

2012 Annual Report

Prepared by

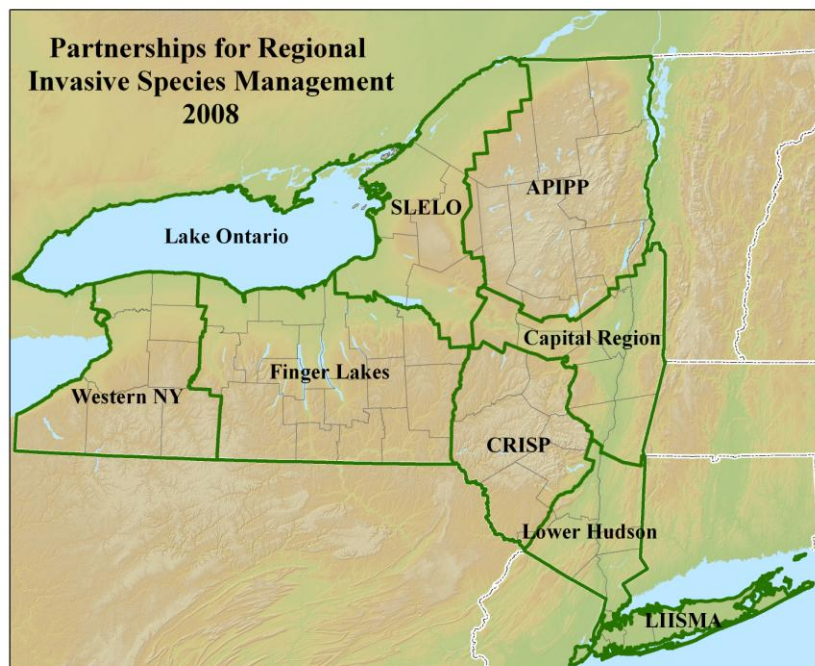
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*Adirondack Park Invasive Plant Program
the Adirondack Partnership for Regional Invasive Species Management*

*Adirondack Chapter of The Nature Conservancy
Keene Valley, New York*

The Adirondack Park Invasive Plant Program (APIPP) serves as the Adirondack Partnership for Regional Invasive Species Management, one of eight regional partnerships across New York. APIPP is a partnership program among the Adirondack Chapter of The Nature Conservancy, New York State Department of Environmental Conservation, New York State Department of Transportation, New York State Adirondack Park Agency, more than 30 cooperating organizations, and more than 500 volunteers. We thank all of our partners and collaborators who participate in the program and share their ideas, time, and resources to protect the Adirondacks from invasive species.

APIPP operates under contract with the NYS Department of Environmental Conservation and is funded through the Environmental Protection Fund.



Year in Review

The APIPP Team deemed 2012 the year of results you can see. Funding amplified capacity on several fronts enabling sustained management of priority terrestrial invasive plant infestations, elevating efforts to raise awareness about invasive species across the region, and offering greater protection of waterways through volunteer monitoring and boat launch stewardship. Our work with partners through the APIPP partnership matters; and, it is making a difference.

The Terrestrial Response Team returned for a second year and treated 261 infestations, representing 60% of the infestations within the core of the Adirondacks. Results are remarkable. Most notably, 37% of the 131 common reed grass sites treated showed no signs of invasive species recovery after only one year of treatment. Furthermore, the average size of a priority infestation is only 0.08 acres in size, making elimination of these outlier infestations a real possibility. State campgrounds received extra attention too, thanks to DEC and SUNY ESF which supported a seasonal position dedicated to surveying, mapping and managing terrestrial invasive plants. Community leaders also stepped forward to join the Regional Inlet Invasive Plant Program and tackle Japanese knotweed management on private lands.

Education was also a focus. We were excited to kick off the year in February by creating an invasive species float in the Saranac Lake Winter Carnival Parade, winning second place in the civic group category. That was only the beginning. APIPP offered an education and outreach internship for the first time, filled by Sarah Walsh, who maintained steady education and outreach efforts throughout the summer: a snapshot of the line-up included new door-hanger notification cards, staffing invasive species information tables at community events, developing management guidelines for landowners, installing the region's first boot brush station at a trailhead, and leveraging multi-media and partner efforts during the 7th Adirondack Invasive Species Awareness Week.

Increasing informational resources for citizens was another emphasis. We developed a new training program reaching more than 100 landowners on how to manage common invasive plants. We offered an aquatic invasive animal training that provided instruction on identification and survey techniques. Together with the Adirondack Lake Alliance, Lake Champlain-Lake George Regional Planning Board, and members of APIPP's Aquatic Committee, we co-organized a successful Eurasian Watermilfoil Management Summit hosted by the Town of Horicon; 100 people attended.

Significant milestones were reached at the state level too. Governor Cuomo signed the Invasive Species Prevention Act, introduced by Senator Little and co-sponsored by Assemblywoman Sayward, which will eliminate the sale, purchase, and transport of prohibited invasive species. This landmark legislation could not have come at a better time as two highly invasive species – spiny waterflea and hydrilla – expanded their range in the state, reminding us to be vigilant in our prevention and early detection efforts. Luckily, nearly 50 stewards were at boat launches around the region, and more than 100 volunteers kept watchful eyes on our treasured waterways.

The efforts occurring around the region to safeguard our lands and waters from invasive species are truly astounding. Thank you, and let's keep up the great work in 2013!

The APIPP Team



The APIPP partners represent environmental, academic, government, non-profit, and resident groups as well as private citizens. We work together to protect the Adirondack region from the negative impacts of invasive species. Project work occurs year round, and the full partnership meets twice a year.

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Mission

The Adirondack Park Invasive Plant Program (APIPP) serves as the Adirondack Partnership for Regional Invasive Species Management (PRISM) whose mission is to protect the Adirondack region from the negative impacts of non-native invasive species. Initiated in 1998 and housed by the Adirondack Chapter of The Nature Conservancy, the program coordinates two regional projects: the Aquatic Invasive Species Project and the Terrestrial Invasive Species Project. Staff includes Hilary Smith, Director; Brendan Quirion, Terrestrial Invasive Species Project Coordinator; Meghan Johnstone, Aquatic Invasive Species Project Coordinator; and, a seasonal summer educator position, which was filled by Sarah Walsh in 2012.

Goals

- *Prevent new introductions of invasive species.*
- *Coordinate a region-wide early detection rapid response program to detect and eradicate new infestations.*
- *Manage existing priority infestations to mitigate impacts.*

Distribution Summary

Aquatic

- At least 88 waterways have aquatic invasive plants and animals in the Adirondack PRISM; and, in eleven seasons, more than 597 APIPP Invasive Plant Volunteers surveyed 300 distinct waters (Map 1). With your assistance, APIPP has successfully established baseline information about the distribution of aquatic invasive plants in the Adirondack region; and, we are establishing the baseline distribution of aquatic invasive animals. Thank you for your substantial contributions to invasive species prevention, detection, and response efforts!

Terrestrial

- As of 2008, at least 701 sites of terrestrial invasive plants were documented in the PRISM. These sites were recorded using paper data forms. In 2010, the Terrestrial Project began using an electronic database to better track invasive species occurrences and to improve analysis of distribution and trends over time. The electronic database utilizes field computers with global positioning systems (GPS), geographic information systems (GIS), and the weed information management system (WIMS). A total of 846 terrestrial invasive species occurrences have been documented using this new system (Maps 2, 3). 595 of those 846 occurrences also contain spatial assessments that total 46.1 gross infested acres.

PROJECT REPORTS

The following activities were accomplished in 2012 through the Aquatic Invasive Species Project and the Terrestrial Invasive Species Project with the assistance of partner organizations, resident groups, and volunteers:

Training Sessions

Aquatic

- Provided three training sessions in invasive and native aquatic plant identification and monitoring techniques. Partners who assisted the sessions included Larry Eichler, Darrin Fresh Water Institute (DFWI), Scott Kishbaugh, New York State Department of Environmental Conservation (NYS DEC), and Corey Laxson, Adirondack Watershed Institute (AWI). Thank you for making these sessions a success!
 - Trained 98 participants (Fig. 1): 29 participants in Bolting Landing, 38 in Paul Smiths, and 31 in Inlet.
- Provided one training session in aquatic invasive animal identification. Partners who assisted the sessions included Mark Malchoff, Lake Champlain Sea Grant Program and Caitlin Stewart, Hamilton County Soil and Water Conservation District (HCSWCD). Thank you for making this new training program a success!
 - Trained 18 participants in Indian Lake.
- Organized two training sessions for volunteers on how to enter lake monitoring data online using www.iMapInvasives.org. Jennifer Dean, New York Natural Heritage Program, led the training session over WebEx. Thank you, Jennifer!
- Distributed training manuals and secondary education resources for volunteer use.

Terrestrial

- Developed a new plant management training program for landowners and offered four sessions.
 - Trained 110 participants at sessions offered in Saranac Lake, Tupper Lake, North Creek, and Old Forge.
- Organized a new purple loosestrife biocontrol management training session for volunteers.
 - Trained 8 participants at the Wild Center in Tupper Lake.
- Trained Terrestrial Regional Response Team crew members, DEC's Student Conservation Association/Americorp team members, DEC's Invasive Species Campground Manager, and APIPP's Education and Outreach Intern.

Target Species

Aquatic Invasive Plants

- Aquatic Project volunteers surveyed for eight priority aquatic invasive plants that are known in the region: Eurasian watermilfoil, variable-leaf milfoil, water chestnut, curly-leaf pondweed, fanwort, European frog-bit, yellow floating heart, and brittle naiad.

The Project continues to elevate awareness about other plant threats listed below, which have not yet been detected within the PRISM boundaries. There are native look-alikes, and web links are cited for species information and identification tips.

Didymo

<http://www.invasivespeciesinfo.gov/aquatics/didymo.shtml>

Starry stonewort (*Nitellopsis obtusa*)

<http://www.co.cayuga.ny.us/wqma/weedswatchout/plants/starrystonewort.htm>

Parrotfeather (*Myriophyllum aquaticum*)

<http://plants.ifas.ufl.edu/myaqp-pic.html>

Hydrilla (*Hydrilla verticillata*)

<http://aquat1.ifas.ufl.edu/hyvepic.html>

Brazilian elodea (*Egeria densa*)

<http://aquat1.ifas.ufl.edu/egdepic.html>

For a good comparison of hydrilla, Brazilian elodea, and look-alikes

<http://www.des.state.nh.us/wmb/exoticspecies/HydrillaLook-alikes.pdf>

In 2010, didymo, also known as “Rock Snot,” was discovered in the Kayaderosseras Creek near the PRISM boundary in Saratoga County, NY. In spring 2011, didymo was found in Roundout Creek (Ulster Co.). This species has continued to move north over the past five years since infesting the Battenkill River and is of particular concern to the PRISM.

In August 2011, *Hydrilla verticillata*, known commonly as “hydrilla” or “water thyme,” was detected in the Cayuga Lake inlet in the Finger Lakes. Aggressive rapid response management efforts began that autumn. At that time, at least eight other waterbodies in NY were infested with hydrilla and all of those infestations were fairly recent. In 2012, hydrilla was discovered in the Erie Canal in North Tonawanda, NY. This discovery creates a very high threat of infestation not only in NY but also beyond the state’s borders through the Niagara River and the Erie Canal system by natural flow dispersal and to countless more waters by recreational boating. Hydrilla was also discovered in three small waterbodies in Broome County, just east of Binghamton, NY, in autumn 2012. Hydrilla is a priority species to keep out of the region.

Non-plant Aquatic Invasive Species

- In June 2012, spiny waterflea (*Bythotrephes cederstroemi*) was discovered in the Champlain Canal and the Glens Falls Feeder Canal, just outside of the Adirondack PRISM. Spiny waterflea was also discovered in Lake George. Previously the only known populations in the PRISM were in Great Sacandaga Lake, Pecks Lake, Stewarts Bridge Reservoir, and Sacandaga Lake.
- In August 2010, Asian clam (*Corbicula fluminea*) was discovered in Lake George. This detection was the first reported occurrence of this species within the PRISM. Several additional populations were discovered in the lake in 2011, and four more were detected in 2012. Current information about response efforts underway can be found online at <http://www.stoptheasianclam.info>.

- Chinese mystery snail was detected in Lake George during Asian clam control efforts in 2011. The snails are also reported elsewhere in the Lake Champlain Basin and NY, but distribution data is somewhat limited. Some sources list this species as invasive, but others list them as non-native. They are large snails that reproduce quickly.
- APIPP is expanding its monitoring network beyond plants to include other AIS, such as spiny waterflea, Asian clam, and Chinese mystery snail.

Terrestrial Invasive Plants

- In the late 90s, Terrestrial Project partners identified four primary invasive plants present in the Adirondack Park that had high likelihoods of spreading into natural areas: Japanese knotweed, purple loosestrife, common reed grass, and garlic mustard. Surveys are ongoing for these and several additional species that have localized infestations in the region including yellow iris, swallow-wort spp., giant hogweed, Oriental bittersweet, and false spirea. For a more complete list of invasive terrestrial plants present in the region, log on to <http://adkinvasives.com/PlantList.html>.

The Project continues to elevate awareness about other plant threats listed below, which have not yet been detected within the PRISM boundaries.

