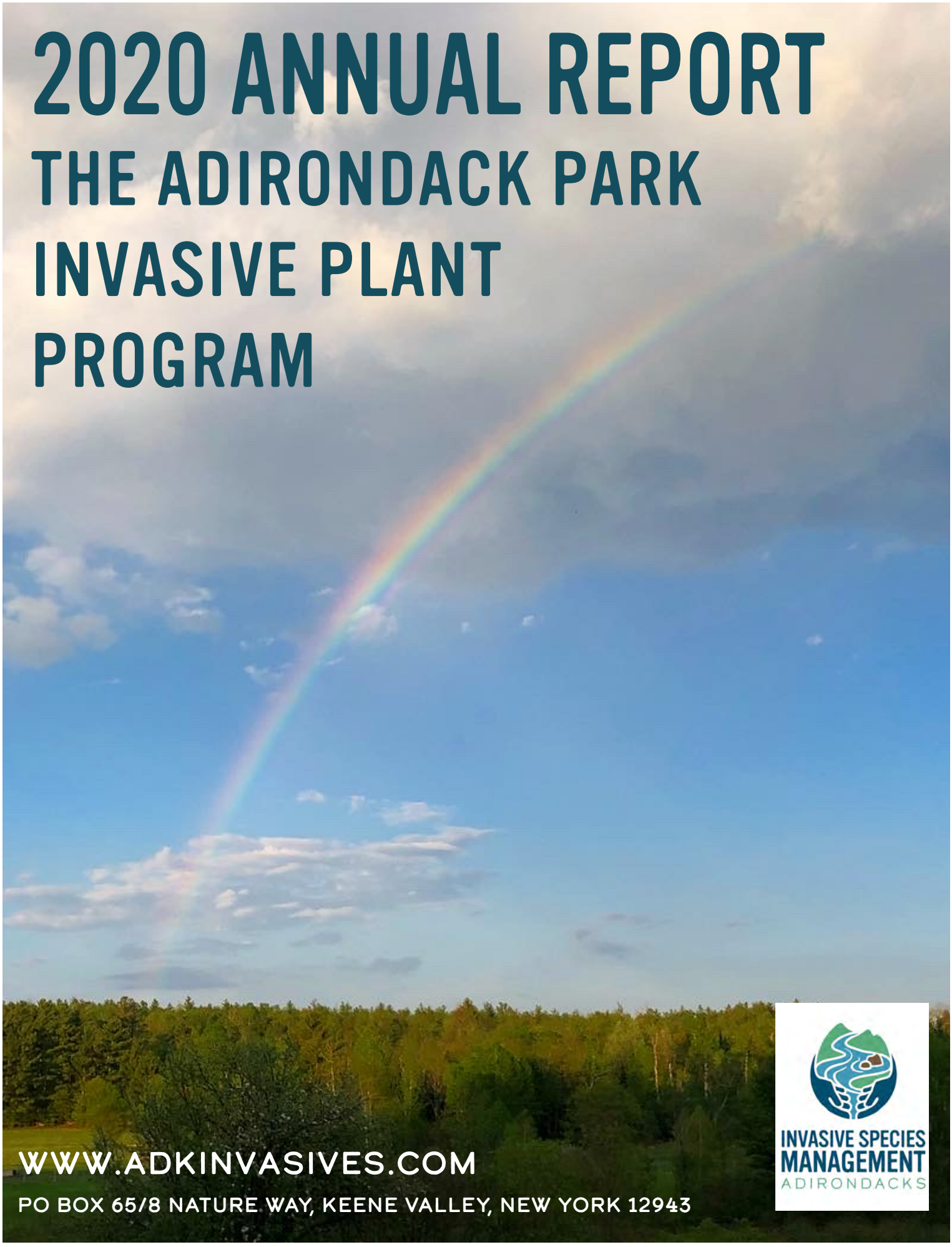
2020 ANNUAL REPORT

THE ADIRONDACK PARK INVASIVE PLANT PROGRAM



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INVASIVE SPECIES MANAGEMENT ADIRONDACKS

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PAUL SMITH'S ADIRONDACK WATERSHED INSTITUTE
SAINT LAWRENCE COUNTY SWCD

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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A NOTE ON PHOTOS: ALL PHOTOS COURTESY OF APIPP UNLESS OTHERWISE NOTED.

EXECUTIVE SUMMARY

PHOTO: EMILY-BELL DINAN

Dear Partners and Supporters,

The Adirondack Park Invasive Plant Program (APIPP), hosted by The Nature Conservancy (TNC), is pleased to share this 2020 Annual Report. The report showcases how the collective efforts of our partner organizations, communities, volunteers, contractors and staff help meet APIPP's mission to protect the Adirondack region from the negative impacts of invasive species. APIPP and its partners achieved great results in 2020 despite unparalleled challenges resulting from the COVID-19 pandemic and new infestations of damaging forest pests. With innovative solutions and flexibility, the partnership was able to advance APIPP's 12 strategic plan goals as highlighted in the following report.

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**

APIPP added three new staff this year after COVID-19 precautions went into effect. Emily-Bell Dinan is APIPP's first full-time Education and Outreach Coordinator. Becca Bernacki filled the Terrestrial Invasive Species Project Coordinator position vacated when Zack Simek transitioned to the Conservation and GIS Analyst position. Adellia Baker served as the Summer Invasive Species Management Steward. While onboarding new staff remotely presented some challenges, their enthusiasm and creatively enabled us to quickly build an effective team. Staff looks forward to the day when we can meet with each other and our partners in person!

COVID-19 also presented challenges for the field season and contract work. The New York State Department of Environmental Conservation (NYSDEC) put a hold on some contract work, including an update of APIPP's strategic plan and a pilot project to manage invasive species at infested boat launch sites. Fortunately, APIPP was able to contract with the terrestrial and aquatic early detection and rapid response (EDRR) crews.

The EDRR crews moved swiftly to confirm essential worker status and implement appropriate COVID-19 precautions. APIPP staff also conducted field work, adhering to masking and social-distancing protocols. This allowed APIPP to act quickly to news of the first finding of emerald ash borer and first major infestation of hemlock woolly adelgid in the Adirondack Park.

Pandemic precautions also brought opportunities. While APIPP staff were not able to meet with volunteers in-person, volunteerism increased as more people sought respite in the outdoors. Educational program attendance also increased as APIPP launched a comprehensive online training series.

The APIPP team looks forward to a time when we can once again collaborate in person with the partners and volunteers that are at the core of this important work. In the meantime, we are hosting Zoom partner meetings, increasing volunteer opportunities, and delivering high-quality online learning programs. Plans are also underway to once again hire our seasonal crews and seasonal steward to monitor and manage invasive species across the Adirondack Park.

