Hamlin Beach State Park, Hamlin, NY	Hilary Mosher
6/25/14	Owasco Lake Day, Emerson Park, Auburn, NY	Hilary Mosher
7/17/14	Cornell Cooperative Extension, Monroe County, Highland Park, Rochester, NY	Hilary Mosher
7/26/14	Loon Lake Social, Steuben County, Wayland, NY	Hilary Mosher
8/21/14	What Lurks Beneath, Sodus Pt., NY	Hilary Mosher
8/21/14-8/23/14	BassMaster Elite, Union Springs, NY	Hilary Mosher
8/30/14	Loon Lake, Steuben County, Wayland, NY	Hilary Mosher
9/10/14	The College at Brockport, Brockport, NY	Hilary Mosher
9/27/14- 9/28/14	National Hunting and Fishing Days, Avon, NY	Hilary Mosher
10/3/14	Conference on the Environment, Binghamton, NY	Hilary Mosher
10/7/14	Regional EAB Task Force Meeting, Syracuse, NY	Hilary Mosher
10/18/14	New York State Federation of Lake Associations, Cuba, NY	Hilary Mosher
11/25/14	Onondaga County Council on the Environment, Liverpool, NY	Hilary Mosher
12/4/14	Cornell Cooperative Extension, Yates Co., Annual Meeting, Penn Yan, NY	Hilary Mosher
12/9/14	Regional Forester Workshop for the NYS Dec, Bath, NY	Hilary Mosher
1/9/15	Ontario County Water Quality Coordinating Committee, Canandaigua, NY	Hilary Mosher
3/3/15	Monroe County Water Quality Coordinating Committee, Rochester, NY	Hilary Mosher
3/24/15	Forest Pest Detector Training, N. Chili, NY, Monroe County	Hilary Mosher



Student at the World of Inquiry pointing to an exit hole made by a borer in a tree at Hamlin Beach State Park. EAB has not been confirmed by NYS DEC at Hamlin Beach State Park. Photo credit: Hilary Mosher



NY State Senator Mike Nozzolio with Dr. Lisa Cleckner, Alex Gatch, and Joe Pitti as part of Owasco Lake Days. Partner Projects

### Cornell Cooperative Extension Invasive Species Program

based out of CCE Yates County held five trainings with approximately 50 people in attendance. Programs included Forest Pest Detector trainings in Yates and Ontario Counties, programming at Finger Lakes Community College, and an aquatic invasive species workshop, co-hosted by the Nature Conservancy and the Keuka Lake Association. Additionally, outreach on invasive species was held at the Yates County Fair, 7/11/14, Keuka Lake Association Annual Meeting, 7/12/14, Friends of Keuka Outlet Trail Meeting, 7/30/14, and Empire Farm Days, 8/5/14-8/7/14. CCE Yates County worked with the Keuka Lake Association to develop an AIS brochure specific to Keuka Lake.

The Finger Lakes-PRISM hosted the Finger Lakes Research Conference on November 21st. Over 100 people were in attendance to hear presentations from experts on invasive species. Jacques Rinchar (The College at Brockport, SUNY) presented on essential nutrient availability of the round goby as diet in salmonids. Chris Pennuto (WNY PRISM) presented his research on the round goby in tributaries and Carrie Brown-Lima (New York Invasive Species Research Institute) gave an overview of the NYS Invasive Species Research Institute. The Research Conference was followed by a full partnership meeting where nearly 100 people were in attendance to hear Jessi Lyons and Kristina Ferrare from CCE Onondaga County talk about their early detection/rapid response to HWA in the Skaneateles watershed, and Steve Young (LIISMA) and Steven Daniel talk about *Brachypodium sylvaticum* as an early detection organism in the Finger Lakes. James Balyzsak, Hydrilla Program Coordinator, provided an update of the Hydrilla treatment in the Cayuga Lake inlet and Fall Creek. Finally, Marion Zuefle provided an update of her work on agriculture pests with the NYS IPM Program located at the NYS Agricultural Experiment Station in Geneva.

### Watercraft Steward Program

The FLI Watercraft Steward Program is an education and outreach program working to inform the public about the best practices for preventing the spread of aquatic invasive species. Overall, the project aims to provide education and outreach on preventing the spread of aquatic invasive species among the Finger Lakes and the southern shore of Lake Ontario. Four stewards were employed by the Finger Lakes Institute during the summer of 2014. They covered Owasco and Cayuga Lake boat ramps to ensure that users were compliant with the Clean, Drain, Dry initiative. Stewards also provided education and outreach for regional events including Owasco Lake Day held in June 2014.

**Cayuga County** held three events for invasive species outreach: an EAB training, an HWA training and information at Owasco Lake Day for over 200 people between all three events. FLOWPA funded educational kiosk for Emerson Park, and for the building and installation of NYSDEC designed invasive species disposal stations at boat launches in the County. All boat launches into Owasco Lake now have disposal stations as well as the village launches into Cayuga Lake and Little Sodus Bay. The stations include signs on the stations. Below is a list of disposal station locations in Cayuga County:

- Owasco Lake: Two at Emerson Park (one at the main launch and one at the sailboat launch), two at the two boat launches at Owasco Marine on the Owasco River; one at the boat launch at the Owasco Yacht Club, and one at the boat launch at Owasco Flats.
- Cayuga Lake: one at the boat launch at Frontenac Park in the Village of Union Springs and one at the village boat launch in the Village of Cayuga.
- Little Sodus Bay: Three at the village boat launches in the Village of Fair Haven on Little Sodus Bay.
- Sterling Creek: one at Sterling Nature Center at the launch to Sterling Creek.

Cayuga County also created educational materials including invasive species flyers for each of the seven lakes showing which invasive species are in that lake.

**Cayuga Lake Watershed Network** conducted HWA survey trips to map HWA incidence in Six Mile Creek's lower watershed, the source of the City of Ithaca's drinking water. The Cayuga Lake West Shore Residents Association provided similar information and training sessions to its members during the winter and spring. The Network issued four "Hydrilla Hunter Happenings" email newsletters to hundreds of lakeshore and upland residents and municipal leaders during 2014. The newsletter kept them up to date about treatments at the south end of Cayuga, and where they could obtain Hydrilla ID training. Hydrilla ID packets were developed, printed, and mailed to 75 households based on request at tabling events. These newsletters also provided information to towns lake-wide about upcoming Floating Classroom trainings. Contact information from these cruises was used to reach another 50 households, creating another 30 ID packets mailed from late summer to mid-autumn 2014.

During the spring and summer months, the Network provided tabling support for four days at the Union Springs bass fishing tournament (northeast shore, Cayuga Lake). The Network had information tables about Hydrilla

at numerous locations (three days at the Ithaca Farmers Market, Ithaca's Dragonboat Festival, Can You Canoe Cayuga, Annual Meeting, Earth Day/Water Day, SUP Cup Tournament) during 2014 as part of its role in the Outreach Committee of the Hydrilla Task Force, Cayuga Lake Watershed (4th year). In November/December, the Network's steward participated in (the third annual) season-end Hydrilla Volunteer Thank You and Public Information event at the south end of the lake (also speaking about HWA); held a conference call meeting for volunteers and others at the north end of the lake. Similar HWA workshops/hikes were offered during February 2015. The HWA program will continue to expand during the spring and summer months, and lakewide Hydrilla education will continue in 2015.

**Cornell Cooperative Extension of Broome County** held two adult workshops on invasive plants and insects and six youth workshops on invasive insects in Broome County. Ninety-seven people were in attendance for this event. Additionally, the Master Forest Owners volunteers conducted invasive species education as part of their landowner visits while assisting with the New York Forest Owners Association with wood walks and other events. Six Master Forest Owners were active participants in this program and contributed approximately 40 hours of invasive species outreach.



