

2022 ANNUAL REPORT

THE ADIRONDACK PARK INVASIVE PLANT PROGRAM

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THE ADIRONDACK PARK INVASIVE PLANT PROGRAM (APIPP) SERVES AS THE ADIRONDACK PARTNERSHIP FOR REGIONAL INVASIVE SPECIES MANAGEMENT (PRISM), ONE OF EIGHT PARTNERSHIPS ACROSS NEW YORK STATE (NYS). APIPP IS A PROGRAM FOUNDED BY THE NATURE CONSERVANCY (TNC), THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), THE NYS DEPARTMENT OF TRANSPORTATION (NYSDOT), AND THE ADIRONDACK PARK AGENCY (APA). FUNDING IS PROVIDED FROM THE ENVIRONMENTAL PROTECTION FUND AS ADMINISTERED BY NYSDEC. TO LEARN MORE ABOUT APIPP, INVASIVE SPECIES OF CONCERN, AND HOW TO GET INVOLVED, VISIT WWW.ADKINVASIVES.COM.

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Invasive Plant Program

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Invasive Plant Program's website: www.adkinvasives.com

EXECUTIVE SUMMARY



Dear Partners and Supporters,

On the eve of the Adirondack Park Invasive Plant Program's (APIPP) 25th birthday, the 2022 Annual Report is the perfect opportunity to showcase what has been accomplished and what is to come.

APIPP's accomplishments are extensive and are the result of the extraordinary collaboration between its host, The Nature Conservancy, and its three founding partners—the New York State (NYS) Department of Environmental Conservation, NYS Department of Transportation, and NYS Adirondack Park Agency—and of the combined efforts of more than 30 other partner organizations and hundreds of volunteers.

Together, we have worked to ensure 76% of Adirondack waterways remain free of aquatic invasive species. Terrestrial invasive species have been removed from more than 1,500 sites in the Adirondacks and these sites are restoring to natural habitat. Interest in education programs continues to grow and many communities have joined in the fight against invasive species.

The strong foundation built since 1998 is critical for facing the challenges ahead. New invasive species are found in the Adirondack Park each year. This year, wineberry and beech leaf disease were found for the first time in the Park, following last year's first-time discovery of Japanese stiltgrass. European frog-bit was identified in several additional Adirondack waterbodies, expanding the range of this aquatic invasive plant in our region. Other species are at our door, including spotted lanternfly and hydrilla. Forest pests like emerald ash borer and hemlock woolly adelgid are gaining ground, and our warming climate puts additional pressure on our freshwater and forested ecosystems.

To meet these challenges head on, I am excited to report that the Adirondack Partnership for Regional Invasive Species Management (PRISM) has a new strategic plan to guide partners from 2023-2027. The new strategic plan consolidates the 12 goals from 2013 strategic plan (see page 33) into four goals to more easily engage partners and measure success. You can read more about

the new plan, and some of APIPP's exciting 2022 projects, in the "Special Initiatives" section of this report.

While APIPP's work in 2022 was still impacted by COVID-19 pandemic precautions restricting some in-person events and by new species introductions, the APIPP team continues to find solutions to these challenges. In 2022 APIPP employed new tools, such as sampling for environmental DNA, engaged in research—including assessing alternatives to glyphosate for the treatment of knotweed—and expanded its social media outreach to a growing audience. The APIPP team is pleased to share more about these initiatives and to provide the detailed update about the state of invasive species in the Adirondack PRISM in the following pages.

Thank you to our partners and volunteers for making this work successful,

Sincerely,

Tammara Van Ryn

APIPP STAFF



Tammara Van Ryn,
Program Director

TAMMARA joined the APIPP team as Program Manager in late 2019. She brings a natural resource and land conservation background to the position as well as experience building partnerships.



Zachary Simek, Conservation
and GIS Analyst

ZACK is the Conservation and GIS Analyst for the Adirondack and St. Lawrence Eastern Lake Ontario (SLELO) PRISMs. Zack brings his prior experience managing APIPP's terrestrial program and skills in data analysis to the team.



Rebecca Bernacki, Terrestrial
Invasive Species Coordinator

BECCA joined the team in spring 2020 as the Terrestrial Invasive Species Coordinator. She adds experience in project management, plant identification, and advanced GIS skills to the team.



Brian Greene, Aquatic Invasive
Species Coordinator

BRIAN joined APIPP in spring 2021 as the Aquatic Invasive Species Coordinator. He adds his knowledge of plant communities and water quality to the team as well as his experience working with volunteers.



Shaun Kittle,
Communications Coordinator

SHAUN joined the APIPP team in May 2022 as the Communications Coordinator. He adds his knowledge in journalism, editing, photography, and graphic design to the team, as well as his experience as a community volunteer.

Special thanks to APIPP's 2022 Invasive Species Seasonal Staff:

Adellia Baker, Invasive Species Assistant

Megan Grega, Forest Pest Research Assistant

Becca Tamanga, Invasive Species Management Steward

Gabe Yerdon, Aquatic Invasive Species eDNA Technician

2022 APIPP HIGHLIGHTS

More than 30 organizations and 100 volunteers share their ideas, time, and resources to advance the mission of the Adirondack Park Invasive Plant Program (APIPP). Together, as these highlights of our collaborative 2022 work show, APIPP and its partners are making major advances in reducing the threats invasive species pose to the Adirondack region. Thank you!



INNOVATION AND PARTNERSHIPS



APIPP STARTED a new research project in 2022 to evaluate mechanical and chemical treatment alternatives to glyphosate for the control of invasive knotweed species (*Reynoutria spp.*).

IN PARTNERSHIP with the St. Lawrence-Eastern Lake Ontario (SLELO) Partnership for Regional Invasive Species Management (PRISM), APIPP piloted the use of environmental DNA for monitoring aquatic invasive species (AIS) in Adirondack watersheds.

DATA ABOUT AIS was collected for the first year of a research project to determine the cost-effectiveness of strategically harvesting Eurasian watermilfoil (*Myriophyllum spicatum*) at several boat launches on Lake Champlain to reduce the number of boats leaving the lake with milfoil on them.

RESEARCH COMPLETED IN 2022 shows that sites with terrestrial invasive plant infestations managed by APIPP are passively restoring to natural habitat. Over 64% of sites treated by APIPP no longer have invasive plants present.

AQUATIC INVASIVE SPECIES DETECTION



VOLUNTEERS, PARTNERS, CONTRACTORS, AND STAFF submitted a record number of 181 monitoring reports for 156 lakes.

FIVE NEW WATERBODIES were found to have AIS, and an additional aquatic invasive plant was found in one lake that was already invaded. The percentage of lakes with AIS observed in 2022 was 25.6, which was slightly higher than the five-year average, but within the normal range.

NO NEW INFESTATIONS of invasive small-bodied aquatic organisms were found.

NEARLY 76% OF THE 483 Adirondack waterways monitored over the last 21 years are AIS free!

117 LAKES
WITH AIS
PRESENT

76% OF
LAKES ARE
FREE OF AQUATIC
INVASIVE
SPECIES

TERRESTRIAL INVASIVE SPECIES DETECTION



STAFF, PARTNERS, VOLUNTEERS, AND CONTRACTORS surveyed 42 New York State Department of Environmental Conservation (NYSDEC) campgrounds, over 110 recreational access points (such as trailheads and boat launches), sections of over 30 Forest Preserve units, and part or all of over 40 state and county road corridors for invasive species.

NEARLY 500 NEW terrestrial invasive species infestations were found, bringing the total number of mapped infestations in the Adirondack region to 7,165.

THE FIRST KNOWN POPULATION of invasive wineberry (*Rubus phoenicolasius*) in the Adirondack PRISM was found on Long Island in Lake George.

APIPP'S NEW SEASONAL FOREST PEST RESEARCH ASSISTANT monitored more than 60 sites and 17 traps for five different forest pests. No new species were found.

INVASIVE SPECIES MANAGEMENT



APIPP MANAGES 14 terrestrial species and has 897 infestations under active management.

THANKS TO SEVERAL YEARS OF WORKING WITH PRIVATE LANDOWNERS, giant hogweed (*Heracleum mantegazzianum*) is now present in only two locations in the Adirondack PRISM. APIPP also worked with private landowners to treat 10 infestations of tree-of-heaven (*Ailanthus altissima*) in 2022.

MANAGEMENT EFFORTS ARE WORKING! Garlic mustard (*Alliaria petiolata*) abundance at NYSDEC campgrounds in the Adirondacks has decreased by 91% since management efforts began, and the species has been locally eradicated from seven campgrounds.

THANKS TO THE WORK OF APIPP PARTNERS, five species of AIS are being managed in Adirondack waterbodies. Five lakes are also participating in APIPP's Lake Management Tracker program to assess the effectiveness of management actions.

COMMUNITY ENGAGEMENT



APIPP RAISED AWARENESS ABOUT INVASIVE SPECIES identification, prevention, and management by partnering with more than two dozen organizations in workshops and events that reached over 1,900 people. APIPP was mentioned over 40 times in print, digital, radio, and television news stories and our social media presence expanded.

APIPP'S "PROTECT YOUR FORESTS" AND "PROTECT YOUR WATERS" outreach materials are available in hundreds of locations across the Adirondack Park. A new *Field Guide to Terrestrial Invasive Species of the Adirondacks* was added to APIPP's suite of outreach materials.

A NEW BOOT BRUSH STATION was developed for the Adirondack Mountain Club. It is slated to be installed near the Adirondack Loj in the spring of 2023.

THE ADIRONDACK WATERSHED INSTITUTE (AWI) of Paul Smith's College is an important spread-prevention partner. AWI staffed more than 40 locations with trained stewards who educated boaters, inspected a total of 70,054 boats, and decontaminated 2,815 boats. Stewards found AIS on 733 boats and prevented these invasive species from entering other waterbodies.

SPECIAL INITIATIVES

THE SPECIAL INITIATIVES DESCRIBED IN THIS SECTION ADVANCE GOALS 1, 2, 3, 6, 7, 10 & 12 OF APIPP'S 2013 STRATEGIC PLAN.

FOREST PEST HUNTERS



SURVEYING FOR HWA.

THANK YOU VOLUNTEER FOREST PEST HUNTERS!

APIPP expanded this collaborative community-science program after a successful 2021 pilot. In 2022, the effort to search for hemlock woolly adelgid (HWA) (*Adelges tsugae*) was extended beyond the Lake George region. Partners from the Lake George Land Conservancy, Adirondack Mountain Club, Capital Region PRISM, Ausable River Association, iMapInvasives, and NYS Hemlock Initiative (NYSHI) recruited and trained volunteers to search for HWA and track their findings.

The 2022 HWA effort kicked off with a webinar in February and several field trainings throughout February and March.

The program ran through early April. Throughout the survey season, volunteers adopted 114 trails through an interactive web map, contributed 438 records to iMapInvasives, and donated over 400 hours of their time. Wow!

Building on the success of the HWA program, APIPP launched Forest Pest Hunters for beech leaf disease (BLD) in the fall of 2022 in response to the discovery of this new disease in the Adirondacks. The BLD component of Forest Pest Hunters kicked off with a webinar in mid-September; the survey season ended October 31. During that short survey season, volunteers adopted 33 trails, added 101 records to iMapInvasives, and donated over 100 hours of their time.

Volunteers contributed an astounding 500-plus hours of survey work in 2022. This irreplaceable contribution expanded the Adirondack PRISM's understanding of these two forest pests. Thank you to the Forest Pest Hunter volunteers!

ADIRONDACK INVASIVE SPECIES SUMMIT

APIPP BROUGHT TOP SCIENTISTS TO BLUE MOUNTAIN LAKE to share their expertise with Adirondack partners at the Invasive Species at Our Door: Adirondack Invasive Species Summit. The October event convened experts on two invasive species that threaten the Adirondack region: HWA and hydrilla (*Hydrilla verticillata*).

The summit's morning session included scientists from Harvard Forest, Cary Institute of Ecosystem Studies, and NYSHI. These scientists provided important data to inform a discussion of the impact HWA may have on forest ecosystems in the Adirondacks and on the carbon sequestration potential of NY's forests. The speakers also presented options for managing hemlock forests to reduce these impacts and shared information about the potential for using biocontrols to fight HWA.

Speakers from Lake Champlain Basin Program (LCBP), AWI, University of Georgia, and Finger Lakes Institute of Hobart and William Smith College spoke about hydrilla during the afternoon session. The session began with an introduction to hydrilla, and then went on to cover the invasive plant's current infestation locations, how its presence could impact the Adirondacks, and Adirondack hydrilla prevention programs. Dr. Susan Wilde, Associate Professor with the University of Georgia, spoke about her groundbreaking research that uncovered a link between a bacteria connected with hydrilla and the death of eagles in the Southeast.

The summit was livestreamed on APIPP's Facebook page. The recordings are on APIPP's YouTube channel.



DR. SUSAN WILDE SPEAKING AT THE INVASIVE SPECIES SUMMIT.

2023-2027 STRATEGIC PLAN

THE ADIRONDACK PRISM HAS A NEW STRATEGIC PLAN. The 2023-2027 Strategic Plan unites regional invasive species efforts under four goals and places a greater emphasis on the importance of partners and volunteers in achieving this new shared mission:

To work in partnership to minimize the impact of invasive species on the Adirondack region's communities, lands, and waters.

The work of the partnership is more critical now than ever before. New invasive species continue to be found in the PRISM, forest pests are gaining ground, and our warming climate puts additional pressure on our freshwater and terrestrial ecosystems. While no one entity can tackle these challenges on its own, the diverse partners of the Adirondack PRISM—nonprofit organizations, research institutions, businesses, government, and committed volunteers—are a powerful force for positive action.

The new plan provides a clear path for anyone interested in working on invasive species to contribute to regional efforts. Partners and volunteers can help minimize the impact of invasive species on our aquatic and terrestrial ecosystems, seek innovative solutions, and engage communities in this important work.

The strategic plan was guided by a 10-member steering committee and informed by 43 one-on-one interviews and 56 responses to a survey. Caitlin Stewart, District Manager for Hamilton County Soil and Water Conservation District and one of the steering committee members, perfectly captured the spirit of the new plan. She said, "working on invasive species can seem overwhelming, but by partnering with APIPP our team can focus on priority species. APIPP knows the Adirondack ecosystem and knows our communities, and they let us know how we can best help make a difference."



Adirondack Partnership for Regional
Invasive Species Management



THE 2023-2027 STRATEGIC PLAN'S COVER.

NATIVE PLANT REPORT



WHITE TRILLIUM AT BOQUET RIVER NATURE PRESERVE.

APIPP WANTED TO KNOW if its efforts to manage certain invasive plants restores ecosystems to their natural state. To help answer this question, APIPP contracted with Adirondack Research in the summer of 2021 to complete a native vegetation reestablishment study. The objective of the study was to assess whether sites managed with herbicides to remove knotweed species (*Reynoutria japonica*, *Reynoutria sachalinensis*, and *Reynoutria x bohemica*) or common reed grass (*Phragmites australis*) returned to non-invasive plant community structures that resemble plant communities in their natural, uninvaded states.

To achieve this objective, species richness (number of species present) and plant density (as measured by total percent ground cover of non-invasive plants, percent bare ground, or average density of the five most common non-invasive species) were measured at 71 treatment sites. Sites were along roadsides in the Adirondack Park and included 35 knotweed and 36 common reed grass infestations. Treated sites were compared to nearby reference sites to determine if successful passive restoration is occurring after the invasive plants are treated with herbicides.

The study, completed in 2022, found that sites treated with herbicides to remove invasive plants had a similar community of non-invasive plant species as nearby reference sites. This held true even when the invasive plant infestations had only received one year of herbicide treatment and still had some invasive plants present.

Based on the variables measured in the study, treated sites can revert to a natural state relatively quickly. One reason for the successful restoration in these areas may be that the sites were generally small, and native plants were able to easily colonize as invasive species were removed with chemical treatment.

KNOTWEED CONTROL RESEARCH

KNOTWEED IS A HIGHLY INVASIVE SPECIES that is widespread in the Adirondack PRISM. APIPP manages knotweed in ecologically sensitive areas to mitigate its impacts on priority conservation areas (such as rare habitats, endangered species, and recreational assets). When managing invasive species, it is important to routinely evaluate the effectiveness of management techniques to ensure the most viable treatment option is used.

In a new research project, APIPP set out to assess alternatives to glyphosate for the treatment of knotweed. APIPP tested the efficacy of three herbicides using two application techniques, foliar spray and stem injection, and piloted the use of wire mesh as a mechanical control. This research will help inform future knotweed management strategies and is especially relevant as glyphosate-based herbicides—currently the most common knotweed treatment technique—become subject to increasing regulatory restrictions.

To test the effectiveness of each herbicide and application method, APIPP established sets of 1 m² plots in three knotweed infestations. We measured the diameter and marked all plant stems in each plot, and then randomly assigned a treatment technique. Herbicide applications were performed at peak knotweed growth and the effectiveness of treatments was evaluated at two, four, and six weeks after chemical application.

We calculated effectiveness using a visual estimate of “percent injury” for treated stems in each plot (0% = no impact; 100% = dead stem). Average percent injury in each plot was calculated for each treatment technique. Wire mesh was installed over a single knotweed infestation in August and its effectiveness will be evaluated in 2023.

At six weeks, injection treatments resulted in higher percent injury (greater control of knotweed) than foliar treatments. The most effective treatments were injection of glyphosate and aminopyralid, which both resulted in 96% control. Aminopyralid was the most effective product applied as a foliar treatment, resulting in 69% control, followed by glyphosate with 53% control. Plots will be monitored for knotweed reemergence in spring 2023 and treatments and post-treatment monitoring will continue in summer 2023.

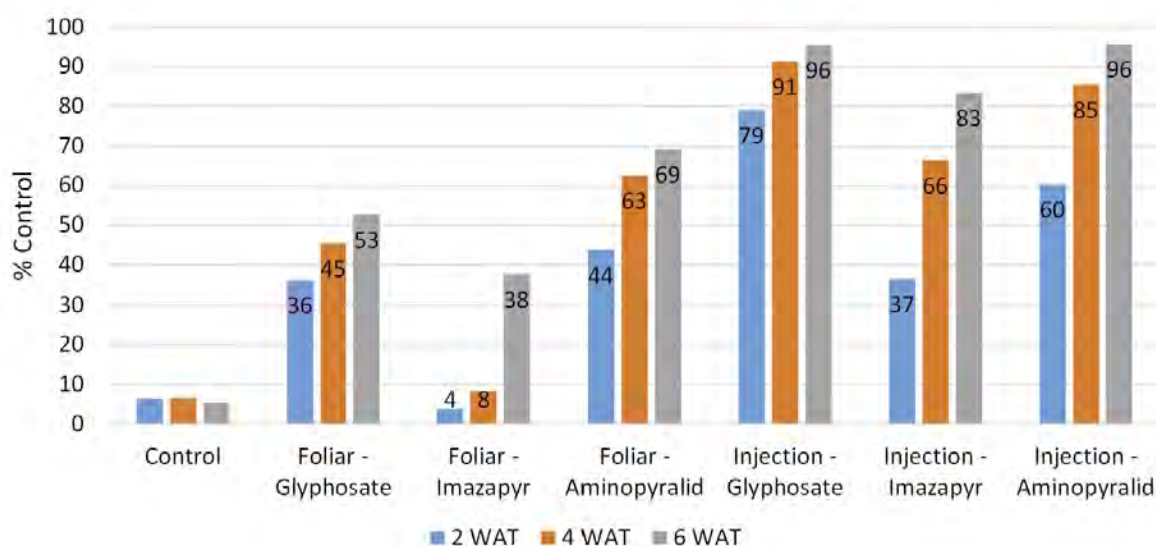


FIGURE 1. AVERAGE PERCENT INJURY OF TREATED STEMS BY HERBICIDE AND APPLICATION TECHNIQUE AT TWO, FOUR, AND SIX WEEKS AFTER TREATMENT (WAT).

CROSS-PRISM AQUATIC INVASIVE SPECIES EDNA PROJECT

HUMANS HAVE A PROPENSITY TO DRAW ARTIFICIAL BOUNDARIES on the planet that do not reflect the reality of our environment. Town, county, and state boundaries often cut right through lands and waters, asserting a delineation that is not there on the ground. NY's eight PRISM boundaries follow this trend and reflect geographical regions, not invasive species boundaries.

The most ecologically relevant boundaries for AIS are watersheds because they are landscapes connected by the flow of water. There are five watersheds (St. Regis, Raquette, Grass, Oswegatchie, and Black rivers) with headwaters that start in the Adirondack Mountains and flow downhill out of the Adirondack PRISM and into the SLELO PRISM. Lake Ontario and the St. Lawrence River have the highest number of AIS in the region and these rivers that drain to them can be a pathway for AIS to spread upstream.

APIPP teamed up with SLELO to work across the PRISM boundary and sample along these rivers to search for the presence of AIS using eDNA. Environmental DNA, or eDNA, is a method that filters water to collect plant and/or animal cells and tests the samples for the presence of genetic material of specific species. In this project, APIPP and SLELO sampled for nine species including rusty crayfish (*Orconectes rusticus*), round goby (*Neogobius melanostomus*), hydrilla, and Eurasian watermilfoil.

APIPP funded a summer seasonal AIS technician who was shared with the SLELO PRISM. The technician, Gabriel Yerdon, traveled across the region to collect 168 eDNA samples from over 65 locations. Fortunately, initial results indicate that locations where AIS were found are outside of the Adirondack Park and are concentrated near the lower sections of the rivers. Species not previously known in the region, like hydrilla or northern snakehead (*Channa argus*), were not detected in any of the samples. Adirondack PRISM Tier 1 species like round goby and rusty crayfish were found, but were found outside of the PRISM boundary. This cross-boundary project provided APIPP with more information about the location of these species and the potential threat they pose to the Adirondacks.

APIPP also assisted NYSHI with research that uses eDNA to detect HWA. APIPP's seasonal forest pest research assistant, Megan Grega, collected 150 hemlock branch samples from 25 locations near areas known to be infested with HWA and sites outside of the area of known infestation. These samples were processed by NYSHI and results will be shared in early 2023.



COLLECTING AN EDNA SAMPLE.

COMMUNITY ENGAGEMENT

THE COMMUNITY ENGAGEMENT EFFORTS DESCRIBED IN THIS SECTION ADVANCE GOALS 1, 3, 5, 6, AND 7 OF APIPP'S 2013 STRATEGIC PLAN.



COMMUNICATIONS

APIPP WELCOMED ITS NEW COMMUNICATIONS COORDINATOR, SHAUN KITTLE, IN MAY 2022.

Shaun has a background in journalism, and with his leadership APIPP regularly sent press releases to media outlets and engaged with reporters. APIPP successfully maintained a steady presence in local news, with stories oftentimes appearing several times a month. APIPP was featured in a variety of news media including print, online, radio, television, and email newsletters.

Many news outlets, like *Adirondack Almanack*, *Adirondack Daily Enterprise*, and *Lake Placid News* consistently published APIPP's press releases, which are written in a way to not only inform the public about an upcoming event, but to also provide context as to why APIPP's work is important for the region. The regular press releases kept editors and reporters informed about Adirondack PRISM invasive species work. Reporters attended several of APIPP's events, and APIPP staff were featured in several news stories and in a *New York NOW* television segment aired on WMHT.



EDUCATION

IN 2022, APIPP PARTICIPATED IN OR HOSTED 46 EVENTS AND REACHED OVER 1,900 PEOPLE. The events occurred both in-person and online and included trainings, partner roundtables, and all-day events. APIPP staff played an educational role in each of these settings, sometimes tabling alongside partners and colleagues and other times speaking about invasive species to organizations, partners, and members of the public.

APIPP also hosted several educational workshops, including trainings for identifying and managing both terrestrial and aquatic invasive species. APIPP staff spoke to lake associations around the region about how to manage and prevent AIS and to landowners and homeowners about how to manage forest pests; presented at events like the Adirondack Lakes Alliance Symposium at Paul Smith's College; and tabled at events like the Hamilton County Soil and Water Conservation District's Waterfest and the new "Xperience for All" event at Adirondack Experience, the Museum on Blue Mountain Lake.