Together we can continue to protect the Adirondacks from the negative economic, environmental and public health impacts of invasive species. Thank you for all you do to help conserve Adirondack lands and waters.

Sincerely,

Tammara

Tammara Van Ryn

APIPP STAFF

TAMMARA joined the APIPP team as Program Manager at the end of 2019. She brings a natural resource and land conservation background to the position as well as strategic planning and partnership building experience.

Tammara Van Ryn, Program Manager

ZACK transitioned to a new role in 2020 and serves as the Conservation & GIS Analyst for APIPP and the St. Lawrence Eastern Lake Ontario (SLELO) PRISM. Zack's prior experience successfully managing APIPP's terrestrial program provided him with the perfect skills for his new role.

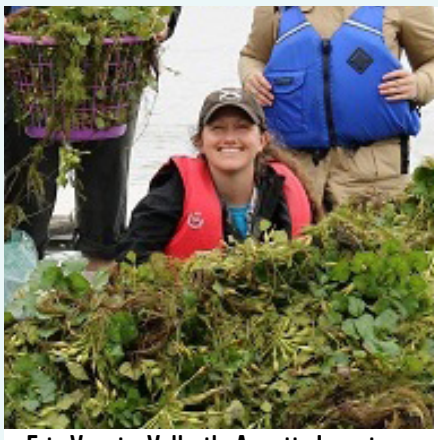
Zachary Simek, Conservation & GIS Analyst

BECCA joined the APIPP team in May 2020 to fill the Terrestrial Invasive Species Project Coordinator role. She adds experience in project management, plant identification, and advanced GIS skills to the team.

Becca Bernacki, Terrestrial Invasive Species Project Coordinator

EMILY-BELL joined the team in April 2020 as APIPP's first Education & Outreach Coordinator. She brings a background in habitat restoration, environmental education, volunteer management, and design to the team.

Emily-Bell Dinan, Education & Outreach Coordinator



ERIN joined APIPP in 2014. In November 2020, we bid her a fond farewell as she transitioned to a new position with the NYSDEC. We thank Erin for her years of service and wish her all the best!

Erin Vennie-Vollrath, Aquatic Invasive Species Project Coordinator

ADELLIA joined APIPP as the 2020 Steward. This was Adellia's third season managing invasive species and she brought an extensive knowledge of hands-on management and plant identification to the role.

Adellia Baker, 2020 Invasive Species Management Steward

2020 APIPP HIGHLIGHTS

MORE THAN 30 ORGANIZATIONS AND 100 VOLUNTEERS SHARE THEIR IDEAS, TIME, AND RESOURCES TO ADVANCE THE MISSION OF APIPP. THANK YOU! TOGETHER WE MAKE A SIGNIFICANT DIFFERENCE ADDRESSING INVASIVE SPECIES THREATS IN THE ADIRONDACKS. HERE ARE HIGHLIGHTS FROM OUR COLLABORATIVE WORK IN 2020.

PHOTO: EMILY-BELL DINAN

INNOVATION & PARTNERSHIPS

THE APIPP TERRESTRIAL PROJECT completed its **third year** of unmanned aerial vehicle-assisted (UAV) surveys looking for wetland invasives. Utilizing this technology can greatly expand detection efforts in difficult-to-access backcountry habitats.

APIPP USES BIOBASE software to map lake characteristics. Maps for **75 lakes** were added to APIPP's website. The BioBase mapping project expanded to include a citizen-science component in 2020 with Schroon Lake Association and Chazy Lake Association using the tool to map these lakes.

APIPP EXPANDED ITS KNOTWEED management efforts in 2020 by assuming the management of the former Regional Inlet Invasive Plant Program (RIIPP). In 2020, volunteers helped secure permission from **60 landowners and municipalities** allowing for treatment to occur on **92 sites**.

APIPP JOINED FORCES with Lake George watershed partners to combat the threat of hemlock woolly adelgid (HWA), spearheading an effort that **monitored more than 400 sites**. This survey work provided a foundation for a remote-sensing, early-detection project.

AQUATIC INVASIVE SPECIES DETECTION

ONE-HUNDRED-THIRTY-FOUR volunteers and **six early-detection** team members from Adirondack Research **surveyed 99 Adirondack** waterways for aquatic invasive species (AIS).

NO NEW INFESTATIONS of small-bodied AIS were found.

ONE NEW LAKE was found to have invasive plants, Weller Pond.

75% OF Adirondack waterways surveyed remain AIS free!

TERRESTRIAL INVASIVE SPECIES DETECTION

APIPP'S STAFF, PARTNERS, VOLUNTEERS and terrestrial EDRR team from Invasive Plant Control surveyed **38 NYSDEC** campgrounds, **80 recreational** access points (such as trailheads and boat launches), sections of **33 Forest Preserve** units**,** and **62 road** corridors**.** Over **3,600** assessments were recorded.

JUST OVER 650 new terrestrial infestations were found. There are now a total of **6,019 mapped** infestations of APIPP's **twenty-four target** species.

ELEVEN NEW INFESTATIONS of emerald ash borer (EAB) were documented by partners. Most occurrences are outside of the Adirondack Park with **three** new occurrences in northern Franklin County and **four** in northern Clinton County. Unfortunately, 2020 saw the first time emerald ash borer was identified within the Adirondack Park, with **four** confirmed infestations found in Warren County.

WITH ASSISTANCE FROM the Lake George Land Conservancy and NYSDEC, APIPP completed the **first year** of HWA management on Dome Island. Approximately **13%** of hemlock trees present on the island **(342 trees)** were treated. APIPP also assisted NYSDEC's HWA control efforts on Lake George.

INVASIVE SPECIES MANAGEMENT

THANKS TO THE WORK of APIPP partners, many waterbodies are being managed to reduce the impact of the following aquatic invasive species.

EURASIAN WATERMILFOIL: 17 LAKES

VARIABLE-LEAF WATERMILFOIL: 5 LAKES

WATER CHESTNUT: 3 LAKES

ZEBRA MUSSELS: 1 LAKE

APIPP'S TERRESTRIAL PROJECT managed **675 infestations** of **14 species**, totaling over **23 acres**, and documented the absence of invasives at **1,522** historically managed infestations! In total, 74% of APIPP's priority terrestrial invasive species infestations are currently under active management or have been successfully removed.

PREVENTION, EDUCATION & OUTREACH

APIPP GREW AWARENESS about invasive species identification, prevention, and management by delivering **22 formal presentations** in partnership with **17 organizations**, reaching nearly **900 people**.