*Matt Sacco, Director of Nature Education Programs, Cayuga Nature Center. Photo credit: Hilary Lambert*

**Cornell Cooperative Extension, Onondaga County** were active participants in the FL-PRISM through education and outreach and serving on several of the working groups for the partnership. Additionally, CCE Onondaga conducted 38 trainings for invasive species and tabled for 12 days at the New York State Fair. Approximately 6036 people reached through all events and had 208 volunteer hours. The number and description of trainings are below:

- EAB Task Force meetings - 1.5 hrs indoors (11x)
- EAB trainings for professionals - seminar style, 30 - 60 min, up to 4 hrs (6x)
- EAB/HWA info sessions and facilitated management planning with municipalities and municipal leaders - 30 - 90 min (9x)
- Public information sessions - 30 - 90 min indoor presentations (6x)
- Aquatic Invasives Professional Trainings - 4 hrs indoors
- Hands-on in-field trainings for ID and management - 60 min (Aquatics, EAB, HWA)
- Tabling events at all day festivals (EAB and aquatics)
- Twelve days at the NYS Fair, 8 hrs/day. Posters and one-on-one education
- Aquatic Invasives Pesticides, 4/10/2014, Skaneateles, The Creamery, Professional Training, (n=24)
- EAB info for Spafford, 7/10/2014, Spafford Town Hall, Public meeting, (n=40)
- EAB intermunicipal wood waste meeting, 4/28/2014, Skaneateles Town Hall, Facilitated meeting, (n=7)
- Skaneateles Watershed Municipal Meeting, 5/28/2014, Spafford Town Hall, Facilitated meeting, (n=14)
- Skaneateles Watershed Municipal Meeting, 5/29/2014, Skaneateles Methodist Church, Facilitated meeting, (n=21)
- HWA forum in Skaneateles, 6/30/2014, Spafford Town Hall, Public meeting, (n=36)

- HWA outreach for firelane residents in Skaneateles, 8/2/2014, Fireland 13, Niles, Public meeting, (n=48)
- Native Gardening presentation, 5/24/2014, CCE Classroom, Public meeting, (n=4)
- Purple Prism Trap Training, 5/8/2014, Barry Park, Syracuse, In-field Training, (n=8)
- Task Force 101, 10/7/2014, State Fairgrounds, Facilitated meeting, (n=21)
- HWA monitoring training, 12/18/2014, Clark Reservation, In-field Training

**Finger Lakes Community College actively participated** in IS sessions hosted by other groups with over 250 people in attendance:

- July 17, 2014 - Canandaigua Lake (The Nature Conservancy)
- August 7, 2014 - Keuka Lake (The Nature Conservancy)
- August 21, 2014 - Sodus Bay (several host groups)
- August 30, 2014 - Loon Lake (Loon Lake Watershed Improvement Alliance)
- October 30, 2014 - IS Workshop (FLCC Environmental Science class)
- November 22, 2014 - Aquatic Invasives (Canandaigua Botanical Society @ FLCC herbarium)

**Finger Lakes Regional Watershed Alliance (FLRWA)**

is made up of representatives from each of the Finger Lakes and provides information sharing and leveraging of resources to help the Finger Lakes with a myriad of issues that they may have in common. In June 2014, the FLRWA held a Finger Lakes Issues Briefing in Seneca Falls, NY. Representatives from the State government were in attendance at this half-day workshop with over 50 people to discuss the common issues for lake associations, including invasive species. The Finger Lakes Institute moderated the program for the event and FL-PRISM provided invasive species E&O materials to participants and elected officials.

**Hydrilla Task Force of the Cayuga Lake Watershed (HTF)**

hosted many IS events and activities and had a presence at the following:

- WATER WEEK Event at Ithaca Farmers Market. 5/4/2015. Community outreach event. 20 attendees.
- Ithaca Earth Day Event at Boynton Middle School (Ithaca, NY). 5/4/2014. Community outreach event. 10 attendees.
- StreetsAlive! Event at Fall Creek community (Ithaca, NY). 5/4/2014 Community outreach event. 10-15 attendees.



Anglers waiting to remove their boats during the NYS B.A.S.S. Elite Tournament in Union Springs. Photo credit: Hilary Mosher

- Presentation to RISE Volunteer Program participants (Ithaca, NY). 5/16/2014. Volunteer outreach/education. 20 attendees.
- Hydrilla Pre-Treatment Public Update Meeting at Stewart Park (Ithaca, NY). Public outreach event. 30 attendees.
- HTF Post-Treatment 2014 Public Meeting & Volunteer Thank You Event at Tompkins Co. Public Library (Ithaca, NY). Public outreach event. 30 attendees.

The HTF Outreach Committee and its stakeholders have produced a number of outreach materials over the years. In 2014 the Outreach Committee updated these materials prior to the start of the treatment season. The primary items were used in 2014, including the Stophydrilla tri-fold brochure, the "What Marinas Need to Know" pamphlet, and the "What Boaters Need to Know" pamphlet. Supplementary materials were also created/gathered to accompany outreach and education messages. Additional items included: the DEC/DMV AIS Tip Sheet, full sized Project posters, ID cards, treatment update flyers, etc.

**Mark Whitmore**, Forest Entomologist, Cornell University, Department of Natural Resources held over 14 different trainings on forest pests with over 625 people in attendance. Below is a list of workshops and presentations.

- 9 December 2014. Update on invasive forest pests in New York. NYSDEC R8 Cooperating Foresters Meeting. Bath, NY. 16 participants, 1 hour.
- 1 December 2014. Detection and management of the Hemlock Woolly Adelgid. Canandaigua Lake Watershed Association. Canandaigua, NY. 18 participants, 1 hour.
- 20 November 2014. Update on Invasive Non-native forest pests in New York. Southern Tier Chapter of the New York State Nursery and Landscape Association. Elmira, NY. 12 participants, 2 hours.
- 18 November 2014. Biological Control of Forest Pests. CCE In-service Training Conference. Cornell University. Ithaca, NY. 60 participants, 1 hour.
- 18 November 2014. Panel Discussion on Biological Control of Non-native Invasive Pests. CCE In-service Training Conference. Cornell University. Ithaca, NY. 60 participants, 1.5 hour.
- 16 October 2014. Update on Invasive Forest Pests in the Northeast. New York Utility Arborists Association Annual Meeting. Auburn, NY. 96 participants, 1 hour.
- 8 October 2014. Hemlock Woolly Adelgid: A Pest We Can Manage. Cayuga County Planning Department. Moravia, NY. 23 participants, 1.5 hours.
- 7 October 2014. Emerald Ash Borer Issues for Communities in New York. Cornell Cooperative Extension of Onondaga County. Syracuse, NY. 28 participants, 1 hour.



*NYS Assemblywoman Barbara Lifton, (D/WF-125th District) discusses her sponsored invasive species legislation at the FLRWA Finger Lakes Issues Briefing that requires reasonable precaution to be taken to remove plants and animal matter upon launch of watercraft. Photo credit: Hilary Mosher*

- 20 September 2014. Invasive Non-native Forest Pests. Master Naturalist Training. Arnot Forest. 25 participants, 1 hour.
- 18 September 2014. Update on Emerald Ash Borer in New York. Topics in Urban Forestry Management Workshop sponsored by DEC Region 7 RELEAF. East Syracuse, NY. 35 participants, 1 hour.
- 2 June 2014. Emerald Ash Borer, Asian Long-horned Beetle, and Hemlock Woolly Adelgid Biology and Early Detection. iMapinvasives Training sponsored by the Finger Lakes PRISM. Homer, NY. 25 participants, 1 hour.
- 29 April 2014. Invasive Forest Pests in the Finger Lakes. First meeting of the Finger Lakes Partnership for Regional Invasive Species Management. Finger lakes Institute, Hobart and Smith College, Geneva, NY. 50 participants, 20 min.

Published materials include 'Management of Hemlock Woolly Adelgid with insecticides', 'Update on Hemlock Woolly Adelgid in New York State', and 'Invasive insects and cold weather'.

**Monroe County Emerald Ash Borer Task Force** created information and outreach materials with identification of ash trees, signs, and symptoms of EAB. On March 24th, 2015, they held a Forest Pest Detection training at Black Creek park and had over 55 people in attendance.

**The Nature Conservancy** coordinated approximately four informational workshops describing aquatic invasive species, how to ID, what to be on the lookout for and what projects and initiatives were taking place throughout the region. One hundred thirty people were in attendance for "What Lurks Beneath" (Keuka Lake, Canandaigua Lake, Skaneateles Lake, Sodus Bay).

**NYS DEC Region 8** held trainings for Forest Health and EAB identification, signs and symptoms with 85 people in attendance for five different workshops in the region.