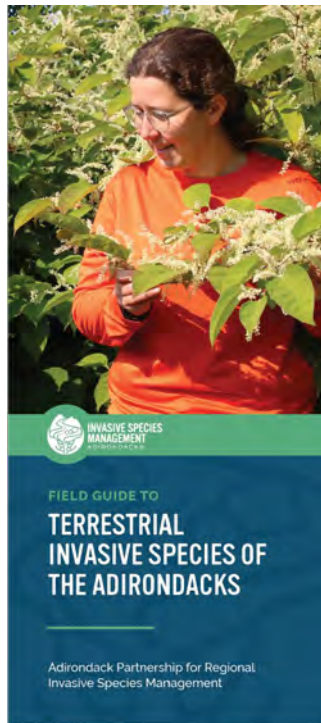
OUTREACH

APIPP CONTINUED TO DISTRIBUTE its *Protect Your Waters, Protect Your Forests*, and *Don't Move Firewood* materials free of charge to businesses and organizations in the Adirondacks. Late in the year, APIPP added a new guide to its suite of outreach materials called *Field Guide to Terrestrial Invasive Species of the Adirondacks*.

The new guide consolidates, updates, and reimagines two older brochures that covered similar topics. The design draws on several other field guides for inspiration, enabling readers to use the guide to identify 28 terrestrial invasive plant and animal species found in or approaching the Adirondack PRISM.

The *Field Guide to Terrestrial Invasive Species of the Adirondacks* opens with an introduction that explains what makes a species invasive and why it's important to manage invasive species and prevent them from spreading. Subsequent pages describe how to use the guide and include a beginner's primer on plant identification. A brief outline of best management practices and how to use the iMapInvasives app to report an invasive species appear in the back of the guide.

Each of the 28 species has its own page that includes two images—one showing the species as it appears in the wild, the other highlighting a close-up feature of the species—as well as a detailed description, identifying characteristics, management techniques, and a "fast fact." A color code indicates each species' common characteristics and management strategies. The guide can be downloaded and ordered through the APIPP website.



AQUATIC PROGRAMS

THE AQUATIC INVASIVE SPECIES MONITORING AND MANAGEMENT EFFORTS DESCRIBED IN THIS SECTION ADVANCE GOALS 2, 3, 6, 7, 8, 9 AND 10 OF APIPP'S 2013 STRATEGIC PLAN.



2022 SEASON SUMMARY

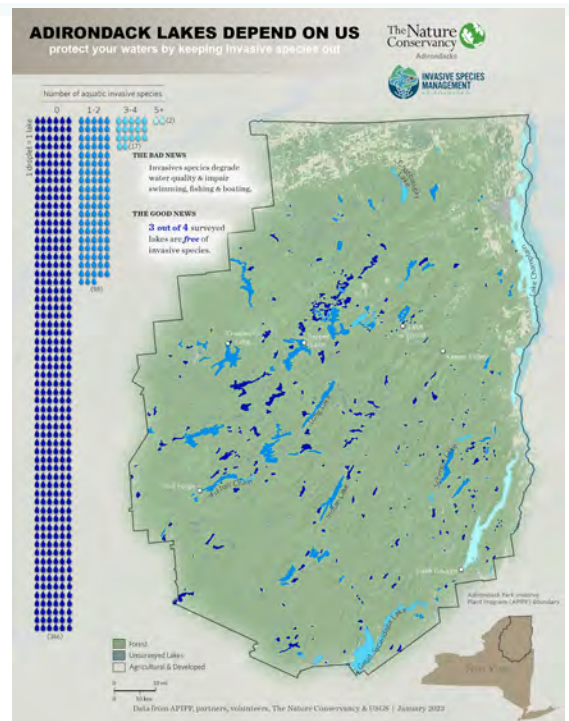
WITH THOUSANDS OF LAKES AND STREAMS IN THE ADIRONDACK REGION, it takes as many people as possible to protect our aquatic resources. Invasive species are one of the largest threats to aquatic biodiversity, water quality, and the water-based economy. Since 2002 APIPP has worked with partners and volunteers to monitor waterbodies for AIS. By working together on the three pillars of prevention, monitoring, and management, we can reduce the negative impacts of AIS in the Adirondack PRISM.

In 2022 APIPP added two new species to the region's species tier list; starry stonewort (*Nitellopsis obtusa*) and round goby. While these two species are not yet present in our region, APIPP wants to educate the public about how to identify these species and how they are spread. Round goby was a subject of much attention due to it moving from the Mohawk River to the Hudson River last year. APIPP worked with partners on the state and regional level to raise awareness about this species and the threats it poses to Lake Champlain.

This was the eighth year APIPP contracted with a professional early detection team. The team from Adirondack Research surveyed 42 waterbodies in the western Adirondack Park. Adirondack Research's full report is available on APIPP's website.

Partners, contractors, staff, and volunteers collectively submitted 181 monitoring reports (Figure 2) from 156 lakes (Figure 3). The reports identified five newly invaded waterbodies, some of which are in the PRISM geography but are not within the Adirondack Park boundary: Lake Roxanne in Clinton County, Tracy Brook in Clinton County, the St. Regis River and a connected wetland in Franklin County, and Park Lake in Hamilton County. Additionally, Eurasian watermilfoil was identified in Forked Lake, which has already been invaded by variable-leaf watermilfoil (*Myriophyllum heterophyllum*).

Of the 156 waterbodies surveyed in 2022, 25.6% of the lakes had AIS. (Appendix C, Page C1). Over the past 21 years, 483 lakes have been monitored and 76% had no invasive species detected (see Map 1 and Appendix C, Page C6).



MAP 1. ADIRONDACK PRISM WATERBODIES WITH NUMBER OF OBSERVED AIS.

AQUATIC PARTNERSHIPS

THE APIPP AIS MONITORING PROGRAM has three components: the contracted early detection team, volunteer Lake Protectors, and Lake Management Tracker. The three programs focus on slightly different aspects of monitoring, but collectively allow APIPP to census lakes across the region and track invasive species. A key to these programs is that they involve partnerships with lake associations, agencies, nonprofits, and volunteers. As a result, in 2022 the number of reports submitted and lakes monitored were the highest ever in APIPP's 21-year AIS monitoring history (Appendix C, Page C2)!

APIPP especially appreciates a new partnership with AWI's Adirondack Lake Assessment Program (ALAP). APIPP worked with AWI staff and volunteers as part of the Lake Champlain Basin ALAP monitoring project to collect 38 reports. The Lake Management Tracker program had five lake associations participate in monitoring the effectiveness of their AIS management in 2022. Raquette Lake joined in its first year of Lake Management Tracker monitoring and Moody Pond, Upper Chateaugay, Loon Lake, and Friends Lake continued their monitoring. See progress charts in Appendix C, Pages C3-C5 for more information.

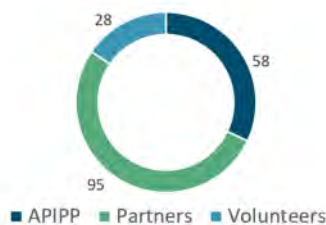


FIGURE 2. NUMBER OF AIS SURVEYS 2022.

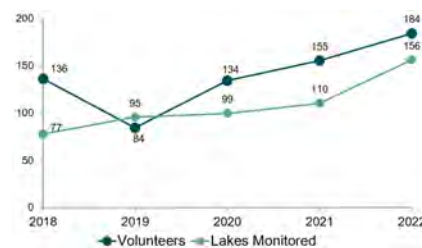


FIGURE 3. NUMBER OF VOLUNTEERS AND LAKES MONITORED 2018-2022.

AQUATIC SPECIES OF CONCERN

SPECIES SURVEYS

AQUATIC PLANTS

The APIPP aquatic program surveys for six aquatic invasive plants, all with high or very high NYS invasiveness rankings, that are known to be present in the Adirondack PRISM: Eurasian watermilfoil, variable-leaf watermilfoil, water chestnut (*Trapa natans*), curly-leaf pondweed (*Potamogeton crispus*), fanwort (*Cabomba caroliniana*), and European frog-bit (*Hydrocharis morsus-ranae*). As of 2022, 117 Adirondack waterbodies are known to be invaded by one or more of these aquatic invasive plants. In addition, APIPP surveys for two species not yet present in the Adirondack Park, hydrilla and starry stonewort.

AQUATIC ANIMALS

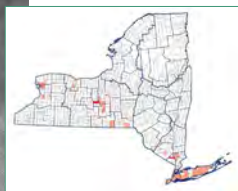
APIPP surveys for five aquatic invasive animals, with high or very high NYS invasiveness rankings, that are known to be in the Adirondack PRISM: spiny waterflea (*Bythotrephes longimanus*), fishhook waterflea (*Cercopais pengoi*), Asian clam (*Corbicula fluminea*), zebra mussels (*Dreissena polymorpha*), and Chinese mystery snail (*Cipangopaludina chinensis*). As of 2022, 18 Adirondack lakes are known to be invaded by one or more of these small-bodied invasive animals. All equipment that contacts waterbodies infested with invasive animals should be decontaminated before moving to another waterbody. In addition, APIPP trains people to look for three species that are not yet present in the PRISM: quagga mussel (*Dreissena rostriformis bugensis*), round goby, and rusty crayfish.

TIER SYSTEM TO RANK INVASIVE PLANTS & ANIMALS

When talking about invasive species, context matters. Management options are influenced by the severity of an infestation and by an organism's biological characteristics and dispersal ability. To help prioritize management goals and unify language used region-to-region, iMapInvasives and the eight PRISMs developed a categorization method called the Tier Ranking System. APIPP employs this system to prioritize invasive species based on APIPP's ability to carry out prevention, early detection, and management.

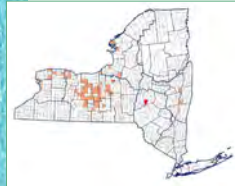
TIER 1: PREVENTION

Tier 1 species are not known to occur within a PRISM boundary, but are likely to establish and spread if introduced. Since Tier 1 species are not yet found in the area, but occur in neighboring regions, APIPP works to combat most Tier 1 species through education and outreach programs. With information and identification skills, citizens can play a big role when they find Tier 1 species in the field, report sightings, prevent their introduction by cleaning, draining, and drying boats and gear, and ensure species are not introduced via bait buckets, water gardens, or home aquaria. APIPP classifies five aquatic species as Tier 1 invasives. No Tier 1 species were found in the 2022 surveys.



DISTRIBUTION IN NYS AS OF DECEMBER, 2022.
DISTRIBUTION DATA FROM IMAPINVASIVES.

HYDRILLA
(*Hydrilla verticillata*)



DISTRIBUTION IN NYS AS OF DECEMBER, 2022.
DISTRIBUTION DATA FROM IMAPINVASIVES.

QUAGGA MUSSEL
(*Dreissena rostriformis bugensis*)



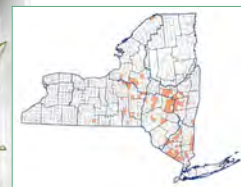
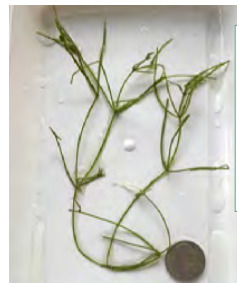
DISTRIBUTION IN NYS AS OF DECEMBER, 2022.
DISTRIBUTION DATA FROM IMAPINVASIVES.

ROUND GOBY
(*Neogobius melanostomus*)



DISTRIBUTION IN NYS AS OF DECEMBER, 2022.
DISTRIBUTION DATA FROM IMAPINVASIVES.

RUSTY CRAYFISH
(*Faxonius rusticus*)



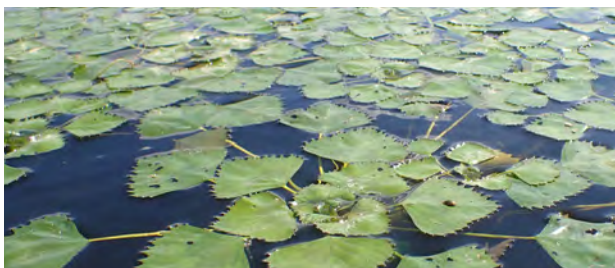
DISTRIBUTION IN NYS AS OF DECEMBER, 2022.
DISTRIBUTION DATA FROM IMAPINVASIVES.

STARRY STONEWORT
(*Nitellopsis obtusa*)

TIER 2: ERADICATION

Tier 2 species are APIPP's highest priority for early detection and response efforts. To qualify for this classification, these invasive plants and animals are found in low enough abundance, with suitable treatment options available, to make eradication possible within the PRISM.

WATER CHESTNUT (*Trapa natans*)



DESCRIPTION: This is a floating annual plant which forms dense mats that cover large expanses of water. It can impact water quality and native species and impede recreational use.

MONITORING UPDATE: It is known to be present in five waterbodies in the PRISM (Hadlock Pond, Lake Alice, Lake Champlain, Lake Roxanne, Loon Lake-Warren County). Water chestnut was first documented in Lake Roxanne in 2022.

MANAGEMENT UPDATE: APIPP manages one infestation in Lake Alice by hand pulling. This is a multiyear effort and in 2022 the population increased in size from the previous few years. Approximately 2.5 cubic feet of plant material was removed in 2022. The Lake Champlain Basin Program manages a large-scale removal project on the southern end of Lake Champlain. At Hadlock Pond, volunteers hand-harvested 20 plants in 2022. Prior management at Loon Lake resulted in a second consecutive year of no plants observed.



BY: [HTTPS://COMMONS.WIKIMEDIA.ORG](https://commons.wikimedia.org)



TIER 3: CONTAINMENT

Plants and animals classified as Tier 3 are likely too widespread or well established for the possibility of eradication; however, strategic management can still contain them to the present waterbodies and slow their spread into neighboring areas that remain free of harmful infestations.

TIER 3 PLANTS

EUROPEAN FROG-BIT (*Hydrocharis morsus-ranae*)

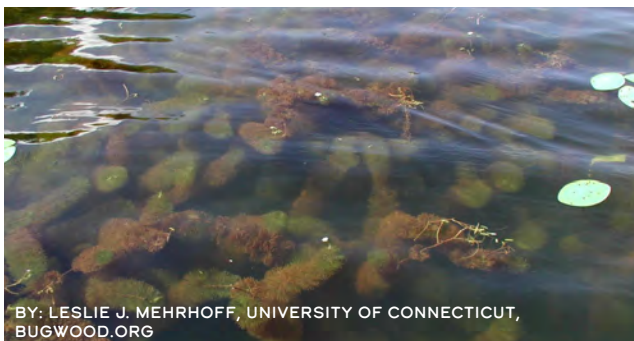


DESCRIPTION: This is a free-floating annual plant that forms dense mats which can limit light penetration into the water and impact native species and which can impede recreational use.

MONITORING UPDATE: It is known to be present in nine waterbodies in the PRISM. There were two new reports of this plant in 2022 in the St. Regis River and a connected wetland in St. Regis Falls.

MANAGEMENT UPDATE: APIPP staff manually removed small populations of European frog-bit from wetlands connected to the Grasse River near Lampson Falls. The population continues to decline with only 28 plants removed in 2022.

FANWORT (*Cabomba caroliniana*)



DESCRIPTION: This is a free-floating annual plant that forms dense mats that can impede recreational use and limit light penetration into the water, impacting native species.

MONITORING UPDATE: It is known to be present from historical records in four private lakes in the PRISM. There were no new reports of this plant in 2022.

MANAGEMENT UPDATE: This species is not targeted for management.

TIER 3 ANIMALS

ASIAN CLAM (*Corbicula fluminea*)



DESCRIPTION: This is a filter-feeding freshwater mollusk that displaces native species, alters the food chain, and may promote algae blooms. It is also a bio-fouler, clogging industrial and commercial water systems.

MONITORING UPDATE: This species is known to be present in the PRISM only in Lake George. There were no new reports of lakes with this species in 2022. Three new locations were reported in Lake George, bringing the total number of confirmed sites in that waterbody to 32.

MANAGEMENT UPDATE: This species is currently not under active management.

CHINESE MYSTERY SNAIL (*Cipangopaludina chinensis*)

DESCRIPTION: This is a large snail that quickly reproduces and has the potential to decrease native snail populations, host parasites, and change water chemistry.

MONITORING UPDATE: These snails are known to be present in 11 lakes in the PRISM. There were no new reports of this species in 2022, but it is likely that this species is underreported.

MANAGEMENT UPDATE: This species is not targeted for management.

FISHHOOK WATERFLEA (*Cercopais pengoi*)

DESCRIPTION: This is an invasive zooplankton that can alter the composition, structure, and function of the ecosystem by outcompeting native zooplankton and juvenile fish.

MONITORING UPDATE: This species was first documented in Lake Champlain in 2018. There were no new reports of this species in 2022.

MANAGEMENT UPDATE: This species is not targeted for management.

SPINY WATERFLEA (*Bythotrephes longimanus*)

DESCRIPTION: This is a macro-zooplankton that can reproduce rapidly through asexual reproduction and that competes directly with juvenile fish and native zooplankton for food. Its long spines also easily attach to fishing lines creating a nuisance for anglers.

MONITORING UPDATE: This species is known to be present in nine lakes in the PRISM. There were no new reports of this species in 2022.

MANAGEMENT UPDATE: This species is not targeted for management.

ZEBRA MUSSEL (*Dreissena polymorpha*)

DESCRIPTION: This is a filter-feeding freshwater mollusk that displaces native species, attaches to and covers surfaces, and has sharp shells that are a nuisance for lake users.

MONITORING UPDATE: Zebra mussels are only known to be present in the PRISM in Lake Champlain and Lake George. There were no new reports of this species in 2022.

MANAGEMENT UPDATE: There is localized management to periodically remove adult zebra mussels. Currently there is no way to eradicate zebra mussels.

TIER 4: SUPPRESSION

Species classified as Tier 4 cannot be eradicated from the PRISM geography. Species are too widespread or too established. Management options may be cost prohibitive or outside of existing capacity. In these cases, the focus shifts to localized management over time to suppress infestations in order to protect high-priority resources such as rare habitats, endangered species, recreational assets, or drinking water sources.

CURLY-LEAF PONDWEED (*Potamogeton crispus*)



BY: LESLIE J. MEHRHOFF, UNIVERSITY OF CONNECTICUT

DESCRIPTION: This is a submerged perennial that begins growing early in the year and that can outcompete native species.

MONITORING UPDATE: It is known to be present in 21 lakes in the PRISM. It was newly discovered in Lake Roxanne in 2022.

MANAGEMENT UPDATE: This species is sporadically removed when hand harvesting Eurasian watermilfoil.

EURASIAN WATERMILFOIL (*Myriophyllum spicatum*)



BY: L. BALDWIN, WHATCOM BOAT INSPECTIONS

DESCRIPTION: This is a submerged perennial that grows quickly, forming dense mats that can degrade native habitat and impede recreational use.

MONITORING UPDATE: This is known to be in 65 waterbodies (this does not include the Fulton Chain's second and fourth lakes where it was once reported but is assumed to be locally eradicated). In 2022, it was newly reported in Forked Lake, Lake Roxanne, and a wetland complex of Tracey Brook in Clinton County.

MANAGEMENT UPDATE: This is the most widespread aquatic invasive species across the PRISM. It is also the most frequently managed aquatic invasive species with over 15 partners across the PRISM suppressing populations via hand harvesting and diver-assisted, suction harvesting (DASH). Many thanks to the lake associations, local governments, community groups and others who raise money for management and help reduce the negative impacts of this prevalent species.



BY: UPPER MICHIGAN SOURCE

FIGURE LOCATION: Appendix C, Page C3

VARIABLE-LEAF WATERMILFOIL (*Myriophyllum heterophyllum*)



BY: ALISON FOX, UNIVERSITY OF FLORIDA, BUGWOOD.ORG

DESCRIPTION: This is a submerged perennial that grows quickly, forming dense mats that can degrade native habitat and impede recreational use.

MONITORING UPDATE: It is known to occur in 50 lakes in the PRISM. One new infestation was reported this year in Park Lake in Hamilton County.

MANAGEMENT UPDATE: APIPP partners managed variable-leaf watermilfoil in Fish Creek Ponds, Lake Placid, Raquette Lake, and Upper Saranac Lake.

TERRESTRIAL PROGRAMS

THE TERRESTRIAL INVASIVE SPECIES MONITORING AND MANAGEMENT EFFORTS DESCRIBED IN THIS SECTION ADVANCE GOALS 2, 3, 6, 7, 8, 9 AND 10 OF APIPP'S 2013 STRATEGIC PLAN.



2022 SEASON SUMMARY

THE YEAR 2022 MARKED THE TWELFTH SEASON in which the terrestrial program coordinated regional terrestrial invasive plant monitoring activities. APIPP staff, including three seasonal staff, and four early detection and rapid response (EDRR) crew members from Invasive Plant Control, Inc. (IPC), surveyed 42 NYSDEC campgrounds, over 110 recreational access points, sections of over 30 Forest Preserve units, and part or all of over 40 state and county road corridors.

The monitoring activities identified approximately 493 new terrestrial infestations, bringing the total number of mapped infestations in the Adirondack PRISM to 7,165, including 169 sites associated with the Knotweed Management Partnership. It is important to note that these newly-found infestations are primarily the result of increased survey efforts and of the ability to survey new areas as sites that were managed in previous years become smaller or locally eradicated and no longer require extensive treatment time.

APIPP advanced 25 priority terrestrial invasive plant management projects in 2022, addressing 14 species. The projects varied greatly in scale and objective. Some projects focused on local eradication of species with a limited distribution, such as tree-of-heaven, scotch broom (*Cytisus scoparius*), and mile-a-minute (*Persicaria perfoliata*), while others focused on landscape-level suppression of established species such as common reed grass and knotweed.

APIPP's 25 priority terrestrial invasive plant management projects include over 3,200 distinct infestations. In total, 897 infestations (27.3%) are under active management and almost 27 acres were managed in 2022. There are 1,065 sites (32.4%) where

the species is deemed locally eradicated after not observing the species for at least three consecutive years, and an additional 571 sites (17.4%) where the invasive species was not observed during a 2022 survey. In total, 77% of APIPP's priority terrestrial invasive species infestations are under active management or have been successfully removed.

In 2022, APIPP tracked six invasive forest pests. The beech leaf disease nematode (*Litylenchus crenatae mccannii*) was first identified in the PRISM in the summer of 2022 by NYSDEC staff in Herkimer County. APIPP performed surveys in response to this finding and those surveys did not locate any additional infestations. Traps were monitored for emerald ash borer (*Agrilus planipennis*) and spotted lanternfly (SLF) (*Lycorma delicatula*). No SLF were found in the traps. Several new infestations of emerald ash borer were confirmed in Warren County, including one positive finding from a trap monitored by APIPP.

HWA continues to slowly expand its distribution in the Lake George watershed. In 2022, new populations were found along the eastern shore extending north to Duran Island, on the western shore within Hearststone Point Campground, on Turtle and Mohican Islands near the point of the Tongue Mountain Range, on Long Island, and at a privately owned property on the southeastern lakeshore.

Surveys were also performed for jumping worms (*Amyntas spp.* and *Metaphire spp.*) and balsam woolly adelgid (BWA) (*Adelges piceae*) to help better understand the distribution of these species. No new infestations of these species were found.

2022 SEASON SUMMARY CONTINUED

INVASIVE SPECIES SEASONAL STAFF

APIPP WAS PRIVILEGED to increase its seasonal staff from one position to three in 2022. Adellia Baker joined us for her third summer as the invasive species assistant, Megan Grega joined us for her second summer as the forest pest research assistant, and APIPP added Becca Tamagna as its invasive species management steward. Each person brought exceptional plant and forest pest identification knowledge to their position and played a key role in the survey and management of invasive species.

Seasonal staff found that of the 42 NYSDEC-administered campgrounds surveyed, 38 had terrestrial invasive species. In the 11 years of surveying and managing for invasive species at these campgrounds, stewards have reduced garlic mustard abundance by approximately 91%, leading to local eradication at seven campgrounds and one or two years of documented absence at three others. Seasonal staff have also reduced purple loosestrife (*Lythrum salicaria*) abundance at campgrounds by approximately 98%.