Japanese stiltgrass (*Microstegium vimineum*), not yet detected in the Park

<http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=12>

Mile-a-minute vine (*Polygonum perfoliatum*), not yet detected in the Park

<http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=13>

Non-plant Terrestrial Invasive Species

- A monitoring program for non-plant terrestrial invaders is underway in cooperation with the Department of Environmental Conservation and Department of Agriculture and Markets. Priority species include Asian longhorn beetle, emerald ash borer, and feral swine.

“Watched Species” – Potential Plant Threats

Aquatic

- The plants listed below are native to the U.S. and may be native to some areas of New York. They are listed as non-native invasive species in some regions of the U.S., are reported in several waters in the region, and can grow aggressively.

Southern naiad (*Najas guadalupensis*)

<http://aquat1.ifas.ufl.edu/nagupic.html>

Swollen bladderwort (*Utricularia inflata*)

<http://plants.usda.gov/java/profile?symbol=UTIN>

Terrestrial

- Himalayan balsam (*Impatiens glandulifera*) is not native to the U.S. and is reported to grow aggressively in riparian settings in some New England states. One occurrence is

reported in the northern Adirondacks. Current research is underway to determine the invasibility of this species to the region.

<http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=58>

- Wild caraway (*Carum carvi*) is not native to the U.S. and colonizes roadsides and disturbed areas and is reported as invasive in some regions of Canada. The NY Flora Atlas shows distribution across parts of the state, <http://newyork.plantatlas.usf.edu/Plant.aspx?id=6641>. An occurrence was reported in 2011 on the Memorial Highway to Whiteface Mountain. The site was revisited and managed in 2012. Additional information is required to determine its invasibility in the region.
- False spirea (*Sorbaria sorbifolia*) is not native to the U.S. and is reported to grow aggressively from ornamental plantings. Fifteen occurrences are currently documented within the Adirondack Park. Additional information is required to determine its invasibility in the region.
<http://newyork.plantatlas.usf.edu/Plant.aspx?id=2712>

Monitoring

Aquatic Plants – 11th Season Summary

- Coordinated 11th season of regional volunteer monitoring for aquatic invasive plants.
- Since the start of the Aquatic Project in 2002, the number of waters monitored annually has more than doubled and volunteer participation has nearly quadrupled (Fig. 2).
- In 2012, 175 volunteer monitors and partner staff surveyed 120 Adirondack waterways (Table 1, Fig. 3).
- Accrued more than 805 volunteer monitoring hours.
- Volunteer recruitment and retention remains high (Fig. 4). Since 2002, the program has retained an annual average of 77 core volunteers and recruited an annual average of 54 new volunteers.

New detections in 2012*

- **European frogbit** – Rogers Pond and Webb Royce Swamp
- **Eurasian watermilfoil** – Little Colby Pond
- **Variable-leaf watermilfoil** – Blake Reservoir, Little River Flow, Rainbow Falls Reservoir, Soft Maple Reservoir, Stillwater Reservoir
- **Spiny waterflea** – Lake George
- **Brittle naiad** – Great Sacandaga Lake

**New detections may signify new infestations to the waterbody, or infestations that were detected in waters that had not previously been surveyed.*

Terrestrial Plants

- In collaboration with DEC's Invasive Species Campground Manager, inventoried, managed, and mapped garlic mustard, purple loosestrife, Japanese knotweed, common reed, wild parsnip, and honeysuckle spp. at 37 high priority DEC land-based campgrounds.

- Accrued approximately 25,000 miles conducting early detection/rapid response activities, in collaboration with the Rapid Response Team and DEC's Invasive Species Campground Manager.
- Surveyed, monitored, and mapped some or all of the following NYS DOT right of ways: State Routes 3, 8, 9, 9N, 10, 22, 28, 28N, 30, 56, 58, 73, 86, 458 and I-87 in collaboration with the Rapid Response Team.
- Monitored and mapped roads adjacent to the following NYS DEC Wilderness Areas: Mckenzie Mountain, Hoffman Notch, High Peaks, Round Lake, Five Ponds, Pigeon Lake, Ha De Ron Dah, Blue Ridge, West Canada Lake, Siamese Ponds, Silver Lake, Sentinel Range, Giant Mountain, Dix Mountain, Pharaoh Lake, and William C. Whitney in collaboration with the Rapid Response Team and DEC's Invasive Species Campground Manager.
- Monitored and mapped roads adjacent to the following NYS DEC Wild Forest units: Saranac Lake, Taylor Pond, Wilmington, Debar Mountain, Horseshoe Lake, Cranberry Lake, Sargent Ponds, Blue Mountain, Vanderwhacker Mountain, Moose River Plains, Black River, Jessup River, Ferris Lake, Wilcox Lake, Aldrich Pond, Raquette River, Hammond Pond, Fulton Chain, and Grasse River, in collaboration with the Rapid Response Team and DEC's Invasive Species Campground Manager.
- Conducted post-treatment long-term monitoring at 17 sites, including *Phragmites*, Japanese knotweed, and yellow iris sites (Appendix A).
- Conducted photo-monitoring at all mapped sites to document treatment success and native plant recovery over time (Appendix A).

Terrestrial Non-Plant

- Offered assistance as needed to state and federal partners for forest pest surveillance.
- Participated with DEC in trapping and monitoring a feral swine population in Clinton County.

Rapid Response

This section describes ongoing efforts to control new species invasions that were detected in the PRISM since the program's inception.

Aquatic Species

- The Lake Placid Shoreowners implemented year 4 of an eradication program for variable leaf milfoil. In 2009, over 2 tons of milfoil were removed from the lake. In 2010, divers removed the equivalent of two five-gallon pails of milfoil, and less than half as much the following summer in 2011. In November 2011, members of the lake association identified a half-dozen small clusters of milfoil in a region of the lake just outside Paradox Bay. These clusters were shallow enough to be harvested from the lake surface and were promptly removed. A thorough surface and dive inspection of the area in spring of 2012 found no remaining plants. These plants were determined to be a remnant of the original infestation—overlooked by the initial dive inspection—and not a new infestation. A regimen of annual inspections of the areas from where the milfoil was removed and a quintennial survey of the East Lake coastal lakebed, coupled with

enhanced stewardship at Lake Placid's two public boat launches, will continue for the foreseeable future.

- The Paradox Lake Association implemented year 5 of an eradication program for Eurasian watermilfoil (EWM). Hand-harvesting has been taking place under the lead of the Paradox Lake lake manager, Steve LaMere. In 2012, the Paradox Lake Association and Adirondack Ecologists, LLC undertook an intensive effort to survey a much larger percentage of the lake's littoral zone than had been accomplished in the past. The primary reason for this was because the Town of Schroon was involved in a dam replacement/repair project on the outlet of Paradox Lake and the water level of the lake itself was much shallower than it had been in many years, thus offering an opportunity to check in areas where water depths would normally exceed 10-12 feet. In addition, emphasis on volunteer shoreline surveys and professional SCUBA surveys was prioritized in 2012. Because of this intensive effort, entire bays were surveyed in some cases and these surveys yielded the discovery of additional plants in deeper sections of the lake. A total of 3,617 Eurasian watermilfoil and 2,086 curly-leaf pondweed plants were harvested from the lake in 2012. Many of the existing (older) beds were found to have much less Eurasian watermilfoil than in past years, or none at all. The larger bays that received reconnaissance attention yielded higher harvesting takes, which increased the overall number of plants removed for the control season. By the end of the field season in September, in-lake surveys were not detecting unharvested milfoil plants. The Paradox Lake Association also implemented a lake stewardship program at the boat launch for the third summer in a row.
- In 2010, partners in Lake George established the Asian Clam Rapid Response Task Force (LGACRRTF) to institute a rapid response for Asian clam. Over the winter of 2010/11 the LGACRRTF organized a containment and eradication plan for the Asian clam which was planned for the beginning of the 2011 season. In April of 2011, over 800 benthic barriers were installed on the lake bottom and weighed down with rebar to smother the clams. While the project was still underway during the summer, additional locations of clams were found farther up the lake. The LGACRRTF and its partners undertook an extensive lake-wide survey, and as of the end of 2011 there were a total of five known locations of Asian clams in the lake (one of them could be considered an outlier to the Village site). Four of the five sites were treated in the fall of 2011 and the fifth site was to be treated in 2012. In the spring of 2012, the Lake George Village, Boon Bay, and Norowal sites were treated. Forty-eight mats were deployed at Norowal, over 200 at Lake George Village, and about 750 in Boon Bay. During the lake-wide survey in the summer of 2012, four new sites of Asian clams were found, bringing the lake-wide total to eight sites. The four new sites were matted in the fall of 2012 since they were small. The leading edges of the Lake George Village, Boon Bay, and Middleworth Bay sites were also matted to try to contain them. More weight was added to the mats in an attempt to get better seals and mats will be left in the water over the winter season. At this point in time, there are not enough resources to treat all of the Asian clam sites. Over \$730,000 has been raised to date for the project and additional funding is being sought for 2013.
- In July 2012, spiny waterflea was discovered in Lake George. The Lake Champlain Basin Rapid Response Task Force assessed the situation shortly thereafter and determined that control and eradication of spiny waterflea in Lake George was not technically feasible in a rapid timeframe. The Task Force recommended that the following spread prevention

measures be implemented as soon as possible: continued sampling for spiny waterflea in the LaChute River and at the outflow of the LaChute into Lake Champlain; focus on an early detection and expanded monitoring program for inland waterbodies in the basin and surrounding region; identify and disseminate the most effective check, clean, drain, dry invasive zooplankton decontamination practices for boats, trailers, and recreational equipment and disseminate to recreationists arriving to and leaving from Lake George; address overland transport of spiny waterflea on boats, trailers, and equipment through increased stewardship on Lake George and surrounding waterbodies; and, support the exploration of a comprehensive spread prevention program for all aquatic invasive species in Lake George.

- In 2011, the Paul Smith's College Adirondack Watershed Institute was awarded funds through the Great Lakes Restoration Initiative to support the region's first Aquatic Response Team. Work was limited to the western Adirondacks within the Lake Ontario watershed. Funds supported the Aquatic Response Team again in 2012, and the team conducted aquatic plant surveys in 34 lakes. In both 2011 and 2012, the Team visited sites in Second and Fourth Lakes in the Fulton Chain where Eurasian watermilfoil had previously been detected and controlled by divers in 2010. No new plants were found. The Rapid Response Team also worked in Fifth Lake in the Fulton Chain, which has a small Eurasian watermilfoil population, and removed 120 pounds of Eurasian watermilfoil. The population there is small (rare scattered plants) and may be possible to eradicate. The Team also managed milfoil in Follensby Clear Pond (see below, under 2012 Management, for more details). Response efforts will continue in 2013 in the Fulton Chain and surveys will be expanded to other lakes in the contract area based on input from APIPP.

Terrestrial Plants

- APIPP was awarded private foundation funds in 2012 to support the 2nd year of the Terrestrial Regional Response Team. The four-member crew conducted early detection surveys in high priority areas across the region and treated priority/new infestations (Map 4, Appendix A). The program also has funding for 2013.
- Validated and began formulating best management strategies for a new occurrence of giant hogweed found in Westport.
- Revisited the first pale swallow-wort infestation that was detected in the southwestern Adirondacks in 2011. Only two plants were found and managed in 2012.
- Revisited the first wild caraway infestation that was detected along Whiteface Memorial Highway in 2011. Heavy deer browse may have prevented seeding, and control efforts from the previous year appeared to be successful. Remaining plants were retreated.

Management

Aquatic

- Implemented year 6 of the European frog-bit eradication project on the Grasse River near Lampson Falls. The initial infestation was less than one quarter acre in size. Thirty-six 5-gallon buckets of plant material were harvested in 2007; seven buckets were harvested in 2008; and fewer than two buckets were harvested in 2009. In 2010, fewer than 1.5 buckets of plant material were harvested. In 2011, just over one bucket of plant material

was harvested. In 2012, less than one bucket of plant material was harvested in just a few hours. Hand harvesting was tag-teamed by APIPP's Aquatic Coordinator, The Nature Conservancy's Adirondack Conservation Intern, Amy Ignatuk, and The Nature Conservancy Leaders in Environmental Action for the Future (LEAF) interns. Additional surveys and harvesting will be conducted by the Aquatic Coordinator until no new plants are seen for three consecutive years.

- Collaborated with Paul Smith's College Adirondack Watershed Institute to implement year 5 of Eurasian watermilfoil management in Follensby Clear Pond. In year 1, divers removed 479 bags (10,000lbs.) of milfoil over 21 days (582 hours). The main infestation was near the canoe launch; satellite plants were harvested at the boat ramp and Spider Creek. In year 2, divers removed 106 bags (2,000lbs) of milfoil over 76 hours. In year 3 (2010), divers removed 30 bags (600lbs) of milfoil over 40 hours. In year 4, divers removed 400lbs. In year 5 (2012), divers removed 450 lbs. Though the Eurasian watermilfoil infestation has been reduced significantly since the first year of control, a persistent low level population still remains. This low level persistence may be a function of substantially reduced diver effort which decreased from an initial high of 582 hours in year 1 to a low of 120 hours in year 5.