The **NYS Integrated Pest Management Program** held two invasive species sessions for the region with 150 people in attendance to hear about the spotted wing drosophila management in tomatoes. A Tomato Commodity Survey was conducted and an infestation risk to tomatoes was developed. A CAPS survey was conducted for tomatoes and grapes within the region.

**NYS B.A.S.S. Nation** held four training sessions for student volunteers in their 'Ramp Monkey' program which provides Clean, Drain and Dry services at all of their on-the-water events.

**U.S. Fish and Wildlife Service**, 9/16/2014 - Cayuga Community College Ecology class of 18 students visited the refuge and were given a short presentation in the field on invasive species, their effects on native habitats, and how we deal with them on the refuge. The students spent approximately one hour identifying and treating common buckthorn on the refuge.

## 4. Monitoring Network for Early Detection of Invasive Species

### Coordinator Projects

Ten iMapInvasives training and invasive species identification and detection sessions were held throughout the 2014 season. During this period, there were 3820 total observations found in 16 counties of the Finger Lakes. There were 61 different species observed from across 28 different organizations. Tompkins County had the most entries with 2392 observations.

During the summer of 2014, the Finger Lakes Institute hosted three research students who worked on a number of invasive species-focused projects. Sam Burrell, Hobart '15, focused his efforts on early detection of Hydrilla in the Finger Lakes. For his project, Sam surveyed the northern ends of Cayuga and Seneca Lakes for aquatic plant species distributions at 20 pre-determined locations using the rake-toss method. In addition to looking for what invasive aquatic plant species were present, Sam measured the native plants present at each site and their relative biomass. Site-specific information such as location, depth, and water quality data was also collected. Invasive species (*Myriophyllum spicatum*) on Seneca made up 26% of the total occurrences of all plants.



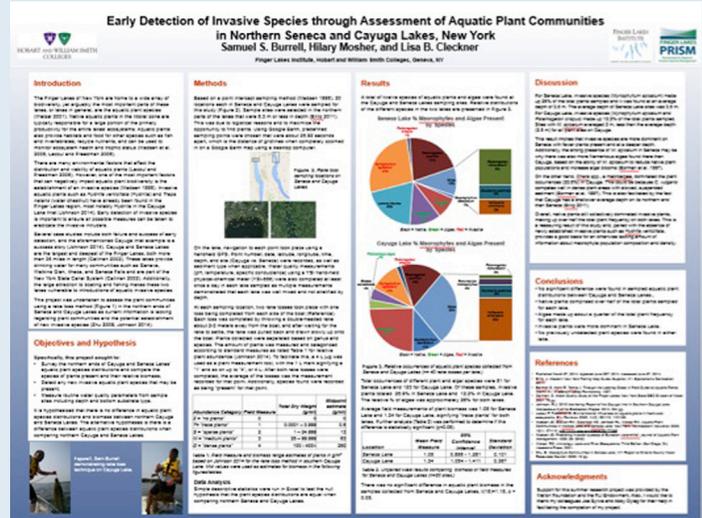
Above: The importance of removing aquatic vegetation from boats involved in fishing tournaments was a highlight of the NYS B.A.S.S Nation's Clean, Drain, Dry awareness campaign during the summer of 2014. Photo credit: Hilary Mosher

Right: Sam Burrell, Hobart '15, sampling on Cayuga Lake. Photo credit: Lisa Cleckner

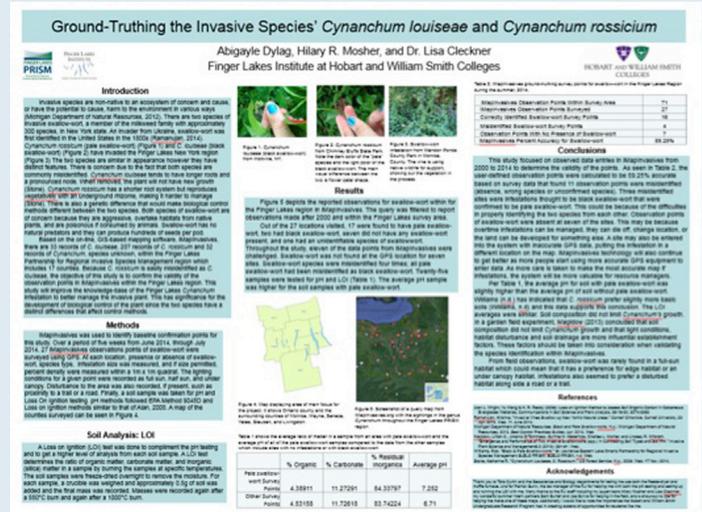
For Cayuga Lake, invasive species (*Myriophyllum spicatum* and *Potamogeton crispus*) made up 12.2% of the total occurrences. Overall, it was important to complete a systematic macrophytes assessment in the northern parts of the lake as this work has not been completed in several years. Sam's work contributes to the Finger Lakes macrophytes record.

Abby Dylag, WS '16, investigated the confirmation of two different swallow-wort species entered into NYS's iMap database. Two species, pale swallow-wort (*Cynanchum rossicum* or *Vincetoxicum rossicum*) and black swallow-wort (*Cynanchum louseae* or *Vincetoxicum nigrum*) are commonly misidentified as each other. Pale swallow-wort tends to have longer roots and is relatively easy to remove while black swallow-wort has a shorter root system but reproduces vegetatively with an underground rhizome, making it harder to remove. There is also a genetic difference between the two species that would make biological control methods different. Abby re-visited several locations where swallow-wort had been entered into the iMap database and verified which species was present. This surveillance work is essential for determining distributions of organisms which in turn informs and helps to prioritize control and eradication efforts.

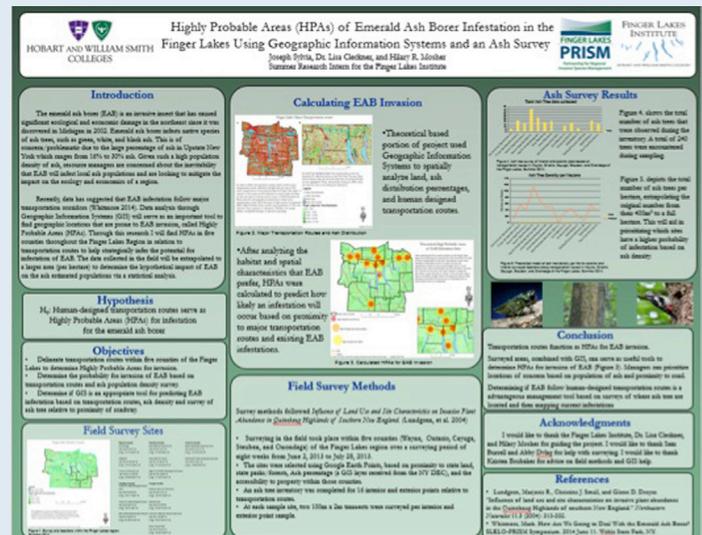
Joe Sylvia, H '16, combined field work and GIS experience to explore the issue of whether emerald ash borer (EAB), a highly destructive insect, follows major transportation routes as its invasion path. Emerald ash borers infest ash trees. Ash trees comprise 16 to 30 percent of the trees in many counties of Upstate New York. Counties were prioritized based off of their location to the Finger Lakes Institute, the ash percentage (a GIS layer received from the NY's DEC) and the accessibility we had to the property. The five counties surveyed were Wayne, Ontario, Cayuga, Steuben, and Onondaga. Joe surveyed transects for ash trees, and when present, examined the bark, looked for woodpecker damage, canopy decline, and epicormic sprouting. Each tree was also located by a GPS waypoint. Determining whether or not EAB follows human designed transportation routes was difficult to do because of the timing of the project. During the summer months EAB is at its adult stage of life, so finding it in the ash trees is unlikely. But with the data collected from the surveyed areas, highly probable areas or places where invasions are likely to occur were determined to help prioritize areas that may be infested first based on ash tree populations and proximities to transportation routes.