Added seasonal staff capacity also allowed APIPP to survey over 80 miles of trails for forest pests and diseases, monitor almost 20 forest pest traps, host additional educational events, and perform more thorough surveys for multiple early-phenology species.



ADELLIA BAKER
INVASIVE SPECIES ASSISTANT



MEGAN GREGA
FOREST PEST RESEARCH ASSISTANT



BECCA TAMAGNA
INVASIVE SPECIES MANAGEMENT STEWARD

INVASIVE PLANT CONTROL CREW



EARLY DETECTION AND RAPID RESPONSE CREW FROM
INVASIVE PLANT CONTROL, INC. 2022.

This year also marked the eleventh season that IPC served as the EDRR crew. Throughout their 14-week season, IPC surveyed for and treated invasive species on sections of over 30 Forest Preserve units and along part or all of over 40 state and county road corridors. As detailed in the crew's 2022 report, posted on APIPP's website, the crew was able to perform over 1,800 invasive species assessments and treat approximately 500 sites.

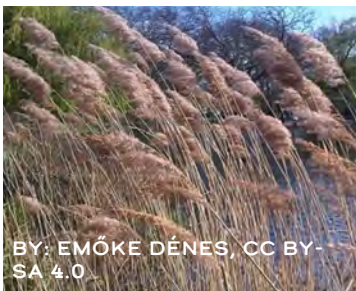
While most treatments were to control common reed grass, knotweed species, and purple loosestrife, the crew also helped manage high-priority species in the Adirondacks—such as tree-of-heaven and Japanese stiltgrass (*Microstegium vimineum*). The crew also continued to manage invasive plants along the Veterans' Memorial Highway, which leads to the summit of Whiteface Mountain. In 2022, the crew removed 10 contractor bags of invasive plant material along the highway to improve habitat for rare and endangered alpine plants.

TERRESTRIAL INVASIVE SPECIES OF CONCERN

SPECIES SURVEYS



BY: LESLIE J. MEHRHOFF, UNIVERSITY OF CONNECTICUT



BY: EMÓKE DÉNES, CC BY-SA 4.0



BY: JAMES ST. JOHN

The APIPP terrestrial project manages or plans to manage 16 terrestrial invasive plants known to be present in the Adirondack PRISM. These species include giant hogweed, Japanese angelica tree (*Aralia elata*), mile-a-minute, scotch broom, tree-of-heaven, wineberry, Japanese stiltgrass, lesser celandine (*Ficaria verna*), black swallow-wort (*Vincetoxicum louseae*), pale swallow-wort (*Vincetoxicum rossicum*), common reed grass, garlic mustard, Japanese tree lilac (*Syringa reticulata*), knotweed species, purple loosestrife, and yellow iris (*Iris pseudacorus*). A searchable map on APIPP's website shows where terrestrial invasive plants occur.

Species are prioritized for management if they are negatively affecting a conservation, economic, or human health asset, there are effective tools available to control both the infestation and the source(s) of introduction, there are sufficient resources available, and the project will result in a high return on

INVASIVE FOREST PESTS AND DISEASES



APIPP surveyed for six terrestrial forest pests and diseases in 2022: HWA, emerald ash borer, beech leaf disease, SLF, jumping worms, and balsam woolly adelgid. All are known to be present in the PRISM with the exception of SLF. APIPP is currently working with partners to actively manage HWA in the Lake George region, including Dome Island which The Nature Conservancy owns. Additionally, APIPP is working to identify sites suitable for biological control for emerald ash borer. No other forest pest or disease management was performed in 2022.



TIER 1: EARLY DETECTION AND PREVENTION

Tier 1 species are not known to occur within a PRISM boundary, but are likely to establish and spread if introduced. Since Tier 1 plants and animals are not yet found in the area, but occur in neighboring regions, APIPP works to control these species through education, outreach, and awareness-building activities.

TIER 1 PLANTS

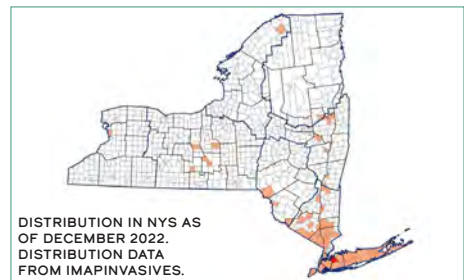
PORCELAIN BERRY (*Ampelopsis brevipedunculata*)



BY: OLIVIER VANPE - CC BY-SA 3.0



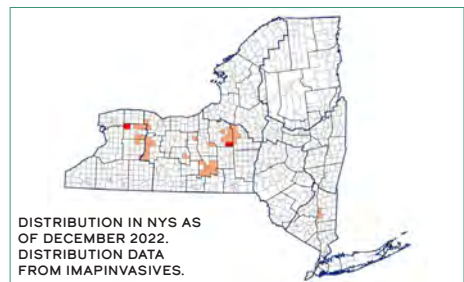
BY: WUERZELE - OWN WORK, CC BY-SA 4.0



SLENDER FALSEBROME (*Brachypodium sylvaticum*)



BY: BRUCE NEWHOUSE



TIER 1 ANIMALS



BY: USDA APHIS

ASIAN LONGHORNED BEETLE
(*Anoplophora glabripennis*)



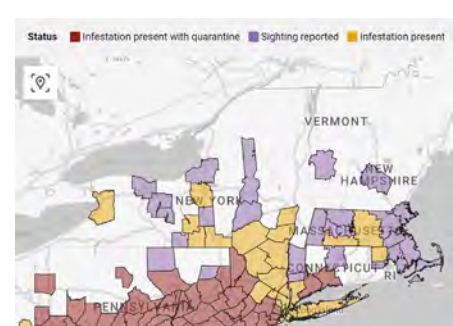
BY: SANDER VAN DER WEL, [CC BY-SA 2.0], WIKIMEDIA COMMONS

EURASIAN BOAR
(*Sus scrofa*)



BY: L. BARRINGER

SPOTTED LANTERNFLY
(*Lycorma delicatula*)



TIER 2: ERADICATION

Tier 2 species are found in low enough abundance, with suitable treatment options available, to make eradication possible within the PRISM.

TIER 2 PLANTS

GIANT HOGWEED (*Heracleum mantegazzianum*)



BY: HUUH UET

FIGURE LOCATION: Appendix A, Page A1, Figure 1

DESCRIPTION: Giant hogweed is a biennial herb that grows to 8-14 feet tall. It is characterized by a hollow, green stem with purple blotches and large, deeply lobed leaves. This plant contains phytotoxic sap that can cause severe skin burns upon contact. It readily invades drainage ditches, fields, and yards.

MONITORING UPDATE: Since 2008, 16 infestations have been mapped in the PRISM. No new infestations were detected in 2022.

MANAGEMENT UPDATE: In 2022, only two infestations (ranging from <0.0002 to 0.027 acre) were still present in the PRISM. These two infestations were managed mechanically. A total of 0.027 acre was managed. Six infestations have at least one year of documented absence, and eight are considered locally eradicated, which means that nearly 87% of the infestations of this plant have been successfully controlled!

JAPANESE ANGELICA TREE (*Aralia elata*)



BY: TUBIFEX, PUBLIC DOMAIN, VIA WIKIMEDIA COMMONS

DESCRIPTION: Japanese angelica tree is a fast-growing deciduous tree that can grow more than 40 feet tall. Trunks and larger stems are covered in sharp spines. Compound leaves can reach four feet in length. It spreads easily from ornamental plantings via animal-dispersed seed into disturbed areas.

MONITORING UPDATE: One infestation is known in the PRISM, totaling ~0.001 acre. No new infestations were detected in 2022.

MANAGEMENT UPDATE: No management occurred in 2022. Landowner permission is required before management actions can occur. Outreach to obtain landowner permission occurred in 2022 and staff spoke with the landowner. Outreach to the landowner will continue in 2023 in the hopes of securing permission to treat the site.

MILE-A-MINUTE (*Persicaria perfoliata*)



BY POOKIE FUGGLESTEIN - OWN WORK, CC0, [HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=31888926](https://commons.wikimedia.org/w/index.php?curid=31888926)

FIGURE LOCATION: Appendix A, Page A2, Figure 2

DESCRIPTION: Mile-a-minute is an herbaceous vine that can grow at an astonishing rate of up to six inches per day under ideal conditions. The light-green leaves are triangle-shaped and alternate along the stem. It typically colonizes open, disturbed areas and does best in full sunlight.

MONITORING UPDATE: Mile-a-minute was first detected in the PRISM in 2019. Five infestations have been mapped, totaling approximately 0.141 acre. No new infestations were detected in 2022.

MANAGEMENT UPDATE: Four of the five known infestations, totaling 0.127 acre, (ranging in size from <0.0001 to 0.120 acre) were managed in 2022. The fifth infestation was not surveyed in 2022.

TIER 2 PLANTS CONTINUED

SCOTCH BROOM (*Cytisus scoparius*)

BY: DARYL MITCHELL

FIGURE LOCATION: Appendix A,
Page A3, Figure 3

DESCRIPTION: Scotch broom is a perennial shrub that can grow up to 10 feet tall. It is characterized by its green, five-sided stems, and small, bright-yellow flowers that bloom from late May through June, as well as its green, fuzzy seed pods that turn black when mature. It invades fields, forest edges, roadsides, and canopy openings.

MONITORING UPDATE: One infestation is known in the PRISM, totaling approximately 0.067 acre.

MANAGEMENT UPDATE: The one infestation was treated with a selective foliar application of glyphosate-based herbicide in 2022.

TREE-OF-HEAVEN (*Ailanthus altissima*)

BY: LUIS FERNÁNDEZ GARCÍA

FIGURE LOCATION: Appendix A,
Page A4, Figure 4

DESCRIPTION: Tree-of-heaven is a deciduous tree that can reach 80 feet in height. The bark has a cantaloupe skin-like texture and is gray in color. Leaves are alternate and compound, with 10-41 leaflets. It prefers open, disturbed sites and can be found along riparian corridors, forests edges and openings, fields, and roadsides.

MONITORING UPDATE: Eighteen infestations are present in the PRISM, totaling approximately 0.231 acre. Eight new infestations were detected and surveyed in 2022.

MANAGEMENT UPDATE: Ten infestations (ranging in size from 0.001 to 0.113 acre) were treated in 2022. A total of 0.221 acre was managed. Three large, mature trees were removed by a professional arborist. An additional two sites have at least one year of documented invasive plant absence. Landowner permission is required to treat the remaining known infestations and outreach to secure permission will continue in 2023.

WINEBERRY (*Rubus phoenicolasius*)BY: WOUTER HAGENS, CC BY-SA 3.0
<[HTTPS://CREATIVECOMMONS.ORG/LICENSES/BY-SA/3.0](https://creativecommons.org/licenses/by-sa/3.0/)>, VIA WIKIMEDIA COMMONS

DESCRIPTION: Wineberry is a spiny shrub in the raspberry genus. Its leaves are alternate, light green above, white below, deeply divided into three leaflets, and toothed. Bright red, edible berries are produced in summer. Its stem is covered in fine red hairs. It readily invades edge habitats.

MONITORING UPDATE: This species was detected for the first time in the PRISM in 2022, moving it from a Tier 1 to a Tier 2 species. Six infestations on Long Island in Lake George were mapped for a total of 0.161 acre

MANAGEMENT UPDATE: Management of these infestations is prioritized for 2023 if NYSDEC provides permission to treat the sites.

TIER 3: CONTAINMENT

Plants and animals classified as Tier 3 are likely too widespread or well established for the possibility of eradication. However, strategic management can still contain them to the present location and slow their spread into neighboring areas that remain free of harmful infestations.

TIER 3 PLANTS

JAPANESE STILTGRASS (*Microstegium vimineum*)



FIGURE LOCATION:
Appendix A, Page A5, Figure 5

DESCRIPTION: Japanese stiltgrass is an annual grass that sprawls along the ground as it grows, forming dense mats. The leaves are pale green, lance-shaped and feature a distinctive off-center, silver midrib. It is adapted to low light conditions and will thrive in a variety of habitats.

MONITORING UPDATE: Since 2021, 16 infestations have been mapped. Eleven new infestations were mapped in 2022.

MANAGEMENT UPDATE: Throughout the PRISM, seven Japanese stiltgrass infestations have been prioritized for management. Of these, five (ranging in size from <0.001 to 0.551 acre) are under active management. A total of 0.573 acre was managed. Other sites are either too large to control or require landowner permission to treat the site.

LESSER CELANDINE (*Ficaria verna*)



BY: MICHAEL OSMENDA,
CC BY SA 2.0 VIA WIKIMEDIA COMMONS

DESCRIPTION: Lesser celandine is a low-growing, herbaceous perennial. Its leaves are dark green, kidney-shaped, and arranged in a basal rosette. It readily invades wetlands and open riparian corridors.

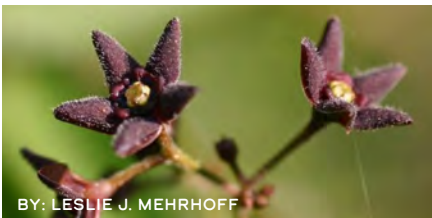
MONITORING UPDATE: Since 2018, 10 infestations have been mapped. No new infestations were mapped in 2022.

MANAGEMENT UPDATE: No management occurred in 2022.

SWALLOW-WORT SPP. (*Vincetoxicum louseae* & *V. rossicum*)



BY: LESLIE J. MEHRHOFF



BY: LESLIE J. MEHRHOFF

DESCRIPTION: Swallow-wort species are perennial herbaceous vines that form dense mats which smother native vegetation. This species is characterized by its opposite, dark-green, glossy leaves; small, five-petaled flowers that are present in June; and milkweed-like seed pods. These plants thrive in a wide range of conditions.

MONITORING UPDATE: Since 2004, 72 infestations have been mapped. Four new infestations were mapped in 2022.

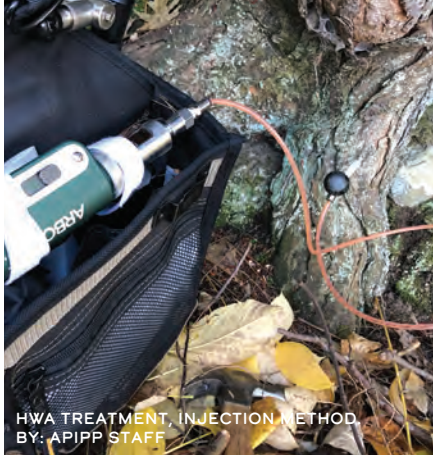
MANAGEMENT UPDATE: Throughout the PRISM, 38 swallow-wort infestations have been prioritized for management. Of these, 20 are under active management, five have at least one year of documented invasive plant absence, and 10 are considered locally eradicated. In 2022, 18 sites (ranging in size from <0.001 to 1.270 acres) totaling 1.966 acres were managed.

FIGURE LOCATION:
Appendix A, Page A6, Figure 6

TIER 3: CONTAINMENT CONTINUED

TIER 3 ANIMALS

HEMLOCK WOOLLY ADELGID (*Adelges tsugae*)



HWA TREATMENT, INJECTION METHOD
BY: APIPP STAFF



BY: USFS

DESCRIPTION: HWA is a small insect (less than 1/16" long) that inserts its piercing-sucking mouthpiece into the twig tissue near the base of hemlock needles causing the tree to wall off the wound. White, woolly ovisacs can be easily identified on the undersides of hemlock branch tips from late fall to early summer.

MONITORING UPDATE: HWA was first detected in the PRISM in 2017 on Prospect Mountain in Lake George. This infestation was promptly treated and is presumed eradicated. Multiple new infestations of HWA were confirmed in 2020 within the Lake George watershed, spanning 250+ acres along the eastern shore near the campground on Glen Island. Small infestations were also found at Shelving Rock, Buck Mountain, Dome Island and private properties along the southeastern shore of Lake George and near Diamond Point. In 2021, HWA was confirmed further north along the eastern shore of Lake George near Black Mountain Point. In 2022, new populations were found along the eastern shore extending north to Duran Island, on the western shore within Hearthstone Point Campground, on Turtle and Mohican Islands near the point of the Tongue Mountain Range, on Long Island, and at a privately owned property on the southeastern lakeshore.

MANAGEMENT UPDATE: APIPP continues to assist with NYSDEC-led management efforts in the watershed including the "Glen Island" infestation, Shelving Rock, Buck Mountain, Hearthstone Campground, and Mohican and Turtle islands, where over 6,000 trees were treated between 2020 and 2022. APIPP, with assistance from Lake George Land Conservancy, also completed its third year of management on Dome Island and treated 527 trees in 2022. A total of 1,455 trees have been treated on Dome Island since treatment began in 2020.

TIER 4: SUPPRESSION

Species classified as Tier 4 cannot be eradicated from the PRISM geography. Species are too widespread or too established and management is cost prohibitive. In these cases, focus shifts to localized suppression targeted at protecting high-priority resources such as rare habitats, endangered species, and recreational assets.

TIER 4 PLANTS

COMMON REED GRASS (*Phragmites australis*)



BY: EMÓKE DÉNES, CC BY-SA 4.0

FIGURE LOCATION: A summary table and figures of APIPP's common reed grass priority management projects are presented in Appendix B (pages B1-B12)

DESCRIPTION: Common reed grass is a large perennial grass that can reach upwards of 15 feet in height. Its smooth stem lacks nodes or joints, and its leaves are stiff and sharp. It readily invades wetlands, cultivated areas, and drainage ditches.

MONITORING UPDATE: Since 2000, 2,169 infestations have been mapped throughout the PRISM. In total, 219 new infestations were mapped in 2022.

MANAGEMENT UPDATE: Across the 11 priority management projects, 332 sites are under active management, 219 sites have at least one year of documented invasive plant absence, and 363 are considered locally eradicated. In 2022, 288 sites (ranging in size from <0.001 to 1,548 acres) totaling 15,991 acres were managed.

GARLIC MUSTARD (*Alliaria petiolata*)

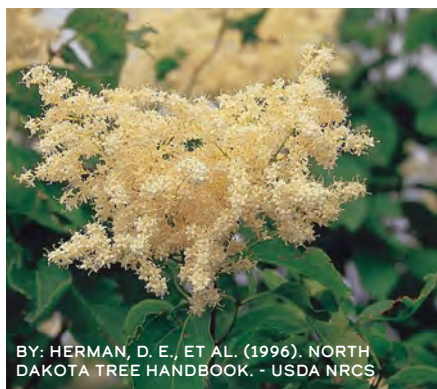
BY: SECOND YEAR FLOWERS - DAVID CAPPAERT, MICHIGAN STATE UNIVERSITY, BUGWOOD.ORG

FIGURE LOCATION: Appendix A, Page A7, Figure 7

DESCRIPTION: Garlic mustard is an herbaceous biennial. The first year it grows as a rosette of kidney-shaped leaves. In its second year, it can grow multiple stems up to four feet tall with triangular, sharply-toothed leaves. It readily invades areas of disturbance and slowly expands into the surrounding forest understory.

MONITORING UPDATE: Since 2012, 953 infestations have been mapped in the PRISM. In total, 22 new infestations were mapped in 2022.

MANAGEMENT UPDATE: In 2022, 175 sites are under active management, 165 sites have at least one year of documented invasive plant absence, and 486 are considered locally eradicated. Within the Resilient and Connected Land Network Garlic Mustard Suppression Project, 30 sites were not managed. In 2022, 145 sites (ranging in size from <0.001 to 0.070 acre) totaling 0.337 acre were managed.

JAPANESE TREE LILAC (*Syringa reticulata*)

BY: HERMAN, D. E., ET AL. (1996). NORTH DAKOTA TREE HANDBOOK. - USDA NRCS

DESCRIPTION: Japanese tree lilac may grow as a large shrub or small tree reaching 30 feet in height. It is characterized by opposite, simple, oval leaves and large clusters of white flowers in early summer. It is a popular ornamental and can escape cultivation, invading natural areas such as riparian corridors and floodplains.

MONITORING UPDATE: Since 2021, 33 infestations have been mapped in the PRISM. In total, six new infestations were mapped in 2022.

MANAGEMENT UPDATE: No management occurred in 2022.

KNOTWEED SPP. (*Reynoutria japonica*, *Reynoutria sachalinensis* & *Reynoutria x bohemica*)

BY: ACABASHI, CC-BY-SA 4.0, WIKIMEDIA COMMONS

FIGURE LOCATION: Appendix A, Page A8, Figure 8

DESCRIPTION: Knotweed species are large bamboo-like perennials that can exceed 18 feet in height, with hollow stems and alternate, heart-shaped leaves. These plants readily invade riparian areas, cultivated lands, yards, and roadsides.

MONITORING UPDATE: Since 2012, 1,465 infestations have been mapped in the PRISM. In total, 55 new infestations were mapped in 2022.

MANAGEMENT UPDATE: As of 2022, 173 sites are under active management, 75 sites have at least one year of documented invasive plant absence, and 114 are considered locally eradicated. Within the Resilient and Connected Land Network Knotweed Suppression Project, 191 sites were not managed. In 2022, 118 sites (ranging in size from <0.001 to 0.367 acre) totaling 4.480 acres were managed.

Note: An additional 137 sites were treated under the Knotweed Management Partnership. This Partnership also included 28 sites with at least one year of documented invasive plant absence.

TIER 4: SUPPRESSION CONTINUED

TIER 4 PLANTS CONTINUED

PURPLE LOOSESTRIFE (*Lythrum salicaria*)

BY: JOUKO LEHMUSKALLIO.

FIGURE LOCATION: Appendix A,
Page A9, Figure 9

DESCRIPTION: Purple loosestrife is an erect, herbaceous perennial that grows to 3-7 feet in height. Linear-shaped leaves grow oppositely along a square stem and showy, magenta flowers are present from July to September. It readily invades wetlands, cultivated areas, and drainage ditches.

MONITORING UPDATE: Since 2012, 946 infestations have been mapped in the PRISM. In total, 26 new infestations were mapped in 2022.

MANAGEMENT UPDATE: As of 2022, 168 sites are under active management, 97 sites have at least one year of documented invasive plant absence, and 47 are considered locally eradicated. Within the Resilient and Connected Land Network Purple Loosestrife Suppression Project, 224 sites were not managed. In 2022, 69 sites (ranging in size from <0.001 to 0.866 acre) totaling 3.137 acres were managed. This suppression project relies heavily on the use of biocontrol. Only sites where biocontrols were released this season are included in these totals. Sites where biocontrols were already present were either not managed (and therefore not included in the above management analysis) or had flowers mechanically removed.

YELLOW IRIS (*Iris pseudacorus*)BY: ROBERT FLOGAUS-FAUST -
CC BY 4.0 VIA WIKIMEDIA COMMONS

FIGURE LOCATION: Appendix A,
Page A10, Figure 10

DESCRIPTION: Yellow iris is an ornamental perennial that can grow to 3-4 feet tall and that features broad, lance-shaped leaves that are stiff and erect and yellow flowers that bloom from April to June. It readily invades riparian corridors, the shores of lakes and ponds, wetlands, and drainage ditches.

MONITORING UPDATE: Since 2009, 232 infestations have been mapped in the PRISM. Two new infestations were mapped in 2022.

MANAGEMENT UPDATE: In 2022, 46 infestations were prioritized for management on Moody Pond, Mirror Lake, and Mill Pond. Of these, seven sites are under active management, two sites have at least one year of documented invasive plant absence, and 37 are considered locally eradicated. In 2022, six sites (all less than <0.001 acre) totaling 0.001 acres were managed.

TIER 4 ANIMALS

BEECH LEAF DISEASE



DESCRIPTION: Although not much is known about beech leaf disease, it is believed to be associated with the nematode (worm) *Litylenchus crenatae mccannii*. This disease is seen in the leaves of affected beech trees and symptoms include dark striping between the leaf veins, curling, and/or a leathery texture.

MONITORING UPDATE: Beech leaf disease was first identified in the PRISM in 2022 in Herkimer County. APIPP surveyed locations near this first known infestation within the Ferris Lake Wild Forest and the Black River Wild Forest. These surveys did not find any additional infested trees.

MANAGEMENT UPDATE: There are currently no known ways to manage beech leaf disease, as such, no management occurred in 2022.