Terrestrial

- In collaboration with the Rapid Response Team, DEC's Invasive Species Campground Manager, and Student Conservation Association, manually controlled, removed, and disposed of approximately 15,000 pounds of terrestrial invasive plant material from high priority sites on NYS DOT right of way, private property, forest preserve, and DEC campgrounds.
- Worked with 11 Student Conservation Association members to manually manage garlic mustard, yellow iris, and purple loosestrife infestations.
- In collaboration with the Rapid Response Team and DEC's Invasive Species Campground Manager, managed 303 sites totaling approximately 30 acres (Appendix A). Conducted herbicide treatments on 252 of those sites throughout the field season totaling approximately 18.5 infested acres. 197 of these sites extended off of or along DOT right of ways. 30 sites were treated that were extending onto forest preserve. Approximately 8 gallons of herbicide were applied throughout the field season (approx. 4 oz per site).
- Implemented manual management controls within the following NYSDEC forest preserve units: Moose River Plains, Sargent Ponds, Blue Mountain, High Peaks, Saranac Lakes, Taylor Pond, Siamese Ponds, Ferris Lake, Cranberry Lake, Sentinel Range Wilderness, and St. Regis Canoe Area.
- Finalized the invasive species management plan for the Five Ponds Wilderness Area – the Adirondack's first Invasive Species Prevention Zone and implemented Year 1 of monitoring and management.

Distribution Analysis

Aquatic Species

- The number of “invasive-free” lakes surveyed by APIPP volunteers is more than two-and-a-half times that of infested lakes (Fig. 5, Table 3).
- Of the 88 invaded waterways, approximately 64 are public and 24 are private.
- 2010 was the first year aquatic data were recorded in a GIS (Geographic Information System), which has been updated each year. This system allows us to conduct more detailed spatial analyses on the distribution of invaded and uninvaded lakes in the region. These analyses help us prioritize where early detection surveys should occur and identify pathways for invasion.

Terrestrial Plants

- Analysis of the jurisdictional distribution of terrestrial invasive plants:
 - Forty of the 47 NYS DEC Forest Preserve Units have one or more occurrences of invasive plants.
 - Twenty-seven of 37 land-based NYS DEC Adirondack campgrounds have invasive plants present: 19 have garlic mustard, nine have purple loosestrife, five have Japanese knotweed, and one has common reed. Mapping and management efforts show that invasive plants are increasing at 17 state campgrounds and decreasing at ten; and, ten have no invasive plants observed.
 - Approximately 800 invasive species sites are documented within the jurisdictional right-of-ways (ROW) of NYS DOT and local highway departments; however, the Terrestrial Project is currently working on re-mapping these right-of-ways using new electronic distribution analysis tools, so this number underrepresents the actual number of infestations growing along the ROW.
 - Although the total number of invasive species occurrences in the Adirondacks is unknown, the majority of the infestations within the interior Adirondacks are small (on average 0.082 acres), which increases the likelihood of management success. Eradication of infestations < 1 ha (2.47 acres) in gross area (area over which the weed is distributed) have the highest likelihood of success (Rejmánek and Pitcairn 2002). The majority of common reed grass and Japanese knotweed infestations in the region are less than one tenth of an acre in size (Fig. 6). Because of this, APIPP and partners have a high likelihood of success in controlling the majority of priority invasive species infestations within the core area of the Adirondacks.
 - Spatial assessments of sites treated over time indicate that both gross acreage and percent cover of invasive plants are declining after treatment (Figs. 7, 8).

Voucher Specimens

Aquatic Plants

- Collected, identified, pressed, mounted, and labeled samples of invasive plants observed in surveyed waterbodies. A voucher specimen verifies the presence of the invasive plant, serves as a comparison for additional plant samples, and aids plant research activities. A voucher specimen is needed only if invasive or suspicious plants are observed (Table 2).

Terrestrial Plants

- The Terrestrial Invasive Species Project does not maintain an herbarium of voucher specimens by site.

Data Storage and Website Development

Aquatic Plants

- Since 2002, APIPP maintained an online database which served as a record of surveyed waters, the distribution and abundance of aquatic invasive plants, and management activities on individual waterbodies in the region. Data and survey maps through 2010 are visible via APIPP's website at <http://www.adkinvasives.com/Aquatic/Maps/Maps.asp>.
- The program is transitioning from using its online database to using iMapInvasives and is in the process of updating iMap with information from aquatic plant surveys conducted by APIPP volunteers.
- Updated APIPP's GIS database with aquatic volunteer monitoring data.

Terrestrial Plants

- APIPP's Weed Information Management System (WIMS) database was updated to include all 281 occurrences from the 2012 field season. The electronic system allows for the querying of results, provides beneficial spatial data, and enables the formulation of trends over consecutive years.

APIPP ACTIVITIES

Below is a summary of APIPP's achievements in 2012 that included both the Terrestrial Invasive Species Project and the Aquatic Invasive Species Project.

APIPP Seasonal Stewardship

- Offered one seasonal stewardship position: Sarah Walsh served as APIPP's Education and Outreach Intern. Sarah participated in numerous education, outreach, and field-based activities that are described throughout this report.
- Collaborated with NYS DEC and SUNY ESF to offer one seasonal state campground invasive species specialist position: Dan Dohman served in this position. Dan conducted mapping and management of terrestrial invasive plants at state campgrounds, led inventories along the Ausable River, and assisted early detection surveys and control at the Five Ponds Wilderness Area, one of APIPP's Invasive Species Prevention Zones.
- Coordinated with NYS DEC's Student Conservation Association team members who assisted invasive plant management during two weeks of the summer.

APIPP co-sponsored or was invited to participate in training sessions for the following audiences:

- iMap observations, treatment, and survey training
- Paul Smith's College Watershed Stewardship Program (WSP)
- Adirondack Lake Assessment Program (ALAP) Information Workshop
- Northern Forest Canoe Trail (NFCT) Trail Maintainer Jamboree
- NYS DOT Region 1 Pesticide Applicators Training
- NYS DOT Adirondack Operations Staff Meeting

APIPP Education and Outreach

- Participated in more than 55 community events and workshops.
- Reached more than 1,718 individuals through presentations by APIPP staff.
- Created a float in the Saranac Lake Winter Carnival Parade and won second place in the civic group category.
- Celebrated the 7th Annual Adirondack Invasive Species Awareness Week, <http://adkinvasives.com/InvasiveSpeciesAwarenessWeek.html>.
 - Hosted ten major events across the region
 - Conducted radio interview and distributed press releases
 - Facilitated the posting of ten signs in the region with invasive species messaging
 - Underwrote an invasive species public service announcement at the movie theater in Old Forge for three months; Indian Lake theater also incorporated the PSA.
- Submitted bi-weekly invasive species columns from May-October to the Adirondack Daily Enterprise and the Adirondack Express, <http://www.adirondackdailyenterprise.com/page/category.detail/nav/5144/Eye-on-Invasives--by-Hilary-Smith.html>.
- Underwrote invasive species radio spots for three months on North Country Public Radio.
- Collaborated with specific groups on invasive species awareness projects in the following ways:
 - Collaborated with NYS DEC, USDA, Cornell, and other partners to participate in an emerald ash borer ash tagging project.
 - Developed and installed a boot brush station at The Nature Conservancy's Coon Mountain Preserve.
 - Reached out to private and state run summer camps about opportunities for invasive species programming.
 - Collaborated with the Garden Club of America's Adirondack Chapter to feature an invasive plant management demonstration at their annual meeting and presented to their national legislative committee at their annual meeting.
 - Provided guidance to Curtis Buker, volunteer, who assisted education, outreach, and mapping efforts in Clinton County.
 - Participated on a monthly NYS DEC-facilitated forest pest outreach committee.
 - Contributed invasive species information to the "Meet The Town." This is a joint effort with the Adirondack Outdoors group that includes DEC, Wildlife

Conservation Society, Adirondack Mountain Club, and the Adirondack Forest Preserve Education Partnership.

- Participated in the 90-Miler by providing educational materials and conducting voluntary inspections at key portages.
- Staffed information tables at the following community events: Waterfest, Tupper Lake 9 Miler, Adirondack Mountain Club's National Trails Day, Stand-Up-Paddleboard Festival, High Peaks Welcome Center, farmers' markets, Essex County Fair
- Presented to groups at the following schools: SUNY Plattsburgh, SUNY Potsdam, Clarkson University, North Country Community College.
- Presented to 103 5th and 6th graders at the Hamilton County Conservation Field Day.
- Offered AIS presentations to the following lake associations: Upper Saranac Lake Association, Lake George Association, Beaver Lake.
- Presented model initiatives during the following conferences: NYS Wetlands Forum, NYS Federation of Lake Associations, Black River Watershed Conference, and Cornell Invasive Species In-Service Workshop.
- Invited attendee at the Ecological Society of America's Emerging Issues Conference, "Developing Ecological-Based Conservation Targets Under Global Change."
- Distributed two newsletters:
<http://www.adkinvasives.com/documents/ROOTSSpringSummer2012.pdf>,
http://www.adkinvasives.com/documents/ROOTSFallWinter2012_001.pdf
- Designed four new door-hanger notifications for private landowners:
<http://www.adkinvasives.com/documents/doorhanger-Phrag.pdf>
<http://www.adkinvasives.com/documents/doorhanger-Barberry.pdf>
<http://www.adkinvasives.com/documents/doorhanger-AsiaticBittersweet.pdf>
<http://www.adkinvasives.com/documents/doorhanger-WildParsnipfinal.pdf>
- Developed new landowner guide, "Invasive Plants: A Landowner's Guide to Management Invasive Plants"
<http://www.adkinvasives.com/documents/LandownerGuidetoManagingInvasivePlants.pdf>.
- Distributed three APIPP brochures: one about the program, one about our target plants, and one about invasive animals.
- Received more than 50 "cold call" inquiries from the general public.
- Maintained website, www.adkinvasives.com.
- Maintained APIPP's Activity Blog, <http://adk-invasives.blogspot.com/>.
- Utilized PRISM E-list Listserve, hosted by Cornell cce-apipp-1@cornell.edu, to reach interested audiences.
- Prepared and distributed APIPP's 2011 Annual Report.

Regional Planning and Coordination

- Collaborated with partners of the Paul Smith's College Adirondack Watershed Stewardship Program, Lake Champlain Basin Program, Lake George, Ausable River Association, and other lake and river associations to support the expansion of stewards at water access points: 45 stewards were at 26 lakes this year, and the Ausable River Association implemented a 3rd year of its River Steward Program.

- Co-organized the Eurasian Watermilfoil Management Summit, in which 100 people attended.
- Collaborated with the Town of Inlet and volunteer leaders of the Regional Inlet Invasive Plant Program, <http://www.noknotweed.org/index.html>.
- Continued development of the PRISM strategic plan and communication plan.
- Explored opportunities for collaborating with the Adirondack Lake Assessment Program.
- Communicated regional invasive species initiatives and needs to ADK Futures and to the North Country's Cleaner Greener Communities Sustainability Plan.
- Held two full partner meetings and three aquatic invasive species committee meetings.
- Collaborated with other PRISMs (Partnerships for Regional Invasive Species Management) and Office of Invasive Species Coordination staff.
- Contributed information to the NY Invasive Species Council.
- Served as Chair of the NY Invasive Species Advisory Committee.

Research

- APIPP appreciates research conducted by the partners in the region which deepens understanding of invasive species' biology, impacts, and/or management.
 1. **Paul Smith's College:** Monitoring aquatic invasives using eDNA technology (Lee Ann Sporn, faculty advisor)

Please contact APIPP if you or others are involved in invasive species research in the Adirondacks.

Funding

- In 2012, APIPP was funded by the NYS Department of Environmental Conservation via the Environmental Protect Fund (year 5 of 5-year contract).
- Secured \$170,000 of Foundation funding to support the Terrestrial Response Team and special projects: Regional Inlet Invasive Plant Program, Asian Clam Eradication, and Ausable River Association River Steward Program.
- Various NY recipients leveraged \$74,950 in local implementation grants from the Lake Champlain Basin Program to address aquatic invasive species.
- Paul Smith's College secured approximately \$400,000 in 2012 from the EPA to continue an expanded stewardship program at water access sites and an aquatic response team. Funding for Paul Smith's College's Lake Ontario basin stewards is secure through the 2014 field season via the Great Lakes Restoration Initiative.

Species Distribution Alerts

Information provided by the Office of Invasive Species Coordination and NYS Department of Agriculture and Markets

New Introductions into New York

- No new species introductions were documented in 2012.

Significant Range Expansions in New York

- Spotted wing drosophila was detected in Suffolk Co. in 2011; as of September 2012, it was reported throughout the state. See, <http://hudsonvf.cce.cornell.edu/scouting%20reports/SWD/SWD%20NYS%20Monitoring%209-14-12.pdf>.
- Emerald ash borer was reported in 13 counties, and the number of quarantined counties reached 20. See, <http://www.dec.ny.gov/animals/42674.html>.
- Hemlock woolly adelgid, had been known from eastern NY and urban Rochester; new to central and western NY in 2008 and at Cornell Plantations in 2009; populations first reported in central and western NY may have expanded; detected in Schoharie Co. in 2011. See current distribution at <http://www.dec.ny.gov/animals/7250.html>.
- Didymo, identified in Battenkill (WA Co.) and East + West branches of Delaware in 2007, mainstem Delaware in 2008 and in Esopus Cr (Ulster Co.) in 2009, Kayaderosseras Creek in Saratoga County in 2010, Roundout Creek (Ulster Co.) in 2011, and Schoharie Creek at Prattsville (Greene Co) in 2012.