DIGITAL PRESENCE expanded with a **newly redesigned website**, increased **Facebook engagements**, and a new **Instagram account** connecting to **hundreds of followers** interested in their local environment.

IN PRINT, DIGITAL, RADIO, AND TELEVISION news, APIPP was mentioned in **26 different stories** covering invasive species topics in the Adirondack region.

WORKING WITH TNC'S STEWARDSHIP staff, APIPP developed interpretive signage for **three boot brush stations** installed at TNC's Boquet River Nature Preserve in Willsboro, NY.

APIPP COLLABORATED with the Adirondack Watershed Institute (AWI), whose boat launch stewards **inspected 122,988** boats.

SPECIAL INITIATIVES

THESE SPECIAL INITIATIVES ADVANCE GOALS 1, 2, 3, 6, 7, 10 & 12 OF APIPP'S STRATEGIC PLAN

BIOBASE LAKE MAPPING

THE APIPP AQUATIC PROJECT deployed its early-detection team to collect and process sonar data using the BioBase lake mapping system for the third year. APIPP will use the lake depth, bottom substrate hardness, and vegetation biovolume information to help prioritize future prevention, survey and management projects.

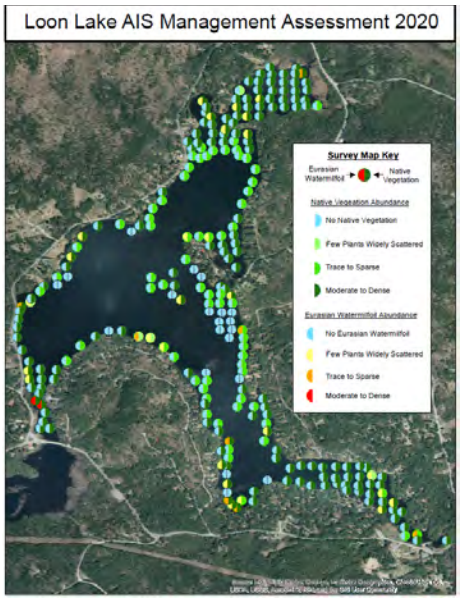
Complete BioBase data was collected for 26 lakes in 2020 and data was gathered within the littoral zone of an additional 16 waterbodies. APIPP now has full BioBase data for 45 lakes and partial data collected within the littoral zone for an additional 67 lakes. To make this information more readily-accessible to lake associations and volunteers, maps for each lake surveyed in 2018 and 2019 were posted on APIPP's website. Maps generated in 2020 will be posted in early 2021.

The BioBase mapping project expanded to include a citizen-science component in 2020. Two lake associations participated: Schroon Lake Association and Chazy Lake Association. APIPP will again offer the training and equipment to interested lake associations in 2021.

ERIN VENNIE-VOLLRATH COLLECTS BIOBASE DATA, SUMMER 2020. PHOTO BY TNC STAFF

LAKE MANAGEMENT TRACKER

APIPP PARTNERED WITH APA and the Adirondack Lakes Alliance in 2018 to develop a Survey 123-based mobile monitoring tool and protocol—the Lake Management Tracker—for lake associations to assess progress and outcomes of their ongoing aquatic invasive plant management efforts. The project collects data to improve decision making and resource allocation for aquatic invasive plant harvesting efforts. Two lakes participated in the 2018 pilot and, by 2020, the project grew to have five lakes participate: Loon Lake, Hadlock Lake, Chateaugay Lake, Friends Lake, and Lincoln Pond.



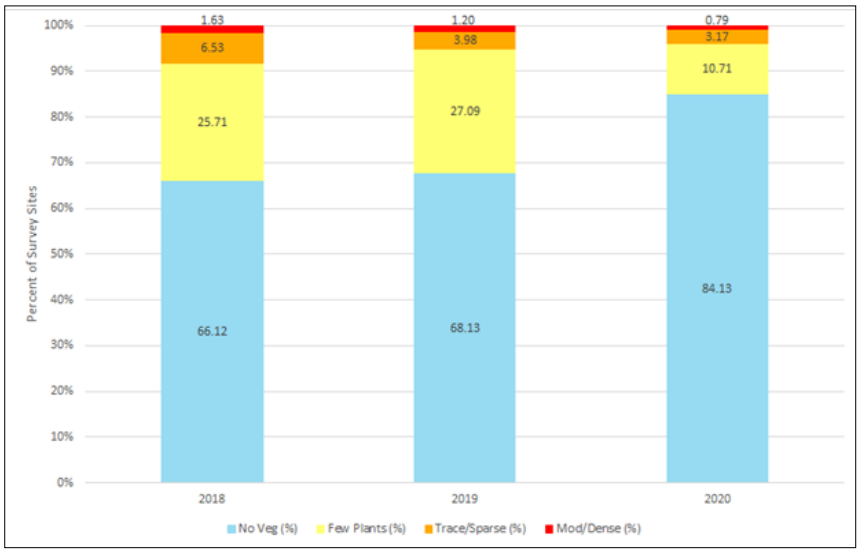


FIGURE 1. COMPARISON OF EURASIAN WATERMILFOIL ABUNDANCE IN LOON LAKE (2018-2020)

WHITEFACE HIGHWAY

BOOTT'S RATTLESNAKE ROOT BY WALTER SIEGMUND

ALPINE GOLDENROD BY JULIA GOREN

FILL CONTAMINATED with invasive species was inadvertently spread along the Veterans' Memorial Highway leading to the summit of Whiteface Mountain as a part of construction activities several years ago. Invasive plants along the highway put over ten rare, threatened or endangered species—such as Boott's rattlesnake root (*Nabalus bootii*) and alpine goldenrod (*Solidago leiocarpa*)—at risk.

The 2020 field season marks the fifth year that APIPP conducted mechanical management along this road corridor to remove several lower priority invasive plants, such as knapweed (*Centaurea spp.*) and sweet clover (*Melilotus spp.*). These plants are not typically managed by APIPP, but their removal can help protect the rare alpine plants.

APIPP's efforts are making a difference. The 2020 EDRR crew removed 19 contractor bags of invasive plant material; a significant reduction from 2019. The notable reduction in knapweed and sweet clovers is providing improved habitat for the rare and endangered species.