EMERALD ASH BORER (*Agrilus planipennis*)

BY: MACROSCOPICSOLUTIONS/FICKR



DESCRIPTION: Emerald ash borer is a small (3/8"- 3/4" long), emerald-green beetle with metallic green wings and a purplish-red abdomen. Its extensive larval feeding activity cuts off nutrients and water flow throughout host trees in the *Fraxinus* genus.

MONITORING UPDATE: Emerald ash borer was first identified in the PRISM in 2017 and within the Adirondack Park in 2020. In 2022, APIPP monitored eight insect traps. Emerald ash borer was found in the trap in Riparius, NY. NYSDEC and Warren County Soil and Water Conservation District confirmed additional infestations in the Lake George area. Within the Adirondack Park, emerald ash borer has still only been confirmed in Warren County.

MANAGEMENT UPDATE: APIPP proposed a site in Warren County to the United States Department of Agriculture's Animal and Plant Health Inspection Service for inclusion in a biological control project. If approved, APIPP would be provided with biological control agents for release at this site in 2023 and 2024. APIPP also annually surveys five Monitoring and Managing Ash plots that will help monitor for trees that are resistant to emerald ash borer.

SPECIES NOT ACTIVELY MANAGED

APIPP PRIORITIZES INFESTATIONS OF SPECIES for management based on whether the infestation is affecting a conservation, economic, or human health asset, whether there are effective tools available to control both the infestation and the source(s) of introduction, whether sufficient resources are available, and whether the project will result in a high return on investment. Therefore, species may not be prioritized for management if they are locally or regionally widespread, their spread vector cannot be controlled, or if they have a low-to-moderate NYS invasiveness ranking. These non-managed species are occasionally mapped and assessed to provide APIPP with a better understanding of their regional distribution and potential impacts; however, these reports are usually incidental, and APIPP typically does not actively monitor for these species.

While APIPP does not actively manage these species, they are often highlighted in our educational programming to help explain how to identify them and how the public can prevent their spread. APIPP staff also respond to numerous public inquiries about these species and provide guidance and best management practices to property managers interested in carrying out control measures.



CUP PLANT
(*Silphium perfoliatum*)

BY: BARTON ARBORETUM



JUMPING WORMS
(*Amyntas & Metaphire spp.*)

BY: SUSAN DAY / UW MADISON ARBORETUM



AUTUMN OLIVE
(*Elaeagnus umbellata*)

BY: I, KENPEI, CC BY-SA 3.0



BUSH HONEYSUCKLES
(*Lonicera spp.*)

BY: ROB ROUTLEDGE, SAULT COLLEGE



COMMON BUCKTHORN
(*Rhamnus cathartica*)

BY: ANEMONE PROJECTORS, CC BY-SA 2.0



GLOSSY BUCKTHORN
(*Frangula alnus*)

BY: USDA PLANTS DATABASE



JAPANESE BARBERRY
(*Berberis thunbergii*)

BY: WILDFEUER, CC 2.5



MULTIFLORA ROSE
(*Rosa multiflora*)

BY: CC BY-SA 3.0



NORWAY MAPLE
(*Acer platanoides*)

BY: GMIHAIL AT SERBIAN, CC BY-SA 3.0



ORIENTAL BITTERSWEET
(*Celastrus orbiculatus*)

BY: CBAILE19, CC0, VIA WIKIMEDIA COMMONS



REED CANARY GRASS
(*Phalaris arundinacea*)

BY: R. A. NONENMACHER, CC BY-SA 4.0



WINGED BURNING BUSH
(*Euonymus alatus*)

BY: I, KENPEI, CC BY-SA 3.0

APIPP PARTNERS

THIS SECTION DESCRIBES HOW APIPP ADVANCES GOALS 1, 4, AND 8 OF ITS 2013 STRATEGIC PLAN.



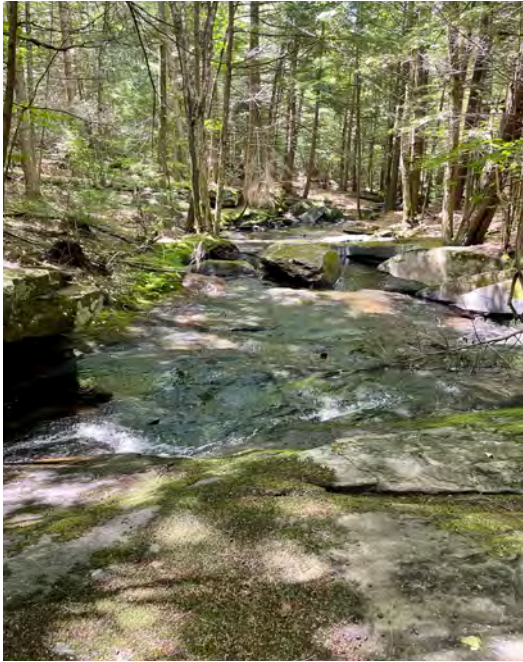
ADIRONDACK LAKES ALLIANCE SYMPOSIUM, PAUL SMITH'S COLLEGE. BY: BRENDAN WILTSE, AWI

APIPP'S 2022 PARTNER COORDINATION

THE AMAZING SUCCESS OF ADIRONDACK PARK invasive species prevention and control efforts is the result of the work of many partners (see a complete list of community partners on the inside cover of this report). In addition to the partnerships described elsewhere in this report, APIPP hosted or assisted with the following collaborative meetings and projects with partners in 2022.

- Facilitated a Terrestrial Invasive Species Roundtable on February 8 followed by an Aquatic Invasive Species Roundtable on February 10.
- Hosted a virtual partner meeting on April 28 with featured speaker Brendan Quirion, a NYSDEC biologist and the former APIPP program manager. Brendan shared his recent research findings about the serious impact of forest pests and pathogens on forest-based carbon sequestration.
- Hosted a year-end, virtual partner meeting on December 1 to share highlights of the 2022 season and to engage partners in a discussion about using a data dashboard to compile regional metrics to evaluate implementation of the new Adirondack PRISM strategic plan. Slides describing APA and NYSDOT's 2022 accomplishments were shared during the meeting and can be found on APIPP's website.
- Convened two meetings of a small AIS spread-prevention working group and two meetings of a new Adirondack communicators network.
- Sent 23 "APIPP News" updates to partners via the APIPP listserve.
- Coordinated with NYSDEC on the implementation of the new Adirondack AIS law and the law banning most uses of glyphosate on state property.
- Worked with NYSDEC and APA to revise the "Inter-Agency Guidelines for Implementing Best Management Practices to Control Invasive Species on DEC Administered Lands of the Adirondack Park."
- Continued to work closely with NYSDOT and provided comments on NYSDOT's "Adirondack Soil Management Guidelines." In addition, NYSDOT provided comments on APIPP's "Best Management Practices for the Movement of Topsoil and Fill." Both of these documents provide information to help reduce the inadvertent spread of invasive species associated with construction and other soil-disturbing activities.
- Participated in quarterly meetings with NYSDEC Invasive Species Coordination Section partners and in monthly PRISM webinars, and attended the statewide Cornell Cooperative Extension in-service training.

ADIRONDACK PRISM STRATEGIC PLAN



BEAR SLIDES TRAIL, WARREN COUNTY, NEW YORK.

The Adirondack PRISM will have a new strategic plan in place in 2023. The new plan centers the work around four goals that all partners can contribute to. You can read more about the new plan in the Special Initiatives section. This is the last Annual Report reporting on progress under the 12 goals of the 2013 strategic plan.

1. Coordination
2. Pathway Analysis
3. Spread Prevention & Vector Management
4. Enforcement & Legislation
5. Education & Outreach
6. Early Detection, Rapid Response & Monitoring
7. Control & Management
8. Information Management
9. Restoration
10. Research
11. Climate Change Adaptation
12. Resource Development & Funding

EQUIPMENT AND MATERIALS



A REMOTELY PILOTED AERIAL VEHICLE ASSISTS WITH INVASIVE SPECIES DETECTION.

APIPP'S 2019-2023 CONTRACT with NYSDEC requires reporting on equipment purchased with Environmental Protection Fund moneys. The Nature Conservancy defines durable equipment as items costing more than \$5,000. No such purchases were made in 2022. Past purchases include an unmanned aerial vehicle which allows staff to survey large or remote areas

THANK YOU, APIPP PARTNERS, FOR ALL YOUR WORK IN 2022 TO PROTECT THE ADIRONDACKS FROM INVASIVE SPECIES THREATS!

Adirondack Park Invasive Plant Program 2022 Annual Report

Appendix A: Terrestrial Priority Management Progress Charts

The charts on the following pages show year-by-year annual management progress for certain Tier 2, 3 and 4 terrestrial species. There are two important notes related to these charts.

1. The increasing number of sites throughout the years is due to increasing survey efforts and the ability to survey new areas as more sites become locally eradicated.
2. Invasive species are considered locally eradicated after three consecutive years of documented invasive plant absence.



**INVASIVE SPECIES
MANAGEMENT**
ADIRONDACKS

Tier 2 Species

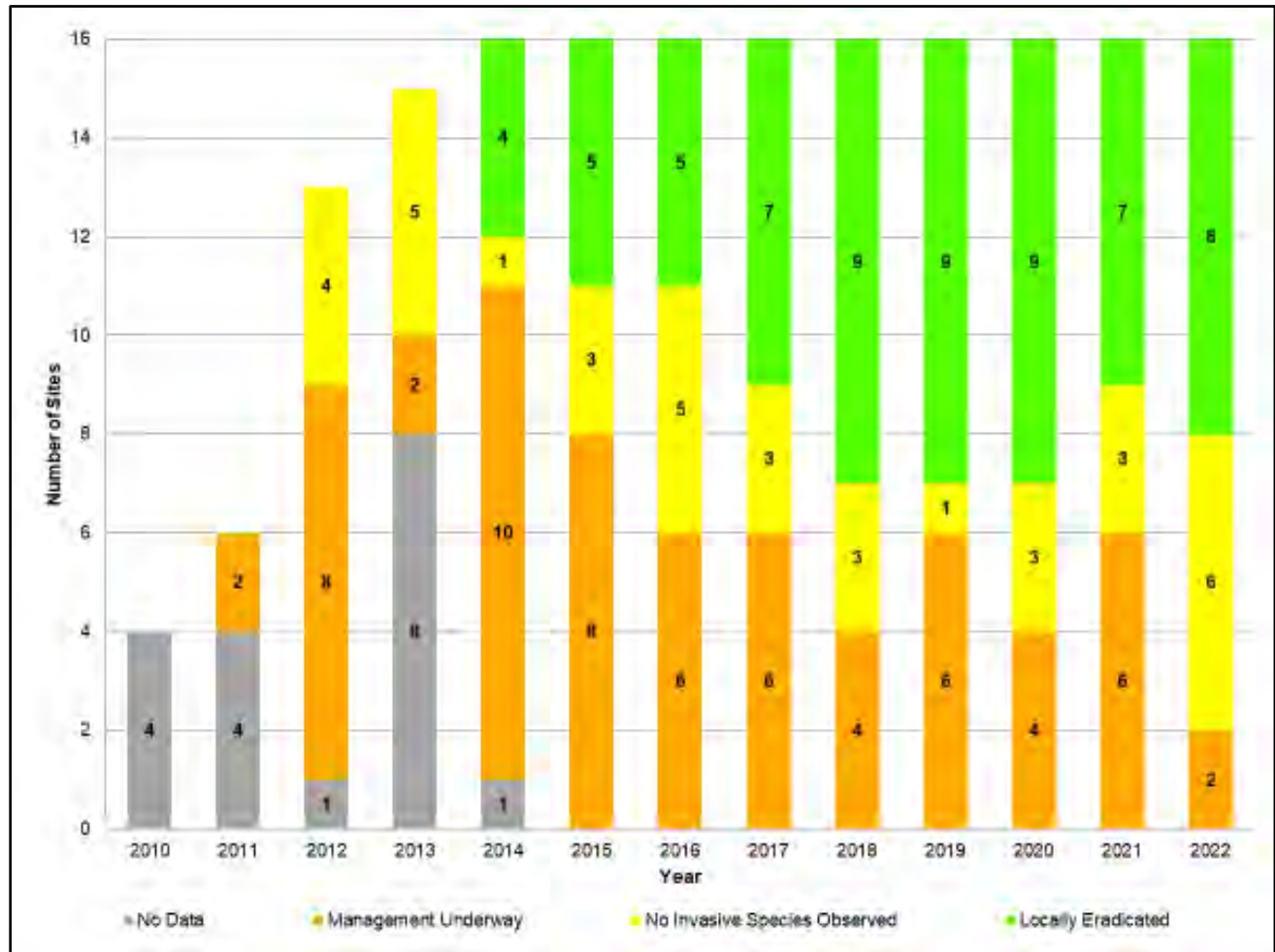


Figure 1. Annual management progress for the APIPP PRISM Giant Hogweed Eradication Project (2010-2022).

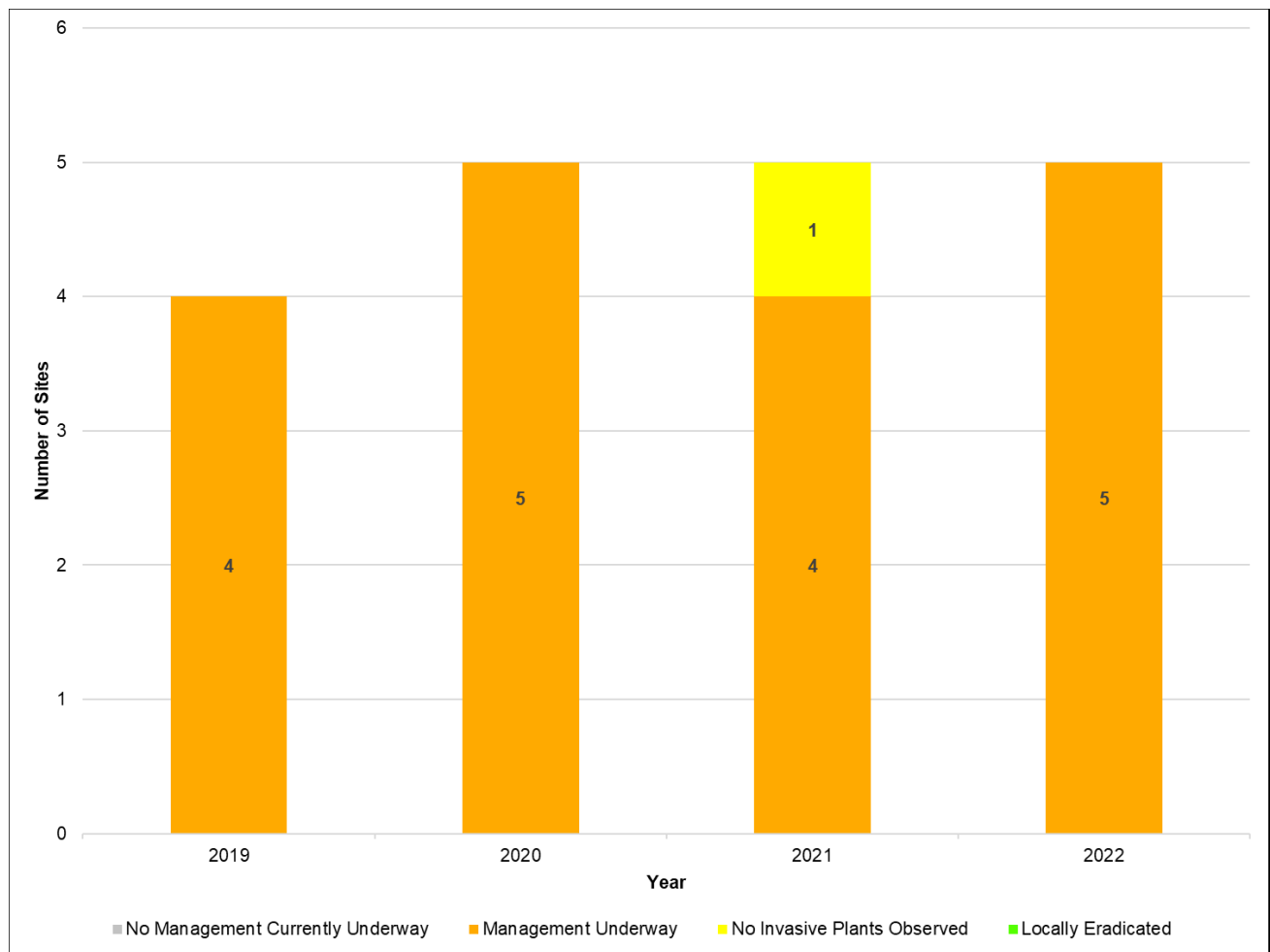


Figure 2. Annual management progress for the APIPP PRISM Mile-a-Minute Eradication Project (2019-2022). [Note: only four of the five sites targeted for management in 2022 were actually managed.]

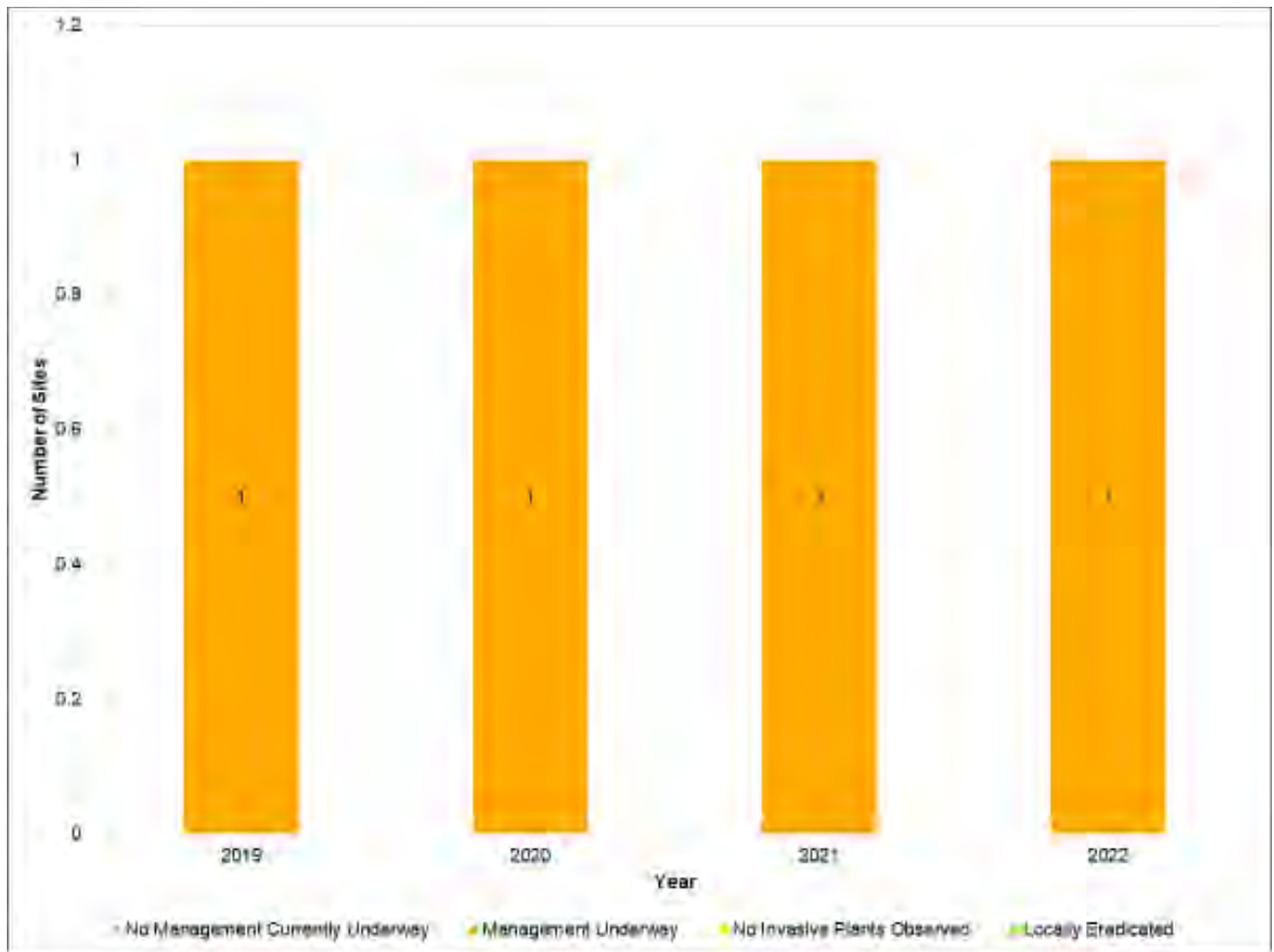


Figure 3. Annual management progress for the APIPP PRISM Scotch Broom Eradication Project (2019-2022).

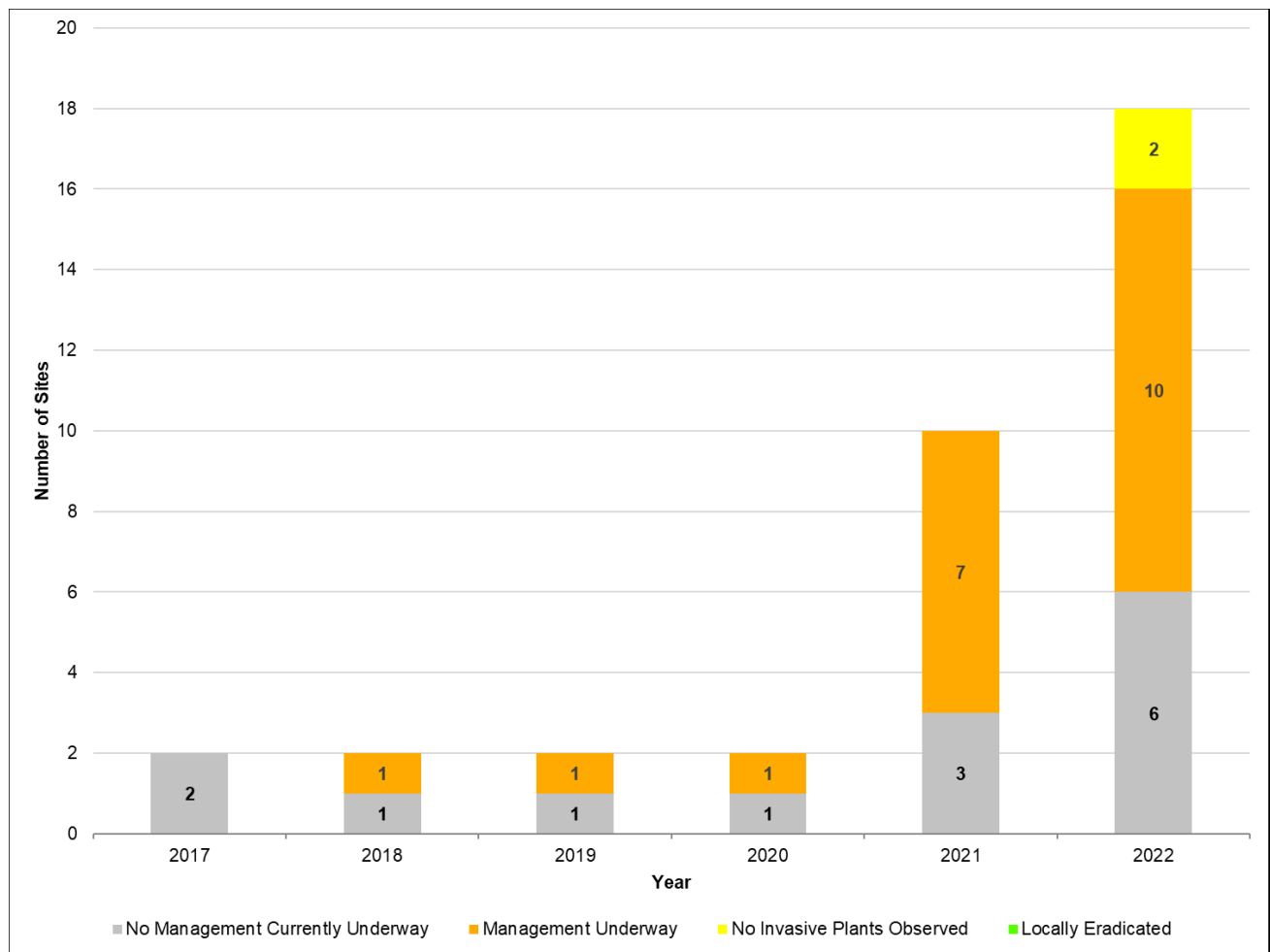


Figure 4. Annual management progress for the APIPP PRISM Tree-of-Heaven Eradication Project (2017-2022).