Poster presentation of Sam Burrell's project presented at Hobart and William Smith's Summer Research Conference, fall 2014



Poster presentation of Abby Dylag's swallow-wort project presented at Hobart and William Smith's Summer Research Conference, fall 2014



Poster of Joe Sylvia's EAB work presented at Hobart and William Smith's Summer Research Conference, fall 2014

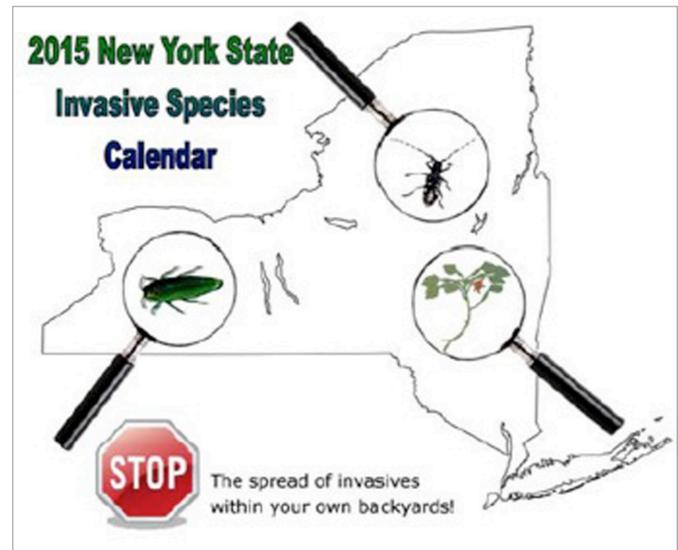
**The Department of Biology at Hobart and William Smith Colleges** has a strong interest in invasive species. Meghan Brown (Associate Professor of Biology) recently confirmed the presence of the bloody-red shrimp (*Hemimysis*) in Cayuga Lake and has published on the effects of *Bythotrephes longimanus* in waterbodies and effects of other species invasions in the Finger Lakes. Brown also maps the current spread of invasives, explores ways to limit their range expansion, and quantifies the effect of invasives on native species. Brad Cosentino, Assistant Professor of Biology, is studying the impact of the invasive earthworm on native populations of salamanders in the Finger Lakes.

### Partner Projects

**Cayuga County** conducted an Asian clam survey in Owasco Lake, a second year survey, to determine recruitment level of Asian clams at the north end of Owasco Lake. Working alongside members of the Cayuga County Invasive Species Task Force, a survey of Owasco Lake at the north end was undertaken in the summer of 2014. Members of the ISTF, the Director of the Finger Lakes Institute and the Coordinator for the FL-PRISM helped survey for populations of Asian clam discovered the year before. The opportunity to engage in this survey was a powerful example of partnership at work!

Dr. Kathryn Amatangelo, **The College at Brockport**, SUNY utilized 24 students in her Plant Biology course who mapped points in iMapInvasives for the fall 2014. Dr. Amatangelo is the recipient of funding from the FL-PRISM to survey IS in Monroe County. These locations have been mapped in iMapInvasives.

**Finger Lakes Community College** during the fall 2014, FLCC conducted several excursions to document the presence or absence of hemlock woolly adelgid in tributaries to Canandaigua Lake and Ontario County.



Wayne County Invasive Species Calendar for 2015

Left: Summer research students Sam Burrell, Joe Sylvia, and Abby Dylag (R-L) are taught to sample terrestrial plants, including swallow-wort from Jules Ginenthal (far left) and others at Cornell Plantations, June, 2014.

**Wayne County Soil and Water Conservation District** printed and distributed invasive species calendars to all libraries and municipalities in Wayne County. The FL-PRISM was a sponsor along with 19 partners in this important initiative to bring awareness of invasive species within the region.

**U.S. Fish and Wildlife Service** compiled a list of early detection species (as well as more common species). Pamphlets are in the process of being made to be used in conjunction with future education/outreach events.

## 5. Support Research Through Citizen Science

### Coordinator Projects

The FL-PRISM working groups were surveyed to determine the needs of the region for invasive species issues. The identified projects were sent to Carrie Brown-Lima, Coordinator for the Invasive Species Research Institute. The organisms of interest for the region included Hydrilla, EAB, and hemlock woolly adelgid (HWA). Hydrilla is being actively managed in the Finger Lakes and HWA is ravaging our important hemlocks. The Finger Lakes region encompasses 17 counties and there are many invasive species present or encroaching on our region. Some of the major organisms of concern from the working groups are listed above but include HWA, EAB, and Hydrilla. The partner survey asked respondents to list items in need for the 2015 season. In addition to the request for a million dollars, respondents to the partner survey conducted in the fall of 2015 asked for more education materials, biocontrols for invasives, and more time to devote to invasive species control.

### Partner Projects

The FL-PRISM successfully funded seven proposals during the fall of 2014 (Table 4), helping to fulfill the mission of the FL-PRISM. The next round of funding opportunities closed on March 13. There were 22 submitted proposals for nine available subcontract awards. The needs of the region are great and through increasing the capacity of the FL-PRISM, we can capitalize on the synergy and resource leveraging of the region.



*Students working in Dr. Jacques Rinchar's lab electrofish to find round goby in Cayuga Lake for nutrient analysis.  
Photo credit: Hilary Mosher*

**Table 4. List of the 2014/2015 funded subcontracts for proposals that help fulfill the FL-PRISM mission**

Award Number	Proposal Title	Principal Investigator	Organization	Award \$\$
1	<b>Biological Survey for IS in Loon Lake and Surrounding Watershed, Steuben Co.</b> Summary: Poster presentation on the next page.	Bruce Gilman and John Foust	FLCC	\$6,000
2	<b>Evaluating the Extent of Non-Native Invasive Vine Infestations in Monroe County</b> Summary: Forty-nine parks were surveyed for three invasive species: <i>Cynanchum spp.</i> , <i>Wisteria spp.</i> , and <i>Celastrus orbiculatus</i> . <i>Cynanchum</i> was the most widespread invasive, found in 80% of the parks surveyed. <i>Celastrus orbiculatus</i> was found in 71% of the parks surveyed while <i>Wisteria spp.</i> was found in only 6 of the parks surveyed. Seven parks did not have any of the target invasive species. Six parks had levels of infestation of <i>Cynanchum</i> where eradication is feasible. Target control is warranted at these locations.	Kathryn Amatangelo	The College at Brockport	\$4,123
3	<b>Community Preparedness EAB: Ash inventory</b> Summary: An ash inventory was conducted in Cayuga County. In the Town of Montezuma, 68 trees were surveyed, there were 350 in county parks and trails, and finally 8 were surveyed in the Village of Moravia.	Stefan Lutter	CCE Cayuga	\$3,142.82
4	<b>Ash Inventory for Monroe County</b>	Devan Helfer	Monroe County	\$6,000
5	<b>Onondaga County- Selected Ash Removal</b> Summary: The Onondaga Soil and Water Conservation District identified and targeted 25 high priority ash trees in the Town of Dewitt for removal. Using matching funds, all trees were removed in an EAB-infested region.	Eva Sztecmiler	Onondaga County	\$6,000
6	<b>Recruiting and Training Volunteers for Invasive ID Mapping, Responding to the Double Threat of Hydrilla and HWA in Cayuga</b> Summary: public awareness campaigns were held to educate community about threat of Hydrilla. Floating classroom created a set of macrophyte field guides for public use and assessed their Hydrilla outreach training format to include other invasive species. Two meetings were held at the end of the Hydrilla season to thank the community for their engagement.	Cayuga Lake Network and Floating Classroom	Cayuga Lake Network and Floating Classroom	\$6,000
7	<b>Expanding HWA monitoring in the FL region</b> Summary: Installed 13 long-term monitoring plots across four locations in the Finger Lakes. Baseline information regarding canopy cover was collected to gauge intensity and spread of infestation and hemlock decline. Two hemlock surveys were conducted with volunteers and an iMapInvasives training was held in the region to increase public knowledge of the invasive	Kristina Ferrare	CCE Onondaga	\$6,000
			<b>TOTAL</b>	<b>\$37,265.82</b>

## 6. Implement Eradication Projects to Remove Invasive Species

### Coordinator Projects

The introduction to Environmental Science labs at the College at Brockport removed several pounds of oriental bittersweet during their invasive species unit. The College at Brockport actively engages in invasive species education and outreach as part of their curriculum.