Elevated Threat

- Hydrilla was discovered in the Erie Canal in North Tonawanda, NY and in three small waterbodies in Broome County, just east of Binghamton, NY; at least nine other waterbodies in NY are infested with hydrilla and all of those infestations are fairly recent.
- Feral swine have breeding populations in six counties: Clinton, Onondaga, Cortland, Tioga, Delaware, and Sullivan Counties; sightings are reported in 39 counties (up from 37 in 2011, and 16 prior). These sightings are reports from the public and include any escaped swine, Russian boar, and domesticated and potbelly pigs. (Information provided by USDA APHIS)
- Spiny waterfea (*Bythotrephes longimanus*) was detected in the Champlain Canal Feeder Canal and Lake George. It was previously reported in Great Sacandaga Lake in 2008, Pecks Lake and Stewarts Bridge Reservoir in 2009, and Sacandaga Lake in 2010.

Regional Milestones

- Offered first seasonal position focused on invasive species education and outreach, reaching new audiences in new ways and elevating visibility of Adirondack Invasive Species Awareness Week.
- Received 2nd year of private foundation funding for the Terrestrial Regional Response Team. Continued treatment of high priority *Phragmites* infestations on forest preserve: 37% of 131 sites treated showed no invasive species regrowth after one year of treatment.
- Paul Smith's College Adirondack Watershed Institute sustained its expanded Watershed Stewardship Program at boat launches and deployed an Aquatic Response Team for a second year.

- The Aquatic Project had the most attendees at the annual training sessions to-date and the highest number of waters surveyed.
- The Raquette Lake Property Owners Association implemented the second year of a video surveillance system (ILIDS) that plays an audio message reminding boaters to check and clean their boats.
- The Lake Champlain AIS Rapid Response Task Force evaluated new species introductions to the Basin including spiny waterflea in the Champlain Canal and in Lake George.
- Lake George continued response to Asian clam and elevated attention to aquatic invasive species prevention and management needs not only in Lake George but also in the region and beyond.
- At least eight Towns, one Village, and one County have local aquatic transport laws making it illegal to enter or exit waterways with aquatic species attached.
- Invasives received abundant media coverage. Stories covered forest pests, terrestrial plants, boat launch stewardship, aquatic and terrestrial management efforts, and prevention measures.
- Implemented year 5 of the 5-year contract with DEC for coordination of the Adirondack PRISM.
- Continued to serve as the PRISM representative on the NY Invasive Species Advisory Committee. Served as Chair in 2012.

Statewide Milestones

- The FY12 State Environmental Protection Fund included \$3.4 million to implement the recommendations of the Invasive Species Task Force. The enacted SFY 12-13 budget included \$500,000 in Aid to Localities for invasive species projects including \$100,000 for Lake George (in addition to "not less than \$100,000 for Lake George" included in the \$3.4 million EPF IS line and an additional \$775,000 in Conservation Fund intended for hydrilla control at Cayuga Lake inlet.)
- Senator Little sponsored the Invasive Species Prevention Act, which passed the Legislature unanimously and was signed by the Governor in July.
- NYS DEC released Request for Quotes for risk assessments for plants and animals (2 separate RFQ) to support development of the regulatory lists for non-native species.
- NYS DEC released a Request for Proposals for the four unfunded PRISMs and selected host organizations.
- NY PRISMs continued to meet and develop regional initiatives; PRISM Leaders participated in quarterly conference calls.
- iMap Invasives expanded use of the statewide database to partners and volunteers and increased its functionality.
- The NY Invasive Species Education and Outreach program with Cornell Cooperative Extension hired an additional full-time staff person, bringing the team to four; one vacancy remains.
- The NY Invasive Species Clearinghouse maintained its website, www.nyis.info.
- The Office of Invasive Species Coordination was folded into DEC's Division of Lands and Forests and is now known as the Invasive Species Unit.

- The Invasive Species Unit is procuring an extension for the NY IS Research Institute contract with Cornell University.
- The NYS DEC, in cooperation with The Nature Conservancy and PRISM Leaders, facilitated monthly statewide invasive species conference calls.
- The NY Invasive Species Council met quarterly, and the NY Invasive Species Advisory Committee met quarterly.

Online Resources

- Hamilton County Soil and Water Conservation District's "Forest Pest Detection" video, <http://www.youtube.com/user/hamiltoncoswcd>
- Lake George Association's "Clean, Drain, Dry" video, <http://youtu.be/CjnSpm6v7WM>
- "Lake Defenders," PBS Documentary, <http://www.mountainlake.org/programs/documentaries-and-specials/lake-defenders.html>
- Past documentaries of note: The USDA, USFS, and The Nature Conservancy, among others, produced a DVD, "Lurking in the Trees," which describes the infestation and response to Asian longhorned beetle in Worcester, MA; The American Wildlife Conservation Foundation which is active in the Capital – Mohawk PRISM produced a forest pests CD, <http://www.vimeo.com/8981916>; At the federal level, the US Forest Service produced a video on spread prevention methods for hunters and fishermen, <http://www.fs.fed.us/invasivespecies/prevention/defending.shtml>. A documentary video, "Playing Smart Against Invasive Species: How to Enjoy and Protect the Great Outdoors," was released by the USDA Forest Service as part of the National invasive Species Threat Campaign, with support from many organizations, <http://www.fs.fed.us/invasivespecies/prevention/playingmart.shtml>.

Statewide Invasive Species Program Links

- DEC website for aquatic invasive species information: <http://www.dec.ny.gov/animals/50121.html>; terrestrial invasive species information: <http://www.dec.ny.gov/animals/6986.html>.
- New York Invasive Species Clearinghouse, <http://nyis.info/>
- iMap invasives, <http://imapinvasives.org/>
- New York State Invasive Species Research Institute, <http://nyisri.org/>

2013 Objectives

- APIPP's 2013 Adirondack PRISM Staff Work Plan will be uploaded to <http://adkinvasives.com/publications.html> and will include a complete list of objectives and tasks.

Priorities include:

- Secure a contract amendment and a contract renewal with the state for the Adirondack PRISM
- Complete the PRISM Strategic Plan
- Develop a PRISM communications plan

- Increase education efforts via programming, publications, and multi-media
- Upgrade the APIPP website
- Implement Year 3 of Regional Response Teams
- Implement Year 3 of an expanded Adirondack Watershed Stewardship Program
- And much more!

Please see attached document with tables, figures, maps, and photodocumentation.

**Thank you for your help to protect the Adirondack region from
invasive species.**

Literature Cited

Rejmanek, M. and M. J. Pitcairn. 2002. When is eradication of exotic pest plants a realistic goal? Page 249-253 in C. R. Veitch and M. N. Clout, eds. *Turning the Tide: The Eradication of Invasive Species*. Auckland, New Zealand: Invasive Species Specialist Group of the World Conservation Union (IUCN).

With thanks to past and present cooperating partners!

More than 500 Volunteers!

Adirondack Association of Towns and Villages
Adirondack Cooperative Loon Program
Adirondack Council
Adirondack Information Group, Inc.
Adirondack Lake Alliance
Adirondack Lake Survey Corporation
Adirondack Landowners' Association
Adirondack Mountain Club
Adirondack Museum
Adirondack North Country Association
Adirondack Park Agency
Adirondack Park Agency Visitor Interpretive Centers
Adirondack Watershed Alliance
All Taxa Biodiversity Inventory
Au Sable River Association
Bass Angler Sportsmen Society
Becket-Chimney Corners YMCA
Boquet River Association
CAP-21
Clinton and Essex County Master Gardeners
Cornell Cooperative Extension County Offices
(Clinton, Essex, Hamilton, St. Lawrence and Warren)
Cornell University
Darrin Fresh Water Institute
Department of Agriculture and Markets
Department of Environmental Conservation
Department of Transportation
Essex County Garden Club
Federal Highways Administration
Garden Club of America
Great Sacandaga Lake Advisory Committee
Hamilton College
Hamilton County Soil and Water Conservation District
Hudson River Black River Regulation District
Lake Champlain Basin Program
Lake Champlain Sea Grant
Lake George Land Conservancy
Lake George Park Commission
Lake George Watershed Conference
Lake Placid/Essex County Visitors Bureau
Massawepie Scout Camps
National Grid
Natural History Museum of the Adirondacks
NYS Department of State
NYS Invasive Species Council
NYS Invasive Species Advisory Committee
North Country School and Camp Treetops
Paul Smith's College Adirondack Watershed Institute
Protect!
Regional Inlet Invasive Plant Program
Student Conservation Association

St. Regis Mohawk Tribe
SUNY ESF Wanakena, Newcomb
SUNY Plattsburgh
The Nature Conservancy
Town of Inlet
Town of Webb, DPW
Trout Unlimited
United State Department of Agriculture,APHIS/PPQ
Village of Saranac Lake
Warren County Soil and Water Conservation District
Wildlife Conservation Society

Shoreowner groups including, but not limited to

6th and 7th Lakes Association
Beaver Lake Association
Bellmont Mountain View Indian Lakes Foundation
Big Moose Property Owners' Association
Big Wolf Lake Association
Blue Mountain Lake Association
Brandreth Lake Association
Brant Lake Association
Brantingham Lake Association
Canada Lake Association
Chateaugay Lakes Association
Chazy Lake
Cranberry Lake Boat Club
East Caroga Lake Protective Association
East Schroon Lake Association
Friends Lake Association
Fulton Chain of Lakes Association
Great Sacandaga Lake Association
Gull Pond Association
Hadlock Lake Association
Horseshoe Pond/Deer River Flow Association
Indian Lake Association
Jones Pond Association
Lake Colby Association
Lake George Association
Lake Placid Shoreowners Association
Lake Pleasant Sacandaga Association
Lake Luzerne
Lewis Creek Association
Little Long Lake Association
Livingston Lake Association
Long Lake Association
Long Pond Association
Loon Lake Association
Lower Saranac Lake Association
Minerva Lake
Mirror Lake Association
Mt Arab Eagle Crag Association
Mt View and Indian Lakes Association
Osgood Pond Association

Paradox Lake Association
Piseco Lake Association
Rainbow Lake Association
Raquette Lake Property Owners' Association
Schroon Lake Association
Silver Lake Association
St. Regis Chain of Lakes Association
Star Lake Protective Association
Spy Lake Association
Upper Saranac Lake Foundation
Upper Saranac Lake Association
West Caroga Lake Association
And More!

Table 1. APIPP lakes surveyed in 2012 and aquatic invasive species observed.
Alphabetized by Lake Name. BN=Brittle Naiad, CLP=Curly-leaf Pondweed,
AC=Asian Clam, EF=European Frog-bit, EWM=Eurasian Watermilfoil, SWF=Spiny
Waterflea, VLM=Variable-leaf Milfoil

Lake	Town	County	Species
Augur Lake	Chesterfield	Essex	EWM
Barnum Pond	Brighton	Franklin	
Beaver Lake	Watson	Lewis	
Black Pond	Brighton	Franklin	
Blake Reservoir	Parishville	St. Lawrence	VLM
Blue Mountain Lake	Indian Lake	Hamilton	
Blynkin Pond (Spectacle Pond)	Tupper Lake	Franklin	
Brandreth Lake	Long Lake	Hamilton	
Brantingham Lake	Greig	Lewis	
Buck Pond	Franklin	Franklin	
Burnt Pond	Horicon	Warren	
Butternut Pond	Chesterfield	Essex	EWM
Canada Lake	Caroga	Fulton	
Carry Falls Reservoir	Colton	St. Lawrence	VLM
Chazy Lake	Dannemora	Clinton	EWM
Church Pond	Brighton	Franklin	
Clear Pond	Croghan	Lewis	
Clear Pond	Parishville	St. Lawrence	
Cleveland Lake	Watson	Lewis	
Cranberry Lake	Clifton	St. Lawrence	VLM
Eagle Lake	Indian Lake	Hamilton	
Eagle Crag Lake	Piercefield	St. Lawrence	
Eagle Pond	Duane	Franklin	
East Caroga Lake	Caroga	Fulton	EWM
East Pine Pond	Santa Clara	Franklin	
Echo Lake	Lake Pleasant	Hamilton	
Eighth Lake	Inlet	Hamilton	
Eldon Lake	Long Lake	Hamilton	VLM
Fern Lake	Black Brook	Clinton	
First Lake	Webb	Herkimer	VLM
Francis Lake	Watson	Lewis	
French Pond	Croghan	Lewis	
Garnet Lake	Johnsburg	Warren	
Glenn Pond	Harrietstown	Franklin	
Grasse River at Lampson Falls	Clare	St. Lawrence	EF
Green Lake	Caroga	Fulton	
Green Pond	Santa Clara	Franklin	
Gull Pond	Piercefield	St. Lawrence	
Hadlock Pond	Fort Ann	Washington	EWM, BN, CLP, WC
Harris Lake	Newcomb	Essex	