Tier 3 Species

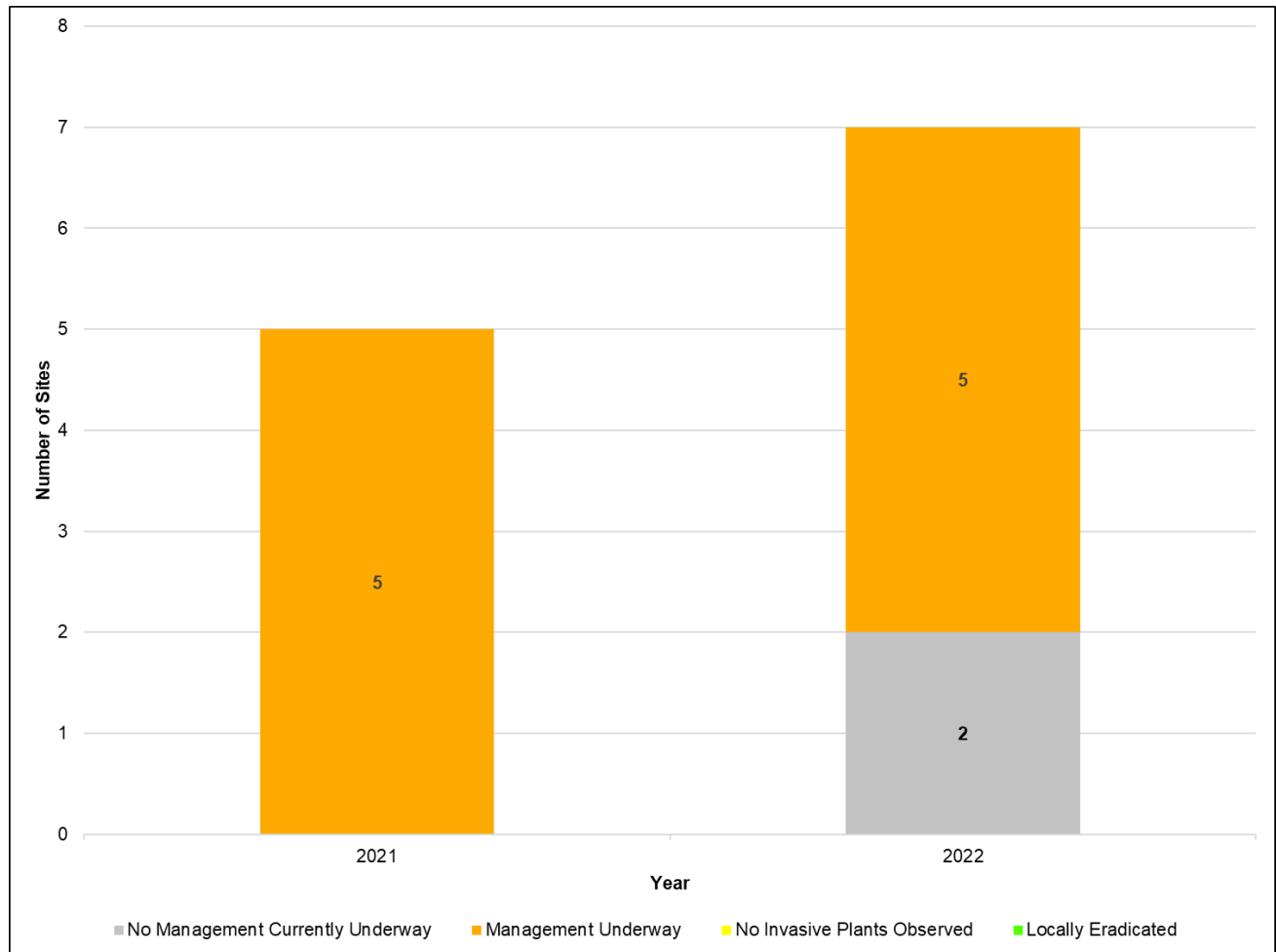


Figure 5. Annual management progress for the APIPP PRISM Japanese Stiltgrass Containment/Exclusion Project (2021-2022).

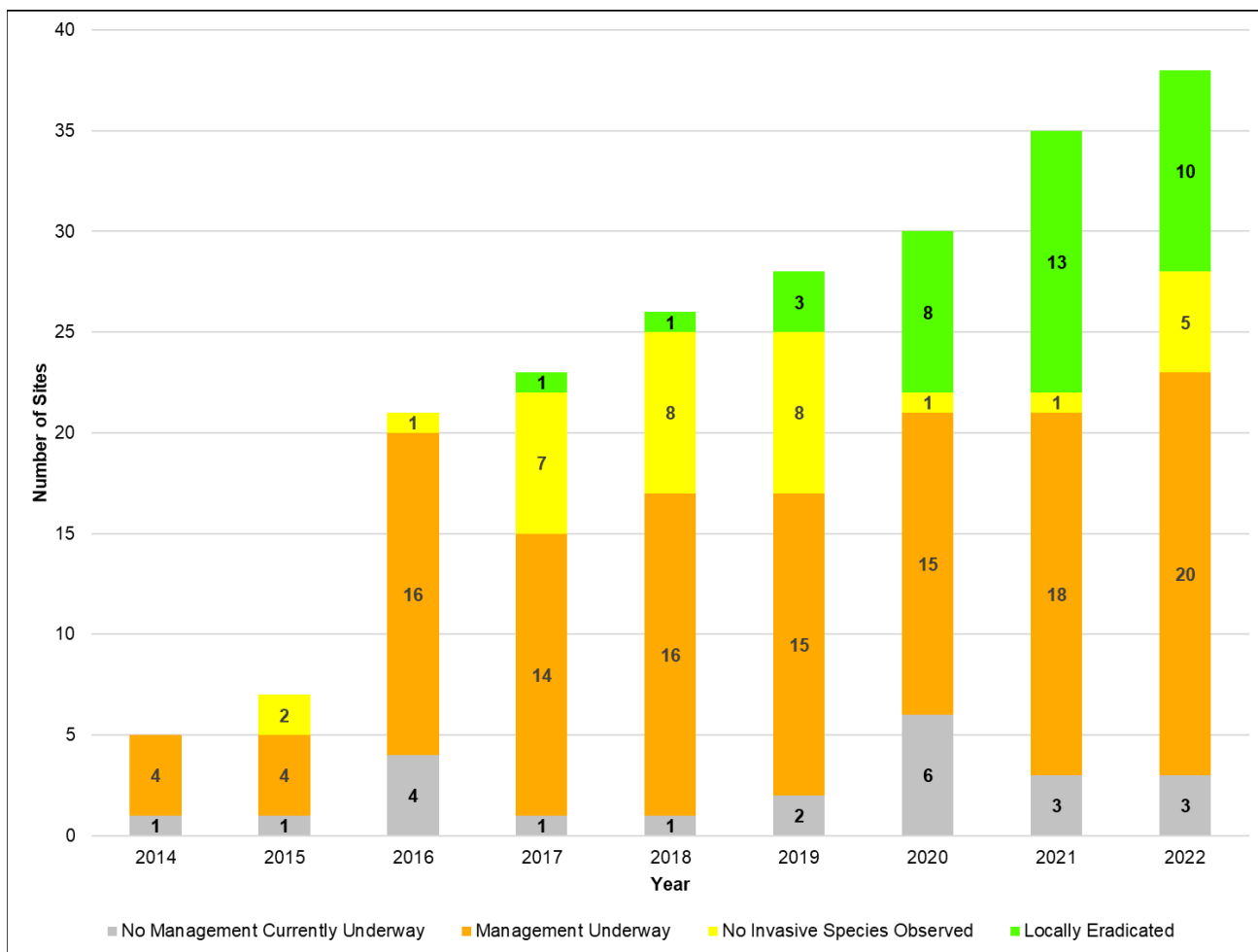


Figure 6. Annual management progress for the Resilient and Connected Land Network Swallowwort Exclusion Project (2014-2022).

Tier 4 Species

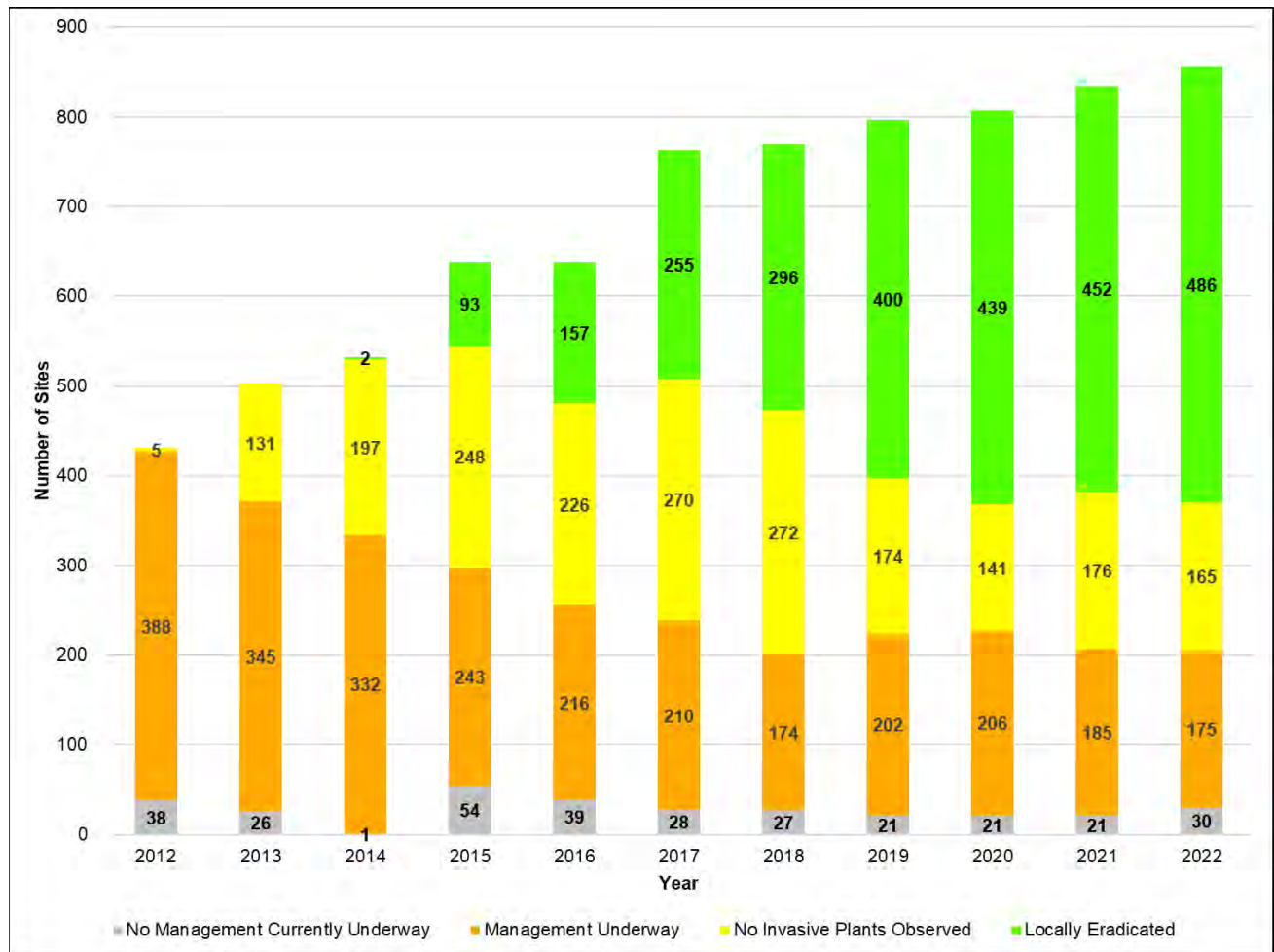


Figure 7. Annual management progress for the Resilient and Connected Land Network Garlic Mustard Suppression Project (2012-2022).

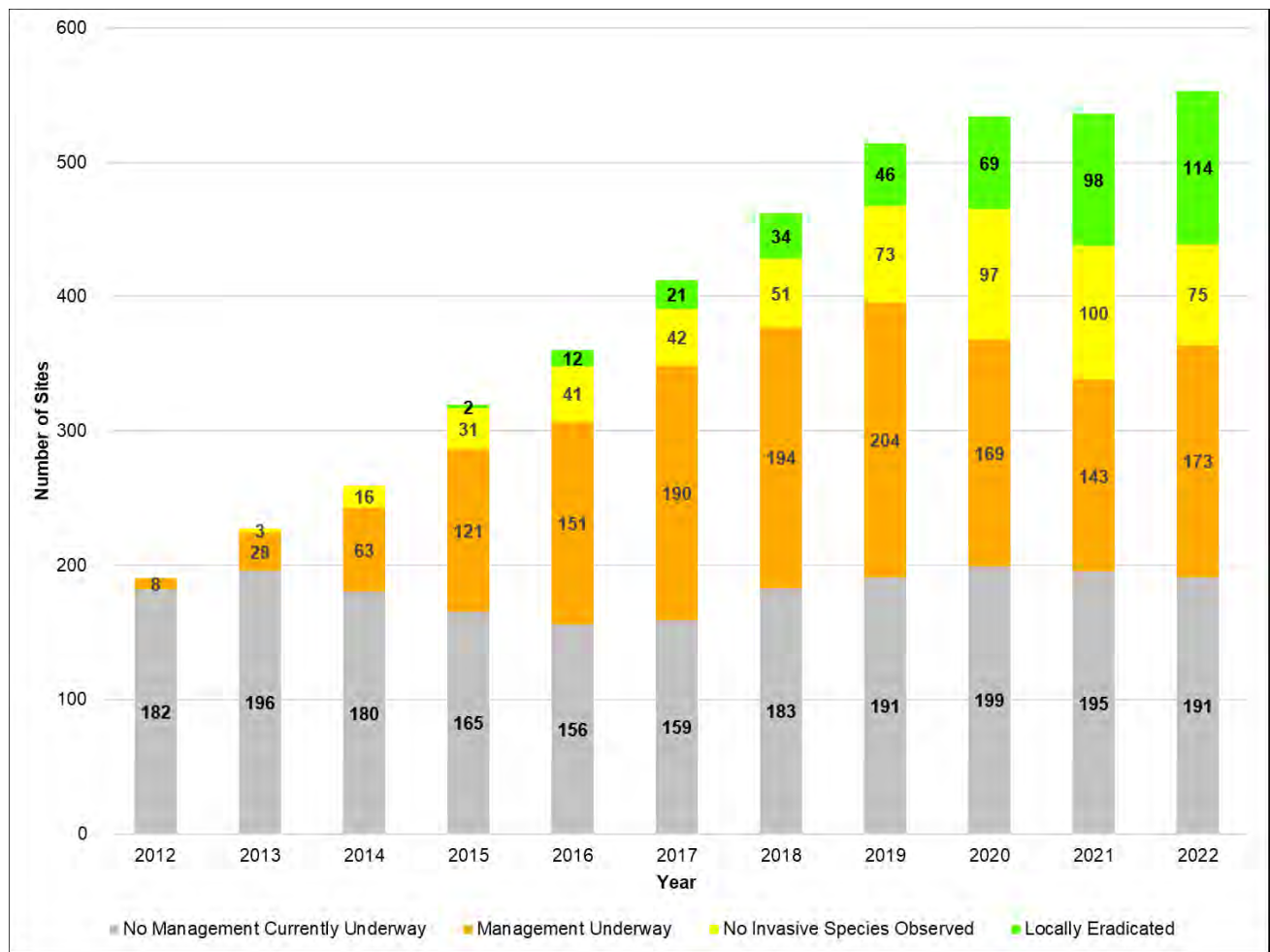


Figure 8. Annual management progress for the Resilient and Connect Land Knotweed Suppression Project (2012-2022).

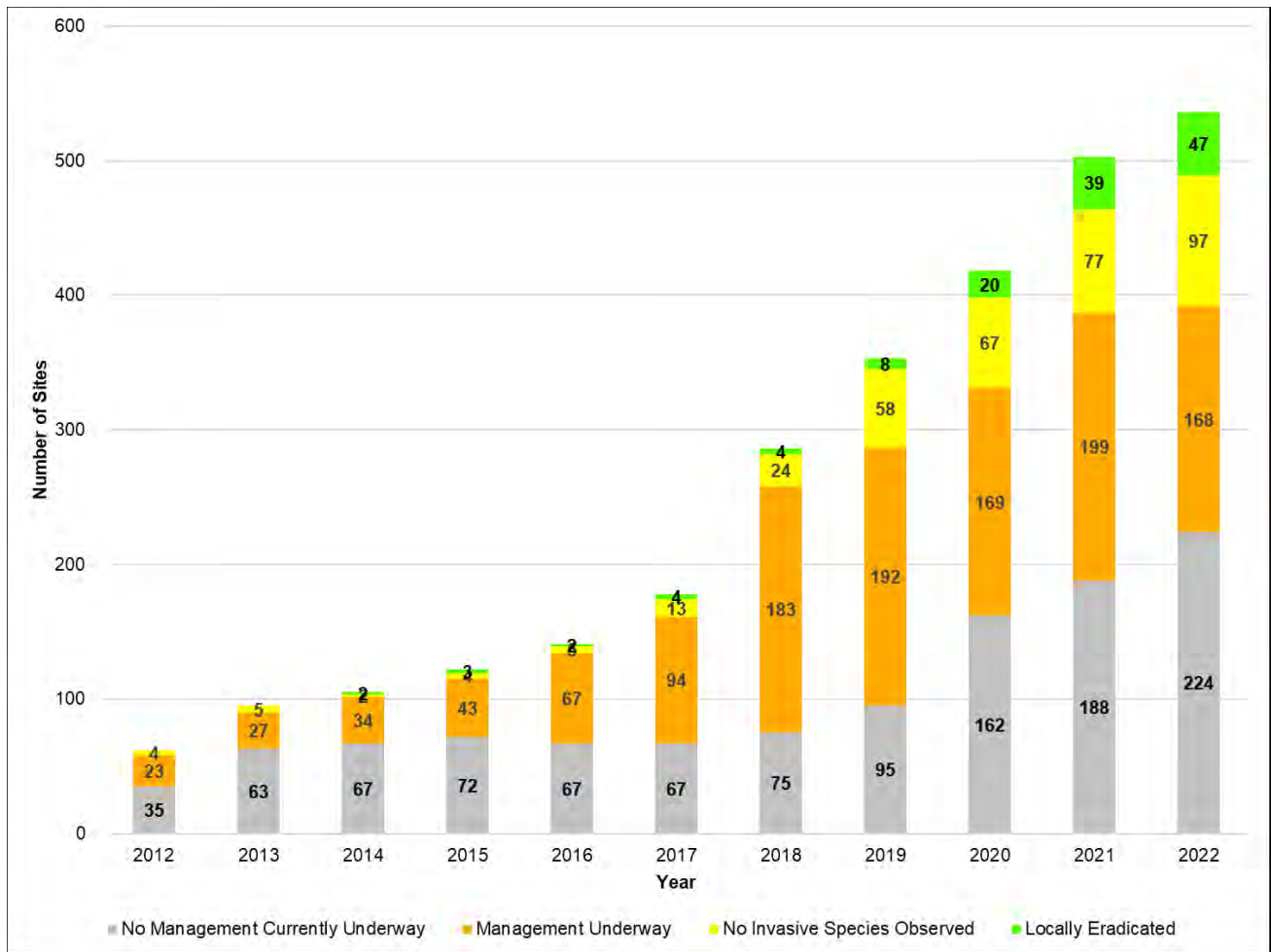


Figure 9. Annual management progress for the Resilient and Connected Land Network Purple Loosestrife Suppression Project (2012-2022).

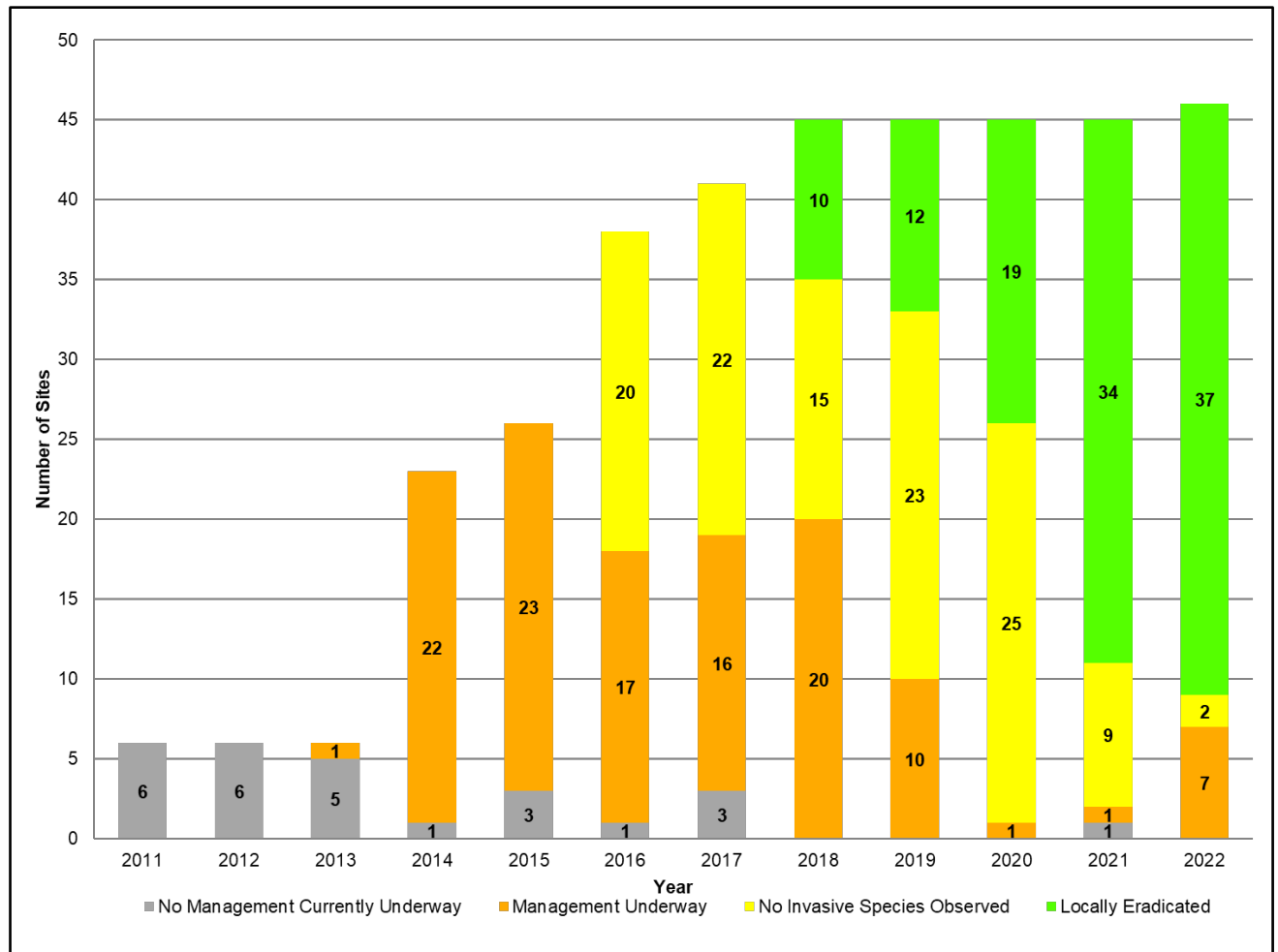


Figure 10. Annual management progress for the Yellow Iris Eradication Project (2011-2022).