KNOTWEED PARTNERSHIP

INJECTING HERBICIDE INTO KNOTWEED STEMS. PHOTO BY KING COUNTY NOXIOUS WEED CONTROL PROGRAM, WA

JAPANESE KNOTWEED, BY ACABASHI, CREATIVE COMMONS CC-BY-SA 4.0, WIKIMEDIA COMMONS

APIPP EXPANDED ITS KNOTWEED *(Reynoutria japonica, Reynoutria sachalinensis, and Reynoutria x bohemica)* control efforts in 2020 by assuming management of the former Regional Inlet Invasive Plant Program (RIIPP). RIIPP was formed in 2008 by a group of concerned citizens and public agencies, led by Douglas Johnson, to reduce knotweed growth in the Town of Inlet. The Town of Inlet took the lead and managed the logistics of the program during its early years as the program was adopted by other communities.

In 2015, the Hamilton County Soil and Water Conservation District (HCSWD) assumed coordination of RIIPP with the assistance of many partners. In 2020, thanks to a transfer of funds from HCSWCD and moneys received from private donors, APIPP assumed the coordinating role of the newly-named Knotweed Management Partnership.

The primary objective of the partnership is to reduce the severity of knotweed infestations in ecologically sensitive areas by treating for several years to aid landowners in controlling infestations more readily on their own. To meet this objective, APIPP contracted with a certified pesticide applicator in 2020 to treat priority knotweed infestations on 92 sites.

Volunteers are essential to this program and are responsible for assessing new and known locations of knotweed, securing landowner indemnification and treatment-permission forms, and providing information about how to slow the spread of invasive species. In 2020, volunteers helped obtain approximately 60 landowner and municipal permission forms. If you are interested in volunteering for this important project, please contact APIPP staff.

Volunteers and pesticide applicators were able to determine that 29 sites that had been treated in the past no longer had knotweed present in 2020. This encouraging finding shows treatments coordinated by Town of Inlet and HCSWCD were successful.

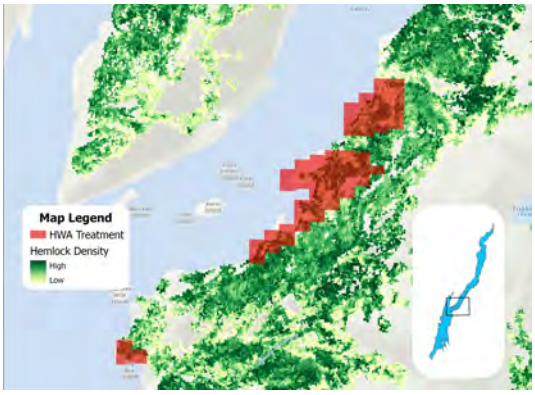
HEMLOCK WOOLLY ADELGID

HEMLOCK WOOLLY ADELGID (HWA) *(Adelges tsugae)* has been present in NY since the 1980's but is a relatively new arrival to the Adirondack PRISM. HWA was detected on Prospect Mountain near Lake George in 2017, which was the first confirmed occurrence of HWA in the Adirondack Park. NYSDEC and multiple conservation partners performed extensive surveys of the area and found only three infested trees that were promptly treated with insecticide. A second HWA infestation was confirmed on the shores of Lake George in July 2020.

In many portions of the Lake George watershed, eastern hemlock *(Tsuga canadensis)* comprises a significant portion (80%+ basal area) of the forested landscape. This keystone tree species provides numerous ecological and cultural benefits to stakeholders in the watershed. APIPP quickly worked with nonprofit partners and NYSDEC on the four-stage approach to this new infestation described below.

APIPP STAFF, ZACK SIMEK, SCOUTS FOR HWA, FALL 2020. PHOTO BY NYSDEC

STAGE 1: DELIMITATION & CONTROL



NYSDEC LED THE STAGE 1 efforts to confirm the infestation reported in July, determine its extent, and perform treatment as soon as possible to prevent reproduction and spread. Over 100 days of state and partner time were spent surveying the area near the primary infestation. Two areas of infestation, totaling over 250 acres, were mapped and assessed for chemical treatment. NYSDEC led the treatment on state land, with APIPP's Zack Simek serving on the state's incident command team; 275 collective days of staff time resulted in 2,454 trees being treated over 138 acres.

MAP 1. HWA 2020 TREATMENT AREA IN LAKE GEORGE WATERSHED

STAGE 2: RESOURCE BASED EARLY DETECTION SURVEYS & DOME ISLAND

AS NYSDEC AND CONSERVATION partners conducted delimitation and control activities in stage 1, early-detection surveys were conducted by partners in a much larger area in stage 2. These surveys were designed to examine hemlock stands that are most vulnerable to HWA and/or that are ecologically significant. Nonprofit partners and a four-person crew from Adirondack Research, funded by the Lake George Land Conservancy, surveyed over 400 additional sites.

Two new infestations were found during the stage 2 surveys, a small location at the Buck Mountain trailhead and trees on the southern end of Dome Island, which is owned by TNC. TNC and APIPP responded quickly to this finding and 20 days of staff and partner time resulted in 342 trees or 13% of the hemlocks on the island, being treated with insecticide to prevent the spread of HWA.

The New York State Hemlock Initiative collected samples from trees on Dome Island to help assess the extent of the infestation and to test new eDNA sampling methods. TNC also worked with Skidmore College on a soil sampling project to assess soil carbon and to collect soil baseline information prior to the pesticide treatment.

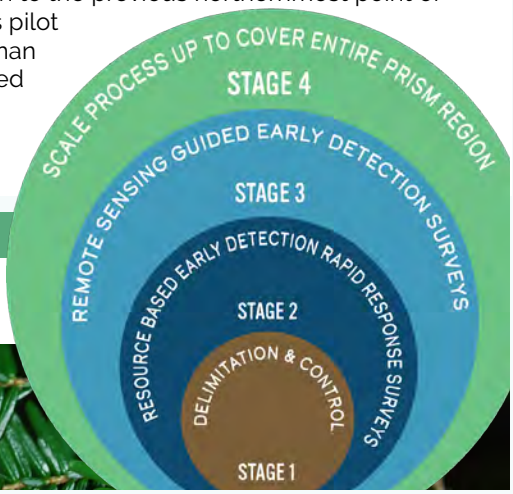
ALEX NOVICK, LAKE GEORGE LAND CONSERVANCY, TREATING HWA ON DOME ISLAND, FALL 2020. PHOTO BY TNC STAFF

STAGE 3: REMOTE SENSING GUIDED EARLY DETECTION SURVEYS

HWA'S WHITE WOOL VISIBLE. PHOTO BY TNC STAFF

TO FOCUS FUTURE HWA early-detection surveys, stage 3 includes piloting remote sensing technology. With funding provided by The FUND for Lake George, a time series hemlock decline model will be developed by remote sensing experts led by Professor Andrew Reinmann at the City University of New York's Advanced Science Research Center.