Heavens Pond	Tupper Lake	Franklin	
Hoel Pond	Santa Clara	Franklin	
Horseshoe Lake	Piercefield	St. Lawrence	
Indian Lake	Indian Lake	Hamilton	
Jabe Pond	Hague	Warren	
Jones Pond	Brighton	Franklin	
Lake Abanakee	Indian Lake	Hamilton	
Lake Adirondack	Indian Lake	Hamilton	
Lake Clear	Harrietstown	Franklin	
Lake Clear Outlet	Harrietstown	Franklin	
Lake Durant	Indian Lake	Hamilton	VLM
Lake Eaton	Long Lake	Hamilton	
Lake Kushaquia	Franklin	Franklin	
Lake Ozonia	Hopkinton	St. Lawrence	
Lake Placid	North Elba	Essex	VLM
Lake Pleasant	Lake Pleasant	Hamilton	SWF
Lake Rondaxe	Webb	Herkimer	
Lake Titus	Malone	Franklin	EWM
Lewey Lake	Lake Pleasant	Hamilton	
Lincoln Pond	Elizabethtown	Essex	EWM
Little Clear Pond	Santa Clara	Franklin	
Little Colby Pond	Harrietstown	Franklin	EWM
Little Long Lake	Forestport	Oneida	
Little River Flow	Clifton	St. Lawrence	VLM
Livingston Lake	Stony Creek	Warren	
Long Lake	Long Lake	Hamilton	VLM
Long Pond	Croghan	Lewis	
Lost Pond	Tupper Lake	Franklin	
Lower Browns Tract Pond	Inlet	Hamilton	
Lower Saint Regis Lake	Brighton	Franklin	
Meacham Lake	Duane	Franklin	EWM
Mill Pond	Elizabethtown	Essex	
Mohegan Lake	Long Lake	Hamilton	
Moody Pond	Harrietstown	Essex	
Moshier Reservoir	Webb	Herkimer	
Mount Arab Lake	Piercefield	St. Lawrence	
Mountain Pond	Brighton	Franklin	
Mud Pond	Croghan	Lewis	
Murrey Pond	Elizabethtown	Essex	
Newport Pond	Moriah	Essex	
Osgood Pond	Brighton	Franklin	
Otter Lake	Forestport	Oneida	
Oxbow Lake	Arietta	Hamilton	
Payne Lake	Watson	Lewis	
Piercefield Flow	Piercefield	St. Lawrence	VLM
Piseco Lake	Arietta	Hamilton	
Polliwog Pond	Santa Clara	Franklin	

Quiver Pond	Webb	Herkimer	
Rainbow Falls Reservoir	Parishville	St. Lawrence	VLM
Raquette Lake	Arietta	Hamilton	VLM
Rich Lake	Newcomb	Essex	
Rock Pond	Croghan	Lewis	
Rock Pond	Indian Lake	Hamilton	VLM
Rogers Pond	Westport	Essex	EF
Rollins Pond	Santa Clara	Franklin	
Russett Pond	Elizabethtown	Essex	
Sacandaga Lake	Lake Pleasant	Hamilton	SWF
Sagamore Lake	Long Lake	Hamilton	
Schroon Lake	Horicon	Warren	EWM, CLP
Seventh Lake	Inlet	Hamilton	EWM, VLM
Silver Lake	Clifton	St. Lawrence	
Sixth Lake	Inlet	Hamilton	EWM, VLM
Soft Maple Reservoir	Croghan	Lewis	VLM
Spitfire Lake	Brighton	Franklin	
Sprague Pond	Indian Lake	Hamilton	
Stark Falls Reservoir	Colton	St. Lawrence	VLM
Stillwater Reservoir	Webb	Herkimer	VLM
Stony Creek Ponds	Harrietstown	Franklin	
Tanaher Pond	Elizabethtown	Essex	
Thirteenth Lake	Johnsburg	Warren	
Tooley Pond	Clare	St. Lawrence	
Tripp Pond	Warrensburg	Warren	
Trout Lake	Croghan	Lewis	
Upper Browns Tract Pond	Inlet	Hamilton	
Upper Saint Regis Lake	Brighton	Franklin	
Utowana Lake	Indian Lake	Hamilton	
Whey Pond	Santa Clara	Franklin	
Whitaker Lake	Lake Pleasant	Hamilton	
Wolf Pond	Tupper Lake	Franklin	
Wynkin Pond (Spectacle Pond)	Tupper Lake	Franklin	

* *Myriophyllum heterophyllum* (Variable-leaf watermilfoil). Though native to the U.S., *Myriophyllum heterophyllum* is considered an exotic invasive plant in New England. In 2009, it was elevated from a ‘watched species’ to an invasive species in the Adirondack region when it was detected in two waters where it was previously not known to exist.

Table 2. APIPP lakes with voucher specimens on file with the Adirondack Park Invasive Plant Program.

Lake Name	Voucher specimen
7 th Lake Fulton Chain	Eurasian watermilfoil
Brant Lake	Eurasian watermilfoil
Chazy Lake	Eurasian watermilfoil
Copperas Pond	Eurasian watermilfoil
Cranberry Lake	Variable-leaf watermilfoil
Deer River Flow	Eurasian watermilfoil
East Caroga Lake	Eurasian watermilfoil
Fifth Lake, Fulton Chain	Eurasian watermilfoil
Fish Creek	Eurasian watermilfoil
Fish Creek Pond	Eurasian watermilfoil
Floodwood Pond	Eurasian watermilfoil
Follensby Clear Pond	Eurasian watermilfoil
Franklin Falls Pond	Eurasian watermilfoil, curly-leaf pondweed
Horseshoe Pond, Duane	Eurasian watermilfoil
Grasse River	European frog-bit
Kiwassa Lake	Eurasian watermilfoil
Lake Durant	Variable-leaf watermilfoil
Lake Flower	Eurasian watermilfoil, curly-leaf pondweed
Little Square Pond	Eurasian watermilfoil
Long Lake, Long Lake	Variable-leaf watermilfoil
Long Pond, Willsboro	Eurasian watermilfoil
Meacham Lake	Eurasian watermilfoil
Minerva Lake	Eurasian watermilfoil
Putnam Pond	Eurasian watermilfoil
Raquette Lake	Variable-leaf watermilfoil
Sixth Lake of Fulton Chain	Eurasian watermilfoil
Taylor Pond	Eurasian watermilfoil
Union Falls Pond	Eurasian watermilfoil
Stark Reservoir	Variable-leaf watermilfoil
Carry Falls Reservoir	Variable-leaf watermilfoil

Figure 1. Number of participants at training sessions for aquatic plant identification and monitoring techniques, 2002-2012.

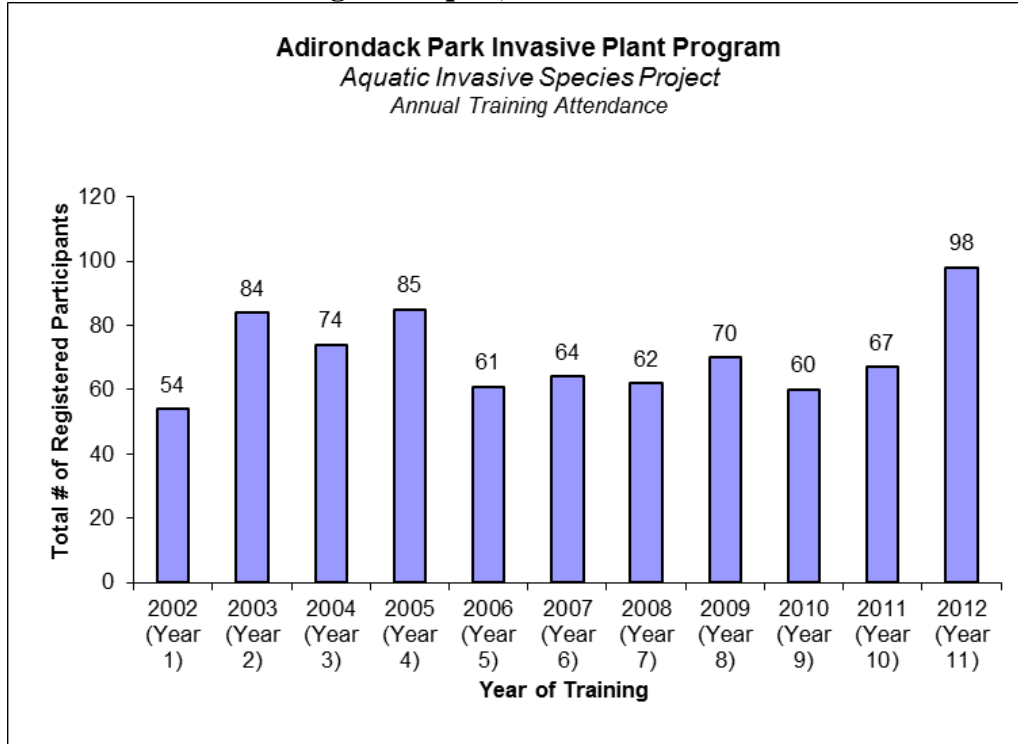


Figure 2. Number of lakes monitored and APIPP volunteers, 2002-2012.

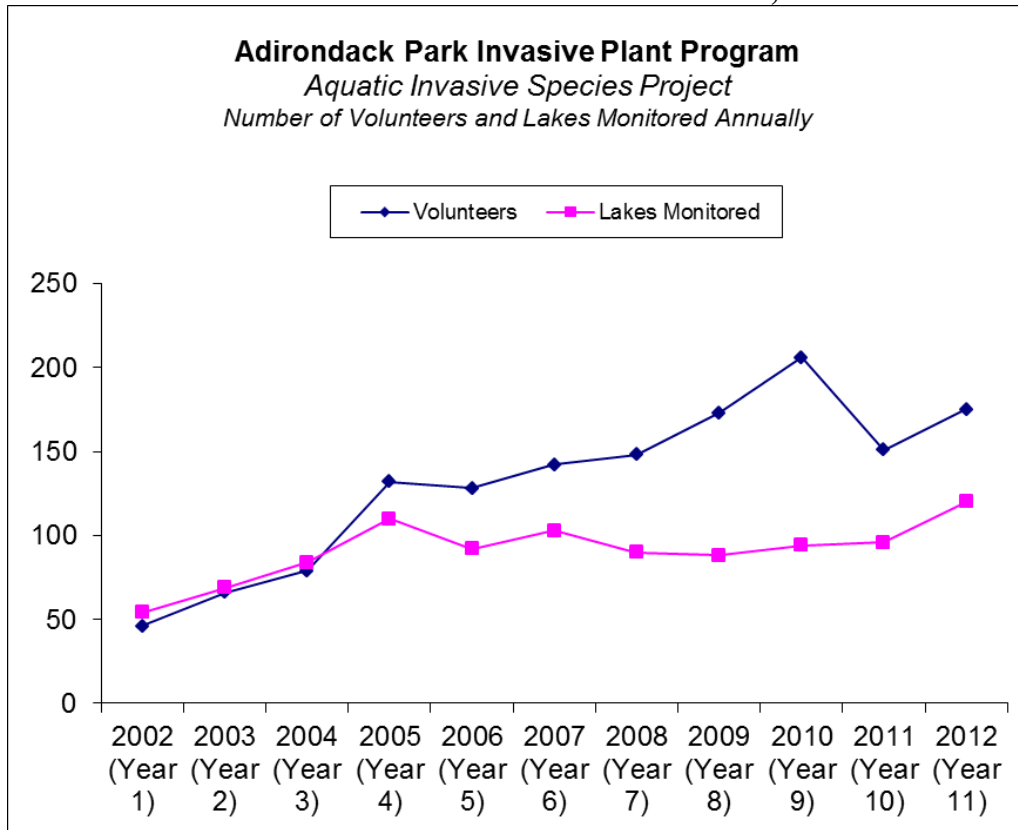


Figure 3. Distribution of lakes monitored by APIPP volunteers, 2002-2012.

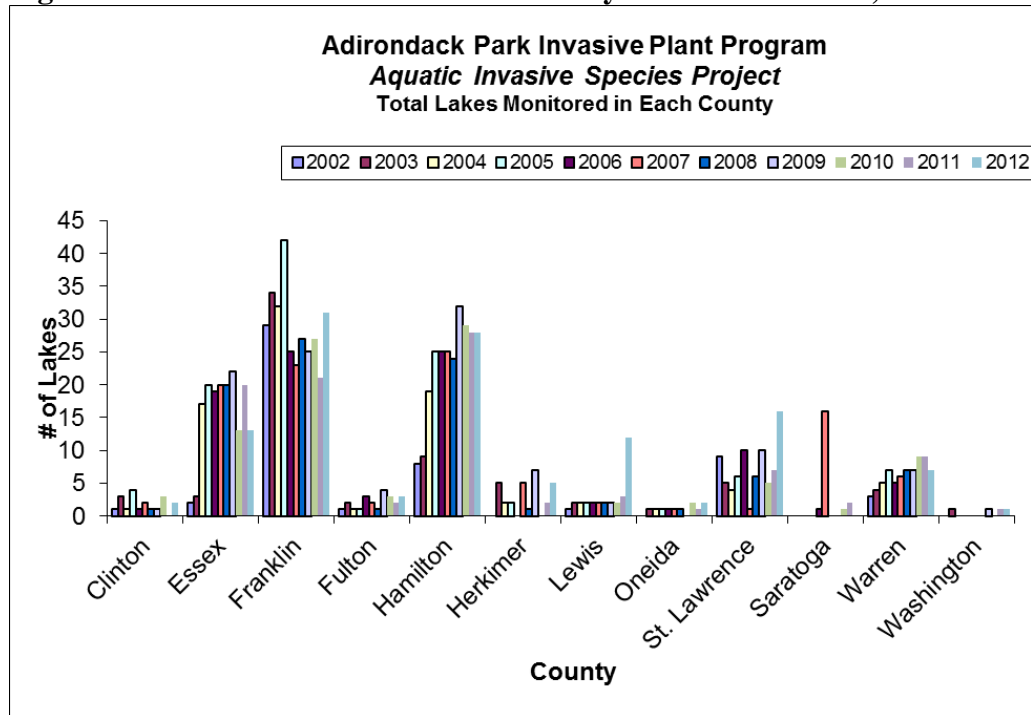


Figure 4. Number of new and returning volunteers by year.