Water Chestnut Pulls, Braddock Bay Marine Park, 8/1/14, 8/14/14, 8/25/14, 8/28/14, and 9/5/14- approximately five tons of water chestnut removed from the Bay with nearly 500 work hours from citizens, NYS DEC, NYS PARKS, TNC, Genesee Valley Audubon Society, PRISM and the College at Brockport.

### Partner Projects

**Finger Lakes Community College** hosted numerous eradication events in July 2014:

- Zebra mussel dredging on Honeoye Lake, nine people were in attendance including 4 TNC LEAF interns
- Hand pulling Water chestnut from West River, Canandaigua Lake, 2 in attendance, 0.5 acres,
- Hand pulling Water chestnut in Keuka Outlet, 3 acres
- Hand pulling Garlic mustard on FLCC campus, 5 acres

### Hydrilla Task Force of the Cayuga Lake Watershed (HTF)

The Cayuga Lake Watershed Hydrilla Project continues in the Cayuga Inlet, Fall Creek, adjacent tributaries, and the southeast corner of Cayuga Lake. Hydrilla control and eradication activities have continued since 2011, with treatments having once again been implemented in 2014. Additional management protocols (benthic barriers and physical removal) were conducted during the 2014 season. The primary method(s) for treatment include herbicide treatments utilizing the contact herbicide Aquathol-K (active ingredient endothal) and the systemic herbicide Sonar (active ingredient Fluridone). Herbicide applications were conducted by licensed herbicide applicators, and were injected sub-surface. Additional management efforts included small scale physical removal of isolated hydrilla patches (SE corner of Cayuga Lake, and Fall Creek Cove), and the installation of benthic barriers over patches/removal areas. Extensive pre- and post-treatment monitoring was conducted, and is a major component of the overall Cayuga Lake Watershed Hydrilla Project. Total plant species abundance (native, non-native, invasive) was analyzed at pre-determined locations identified by the interception of the X and Y lines of the Universal Transverse Mercator (UTM) coordinate system at North American Datum 1983 (NAD 83), true north. This method assumes that the data values recorded from the collections of the two rake-tosses at the point of the line intercepts is representative of the aquatic plant species present with

### BIOLOGICAL SURVEY FOR INVASIVE SPECIES IN LOON LAKE AND THE SURROUNDING WATERSHED, STEUBEN COUNTY, NEW YORK.

Bruce Gilman, John Foust, Tyler Barber, Jason Hanseiman and Ryan Niemeck  
 Department of Environmental Conservation and Horticulture, Finger Lakes Community College, 3325 Marvin Sands Drive, Canandaigua, New York 14424.



Poster presentation of the Steuben County survey, funded by the FL-PRISM, conducted by Bruce Gilman, FLCC



Students from the College at Brockport, SUNY removing invasive species from Hamlin Beach State Park as part of their instruction on the impact of invasive species, taught by H. Mosher. Photo credit: Hilary Mosher



Five tons of water chestnut were removed from Braddock Bay for compost at a special facility in Greece, NY where the temperature eliminates viability of the water chestnut seed. Photo credit: Hilary Mosher



*Ve Schmidt (TNC summer intern) removing water chestnut in Braddock Bay, summer 2014.*

the abundance (an estimate of mass) of individual species. Estimates of mass within at least a 50m X 50m area, and in the case of the shallower south edge of Cayuga Lake, a 25m X 25m area, where we felt there was a greater probability of Hydrilla occurrence. The number of rake tosses evaluated in the non-herbicide treated areas of Cayuga Lake in 2014 were 2616, an increase from 1942 in 2013. The number of rake tosses made by Racine-Johnson Aquatic Ecologists in 2014 to evaluate the ongoing Cayuga Inlet and Fall Creek herbicide treatments was 1364, an increase from 1128 made in 2013. Additional pre-/post-treatment monitoring of Hydrilla tuber densities in Cayuga Inlet and Fall Creek was also conducted. Thousands of sediment core samples were collected and processed to determine remaining Hydrilla tuber seedbank.

**Mark Whitmore, Cornell University** engaged in treatment of HWA in the following locations:

- Hemlock woolly adelgid in State parks - treated about 60 acres
- HWA in the Finger Lakes Land Trust - treated about 10 acres
- HWA in Cornell Plantations - treated about 100 acres
- Monitoring all 13 locations where predatory beetles were released in previous years.

**Cornell Cooperative Extension of Monroe County,** Master Gardeners mechanically removed invasives from Durand Park weekly during spring, summer, and fall. This is an ongoing effort starting over a decade ago for a total of 576 volunteer hours.

### **Finger Lakes National Forest**

hosted a number of invasive species removal events. These include:

1. Broadcast spray knapweeds and thistles on about 750-1000 acres of grassland each year.
2. Using mastication and/or cut-stump applications, followed by foliar spot spray of regrowth, on woody NNIP in riparian areas within grasslands.
3. Manually pulled Japanese stiltgrass along Breakneck Creek, where it crosses the National Forest.

### **NYS Department of**

**Transportation** actively controls invasive species throughout their daily seasonal operations. They actively manage for Japanese knotweed, phragmites, giant Russian hogweed, and purple loosestrife. Region 4 identified and removed Japanese knotweed and swallow-wort from I-590 to Monroe

Avenue in Monroe County during their project design. The invasives of concern were mapped and eradicated during the scope of work for the project.

**NYS DEC Region 8, Regional Forester** Mark Gooding worked with forest landowners to treat invasives. It is estimated that he worked with 15 different plots on 15 acres where treatment was affective in the removal of invasive species. Organisms of concern were multiflora rose, swallowwort, buckthorn, privet, and knotweed.

**The Genesee Land Trust** engaged in multiple invasive species removal projects. They included

- Mugwort, Manitou Beach Preserve in Greece, herbicide, 5200 sq. ft.
- Buckthorn, Christine Sevilla Preserve in Caledonia, hand cutting, very small scale. There are plans for more intensive treatment this coming year.

### **Wayne County Soil and Water Conservation District**

harvested water chestnut on five bays in and around Sodus Point. It is estimated that over 200 tons of water chestnut have been removed this year from all five bays. Water chestnut is an invasive of concern in this region.

**U.S. Fish and Wildlife Service** targeted invasive species for treatment (common reed, reed canary grass, common buckthorn, Japanese knotweed, Japanese stiltgrass, flowering rush, common frog-bit, pale swallow-wort, Canada thistle). Locations were found throughout the refuge (many impoundments, trails, fields, etc.) The main

method of treatment used was chemical (glyphosate, imazapor, triclopyr) application using backpack or ATV spraying equipment. Common buckthorn will be treated experimentally using buckthorn baggies in the spring of 2015. Canada thistle was treated mechanically by mowing or weed-whacking and Japanese stiltgrass was removed by hand-pulling. The refuge began a Phragmites ADM pilot monitoring in 2014 and will continue in 2015. This monitoring entails measuring the vegetative response after treatments to monitor native re-vegetation. Treatments are mapped every year in order to evaluate

whether treatments are having an effect. Treatments of invasive species include:

- 1 acre of Japanese stiltgrass removed.
- 76 acres of reed canary grass (chemical)
- 245 acres of common reed (chemical)
- 7 acres of common buckthorn (chemical)
- 0.75 acres of swallow-wort (chemical)
- 1210 acres common frog-bit mapped.