Adirondack Park Invasive Plant Program 2022 Annual Report

Appendix B: Common Reed Grass Priority Management Project Progress Charts

This appendix provides a summary of the Adirondack Park Invasive Plant Program's 11 common reed grass management projects. Charts on the following pages show year-by-year annual management progress for each management project. There are two important notes related to these charts.

1. The increasing number of sites throughout the years is due to increasing survey efforts and the ability to survey new areas as more sites become locally eradicated.
2. Invasive species are considered locally eradicated after three consecutive years of documented invasive plant absence.



**INVASIVE SPECIES
MANAGEMENT**
ADIRONDACKS

Table 1. Summary of Common Reed Grass Management Projects.

Management Project	Figure	Total Mapped Infestations	New (2022) Mapped Infestations	Priority Infestations	Sites Under Active Management*	Sites Treated In 2022*	Size Range of Sites Managed in 2022 (acres)*	Total Area Managed in 2022 (acres)*	Total With At Least 1 Year of Documented Invasive Plant Absence*	Total Locally Eradicated*
Ausable River Watershed Common Reed Grass Suppression	1	180	31	119	44	38	<0.001 – 0.620	2.835	21	24
Chateaugay-English Watershed Common Reed Grass Suppression	2	71	0	28	6	5	<0.001 – 0.116	0.165	3	5
Lake Champlain Watershed Common Reed Grass Suppression	3	875	82	217	105	99	<0.001 – 1.548	6.610	51	13
Mohawk River Watershed Common Reed Grass Exclusion	4	209	19	187	42	35	<0.001 – 0.210	0.989	37	38
Northeastern Lake Ontario Common Reed Grass Exclusion	5	42	0	38	4	3	0.002-0.105	0.133	8	17
Sacandaga River Watershed Common Reed Grass Exclusion	6	161	16	126	31	23	<0.001 – 0.454	1.273	14	52
Salmon River Watershed Common Reed Grass Suppression	7	47	0	8	0	0	0	0	3	0
Saranac River Watershed Common Reed Grass Suppression	8	114	23	65	13	12	<0.001 – 0.010	0.038	16	27
Southern St. Lawrence Watershed Common Reed Grass Exclusion	9	219	25	208	33	27	<0.001 – 0.106	0.464	37	105
St. Regis River Watershed Common Reed Grass Exclusion	10	99	0	68	11	11	<0.001 – 0.024	0.058	10	39
Upper Hudson Watershed Common Reed Grass Exclusion	11	152	23	137	43	35	<0.001 – 0.925	3.426	19	43
Common Reed Grass Summary	N/A	2,169	219	1,201	332	288	0-1.548	15.991	219	363
*only includes priority sites										

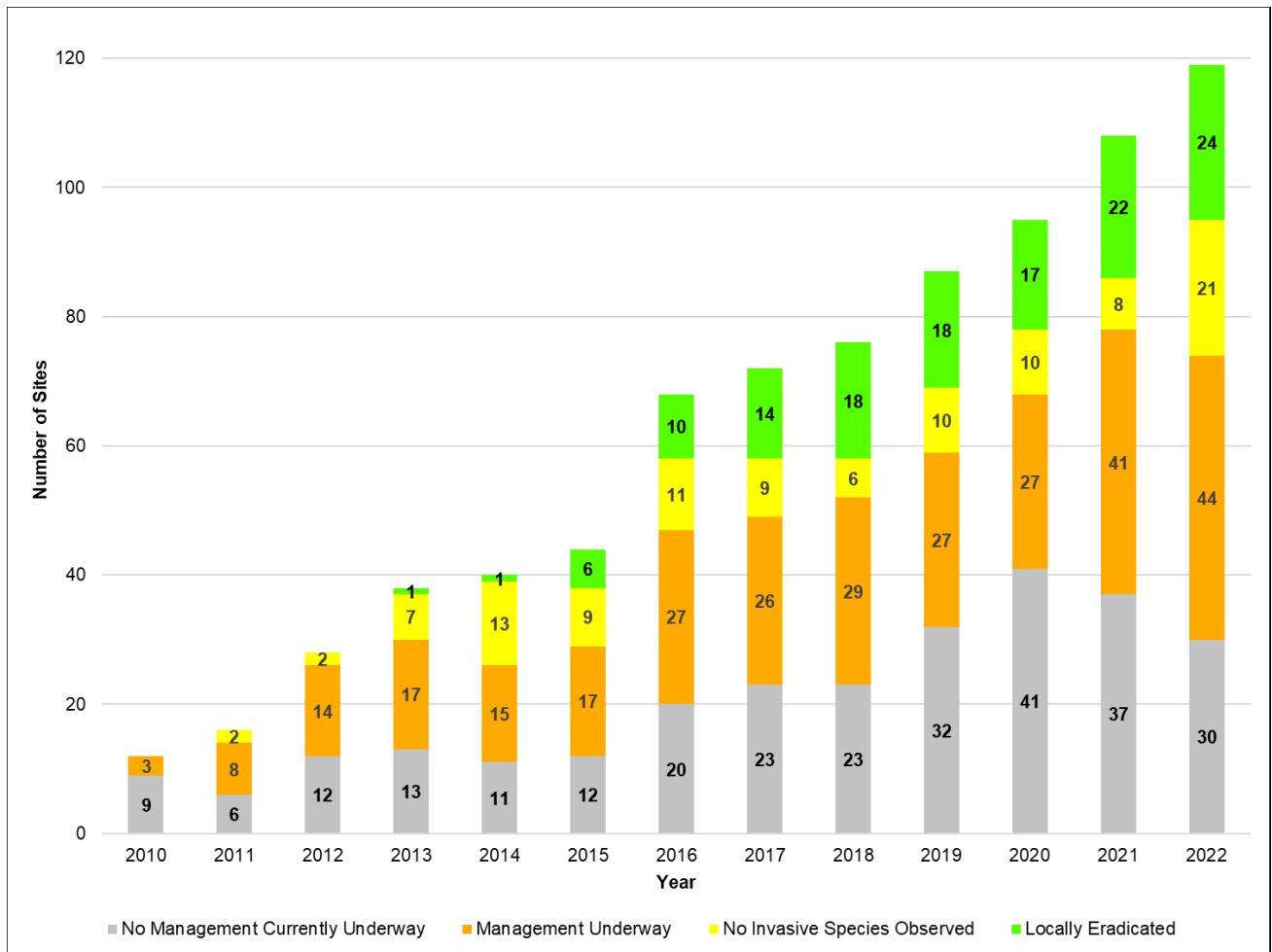


Figure 1. Annual management progress for the Ausable River Watershed Common Reed Grass Suppression Project (2010-2022).

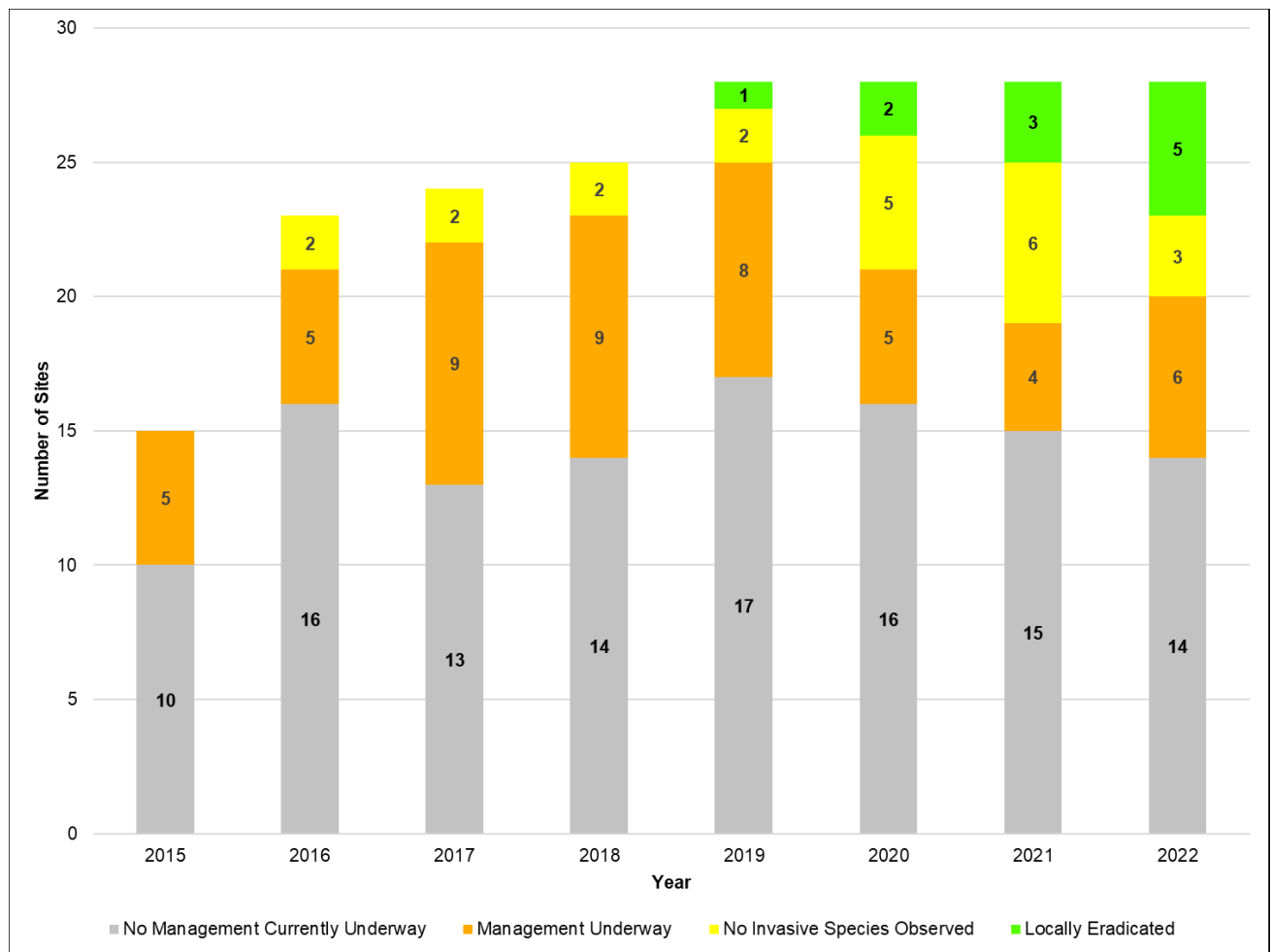


Figure 2. Annual management progress for the Chateauguay-English River Common Reed Grass Suppression Project (2015-2022).

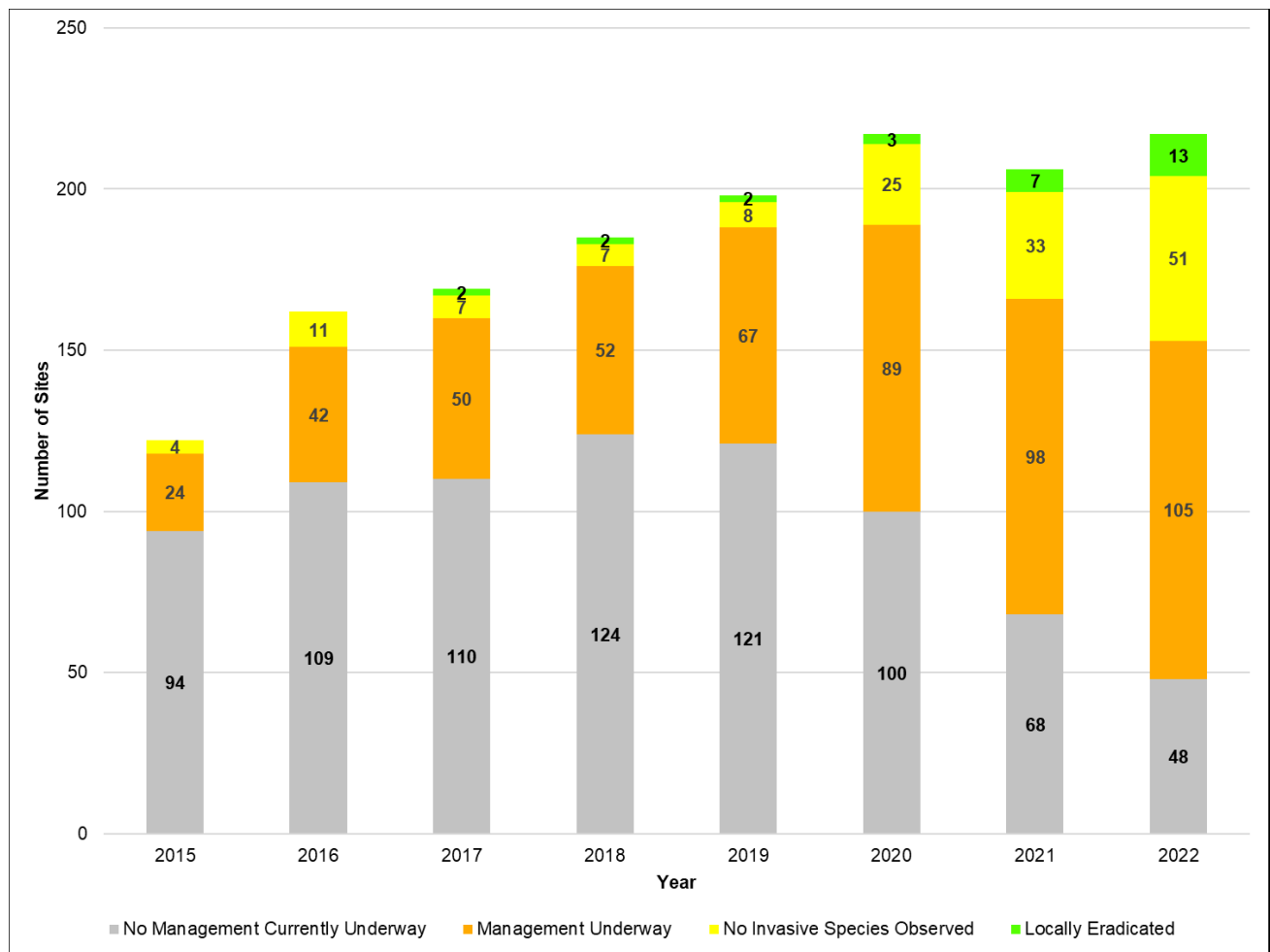


Figure 3. Annual management progress for the Lake Champlain Watershed Common Reed Grass Suppression Project (2015-2022).

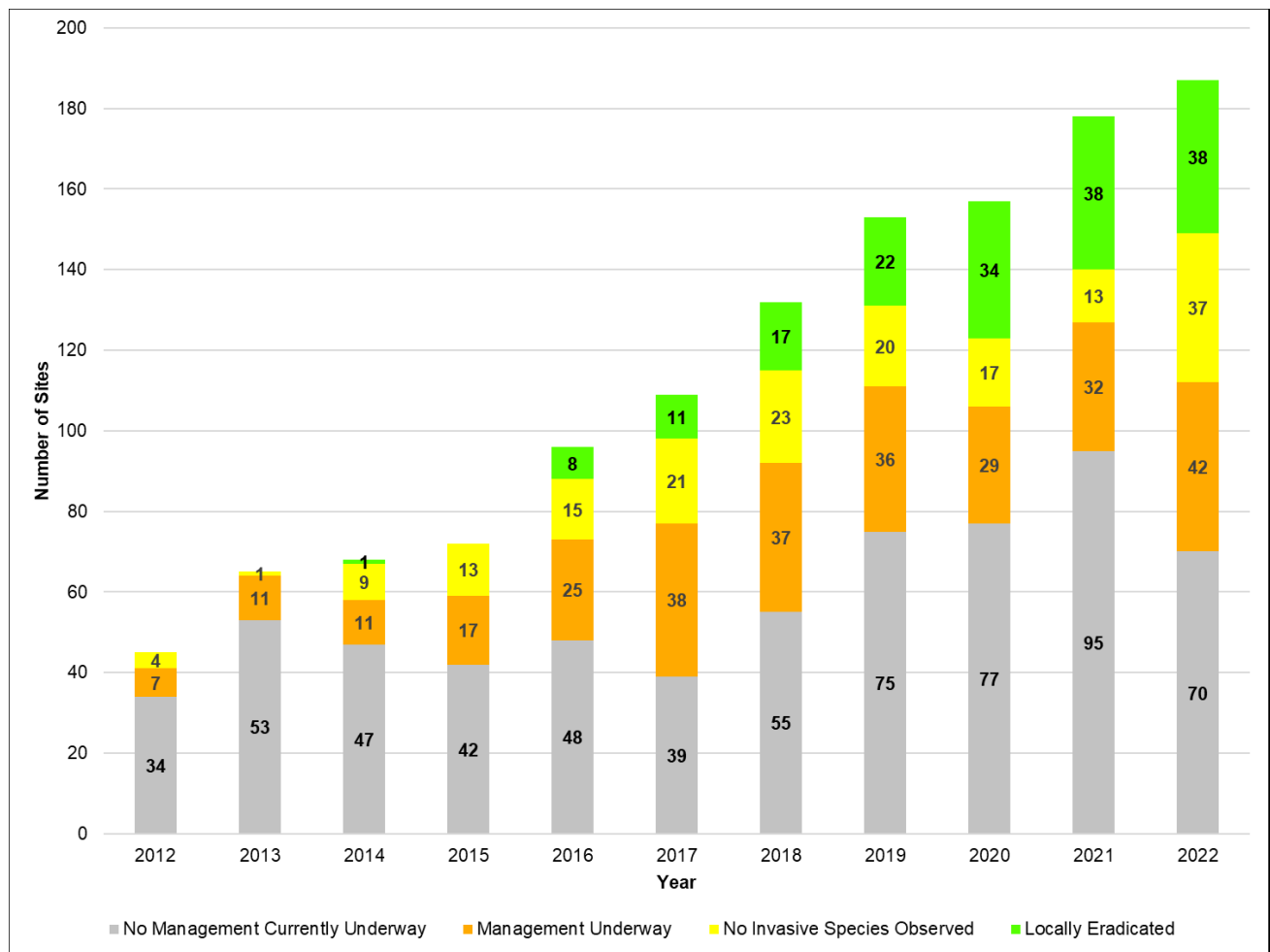


Figure 4. Annual management progress for the Mohawk River Watershed Common Reed Grass Exclusion Project (2012-2022).

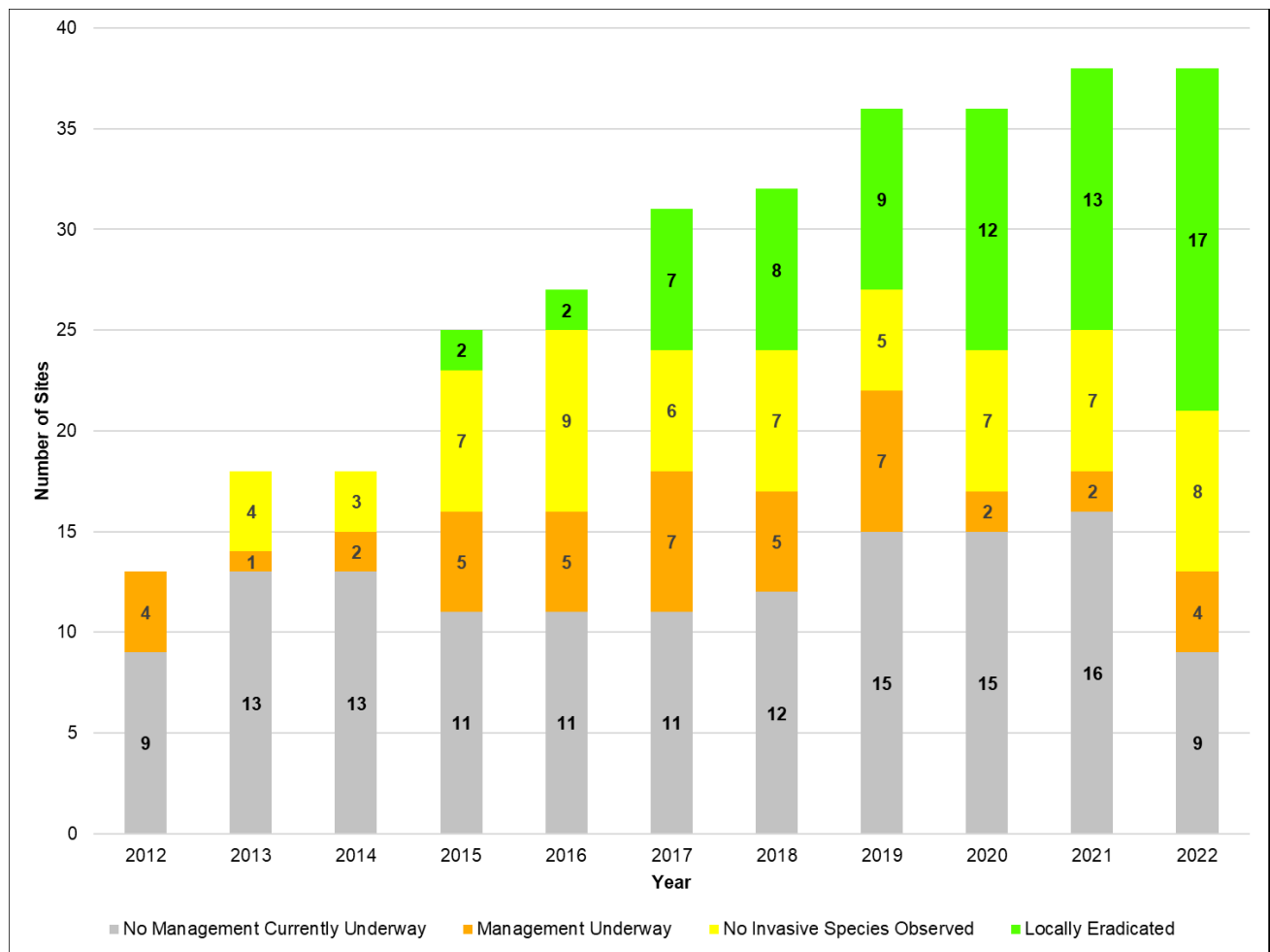


Figure 5. Annual management progress for the Northeastern Lake Ontario Watershed Common Reed Grass Exclusion Project (2012-2022).

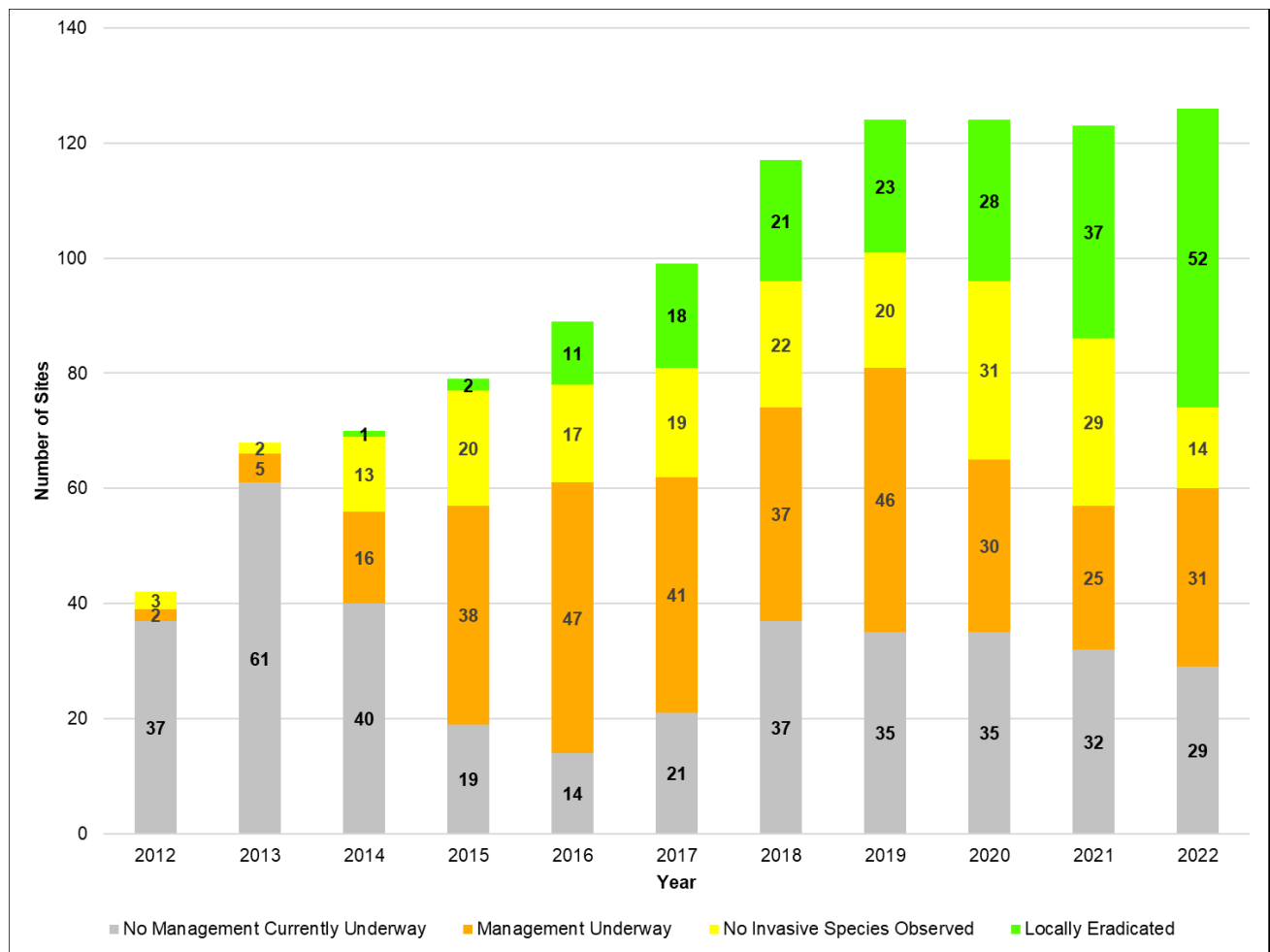


Figure 6. Annual management progress for the Sacandaga River Watershed Common Reed Grass Exclusion Project (2012-2022).