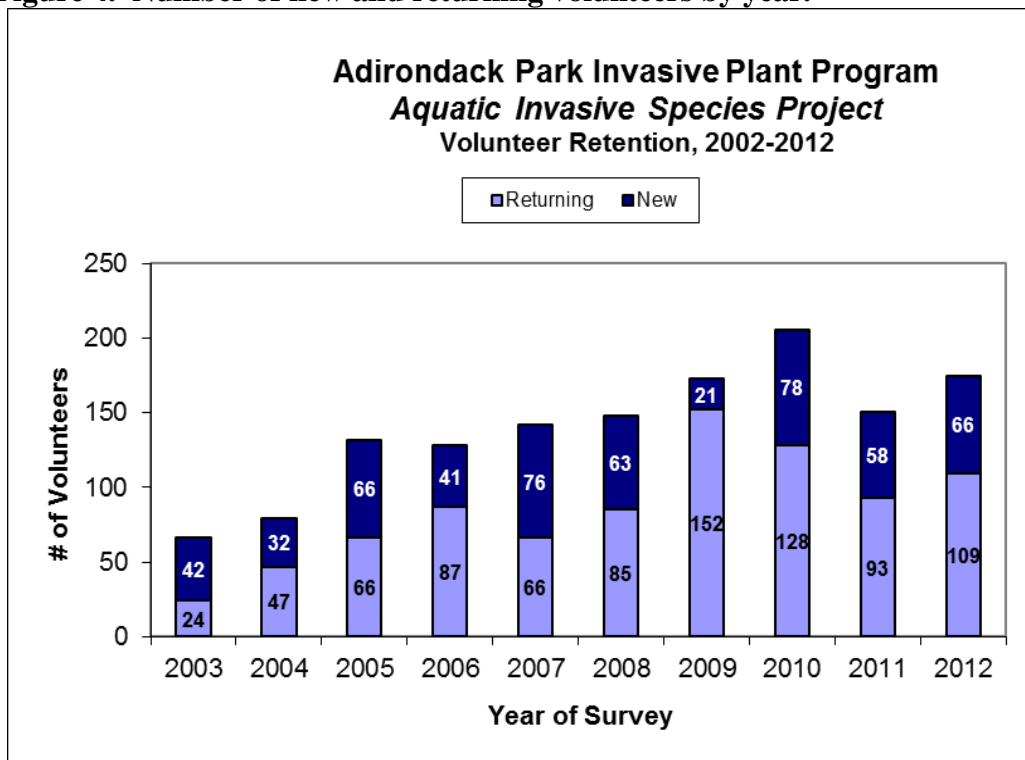
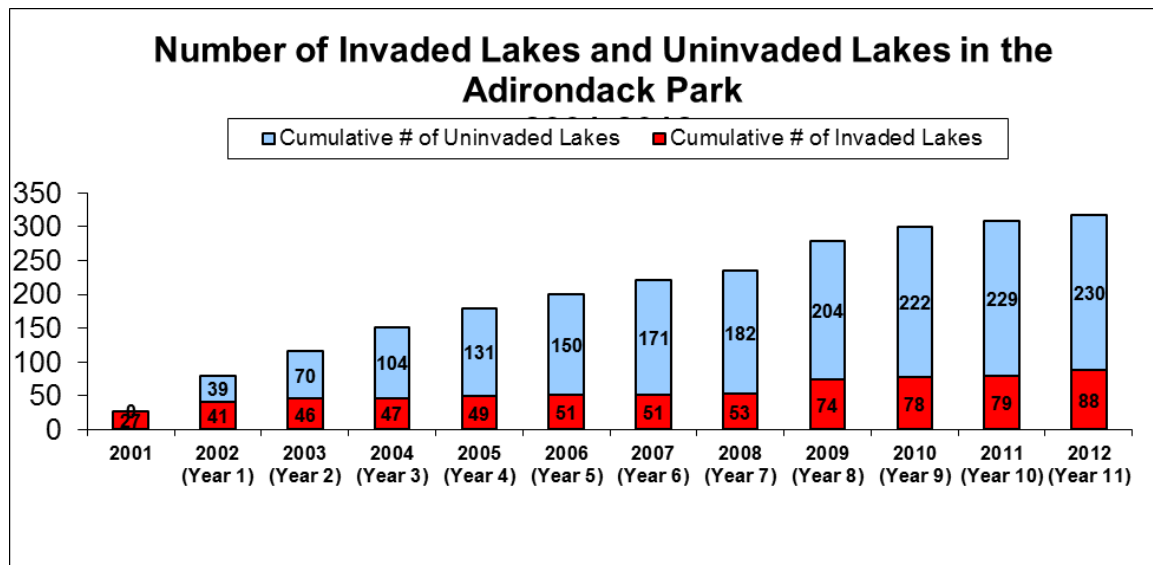


Figure 5. Cumulative number of invaded lakes and lakes monitored by APIPP volunteers where no invasive species were detected. The spike between 2001 and 2002 is accounted for by the inception of a standardized regional volunteer monitoring program (2001 was pre-volunteer surveys and 2002 was year one of volunteer surveys). The spike between 2008 and 2009 is accounted for by the inclusion of variable-leaf watermilfoil as an invasive species, rather than as a watched species.



*Note: In the 2010 APIPP Annual Report, 80 waters were reported to have aquatic invasive species; however, Forestport Reservoir was counted as an infected lake with Eurasian watermilfoil and it is outside of the Adirondack PRISM. Eighth Lake was also counted in 2010's total, but the variable-leaf watermilfoil infestation is closer in proximity to Seventh Lake. For counting purposes, in 2011, both of these water bodies were removed from the infested lake list, and the figure for 2010 was corrected to 78. This year, Stuarts Bridge Reservoir is included in the total number of waters infested with aquatic invasive species; it was detected in 2009, but it had not been included in the total count. Refer to Table 3 for accounting of invaded and uninvaded lakes over time.

Table 3. Invasions to previously uninvaded waterways in the Adirondack PRISM since 2002. Alphabetized by Lake Name. CLP=Curly-leaf Pondweed, EWM=Eurasian Watermilfoil, SWF=Spiny Waterflea, VLM=Variable-leaf Milfoil.

Lake Name	Year First Monitored	Species	Year Species Discovered
Carry Falls Reservoir	2002	VLM	2009
Chaumont Pond	2002	VLM	2002
Cranberry Lake	2002	VLM	2002
Fulton Chain - First Lake	2003	VLM	2006
Fulton Chain - Fourth Lake	2003	VLM/EWM	2005/2009
Fulton Chain - Second Lake	2003	EWM/VLM	2009/2009
Fulton Chain - Third Lake	2003	VLM	2009
Lake Durant	2004	VLM	2007
Lake Placid	2002	VLM	2009
Long Lake (Hamilton)	2003	VLM	2006
Minerva Lake	2004	EWM	2005
Paradox Lake	2005	EWM/CLP	2008/2009
Peck Lake	2006	SWF	2009
Piercefield Flow	2004	VLM	2004
Raquette Lake	2004	VLM	2006
Rock Pond (Hamilton)	2008	VLM	2008
Sacandaga Lake	2003	SWF	2010
Simon Pond	2003	VLM	2006
Stillwater Reservoir	2009	VLM	2012
Tupper Lake	2002	VLM	2003

*Note: APIPP has tracked the number of invaded and uninvaded waters each year since 2002. Over time, invasions have occurred in waters that were previously recorded as free of invasive species. In 2012, we cross-referenced those waters and they are listed above. In 2009, variable-leaf watermilfoil (VLM) was elevated from a ‘watched species’ to an invasive species in the Adirondack region, thus the above waterways listed as invaded with VLM were considered uninvaded up until 2009.

Figure 6. Gross acreages, by acreage class, of infestations of common reed grass (*Phragmites australis*) and Japanese knotweed (*Fallopia japonica*) that have spatial assessments within the Adirondack PRISM.

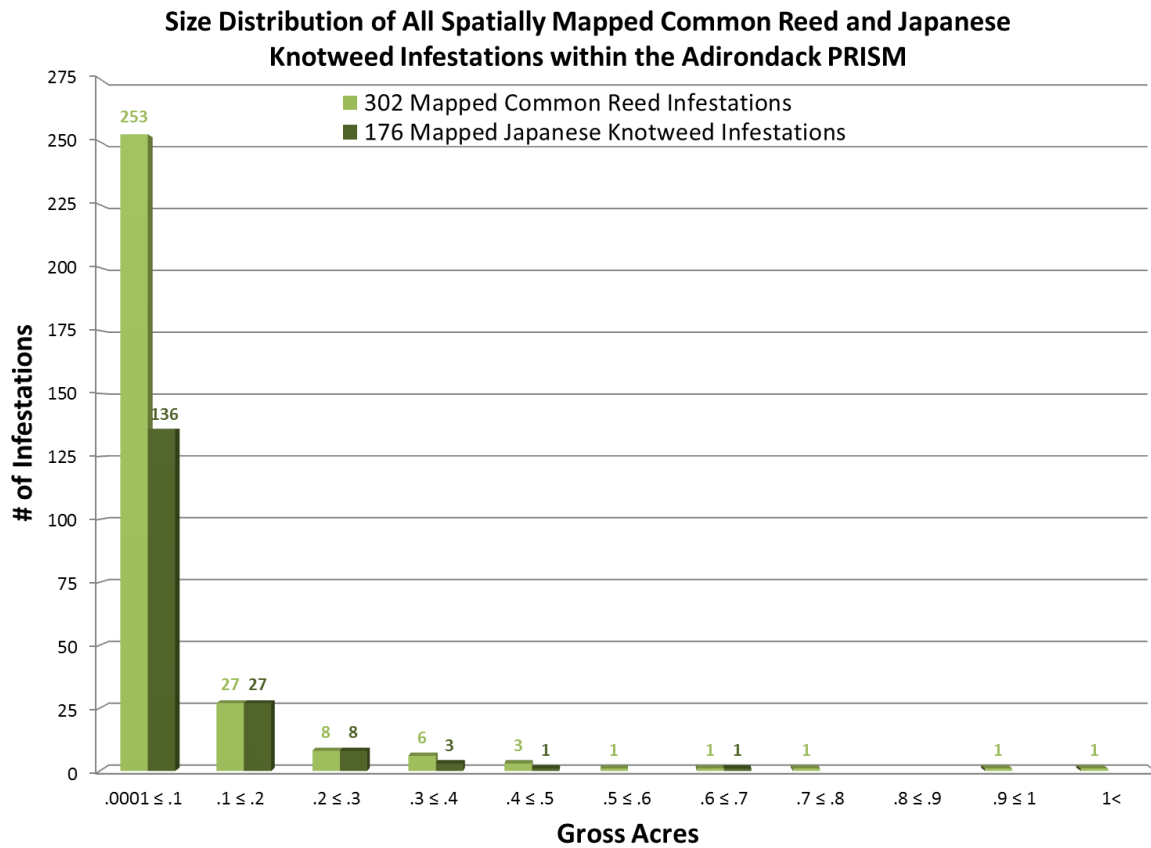


Figure 7. Average gross acreages of common reed grass and Japanese knotweed before and after treatment.