Hemlock stands exhibiting a declining health signature based on analysis of Landsat and Sentinel data will be targeted for ground-based surveys by professional crews. The hemlock decline model will be applied to an area extending from Lake George south to the previous northernmost point of HWA near Troy, NY. As part of this pilot project, it is projected that more than 150 additional sites will be surveyed to document hemlock density, hemlock health, and presence or absence of HWA.



STAGE 4: BRING TO SCALE

IN STAGE 4, APIPP will incorporate lessons learned from the pilot remote-sensing project and expand it to cover the entire Adirondack Park.

ASSESSING VEGETATION IMPACTS FROM DEER (AVID)

APIPP ENGAGES in terrestrial invasive plant management activities to help recover desirable native species and the ecosystem services they provide. When undertaking invasive control work, it is important to assess and understand associated stressors impacting restoration success. One such limiting factor in northeastern forests are whitetail deer *(Odocoileus virginianus)*.

As deer populations increase, they browse on the most palatable plants available to them. High-preference species include many of the native herbs, shrubs, and tree seedlings that we aim to protect through invasive plant management efforts. Invasive species are generally considered lower preference and deer tend to avoid eating them.

By selectively eating the most delicious species, deer browsing can suppress or lead to high mortality rates of young plants. This selection pressure can transition the forest's plant compostion to that of less delectable vegetation, which is all too often invasive plants. In the presence of heavy deer activity, invasive plant control alone might not result in the native plant cover that management aims to enhance. In some cases, active restoration with deer-resistant plants or temporary fencing may be warranted.

To better understand the role of deer impacts on local native plant recovery, in 2020 APIPP established seven Assessing Vegetation Impacts from Deer (AVID) plots at four TNC properties throughout the PRISM. AVID is a vegetation monitoring protocol designed to help resource managers understand deer impacts. Protocols include annual wildflower and tree species monitoring, along with comparative analysis of plant growth between fenced and unfenced plots.

Repeat samples collected in the coming years will help our team assess whether deer are having a substantial impact to native vegetation and help determine if/when active restoration is required to meet management objectives.

EDUCATION & OUTREACH

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

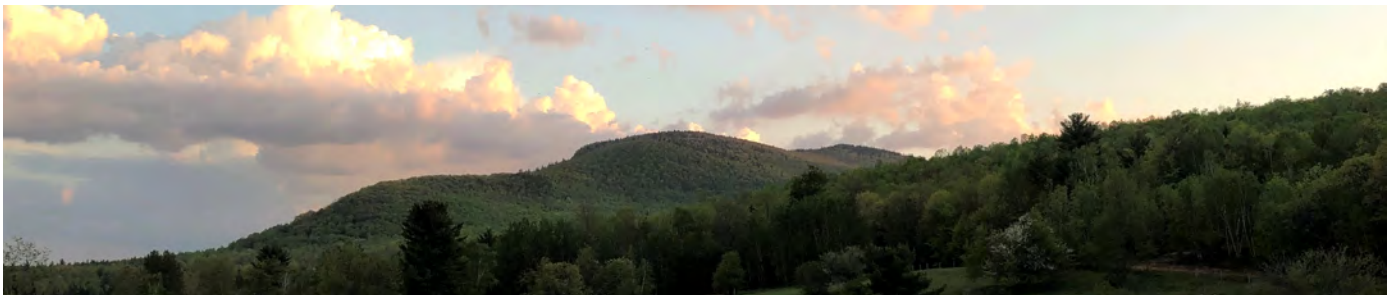


PHOTO: EMILY-BELL DINAN

BOOT BRUSH STATIONS AT THE BOQUET

BOOT BRUSH STATION INFORMS THE PUBLIC ON INVASIVE SPECIES TO BE AWARE OF ON THE TRAIL AND HOW TO LIMIT THEIR SPREAD

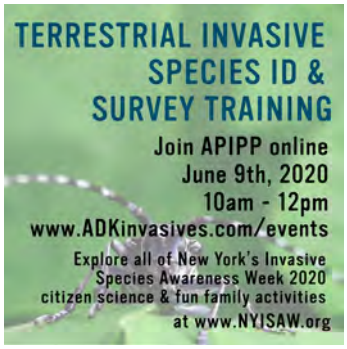
TO CELEBRATE Invasive Species Awareness Week (ISAW) 2020, APIPP worked closely with TNC's stewardship staff to design and install boot brush stations at three entrances to TNC's Boquet River Nature Preserve in the town of Willsboro, NY.

Caked into soil and mud carried on footwear, pets, vehicles, and gear, invasive plant seeds and invertebrate eggs can inadvertently travel into new habitats as people recreate on hiking trails. In turn, invasive species can germinate, grow, and displace native plants or shift other important ecosystem processes. Low-tech, low-cost solutions such as boot brush stations allow hikers, bikers, birders, dog walkers, and pollinator appreciators to clean off footwear before and after visiting local woodlands and riparian corridors. Found at entrances for Tim's Trail, the River Trail, and the new Village Trail at the Boquet River Nature Preserve, visitors can help conserve pollinator habitat, learn how to identify invasive plants, and engage in stewardship!

These stations, signage, and trailhead beautification work would not be possible without the New York State Conservation Partnership Program (NYSCPP) and New York's Environmental Protection Fund. The NYSCPP is administered by the Land Trust Alliance, in coordination with the NYSDEC.

SIMPLE SOLUTIONS, SUCH AS CLEANING FOOTWEAR OF SOIL AND SEEDS, CAN HELP PROTECT TRAILS AND FOREST HABITAT. PHOTO BY TNC STAFF

INVASIVE SPECIES AWARENESS WEEK 2020



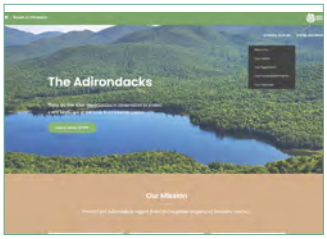
QUITE A BIT WAS DIFFERENT about ISAW this year with the emergence of COVID-19 shifting the ways in which APIPP interacts with the community, provides public education, and conducts effective outreach. In order to abide by social distancing guidelines, staff quickly adapted our traditional education and outreach activities to fit into a digital format. Never did we think that the public would readily connect to learning about plants over Zoom, but our team was pleasantly surprised to see large attendence numbers as web-based educational offerings reduced physical barriers to access.