### Montezuma Audubon Center (MAC) Montezuma Alliance for the Restoration of Species & Habitats Program

The MAC hosted their MARSH program at the Montezuma Wildlife Center and Audubon Center during the 2014 summer. Table 5 shows the program results for invasive species eradication efforts of their programs

**Table 5. MAC MARSH Program report for 2014 season.**

Date	Land Owner	Site	Activity	Description of Results	# of Acres Treated
4/26/2014	DEC	MAC	Honeysuckle removal	Removed honeysuckle from approx. 1/4 acre	0.25
5/14/2014	DEC	Howland Island - North Woods	Garlic Mustard Pull	Removed approx. 400 lbs of GM from approx 1 acre	1
5/28/2014	DEC	MAC	Remove Honeysuckle	Removed honeysuckle from approx. 1/2 acre	0.5
6/18/2014	DEC	Black Duck Pond - Howland Island	Remove Frog Bit	Removed approx. 90-95% of visible frog bit from entire pond, approximately 200 lbs removed	3
7/9/2014	DEC	Seneca River	Remove Water Chestnut	Removed approx. 450 lbs (approx 150 meters of river)	
7/16/2014	DEC	Seneca River	Remove Water Chestnut		
7/23/2014	FWS	Tschache Pool	Map Common Frogbit	Monitored common frogbit by mapping locations and recording density in 185 acres of Tschache Pool.	
8/2/2014	FWS	Tschache Pool	Map Common Frogbit	Monitored common frogbit by mapping locations and recording density in approx. 200 acres of Tschache pool	
8/6/2014	FWS	Main Pool	Map Common Frogbit	Monitored common frogbit by mapping locations and recording density in approx. 325 acres of the main pool	
8/13/2014	FWS	Main Pool, Tschache Pool, and Mays Point	Map Common Frogbit	Monitored common frogbit by mapping locations and recording density in approx. 400 acres on 3 different impoundments	
8/20/2014	FWS	Esker Brook Trail/ South Spring Pool Trail	Pulled Japanese Stiltgrass	Pulled Japanese Stiltgrass along Esker brook and South Spring pool trail at several points. Covered approx. 0.3 acres.	0.3
8/27/2014	FWS	Esker Brook Trail/ South Spring Pool Trail/ Main Office	Pulled Japanese Stiltgrass	Pulled Japanese Stiltgrass along Esker brook, South Spring Pool trails, and around the main office. Covered approx. 21 acres total.	0.77

**The Nature Conservancy** conducted a two-year GLRI grant focusing on a rapid monitoring assessment of AIS at publically accessible boat launches throughout NY, PA and OH. Over 400 boat launches were monitored, and data is shared with iMapInvasives.

**Yates County Soil and Water Conservation District** has battled an infestation of water chestnut in the Keuka Lake outlet. This annual eradication project removes and monitors the site for water chestnut. Five-hundred invasive plants were removed during the 2014 summer and while this is the smallest biomass of the plant in recent years, the seedbank can remain viable for up to 12 years (Figure 7).



*Figure 7. Water chestnut eradication site at the Keuka Lake outlet highlighting approximately 25 acres of infested shoreline. The blue area indicated the extent of the water chestnut infestation while the yellow indicated a thick bed of water lilies nearshore.*

## 7. Description of Obstacles to Achieving Objectives

The FL-PRISM hit the ground running for the 2014/2015 fiscal year. The field season was replete with three student projects focusing on invasive species along with presentations, working groups, and goal setting. A major obstacle to setting achievable goals was the lack of priority setting and strategic planning, necessary before commencing in such activities. This strategic foundation was being initiated while field work was already underway and many partners were overly committed tackling field season. Additionally, the network was being built during the field season and making sure that communication served the needs of the region is imperative. Below is a list of impediments identified by the Steering Committee during the strategic planning retreat, October 23-24, 2014.

- Making sure that partners know about the PRISM and communicated events
- The Finger Lakes region consists of 17 counties and has incredibly diverse ecosystems
- There are many waterbodies for consideration including five watersheds
- The 11 Finger Lakes often overshadow the smaller waterbodies
- The waterbodies often overshadow the agricultural and terrestrial invasive species
- State agency regions or jurisdictions don't line up with PRISM boundaries and often no 'dedicated' representative to sit on one PRISM or another
- Lack of funding for significant control of infestations such as common reed, Japanese knotweed, Eurasian watermilfoil
- Lack of dedicated boat washing stations that have proven effective in controlling invasives within the lakes
- Lack of strong relationship/coordination/communication with CCE education efforts
- Lack of name recognition of FL-PRISM for coordination with partner organizations
- Southern Tier has a focus limited to forest and streams
- Water and transport connections to outside the region
- Members will come and go (soft funding, loss of institutional knowledge)
- Bias on steering committee towards Aquatics; need more Ag & Terrestrial
- Some parts too far from Great Lakes and Chesapeake Bay to get funds
- Lack of organizations for forestry; lack of connections
- Terrestrial IS affect aquatics but people may not make

the connection; lack of holistic view of IS and interest in different ecosystems

- Terrestrial and Ag don't have a rallying point that lakes provide
- Economic potential of IS to wipe out a crop
- Prevention – can't prove a negative
- Messaging is telling people what they should not be doing
- Initial messaging/framing may not serve the cause (can we only watch IS spread)
- We vs Them can be set up (need good framing)
- Lack of skills on risk messaging
- Message of hopelessness leads to negative environmentalism
- Realistic messaging is needed
- Too much to do; too many species
- Groups with hierarchies that need to be understood and respected (Native Nations, Amish)
- General public has low skills for identification
- Lack of support for ID
- Unclear what level of service should/could be provided since the level of service varies
- Consistency of approach is difficult
- Unclear what are the top few priorities, species are prioritize differently across the region and priorities are not communicated
- Regionality: different regions have different priorities

## 8. Potential Solutions to Obstacles and/or Resources Needed

- PRISM System is in place, CCE IS team in place
- Finger Lakes in the region serve as a rallying point
- Academic institutions, FLL: expertise, research
- Cornell NYS Invasives Species Institute hired coordinator
- Diversity of the region: ecosystem, climate (so much Ag, water, open space)
- Impact of Lake Ontario to moderate weather/temperatures
- Geography: central NY, bordered by 4 PRISMS
- People: volunteerism, passionate, good communication (DEC, DOT, Parks meet together), capacity for communication
- Stakeholders: Lake Associations, NYS Forest Owners, etc.
- Economic drivers are tied to natural resources, gets the attention of legislators

- Federal lands=National Forest & Montezuma
- Active TNC and land trusts
- So. Tier has large warm water stream
- Water Connections to outside the region
- Clean Drain Dry NYS regulation
- Preventions act
- CCE invasives species team
- Army Corps regulations to limit IS in mitigation
- DEC regulation IS Part 575
- Public awareness is growing as increased legislation occurs
- FL-PRISM is part of Great Lakes basin – funding potential, Sea Grant and other working on the region
- Some PRISM in place for years and leading the way
- National model for PRISM type system – in place since early 90s
- Funding: Great Lakes restoration funds, current 5- yr funding
- Elected officials are thinking about IS
- Lake Associations, trail associations, NYS forest owners assoc., rod and gun clubs/federations, Izaak Walton league, etc.
- High profile IS that provide the opportunity to engage people. HWA tie terrestrial and water systems together
- Opportunities to engage Higher Ed and public agencies, NGOs
- NRCS: EQIP, WHIP funds could be used
- There is a constant need for increased resources, human and otherwise. With a region as expansive as the Finger Lakes, it is impossible to carry-out all the education and outreach, prevention, and early detection/rapid response work that is needed to effectively manage invasive species. In the near term, a prevention specialist and administrative support are of utmost priority to obtain to provide support to the FL-PRISM.

## 9. Coordinate with other PRISMs and Office of ISC

The FL-PRISM actively participated in events and regional conferences across the state during the 2014-2015 fiscal year. Each month, New York has a Statewide Invasive Species Speaker Series where each PRISM provides an update for the region. The FL-PRISM has actively participated on each of these calls and has supported the Office of Invasive Species Coordination and other PRISMs by attending in-person meetings and the Invasive Species In-service sponsored by Cornell Cooperative Extension in Ithaca, NY. The FL-PRISM has had a presence

at the WNY PRISM full partnership and co-presented with the WNY Coordinator, Andrea Locke, at the New York State Federation of Lake Association meeting in Cuba, NY in October, 2014. Additionally, FL-PRISM had a presence at the first SLELO Symposium in June, 2014. Finally, the Coordinator for LIISMA and the Director for the WNY PRISM presented at the FL-PRISM fall full partnership meeting and research conference in November, in Geneva, NY.

The First New York Invasive Species Awareness Week (NYISAW) was successful in the Finger Lakes with many events that were held within the region. Programs included Hydrilla hunts, a 3-day teacher training, and watercraft steward outreach. Partners were able to communicate their successes and look forward to participating in the 2015 NYS ISAW.

### 10. Support NY ISC regular IS conference

The FL-PRISM attended the Invasive Species track of the Cornell Cooperative Extension Agriculture and Food Systems In-Service in Ithaca, NY in November, 2014. The FL-PRISM has remained in contact with the NY ISC and is willing to present or serve as a proxy for any and all conferences or workshops in the region.