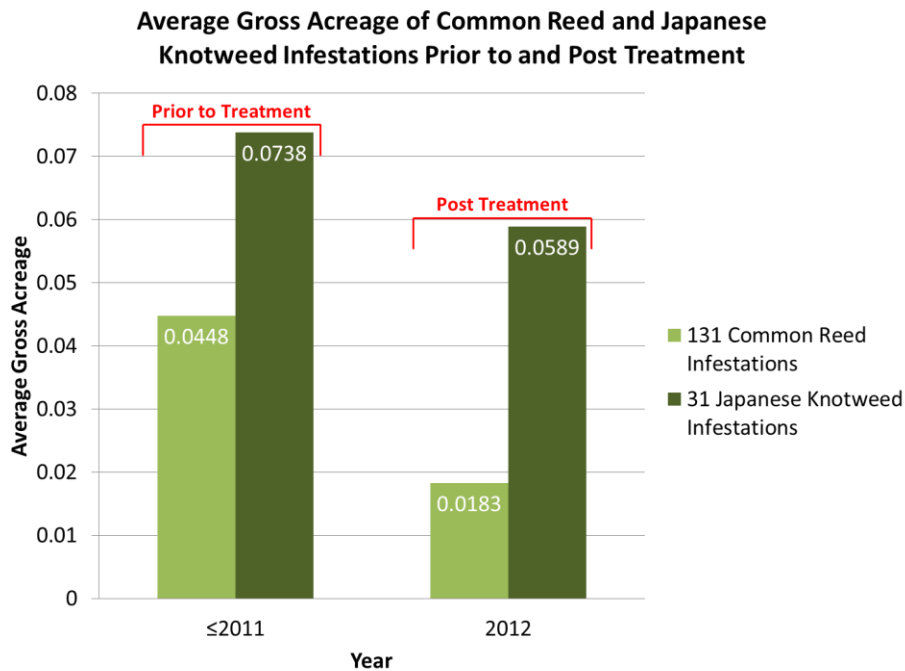
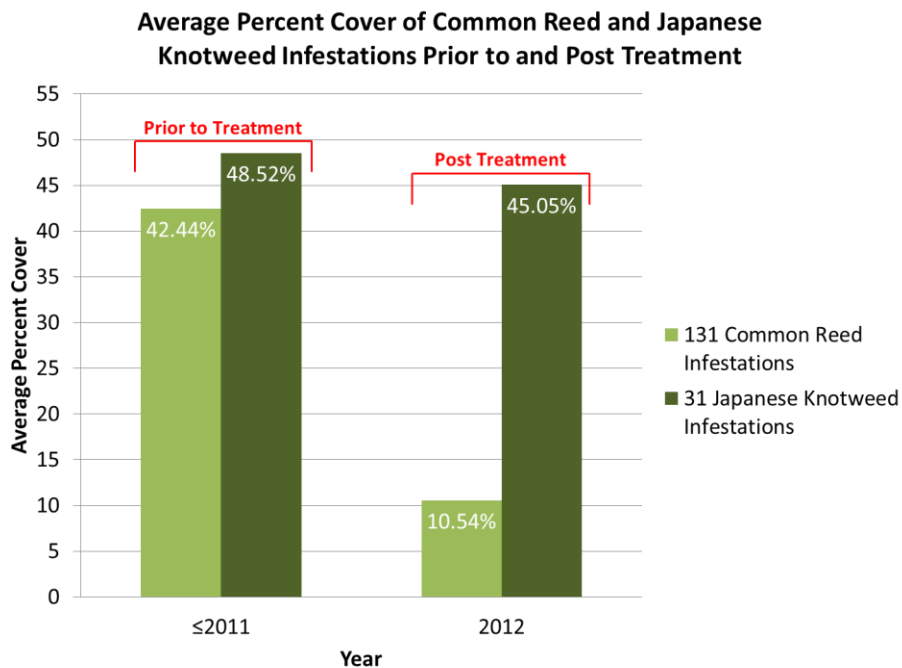
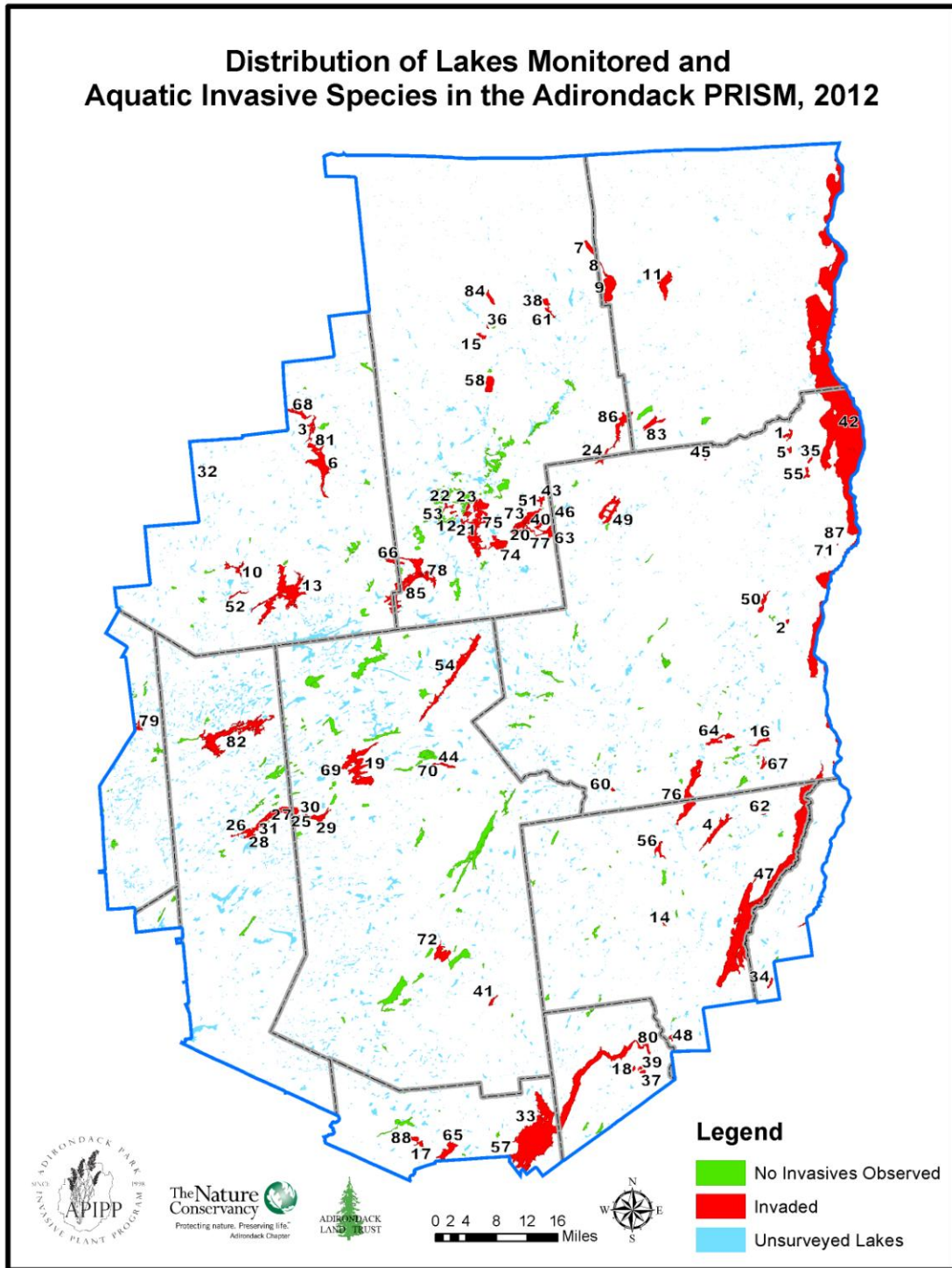


Figure 8. Average percent cover of common reed and Japanese knotweed infestations before and after treatment.



Map 1. Distribution of lakes within the Adirondack PRISM that contain aquatic invasive species.

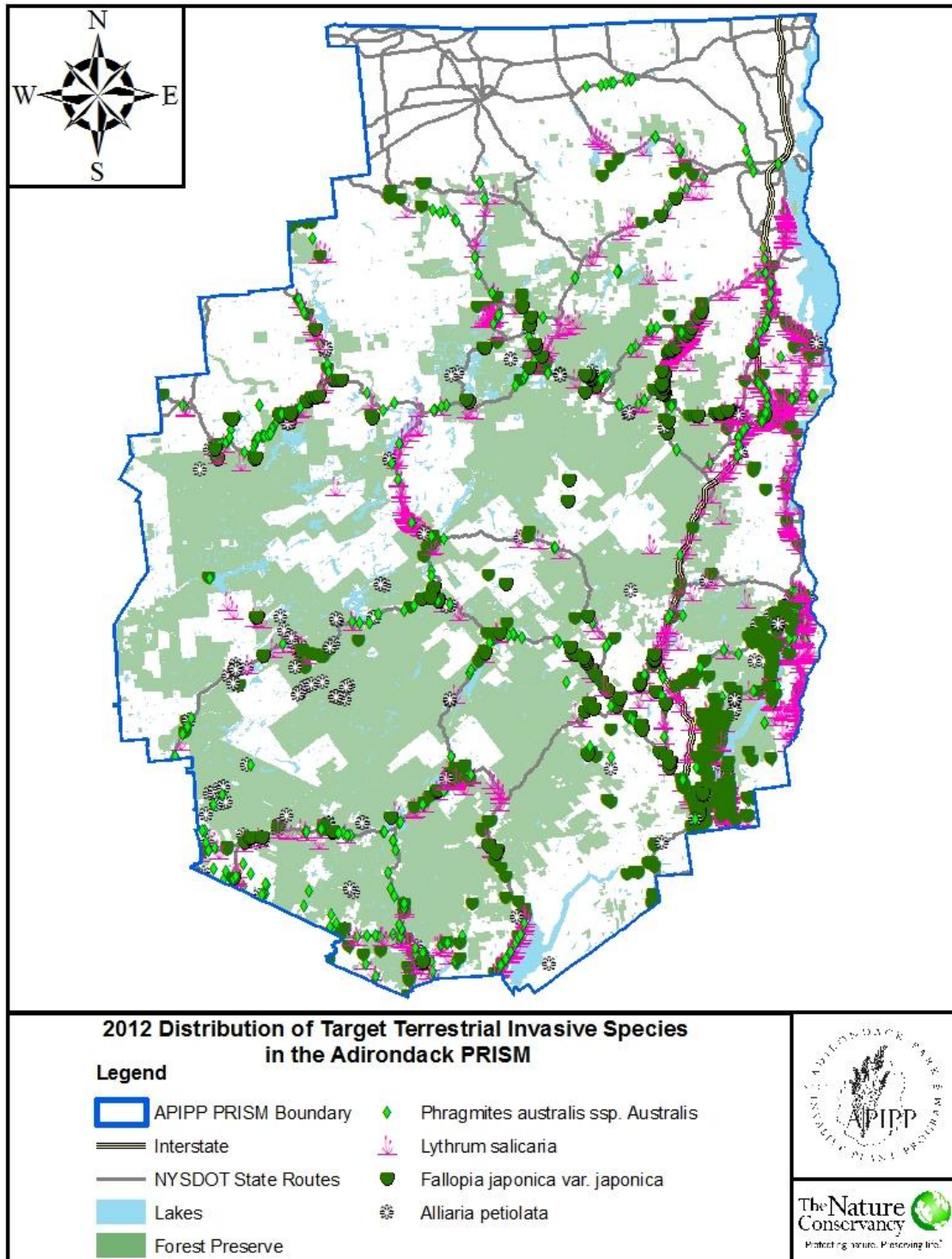
**Please refer to the table below to find lakes that correspond to numbers on the map.*



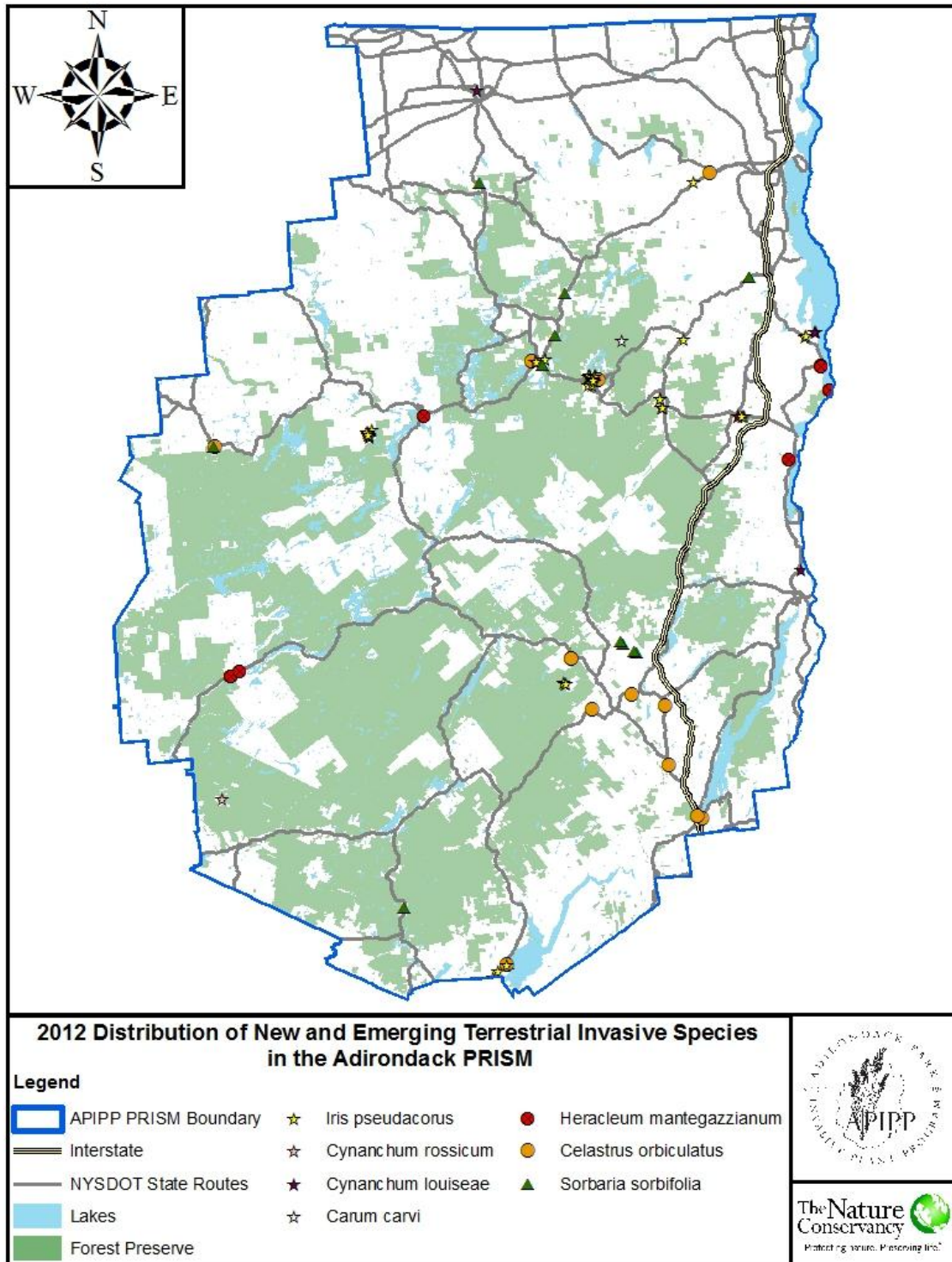
Name (Alphabetized)	#	EWM	VLM	CLP	WC	ZM	EF	Fan	SWF	BN	AC	YFH
Fulton Chain, Third Lake	31		X									
Grasse River at Lampson Falls	32						X					
Great Sacandaga Lake	33	X							X	X		
Hadlock Pond	34	X		X	X					X		
Highlands Forge Lake	35	X										
Horseshoe Pond (Franklin - Duane)	36	X										
Hunt Lake	37							X				
Indian Lake (Franklin)	38	X										
Jenny Lake	39							X				
Kiawassa Lake	40	X										
Lake Algonquin	41	X										
Lake Champlain	42	X	X	X	X	X	X			X		X
Lake Colby	43	X										
Lake Durant	44		X									
Lake Eaton (Essex)	45						X					
Lake Flower	46	X	X	X								
Lake George	47	X		X		X			X	X	X	
Lake Luzerne	48	X		X								
Lake Placid	49		X									
Lincoln Pond	50	X										
Little Colby Pond	51	X										
Little River Flow	52		X									
Little Square Pond	53	X										
Long Lake (Hamilton)	54		X									
Long Pond (Echo Lake - Essex County)	55	X										
Loon Lake (Warren County)	56	X										
Mayfield Lake	57	X		X								
Meacham Lake	58	X										
Mill Pond (Saratoga County)	59							X				
Minerva Lake	60	X										
Mountain View Lake	61	X										
North Pond	62	X										
Oseetah Lake	63	X	X									
Paradox Lake	64	X		X								
Peck Lake	65								X			