EMILY RUSSELL, JUNE 11, 2020, NORTH COUNTRY PUBLIC RADIO

CARA CHAPMAN, JUNE 13, 2020, PRESS REPUBLICAN

Almost 100 attendees from across NY participated in two workshops to learn from APIPP staff and partners. On June 9, 2020, Zack Simek taught a workshop for 29 attendees entitled "Terrestrial Invasive Species Identification and Survey Training." On June 10, 2020, Erin Vennie-Vollrath led a workshop for 68 people about "Aquatic Invasive Species Identification and Survey Training." Press coverage for these two online events was substantial with five media outlets covering the story.

DIGITAL OUTREACH TOOLS



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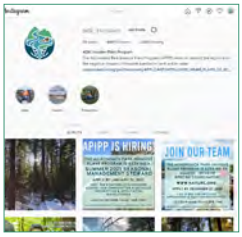


FOLLOW APIPP ON INSTAGRAM @ADK_INVASIVES

FOLLOW APIPP ON FACEBOOK @ADKINVASIVES

IN 2020 APIPP EXPANDED ITS ONLINE presence by increasing Facebook engagements (837 organic followers), creating our first Instagram Account (403 organic followers), and redesigning our website www.ADKinvasives.com. Our site is an ever evolving digital resource wherein the public can identify species, report infestations, learn best management practices in prevention and management, watch past webinars, find scientific publications, sign up for events, contact our staff for assistance, or keep up with pertinent news.

2020 WORKSHOPS

From July through November, APIPP education staff organized **12** public workshops serving **397** individuals.

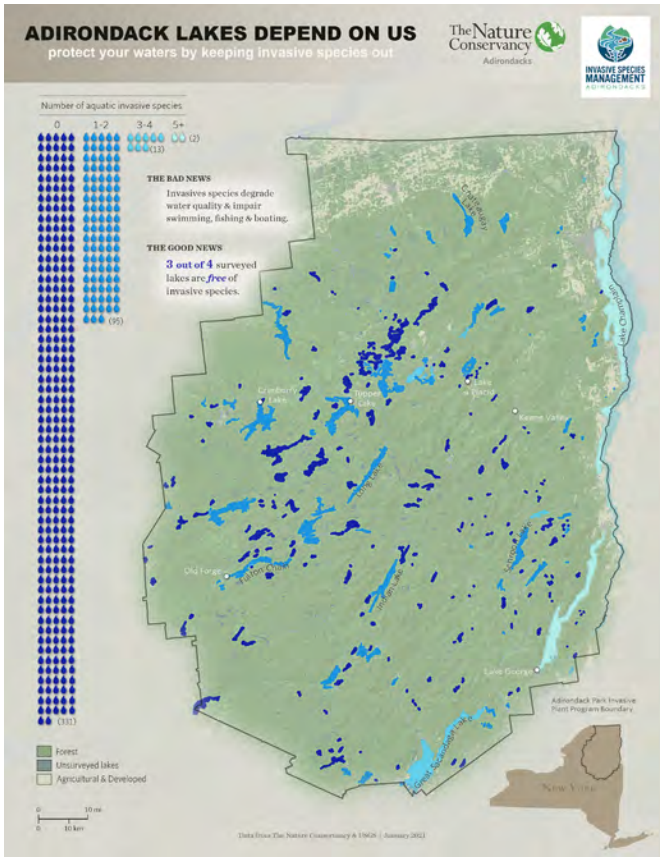
JULY 7, 2020 EXPLORING IMAPINVASIVES 25 ATTENDEES	JULY 10, 2020 BACKWATER MONITORING 10 ATTENDEES	JULY 16, 2020 INVASIVE SPECIES CONTROL FOR TRANSPORTATION PROS 34 ATTENDEES	JULY 23, 2020 AQUATIC SPECIES ID & SURVEY TRAINING 14 ATTENDEES
JULY 30, 2020 KNOW YOUR KNOTWEED 41 ATTENDEES	AUGUST 5, 2020 MANAGING MILFOIL A PANEL FOR LAKE MANAGERS 45 ATTENDEES	AUGUST 12, 2020 FAMILY ADVENTURES INVASIVE PLANTS & ANIMALS OF THE ADIRONDACKS 12 ATTENDEES	AUGUST 18, 2020 AQUATIC SPECIES ID - ADK GARDEN CLUB 12 ATTENDEES
AUGUST 25, 2020 EMERGING SPECIES: WATCH OUT FOR JUMPING WORMS 76 ATTENDEES	SEPTEMBER 16, 2020 PREVENT THE SPREAD: BEST PRACTICES FOR HIKERS AND BIKERS 14 ATTENDEES	SEPTEMBER 22, 2020 PREVENT THE SPREAD: BEST PRACTICES FOR SPORTSMEN & WOMEN 11 ATTENDEES	NOVEMBER 5, 2020 INVASIVE PLANTS & ANIMALS OF THE ADIRONDACKS HAMILTON CO. GREEN FAIR 93 ATTENDEES

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 STRATEGIC PLAN.

PHOTO: EMILY-BELL DINAN

2020 SEASON SUMMARY



MAP 2. APIPP PRISM WATERBODIES WITH NUMBER OF OBSERVED AQUATIC INVASIVE SPECIES (NO SPECIES OBSERVED, 1 - 2 SPECIES OBSERVED, 3 - 4 SPECIES OBSERVED, AND 5 OR MORE SPECIES OBSERVED). THE GOOD NEWS IS THAT 3 OUT OF 4 LAKES SURVEYED ARE STILL FREE OF AQUATIC INVASIVE SPECIES IN THE APIPP PRISM

THE YEAR 2020 was APIPP's nineteenth season monitoring and managing aquatic invasive plants and the eighth season monitoring for small-bodied invasive animals. APIPP staff, six early-detection team members from Adirondack Research, and 134 volunteers surveyed 99 Adirondack waterways for aquatic invasive species (AIS). One new lake was found to have invasive plants, Weller Pond, which is connected to an already-infested lake. Curly-leaf pondweed was found in two new waterbodies. No new infestations of small-bodied aquatic invasives were discovered.

Seventy-five percent of Adirondack waterbodies surveyed are free of AIS. Over the course of 19 seasons, 440 distinct Adirondack waterways have been surveyed; 108 have been found to contain one or more target AIS, and 332 are free of AIS (**Map 2**).

The Adirondack Research early-detection team surveyed 42 waterbodies. In 2020, the most common AIS detected were variable-leaf milfoil *(Myriophyllum heterophyllum)* and Eurasian watermilfoil *(Myriophyllum spicatum)*. A total of 353.5 miles of shoreline miles were surveyed. Lakes surveyed ranged in size from 21.6 acres (Church Pond, Franklin County) to 2,548 acres (Upper Chateaugay Lake, Clinton County). As detailed in the team's 2020 report posted on APIPP's website, over 950 acres of beds containing invasive plants were mapped, ranging in size from one plant to 106.3 acres.