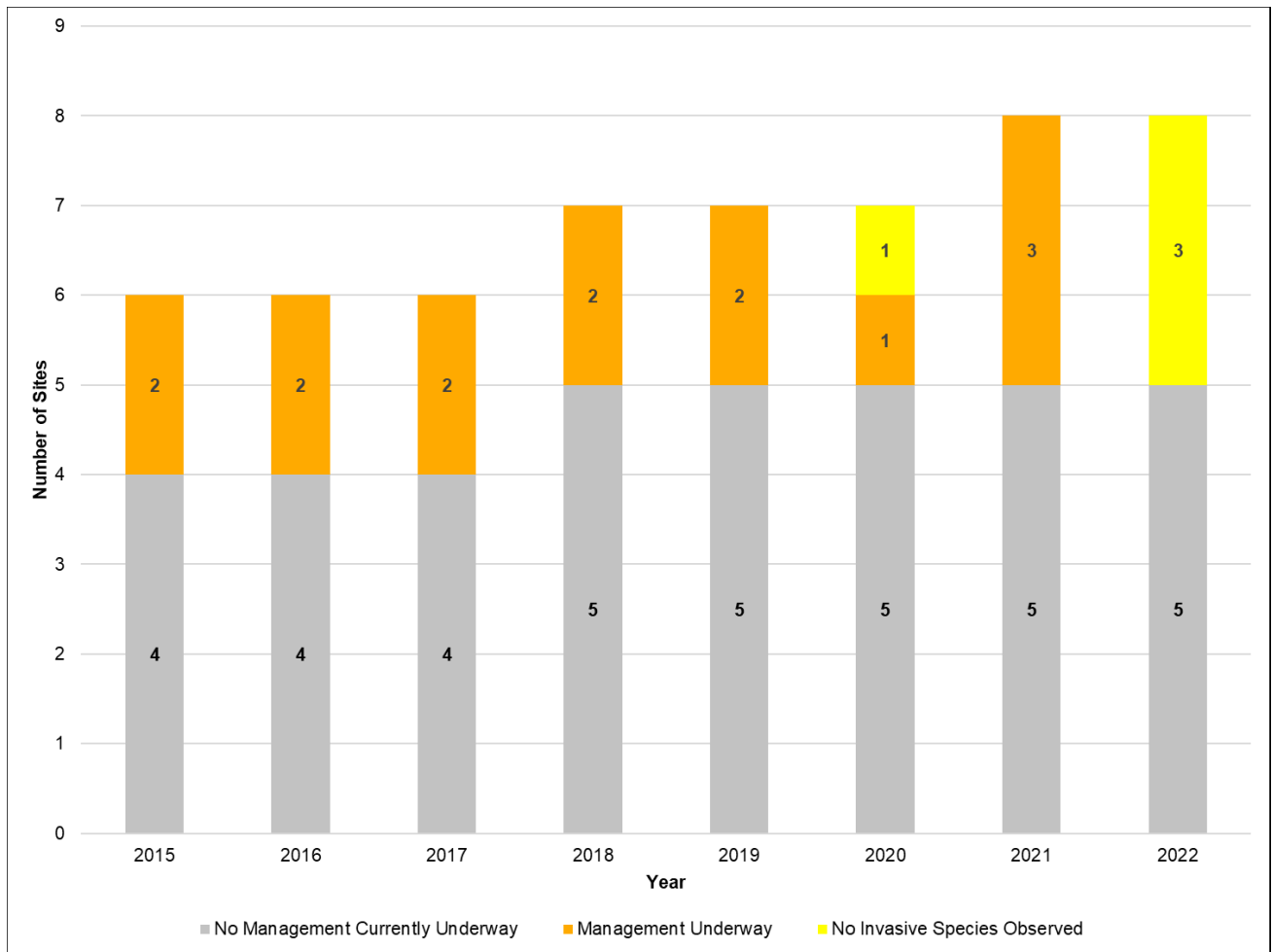


Figure 7. Annual management progress for the Salmon River Watershed Common Reed Grass Suppression Project (2015-2022).

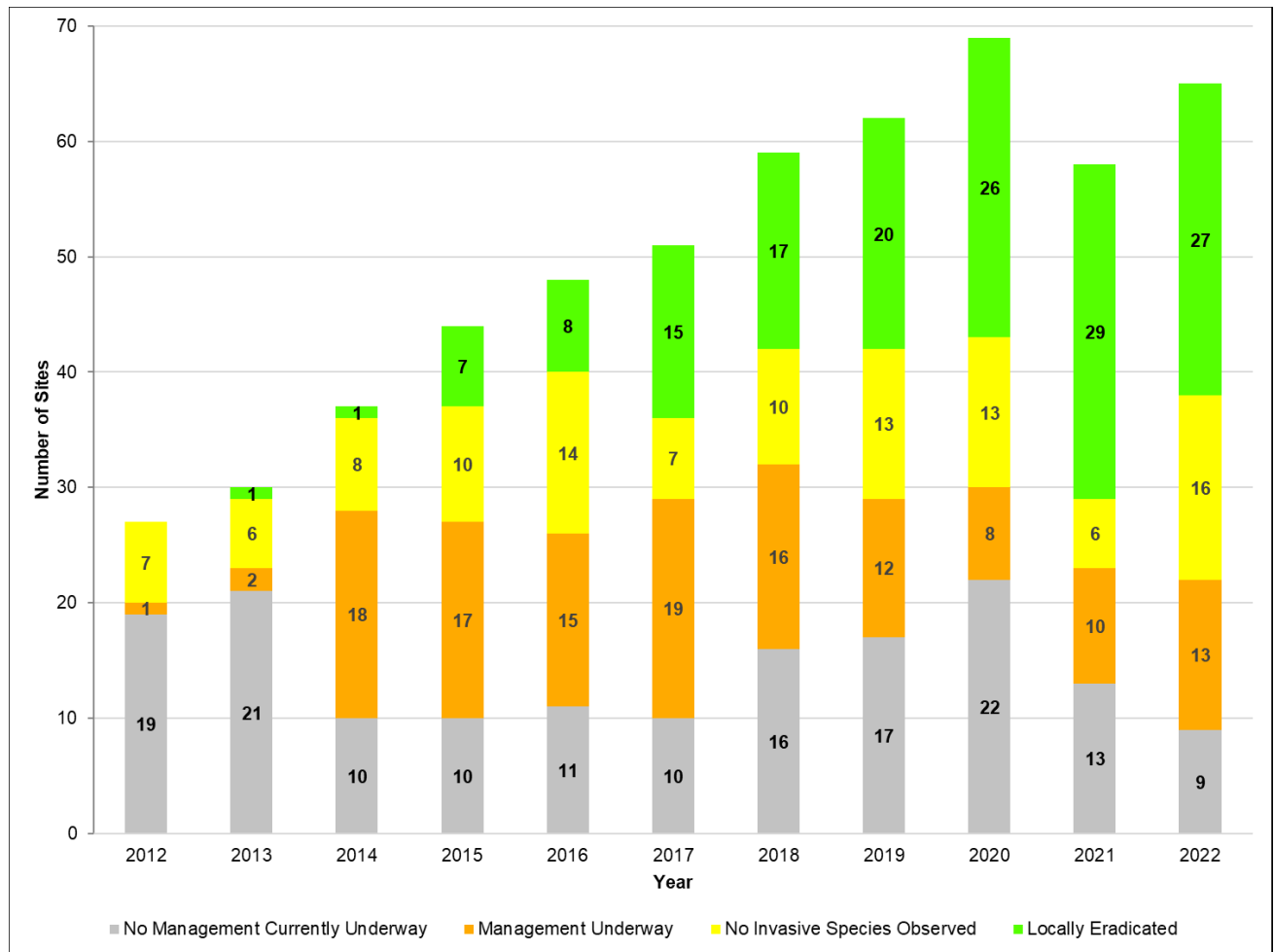


Figure 8. Annual management progress for the Saranac River Watershed Common Reed Grass Suppression Project (2012-2022).

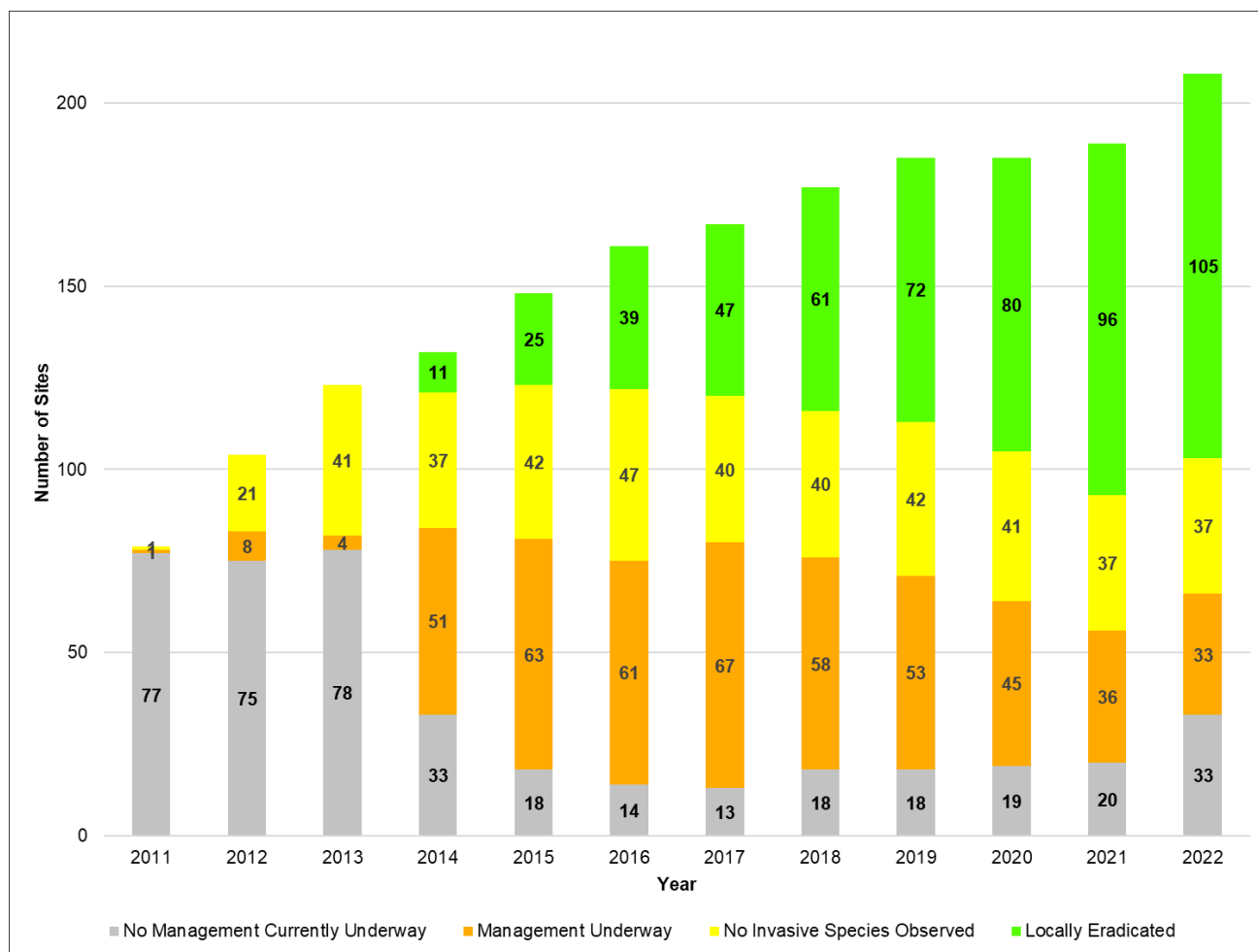


Figure 9. Annual management progress for the Southern St. Lawrence Watershed Common Reed Grass Exclusion Project (2011-2022).

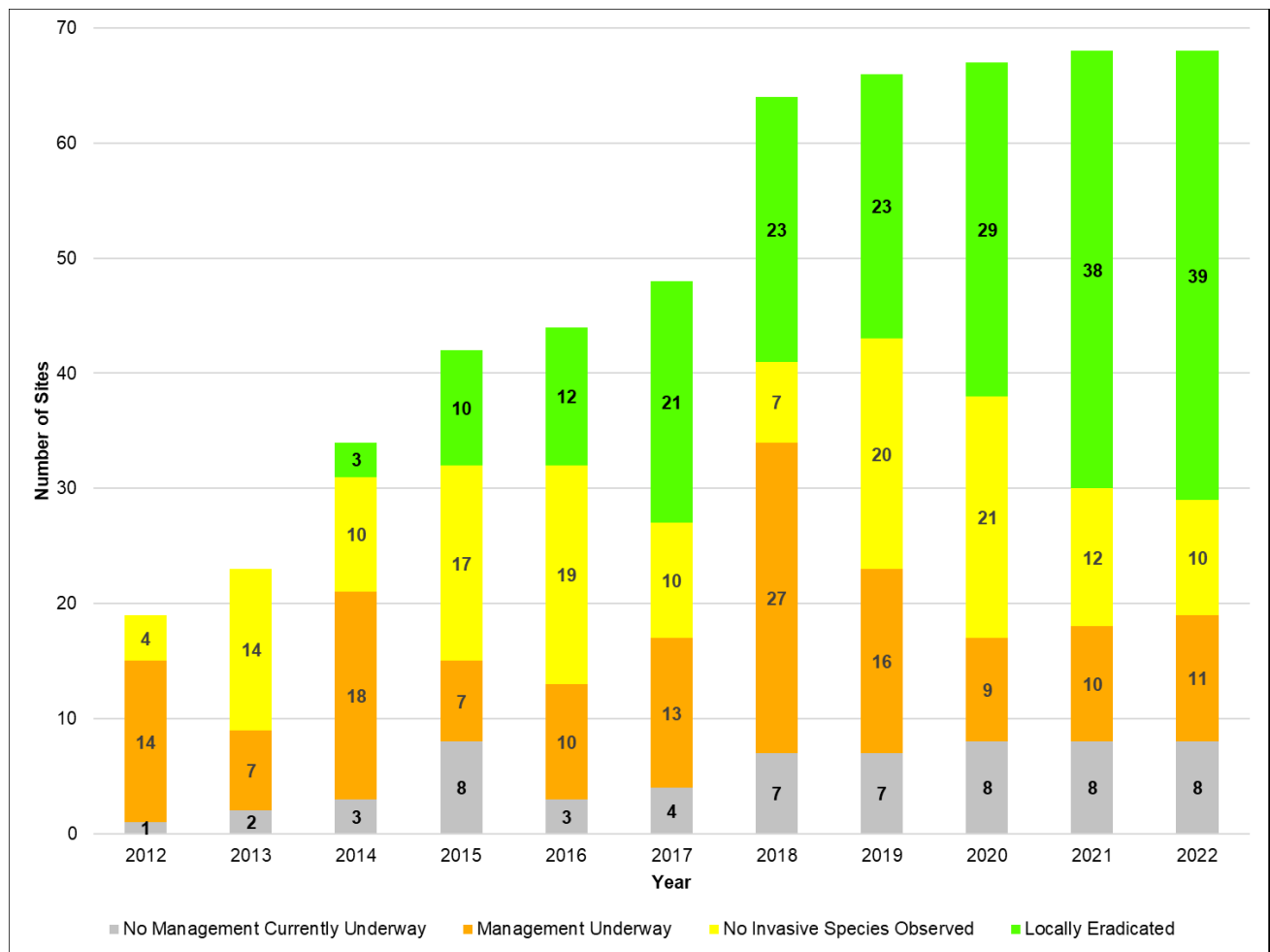


Figure 10. Annual management progress for the St. Regis River Watershed Common Reed Grass Exclusion Project (2012-2022).

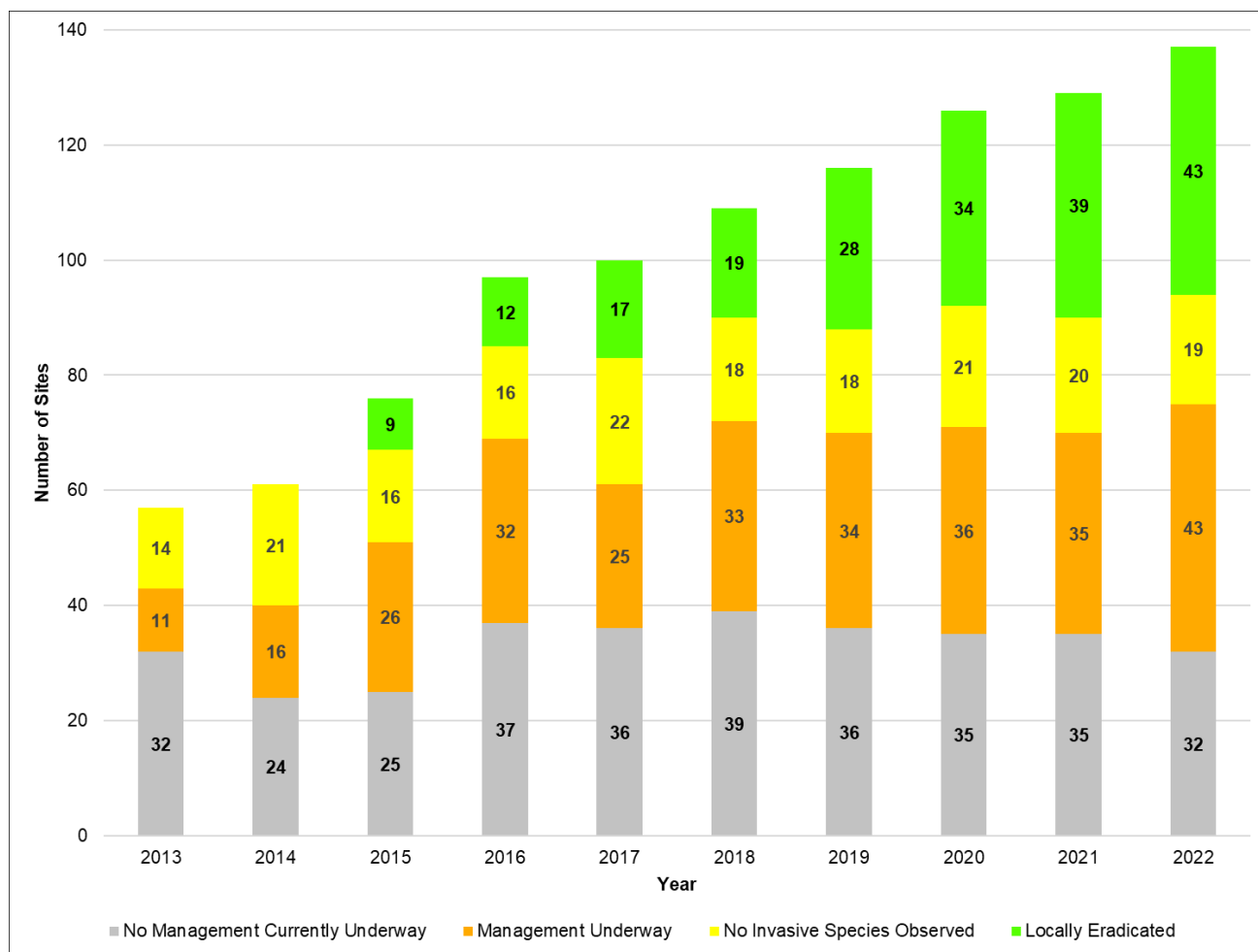


Figure 11. Annual management progress for the Upper Hudson Watershed Common Reed Grass Exclusion Project (2013-2022).

Adirondack Park Invasive Plant Program 2022 Annual Report

Appendix C: Aquatic Invasive Species Progress Charts

The charts on the following pages provide additional detail for some of the Adirondack Park Invasive Plant Program's (APIPP) 2022 aquatic invasive species (AIS) program findings.



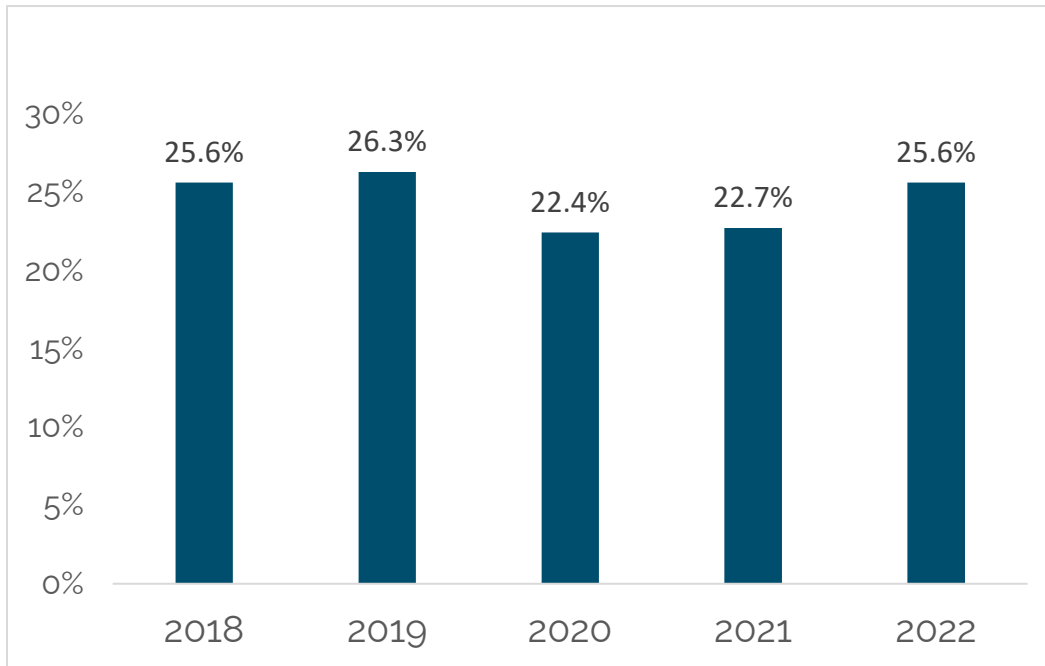


Figure 1. Percent of monitored lakes with AIS observed for the past five years. The five-year average is 24.6%.

Each year APIPP collects reports from staff, partners, and volunteers about AIS observed in lakes. The count of lakes with AIS observed is divided by the total number of lakes surveyed that year. In 2022 there were 40 waterbodies with observed AIS out of 156 waterbodies monitored (25.6%).