[illegible]

Map 2. Distribution of priority terrestrial invasive species occurrences within the Adirondack PRISM. *occurrences are only those recorded in the APIPP database; absence data does not necessarily represent that species are not present.

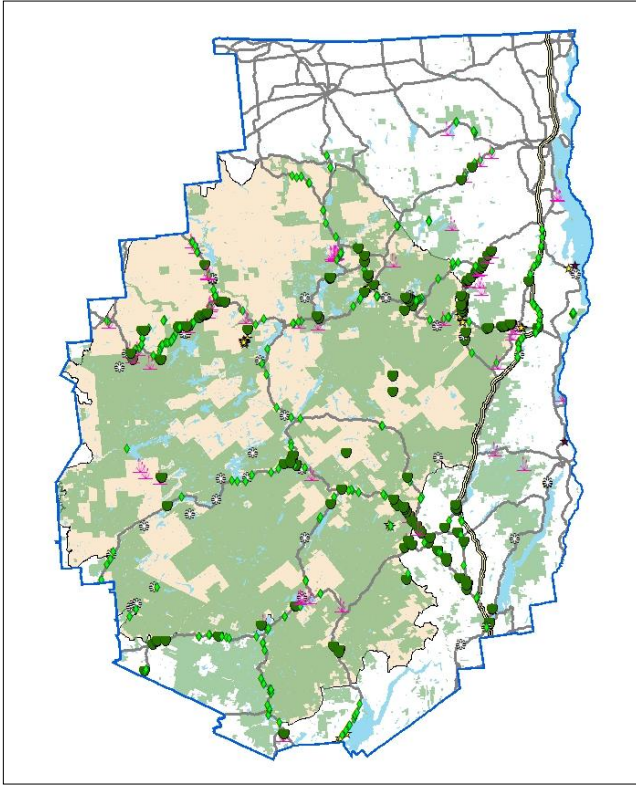


Map 3. Distribution of new and emerging terrestrial invasive species occurrences within the Adirondack PRISM. *occurrences are only those recorded in the APIPP database; absence data does not necessarily represent that species are not present.

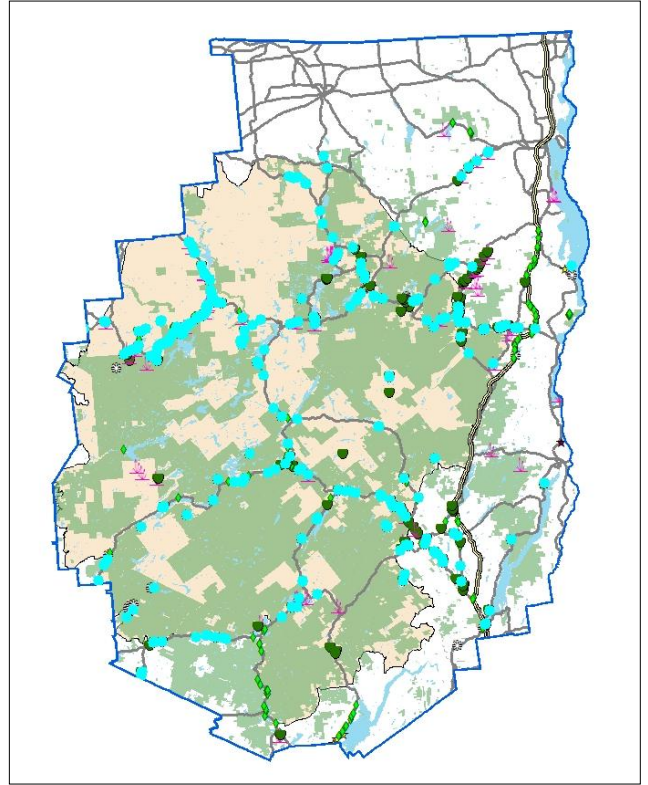


Map 4. Distribution of sites mapped and managed by the Adirondack Terrestrial Regional Response Team in 2012.

A. Sites mapped (symbols represent various species)



B. Sites managed (turquoise points represent sites managed)



The Terrestrial Regional Response Team treated 261 infestations totaling 15 acres in priority areas distributed across the region. This represents managing 49% of invasive species mapped in the Adirondack region, and 82% of the priority infestations in the core. The core area - shown in green and beige - represents the priority area of the Adirondacks where prevention and management efforts are concentrated.

APPENDIX A PHOTO DOCUMENTATION

Terrestrial Regional Response Team – Inventory and Management



Invasive Plant Control, Inc. served as APIPP's Terrestrial Regional Response Team for the second year. (From left to right) Rhiannon Kerr and Kyle Thayer were new members. Paul Rischmiller (crew leader) and April Senfton were returning members.



The Response Team joined APIPP staff and partners, such as the Student Conservation Association, to manage larger sites, such as this six acre yellow iris infestation near the Siamese Ponds Wilderness Area.



Common reed grass, pre-treatment
(August 3rd, 2011).



Common reed grass, post-treatment
(August 15th, 2012).



Japanese knotweed, pre-treatment
(September 12th, 2011).



Japanese knotweed, post-treatment
(August 28th, 2012).

Terrestrial Regional Response Team – Inventory and Management

Common Reed Grass



Terrestrial Regional Response Team –Inventory and Management

Common Reed Grass



Common reed grass treatment in wetland,
immediately following first treatment,
August 2nd, 2011.
Fir in foreground, common reed in
background.



Site visit later that field season, October 6th, 2011.



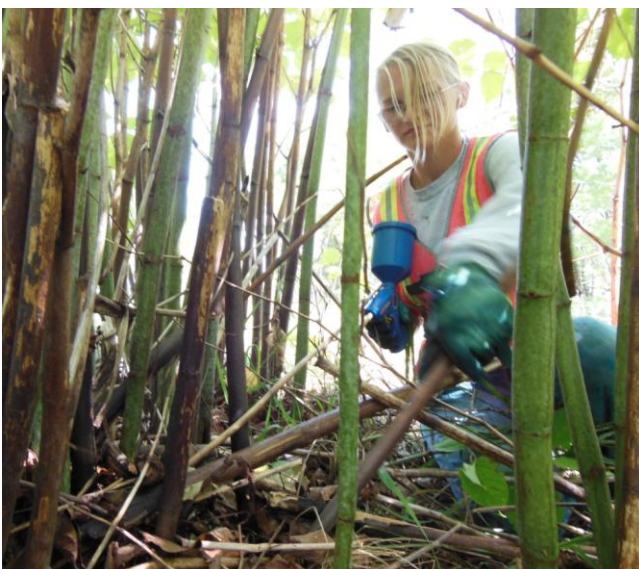
Site visit, May 31st, 2012.



Dead stalks of common reed were cut down
to promote native plant recovery and increase
visibility of any regrowth of common reed,
May 31st, 2012.

Terrestrial Regional Response Team –Inventory and Management

Japanese Knotweed



Terrestrial Regional Response Team – Long-term Monitoring



Terrestrial Regional Response Team – Education and Outreach



The APIPP staff and Terrestrial Regional Response Team offered four demonstration workshops in communities around the region instructing landowners how to safely and effectively manage common invasive plants on private lands.



Examples of plants, gear, and equipment helped to inform landowners about invasive plant identification and management techniques.

Road signage raised awareness about the work underway and elicited honks of approval from passers-by.



The Terrestrial Regional Response Team distributed door hanger notification cards to private landowners instructing them on invasive plant identification and management techniques.

Terrestrial Regional Response Team – Education and Outreach

ADIRONDACK PARK INVASIVE PLANT PROGRAM

518-576-2082

Invasive Plants:

A Landowner's Guide to Managing Invasive Species on Your Property



Top Invaders:

Japanese Knotweed	Invades forest edges, stream banks, and open or disturbed areas
Purple Loosestrife	Invades wetlands, wet fields and roadsides
Garlic Mustard	Invades forest understories and outcompetes native vegetation
Yellow Iris	Invades wet areas and shorelines
Common Reed	Invades wetland areas and grows in thick tall stands

Management Strategies

Having invasive species on property isn't the end of the world. There are strategies to remove them and restore desirable vegetation.


Pulling – can be done to remove some terrestrial invasive plants and is recommended for small infestations.

Digging up – can be done to remove some terrestrial invasive plants and is recommended for small infestations.

Herbicide – can be applied to terrestrial invasive plants and is recommended for larger infestations.

Removing invasive species is a long difficult process. We recommend continued management for up to three years to reduce the root and seed bank.

With proper management and continued removal of new plants, you can take back your property. Species-specific management information is listed on the back of this sheet.



Thank you!

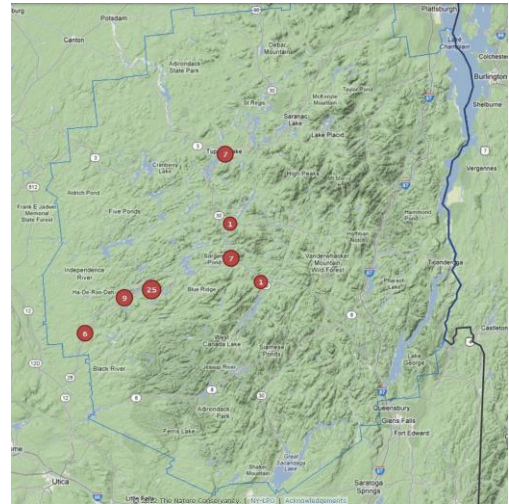
Thank you for your interest in managing invasive plants on your property and your efforts to keep Adirondack woods and waters free of invasive plants!

The APIPP staff and the Terrestrial Regional Response Team developed a management publication for landowners that complemented the information presented at invasive plant management demonstration workshops.

Regional Inlet Invasive Plant Program (RIIPP)



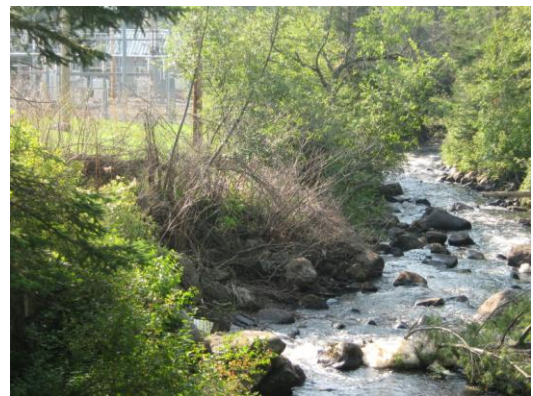
The Regional Inlet Invasive Plant Program Volunteer Coordinators and partners held a planning meeting to coordinate the 2012 Japanese knotweed control season. Doug Johnson (front left), RIIPP Volunteer Coordinator, received the 2012 Green Action Service Award from the Hamilton County Soil and Water Conservation District.



The Regional Inlet Invasive Plant Program expanded their inventory and management efforts from eight communities in 2011 to 16 in 2012. A subset of data collected is being shared with iMapinvasives.org.



Japanese knotweed pre-treatment 2011.



Japanese knotweed post-treatment 2012.



Japanese knotweed pre-treatment 2011.



Japanese knotweed post-treatment 2012.