APIPP partners are involved in management activities to reduce the impact of four invasive species in Adirondack waterbodies: Eurasian watermilfoil, variable-leaf watermilfoil, water chestnut, and zebra mussels.

AQUATIC VOLUNTEERS

ERIN VENNIE-VOLLRATH HAND HARVESTING WATER CHESTNUT WITH VOLUNTEERS IN 2017. APIPP LOOKS FORWARD TO BEING WITH COMMUNITY MEMBERS IN PERSON AGAIN SOON!

THE APIPP AQUATIC PROGRAM relies on volunteers who work with a lake association, adopt a lake, or participate in the Adirondack Mountain Club's Backcountry Water Monitoring Project. APIPP has retained, on average, 95 core volunteers and recruited 45 new volunteers each year **(Figure 2)**. With COVID-19 precautions in place and training conducted online in 2020, APIPP trained a larger number of potential volunteers than past years. Volunteer numbers held steady despite not being able to actively work with volunteers in the field **(Figure 3)**.

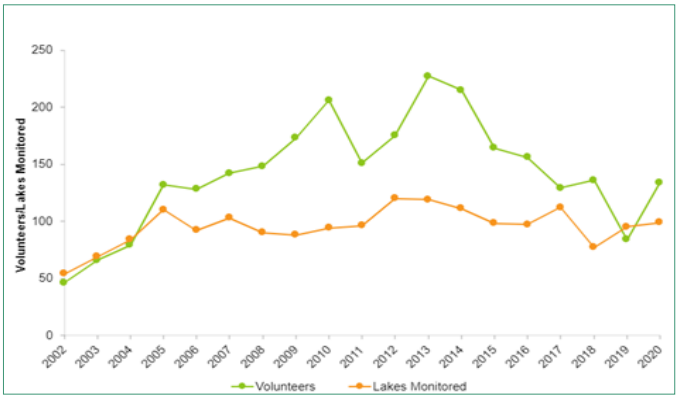


FIGURE 2. NUMBER OF VOLUNTEERS AS COMPARED TO NUMBER OF LAKE SURVEYS COMPLETED OVER TIME 2002 - 2020

FIGURE 3. NUMBER OF VOLUNTEERS RETAINED COMPARED TO NEW VOLUNTEERS RECRUITED OVER TIME 2002 - 2020

AQUATIC INVASIVE SPECIES OF CONCERN

SPECIES SURVEYS

AQUATIC PLANTS

THE APIPP AQUATIC PROGRAM surveys for six aquatic invasive plants with high or very-high invasiveness rankings that are known to be present in the 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 2020, 101 Adirondack lakes are known to be invaded by one or more of these aquatic invasive plants **(Map 2)**. A searchable map on APIPP's website shows the lakes each plant occurs in.

SMALL BODIED ORGANISMS

APIPP SURVEYS FOR FIVE small-bodied aquatic invasive animals that are in the PRISM with high or very-high NYS invasiveness rankings: spiny waterflea (*Bythotrephes longimanus*), fishhook waterflea (*Cercopais pengoi*), Asian clam (*Corbicula fluminea*), zebra mussels (*Dreissena polymorpha*), and Chinese mystery snail (*Cipangopaludina chinensis*).

Summer 2020 marked the eighth season in which APIPP coordinated regional small-bodied aquatic invasive animal surveillance activities. Adirondack Research's early-detection team and APIPP staff and partners conducted zooplankton tows in the deep areas of 45 lakes and sediment sieves in 28 lakes containing sandy areas. No new infestations of small-bodied aquatic invasive animals were discovered. The year 2020 also marked the nineth season of the Lake George-wide Asian clam survey conducted by the Lake George Park Commission. Only one new discrete site was confirmed, bringing the total number of invaded sites in Lake George to 28.

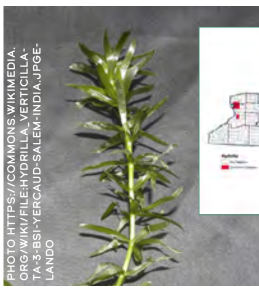
As of 2020, 18 Adirondack lakes are known to be invaded by one or more of these target small-bodied aquatic invasive animals **(Map 2).** These species are not actively managed. A searchable map on APIPP's website shows the lakes each animal occurs in.

TIER SYSTEM TO RANK INVASIVE PLANTS & ANIMALS

When we talk about invasive, nuisance, naturalized, or even native species, context matters. Management options are influenced by the severity of an infestation, an organism's biological characteristics and dispersal ability. In order to help prioritize management goals and unify language used region-to-region, New York State iMapInvasives and all eight PRISMS developed a categorization method called the Tier Ranking System. APIPP employs this Tier System to prioritize invasive species based on our program's ability to carry out prevention, early detection, and management.

TIER 1: EARLY DETECTION AND PREVENTION

Tier 1 species are not known to occur within a PRISM boundary, but still represent a high potential for spread or establishment 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. By growing awareness and building skills at the community level, citizens play a big role when they identify Tier 1 species in the field, report sightings, prevent their introduction by cleaning, draining, and drying boats and gear, or ensure species are not introduced in bait buckets, water gardens, or home aquaria. APIPP classifies three aquatic species as Tier 1 invasives:

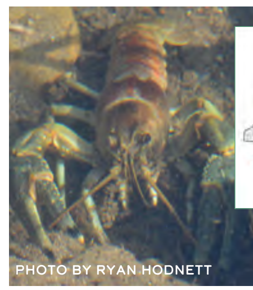


DISTRIBUTION IN NYS AS OF DECEMBER, 2020. DISTRIBUTION DATA FROM IMAPINVASIVES.

HYDRILLA
(Hydrilla verticillata)

DISTRIBUTION IN NYS AS OF DECEMBER, 2020. DISTRIBUTION DATA FROM IMAPINVASIVES.

QUAGGA MUSSEL
(Dreissena rostriformis bugensis)



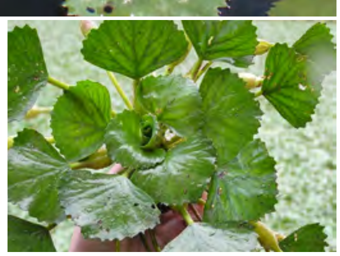
DISTRIBUTION IN NYS AS OF DECEMBER, 2020. DISTRIBUTION DATA FROM IMAPINVASIVES.

RUSTY CRAYFISH
(Faxonius rusticus)

TIER 2: ERADICATION

Tier 2 species are APIPP's highest priority in 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 and can impact water quality, native species and impede recreational use.