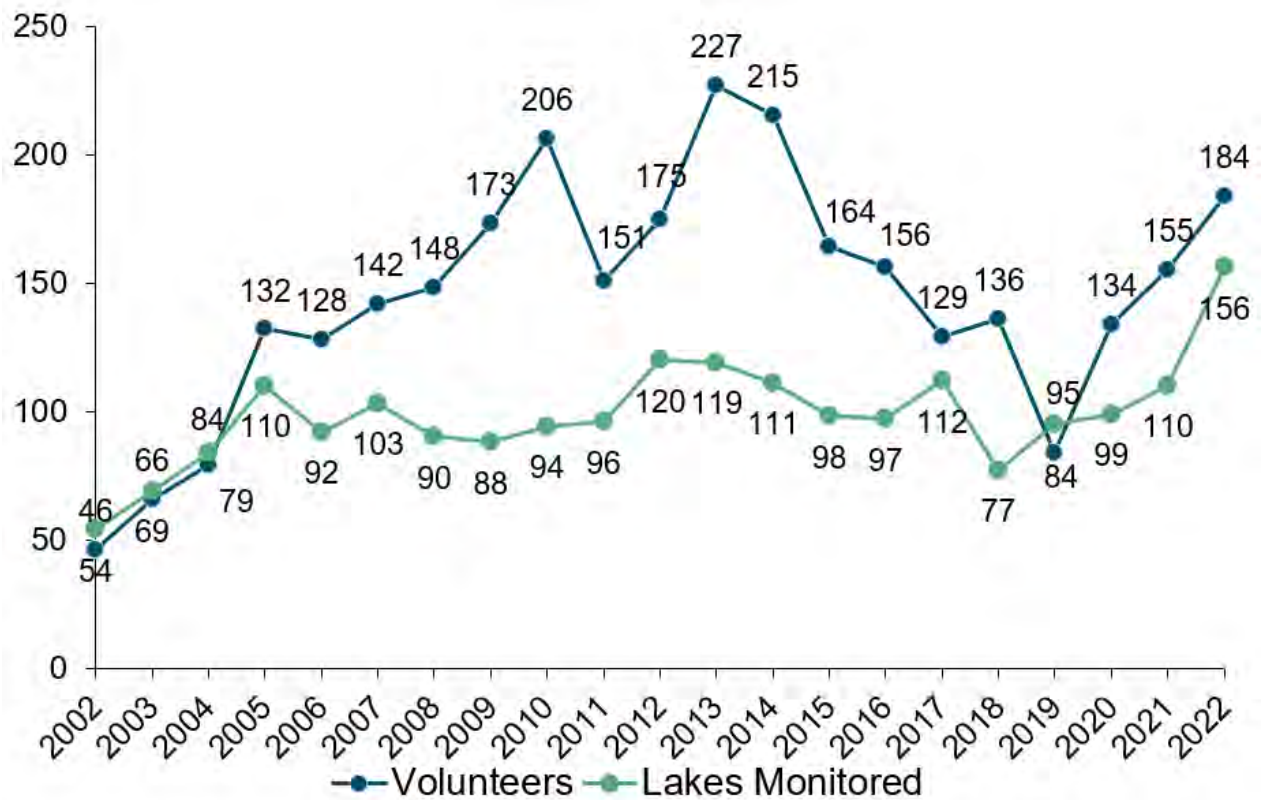


Figure 2. Number of volunteers and number of lakes monitored from 2002 to 2022.

APIPP collects monitoring reports from staff, partners, and volunteers from across the Adirondack PRISM. Each year we tally the number of waterbodies and number of volunteers to track regional efforts to monitor AIS. The number of volunteers is calculated from the number of non-paid people (partners or volunteers) reported on an AIS monitoring survey.

2022 Lake Management Tracker Results

In 2022 five lakes participated in APIPP's Lake Management Tracker Program. Results from each lake where invasive species are present are provided below.

Waterbody	Invasive Present
Upper Chateaugay Lake	Eurasian watermilfoil (EWM)
Moody Pond	Eurasian watermilfoil (EWM)
Loon Lake (Warren County)	Eurasian watermilfoil (EWM)
Raquette Lake	Variable-leaf watermilfoil (VLM)
Friends Lake	No invasives

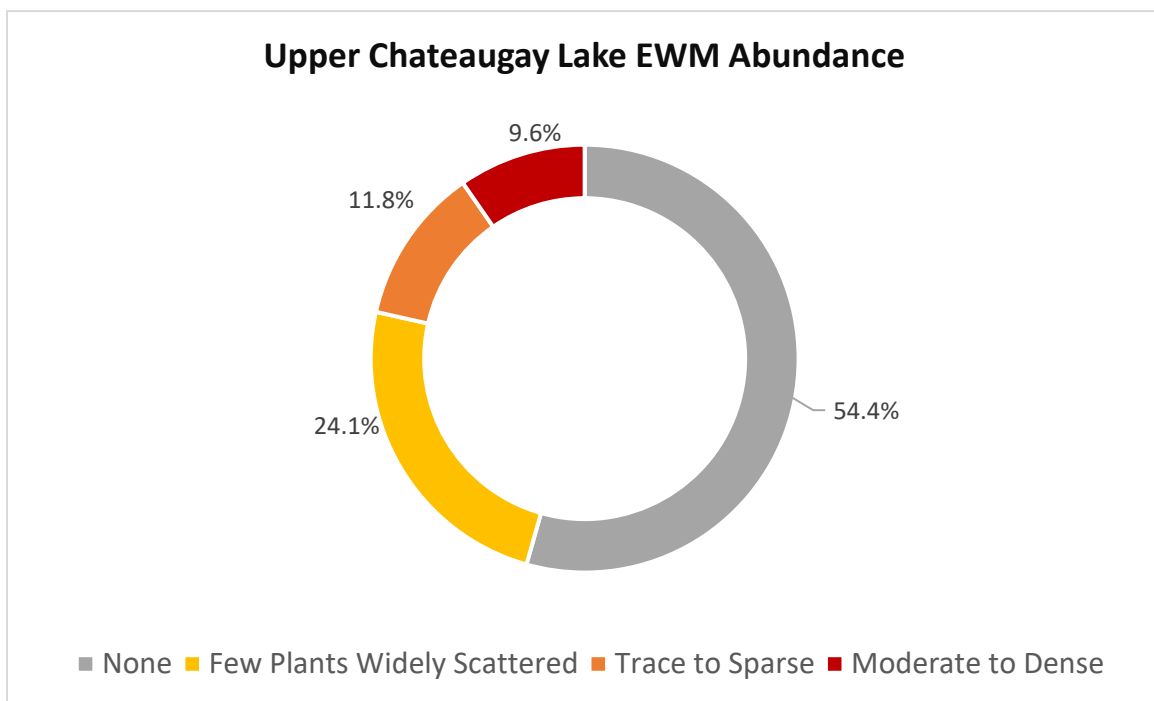


Figure 3. Upper Chateaugay Lake Eurasian Watermilfoil Abundance

Data from 228 observations collected by Chateaugay Lake Foundation volunteers between July 17 and August 13, 2022.

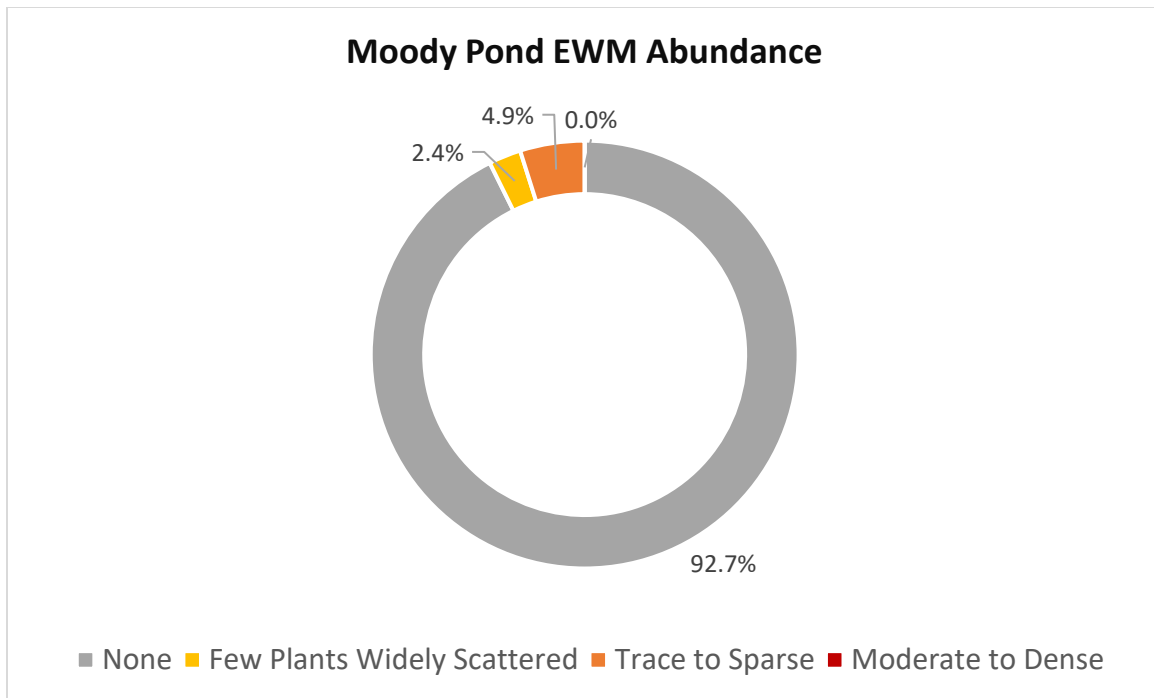


Figure 4. Moody Pond Eurasian Watermilfoil Abundance
 Data from 41 observations collected by Friends of Moody Pond volunteers between September 8 and September 12, 2022.

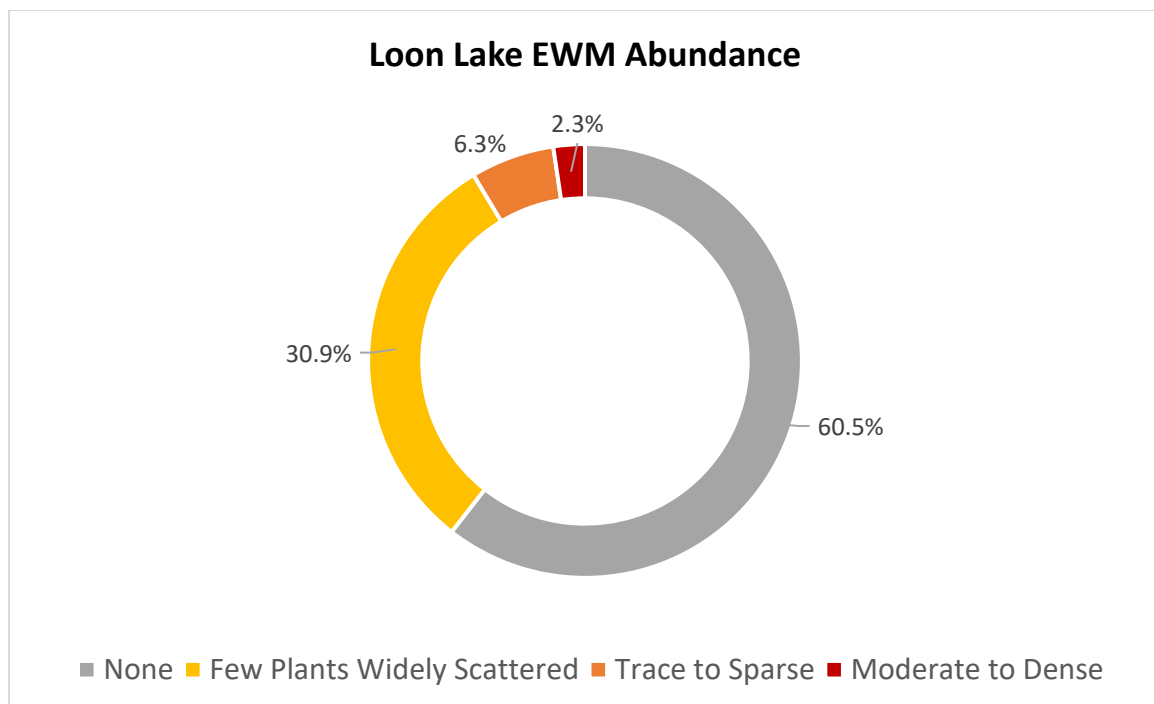


Figure 5. Loon Lake Eurasian Watermilfoil Abundance
 Data from 256 observations collected by Loon Lake Park District volunteers between August 17 and September 17, 2022.

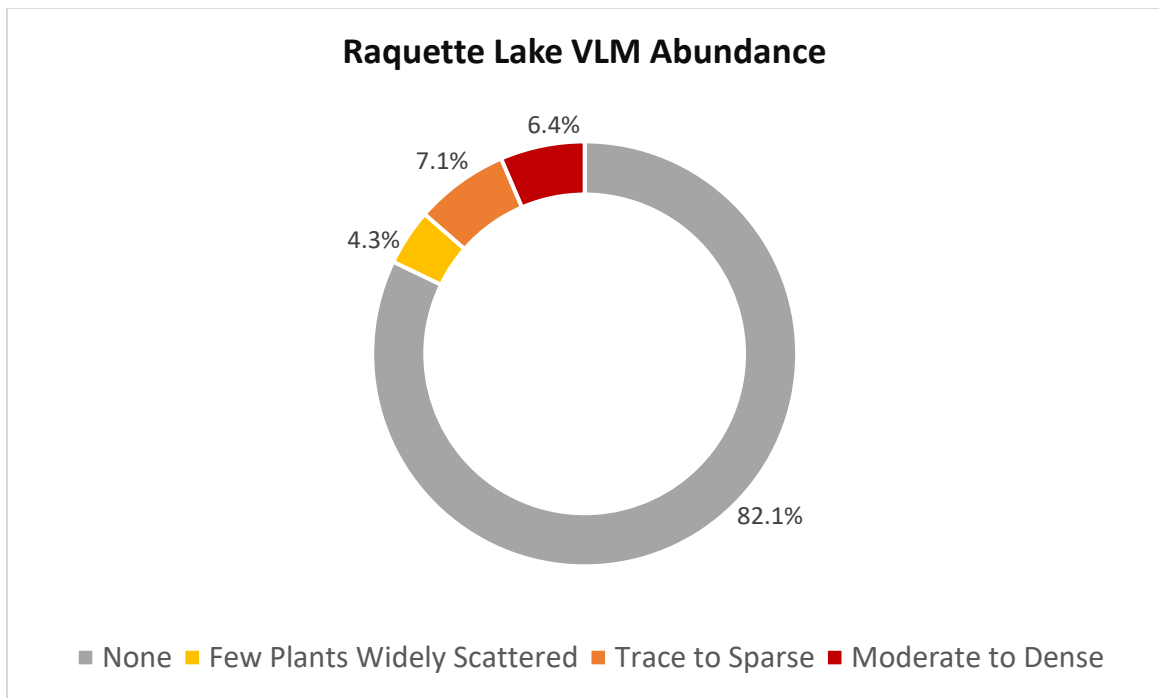
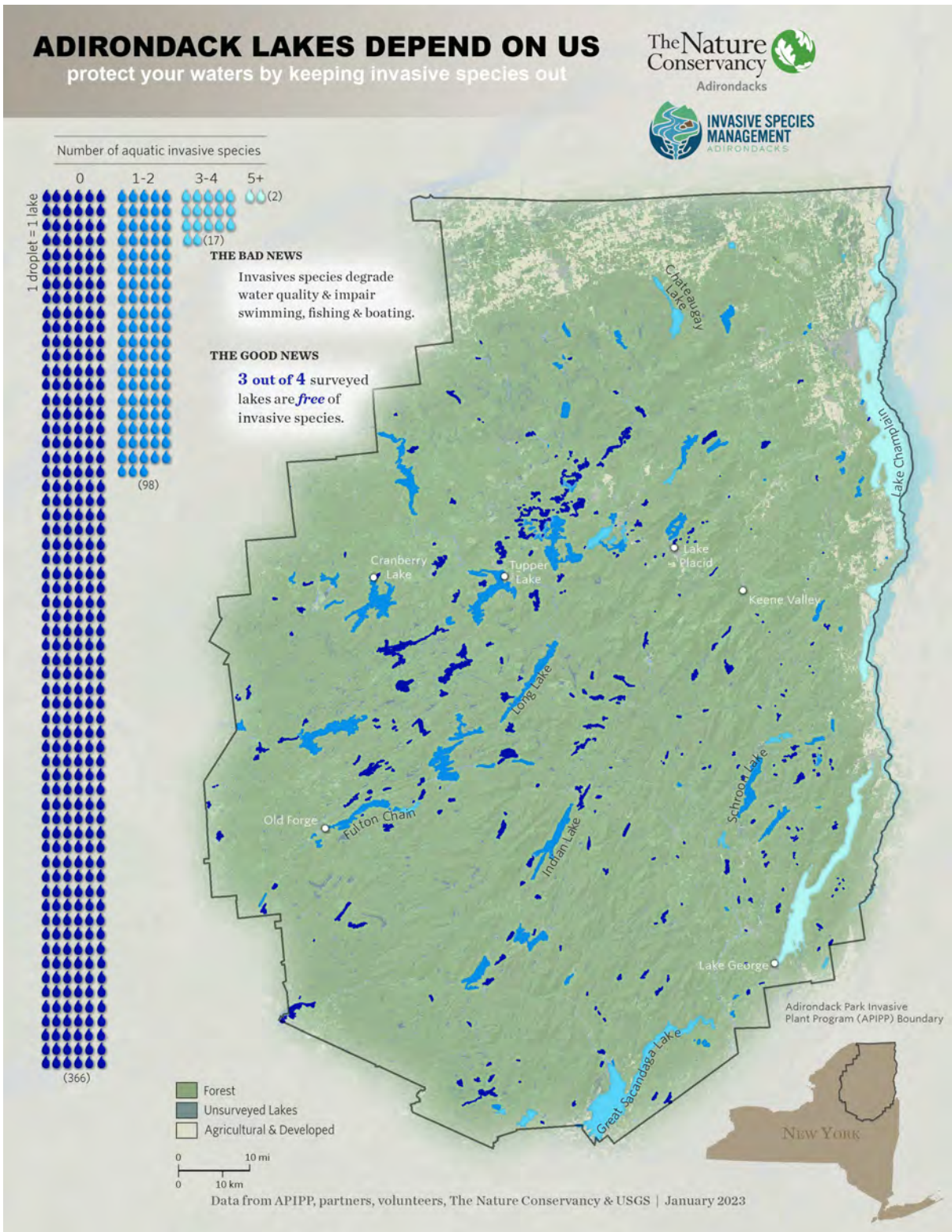


Figure 6. Raquette Lake Variable-Leaf Watermilfoil Abundance
Data from 140 observations collected by Raquette Lake Preservation Foundation volunteers between September 21 and October 1, 2022.

Location and Number of Adirondack Waterbodies Surveyed with Aquatic Invasive Species Detected - 2022



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Appendix D: iMapInvasives Adirondack PRISM Metrics 2022

This report illustrates a few of the metrics (Tabs A and I) provided by iMapInvasives for the Adirondack Partnership for Regional Invasive Species Management (PRISM). The full report provided by iMapInvasives is posted on www.adkinvasives.com. The [full report](#) includes the nine tabs listed below.

Tab A	Top 10 Species Reported in the PRISM Geography. This includes: Detected (confirmed and unconfirmed), Not-Detected, Treated (including number)
Tab B	Number of Unique Species Reported (presence data only)
Tab C	Summary Numbers: Presence, Not-Detected, Searched Areas, Acres of Searched Areas
Tab D	Summary Numbers: Not-Detected and Presence by Data Entry Method
Tab E	Reason for Not Detecting
Tab F	STATEWIDE-Species that are confirmed and new to county
Tab G	PRISM-Species that confirmed and new to county in the PRISM
Tab H	Number of Unique Observers/Users (That Submitted Records in 2022)
Tab I	Top 10 organizations submitting Presence and Not-Detected Records

There are two important notes related to the metrics.

1. The data on the following pages appears as submitted by iMapInvasives; the data is not verified by the Adirondack Park Invasive Plant Program.
2. The data represents iMapInvasives reports from December 4, 2021 to December 9, 2022.

Thank you iMapInvasives for being such a great partner!



Top Ten Species Reported: Presence (confirmed/unconfirmed), Not-Detected, Treatment

Presence Detected	Statewide		APIPP	
1	Eurasian Watermilfoil	5,343	European Common Reed	1,002
2	Curly-leaf Pondweed	2,227	Japanese Knotweed	654
3	Starry Stonewort	1,799	Eurasian Watermilfoil	422
4	Water Chestnut	1,484	Garlic Mustard	372
5	Common Carp	1,325	Purple Loosestrife	234
6	European Common Reed	1,157	Bush Honeysuckle (species unknown)	149
7	Sea Lamprey	973	Reed Canary Grass	105
8	Japanese Knotweed	862	Yellow Iris	100
9	Carolina Fanwort	812	Broadleaf Watermilfoil	68
10	Broadleaf Watermilfoil	757	Curly-leaf Pondweed	51

Not-Detected	Statewide		APIPP	
1	Garlic Mustard	873	Garlic Mustard	873
2	Hydrilla	759	European Common Reed	723
3	European Common Reed	734	Japanese Knotweed	195
4	Beech leaf disease nematode	519	Purple Loosestrife	113
5	Longhorn Tick	347	Beech leaf disease nematode	92
6	Hemlock Woolly Adelgid	323	Yellow Iris	82
7	Spotted Lanternfly	265	Common Frog-bit	63
8	Japanese Knotweed	256	Broadleaf Watermilfoil	61
9	Carolina Fanwort	252	Hemlock Woolly Adelgid	61
10	Common Water-hyacinth	200	Water Chestnut	61

Treatment	Statewide		APIPP	
1	Japanese Knotweed	151	Japanese Knotweed	138
2	Water Chestnut	140	Garlic Mustard	78
3	Garlic Mustard	80	Common Reed	22
4	Sticky Sage	42	Tree-of-Heaven	10
5	Japanese Barberry	41	Mile-a-Minute	4
6	Common Reed	39	Wild Parsnip	2
7	Japanese Stiltgrass	37	Winged Spindletree	1
8	Scotch Broom	25		
9	Castor-Aralia	24		
10	Tree-of-Heaven	23		

Top Ten Organizations Submitting Presence and Not-Detected Records

Statewide					APIPP			
	Organization name	Total Records	Presence**	Not-Detected	Organization name	Total Records	Presence**	Not-Detected
1	Adirondack Park Invasive Plant Program (APIPP)	6,107	3,449	2,658	Adirondack Park Invasive Plant Program (APIPP)	6,028	3,376	2652
2	Finger Lakes Institute (FLI)	5,651	5,152	499	United States Geological Survey (USGS) - Nonindigenous Aquatic Species (NAS) (NY)	188	188	0
3	New York State Department of Environmental Conservation (NYSDEC) (NY)	5,593	4,797	796	New York State Department of Environmental Conservation (NYSDEC) (NY)	92	27	65
4	United States Geological Survey (USGS) - Nonindigenous Aquatic Species (NAS) (NY)	4,391	4,391	0	Adirondack Research LLC	54	3	51
5	Adirondack Research LLC	2,443	472	1,971	Ausable and Boquet River Associations	28	11	17
6	Capital Region PRISM (CRP)	1971	1760	211	Clinton County Soil and Water Conservation District (SWCD)	24	24	0
7	New York State Office of Parks Recreation and Historic Preservation (NYS OPRHP)	1,690	1,139	551	Adirondack Watershed Institute (AWI) Paul Smiths College (PSC)	23	23	0
8	Greenburgh Nature Center	1,645	1,644	1	East Shore Schroon Lake Assn	18	18	0
9	Lower Hudson (LH) PRISM	1,385	888	497	No Organization Affiliation (NY)	16	15	1
10	Catskill Regional Invasive Species Partnership (CRISP)	1,171	910	261	Piseco Lake Association	12	0	12

** Confirmed and Unconfirmed