NYS Invasive Species Awareness Week Proclamation signed by Governor Andrew Cuomo.

## Conclusion

The 2014-2015 year saw the re-launch of the FL-PRISM and engagement from hundreds of individuals, organizations, and municipalities. While there is much work to be done in the future, we take pride in the fact that together we made strides towards increasing regional partnerships, identifying and leveraging our resources, and increasing our capacity. We are poised to make a significant progress in the management of invasive species.

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## Appendices

### Appendix A. List of Participating Members of Steering Committee and Working Groups

#### Partners

##### Steering Committee

- Kathy Bertuch, Program Manager, Central New York Regional Planning Development Board
- Pauline Burnes, NYS DOT Region 6, Hornell, NY
- Lisa Cleckner, Director, Finger Lakes Institute
- Don Cook, Finger Lakes Regional Watershed Alliance, New York State Federation of Lake Associations
- Bruce Gilman, Professor, Finger Lakes Community College
- Deb Grantham, Invasive Species Education Program, Cornell Cooperative Extension
- Dorothy Gronwall, Honeoye Valley Lake Association
- Terry Gronwall, Honeoye Valley Lake Associate
- Web Pearsall, NYS DEC, Region 8, Fisheries
- Miranda Reid, Conesus Lake Watershed Manager, Livingston County Planning Department
- Gregg Sargis, Director of Ecological Management, The Nature Conservancy, (on email list for SC news and updates)
- Emily Sheridan, Great Lakes Watershed Program, NYS DEC (on email list for SC for news and updates)
- Emily Staychock, Invasive Species Education Program, Cornell Cooperative Extension

#### Agriculture WG

- Emily Staychock, Invasive Species Education Program, Cornell Cooperative Extension
- Deb Grantham, Invasive Species Education Program, Cornell Cooperative Extension
- Caroline Marschner, Invasive Species Education Team, Cornell Cooperative Extension
- Marion Zuefle, IPM Experimental Station, Geneva, NY
- Elaine Dalrymple, Schuyler County Soil and Water Conservation District
- Sharon Bachman, Invasive Species Education Team, Cornell Cooperative Extension

#### Aquatic WG

- James Balyszak, Hydrilla Program Manager
- Kathy Bertuch, Program Manager, Central New York Regional Planning Development Board
- Fred Blom, President, NYS B.A.S.S. Nation
- Lisa Cleckner, Director, Finger Lakes Institute
- Don Cook, Finger Lakes Regional Watershed Alliance, New York State Federation of Lake Associations
- Sarah Fleming, Ducks Unlimited (on email list for AWG for news and updates)
- Bill Foster, Floating Classroom
- Bruce Gilman, Professor, Finger Lakes Community College
- Dorothy Gronwall, Honeoye Lake Watershed Improvement Alliance
- Terry Gronwall, Honeoye Lake Watershed Improvement Alliance
- Angel Hinickle, Tompkins County Soil and Water Conservation District (on email list for AWG for news and updates)
- Roxanne Johnston, City of Ithaca (on email list for AWG for news and updates)
- Kristy LaManche, Finger Lakes-Lake Ontario Watershed Protection Alliance, Coordinator
- Dave MacDonald, President, Save Our Sodus
- Russ Nemecek, Onondaga County, Soil and Water Conservation District, (on email list for AWG for news and updates)
- Web Pearsall, NYS DEC Region 8, Fisheries
- Miranda Reid, Conesus Lake Watershed Manager, Livingston County Planning
- Marcus Riehl, NYS Parks, (on email list for AWG for news and updates)
- Dave Scudder, President, Save Our Sodus

- Emily Sheridan, NYS DEC, Great Lakes Watershed Program (on email list for AWG for news and updates)
- Emily Staychock, Invasive Species Education Program, Cornell Cooperative Extension
- Roy Widrig, Cornell Cooperative Extension, Onondaga County
- Michele Wunderlich, Associate Planner, Cayuga County Planning and Economic Development

#### **Education & Outreach WG**

- Fred Blom, President, NYS B.A.S.S. Nation
- Kristina Farrare, Team Coordinator, Forestry, Agriculture & 4-H Youth Development, Cornell Cooperative Extension, Onondaga County
- Bill Foster, Floating Classroom
- Bruce Gilman, Professor, Finger Lakes Community College
- Deb Grantham, Invasive Species Education Program, Cornell Cooperative Extension
- Rebecca Hargrave, Assistant Professor, SUNY Morrisville
- Hilary Lambert, Executive Director, Cayuga Lake Watershed Network, (on email list for EOWG for news and updates)
- Jessi Lyons, Natural Resources Team Coordinator, Cornell Cooperative Extension, Onondaga County
- Emily Sheridan, NYS DEC, Great Lakes Watershed Program, (on email list for EOWG for news and updates)
- Anna Stalter, Associate Curator and Extension Botanist, CALS School of Integrative Plant Science, (on email list for EOWG for news and updates)
- Emily Staychock, Cornell Cooperative Extension, Invasive Species Education Program
- Kristy Sullivan, Cornell Cooperative Extension, (on email list for EOWG for news and updates)
- Russ Welsler, Cornell Cooperative Extension, Ontario County
- Michele Wunderlich, Associate Planner, Cayuga County Planning and Economic Development
- Carri Marschner, Invasive Species Education Program, Cornell Cooperative Extension

#### **Terrestrial WG**

- Sylvia Albrecht, Citizen Advocate
- Kathryn Amatangelo, Assistant Professor, SUNY Brockport
- Mary Beth Deller, Botanist and Non-native Invasive Plant Program Coordinator, USDA Forest Service
- Kristina Ferrare, Team Coordinator, Forestry, Agriculture & 4-H Youth Development, Cornell Cooperative Extension, Onondaga County
- Mark Gooding, NYS DEC, Forester 3, Region 8
- Bruce Gilman, Professor, Finger Lakes Community College
- Jules Ginenthal, Cornell Plantations, Natural Areas Stewardship Coordinator, (on email list for TWG news and updates)
- Jason Gorman, Finger Lakes Land Trust, (on email list for TWG news and updates)
- Jon Harman, Landscape Architect, NYS DOT, Region 4
- Rebecca Hargrave, Assistant Professor, SUNY Morrisville
- Gary Koplun, NYS DEC, Region 8
- Jessi Lyons, Natural Resources Team Coordinator, Cornell Cooperative Extension, Onondaga County
- Bruce Natale, Cayuga County Planning
- Walt Nelson, Horticulture Program Leader, Cornell Cooperative Extension Monroe County
- Chris Olney, Finger Lakes Land Trust, (on email list for TWG news and updates)
- Marcus Riehl, NYS Parks, (on email list for TWG news and updates)
- Emily Sheridan, NYS DEC, Great Lakes Watershed Program, (on email list for TWG news and updates)
- Anna Stalter, Associate Curator and Extension Botanist, CALS School of Integrative Plant Science, (on email list for TWG news and updates)
- Zeb Strickland, Cornell Plantations, (on email list for TWG news and updates)
- Emily Staychock, Cornell Cooperative Extension, Invasive Species Education Team
- Kristy Sullivan, Cornell Cooperative Extension, (on email list for TWG news and updates)
- Mark Whitmore, Cornell University, (on email list for TWG news and updates)
- Carri Marschner, Invasive Species Education Program, Cornell Cooperative Extension
- Juliana Quant, Post-doc candidate, SUNY ESF

## Appendix B. 2015-2016 Work Plan for the Finger Lakes PRISM

### 2015/2016 Work Plan – Scope of Work Element

#### 1. Coordinate PRISM partner invasive species (IS) management activities

- Utilize electronic and social media networks and communication outlets to engage partners and share information (listserv, etc)
- Coordinate full partnership meetings on a regular basis (2 full partnership per year) and working group meetings (Steering Committee, Agriculture, Aquatic, Education & Outreach, Terrestrial Working Groups) as necessary (no less than 4x a year)
- Utilize the FL-PRISM website as a means of information sharing (fingerlakesinvasives.org)
- Share information on IS management activities and participate in activities as appropriate

#### 2. Recruit and train volunteers

- Present IS issues at various community outreach and education events (WQCC, school groups, etc.)
- Utilize electronic and social media networks and communication outlets to engage partners and share information (listserv, etc)
- Host iMapInvasives trainings per year or as needed
- Use CCE Master Gardeners, Master Forest Owners, lake associations, and other groups for volunteers

#### 3. Identify and meet PRISM Education and Outreach needs

- Present IS issues at various community outreach and education events (WQCC, etc.)
- Coordinate with E&O WG to assess FL regional needs
- Create and maintain a robust website that fulfills all the needs of the FL region
- Encourage and support partners to develop E&O materials
- Create and distribute E&O materials to partners
- Create a toolbox for outreach that includes educational materials and information

#### 4. Establish monitoring network for early detection of invasive species

- Train watercraft stewards, volunteers, and community members within the region
- Create and maintain an ED/RR protocol for the region and for specific, high priority organisms
- Utilize the WG and SC to gather information from partners about invasive species distribution in the region
- Create and maintain a priority IS list and ISPZ
- Create a database of groups that are likely users of priority locations (areas likely to be invaded)
- Utilize the iMapInvasive training and software app to increase participation in monitoring
- Create and support a train the trainer program to encourage use of iMapInvasives
- Host or support iMapInvasive workshops to input data into program for the region

#### 5. Support research as needed through citizen science

- Create and support a train the trainer programs
- Support CSLAP, iMap, and other avenues for data collection
- Utilize the CSLA model to collect terrestrial data
- Utilize the FL-PRISM website as a means of sharing data
- Utilize groups such as Boy Scouts, Hikers, biking, etc. to collect data for the region
- Identify research needs for prevention, ED/RR, and control

#### 6. Develop a PRISM Strategic Plan

- Develop a strategic plan to include input from all partners based on NYS format

#### 7. Develop FL-PRISM-specific IS Management Plan

- Coordinate with leading researchers to develop species-specific management plans
- Coordinate with conservation targets to develop a location-specific plan
- Identify funding sources for implementation of IS Mgmt plans

## 8. Implement eradication projects to remove invasives species

- Utilize the partnership to leverage resources for IS work
- Support demonstration and eradication projects
- Utilize BMPs for control
- Monitor management areas for restoration success

## 9. Develop annual work plan

- Develop 2016 AWP utilizing SC and WGs

## 10. Develop annual report to include:

- Progress towards priority objectives outlines in strategic plan

## 11. Coordinate access to private and public lands

- Develop a protocol/plan to access lands for IS work
- Create a plan to provide information for private owners about permitting, funding, etc. and make available on website

## 12. Coordinate with other PRISMs and OISC

- Keep an open dialogue and collaborate with other PRISMs and the NYS ISAC
- Provide updates during PRISM calls as needed
- Attend PRISM leader in-person meetings and other IS conferences

## 13. Support NY ISC regular invasive species conference

- Support regular conference through participation, presentation, and attendance



*Nadia Harvieux, FLI Education Program Manager.*

## Appendix C. List of NYS Parks within the Finger Lakes Region

COUNTY	NYS OPRHP	Address	City
Broome	1. Chenango Valley State Park	153 State Park Rd	Chenango Forks
	2. Oquaga Creek State Park	5995 County Route 20	Bainbridge
Cayuga	3. Fair Haven Beach State Park	14985 State Park Rd PO Box 16	Fair Haven
	4. Filmore Glen State Park	1686 State Route 38	Moravia
	5. Long Point State Park	2063 Lake Rd	Aurora
Chemung	6. Mark Twain State Park	201 Middle Rd	Horseheads
	7. Newtown Battlefield State Park	2346 County Route 60	Elmira
Chenango	8. Bowman Lake State Park	745 Bliven Sherman Rd	Oxford
Livingston	9. Conesus Lake State Marine Park	1 Letchworth State Park	Castile
	10. Letchworth State Park	1 Letchworth State Park	Castile
	11. Genesee Valley Greenway	1 Letchworth State Park	Castile
Madison	12. Chittenango Falls State Park	7900 Green Lakes Rd	Fayetteville
	13. Old Erie Canal State Historic Park		
Monroe	14. Hamlin Beach State Park	1 Camp Rd	Hamlin
	15. Irondequoit Bay State Marine Park	1 Camp Rd	Hamlin
Onondaga	16. Green Lakes State Park	7900 Green Lakes Rd	Fayetteville
	17. Clark Reservation State Park	6105 East Seneca Turnpike	Jamesville
	18. Old Erie Canal State Historic Park		
Ontario	19. Canandaigua Lake State Marine Park	620 South Main St	Canandaigua
	20. Harriet Hollister Spencer Reservation Area	1082 Route 36 South	Dansville
	21. Honeoye Marine Park	6150 East Lake Rd	Honeoye
	22. Sonnenberg Gardens & Mansion State Historic Park	151 Charlotte St	Canandaigua
	23. Ganondagan State Historic Site	State Route 444	Victor
Schuyler	24. Watkins Glen State Park	Route 14	Watkins Glen
	25. Catharine Valley trail	PO Box 304	Watkins Glen
Seneca	26. Bonavista State Park Golf Course	7194 County Rd 132	Ovid
	27. Cayuga Lake State Park	2678 Lower Lake Rd	Seneca Falls
	28. Deans Cove Boat Launch	2678 Lower Lake Rd	Seneca Falls
	29. Sampson State Park	6096 Route 96A	Romulus
	30. Lodi Point State Park	6096 Route 96A	Romulus
	31. Seneca Lake State Park	1 Lakefront Dr	Geneva
Steuben	32. Stony Brook State Park	1082 Route 36 South	Dansville
	33. Pinnacle State Park and Golf Course	1904 Pinnacle Road	Addison
Tioga	34. Two Rivers State Park Recreation Area	105 Enfield Falls Rd	Ithaca
Tompkins	35. Allan H. Treman State Marine Park	105 Enfield Falls Rd	Ithaca
	36. Buttermilk Falls State Park	105 Enfield Falls Rd	Ithaca
	37. Robert H. Treman State Park	105 Enfield Falls Rd	Ithaca
	38. Taughannock Falls State Park	2221 Taughannock Rd	Trumansburg
Wayne	39. Chimney Bluffs State Park	7700 Garner Rd	Wolcott
Yates	40. Keuka Lake State Park	3560 Pepper Rd	Bluff Point

## Appendix D. List of the Institutions of Higher Education in the Finger Lakes region

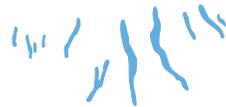
	Institute of Higher Learning	Student Population
<b>Broome</b>	1. SUNY Binghamton	14800
	2. Broome Community College	6697
	3. Davis College	270
	4. Ridley-Lowell Business and Technical Institute	
<b>Cayuga</b>	5. Wells College	500
	6. Cayuga Community College	4749
<b>Chemung</b>	7. Elmira College	1200
	8. Elmira Business Institute	200
<b>Chenango</b>		
<b>Cortland</b>	9. SUNY Cortland	7110
<b>Livingston</b>	10. Genesee Community College at Lima	
	11. Genesee Community College at Dansville	6965
	12. SUNY Geneseo	5445
<b>Madison</b>	13. SUNY Morrisville	3028
	14. Colgate University	2927
	15. Cazenovia College	1000
<b>Monroe</b>	16. Monroe Community College	16,458
	17. Nazareth College	2823
	18. Roberts Wesleyan College	1752
	19. Rochester Institute of Technology	18292
	20. St. John Fisher College	2700
	21. SUNY Brockport	8413
	22. University of Rochester	9308
<b>Onondaga</b>	23. Syracuse University	21267
	24. SUNY ESF	2250
	25. SUNY Upstate Medical	1542
	26. LeMoyne College	3400
	27. Onondaga Community College	13018
<b>Ontario</b>	28. Finger Lakes Community College	6539
	29. Hobart & William Smith Colleges	2272
<b>Schuyler</b>		
<b>Seneca</b>		
<b>Steuben</b>	30. Corning Community College	5500
<b>Tioga</b>		
<b>Tompkins</b>	31. Cornell University	22400
	32. Ithaca College	6723
	33. Tompkins Cortland Community College	3384
<b>Wayne</b>		
<b>Yates</b>	34. Keuka College	1769





HOBART AND WILLIAM SMITH COLLEGES

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