MONITORING UPDATE: It is known to be reported in five waterbodies in the PRISM. There were no new reports of this plant in 2020.

MANAGEMENT UPDATE: APIPP manages one infestation in Lake Alice by hand-pulling. Harvesting has been successful in suppressing growth of this species in Lake Alice. This year 54 plants covering 0.025 acres were harvested. The same is true of Hadlock Pond, where volunteers hand-harvested 50 to 75 plants over a one-acre area in 2020.

Management in Loon Lake has resulted in "no plants observed" findings for the last three years.

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 slow their spread into neighboring areas that remain free of harmful infestations.

TIER 3 PLANTS

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

PHOTO: CHRISTIAN FISCHER, CC BY-SA 3.0, HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=1042515

DESCRIPTION: This is a free-floating annual plant that forms dense mats that can limit light penetration and impede recreational use.

MONITORING UPDATE: It is known to be present in eight waterbodies in the PRISM. There were no new reports of this plant in 2020.

MANAGEMENT UPDATE: APIPP staff mechanically removed European frog-bit from wetlands connected to the Grasse River near Lampson Falls in 2020.

FANWORT *(Cabomba caroliniana)*

PHOTO: LESLIE J. MEHRHOFF, UNIVERSITY OF CONNECTICUT, BUGWOOD.ORG

DESCRIPTION: This is a free-floating annual plant that forms dense mats that can limit light penetration and impede recreational use.

MONITORING UPDATE: It is known to be present in four private lakes in the PRISM. There were no new reports of this plant in 2020.

MANAGEMENT UPDATE: This species is not targeted for management.

TIER 3 ANIMALS

ASIAN CLAM *(Corbicula fluminea)*

PHOTO: PETERWCHEN - OWN WORK, CC BY-SA 4.0, HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=94806663

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

MONITORING UPDATE: This species is known to be present in one lake in the PRISM. There was one suspected report of this species by a volunteer in 2020, but experts confirmed it was one of the native fingernail clam species. There were no new reports of lakes with this species in 2020; however, one new site was reported in Lake George bringing the total number of confirmed sites in that waterbody to 28.

MANAGEMENT UPDATE: This species is not targeted for management.

CHINESE MYSTERY SNAIL *(Cipangopaludina chinensis)*

PHOTO: RYAN HODNETT, CC BY-SA 4.0 <HTTPS://CREATIVECOMMONS.ORG/LICENSES/BY-SA/4.0>, VIA WIKIMEDIA COMMONS

DESCRIPTION: This is a large snail that quickly reproduces and has the potential to decrease native snail populations 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 2020

MANAGEMENT UPDATE: This species is not targeted for management.

FISHHOOK WATERFLEA *(Cercopais pengoi)*

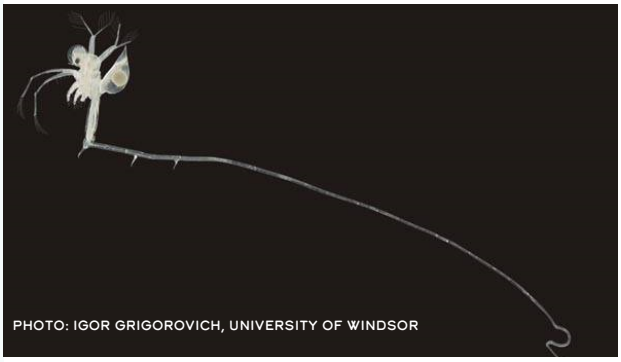


PHOTO: IGOR GRIGOROVICH, UNIVERSITY OF WINDSOR

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 2020.

MANAGEMENT UPDATE: This species is not targeted for management.

SPINY WATERFLEA *(Bythotrephes longimanus)*

PHOTO: PUBLIC DOMAIN, HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=2144017

DESCRIPTION: This is a macro-zooplankton that can reproduce rapidly through asexual reproduction and compete 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 2020

MANAGEMENT UPDATE: This species is not targeted for management.

ZEBRA MUSSEL *(Dreissena polymorpha)*

PHOTO: DADEROT - OWN WORK, CC0, HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=17893247

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 to lake users. The majority of waterbodies in the region currently do not have sufficient calcium levels to support large populations of zebra mussels.

MONITORING UPDATE: Zebra mussels are only known to be present in two lakes in the PRISM. There were no new reports of this species in 2020.

MANAGEMENT UPDATE: Lake George partners periodically remove adult zebra mussels.

TIER 4: SUPPRESSION

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

CURLY-LEAF PONDWEED *(Potamogeton crispus)*

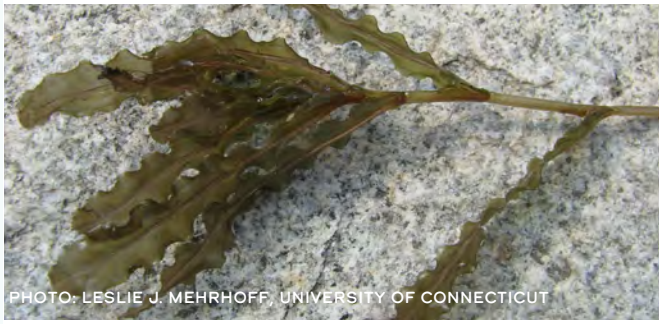


PHOTO: LESLIE J. MEHRHOFF, UNIVERSITY OF CONNECTICUT

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

MONITORING UPDATE: It is known to be present in 17 lakes in the PRISM. It was newly reported in two lakes in 2020: East Caroga Lake and West Caroga Lake (Fulton County).

MANAGEMENT UPDATE: This species is not targeted for management.

EURASIAN WATERMILFOIL *(Myriophyllum spicatum)*

PHOTO: L. BALDWIN, WHATCOM BOAT INSPECTIONS

PHOTO: UPPER MIGHICAN SOURCE

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 be present in 60 lakes in the PRISM. It was newly reported in one lake in 2020, Weller Pond (Franklin County).

MANAGEMENT UPDATE: Mechanical and manual management of this species was undertaken in 2020 by partners in the following 17 waterbodies: Augur Lake, Brant Lake, Caroga Lake, Chateaugay Lake, Chazy Lake, Fish Creek Ponds, Follensby Clear Pond, Hadlock Pond, Kiwassa Lake, Lake Colby, Lake George, Lake Luzerne, Loon Lake, Mountain View Lake, Paradox Lake, Schroon Lake, and Upper Saranac Lake. In 2020 there was also one chemical treatment of Eurasian watermilfoil in Minerva Lake using ProCellaCOR.

VARIABLE-LEAF MILFOIL *(Myriophyllum heterophyllum)*

PHOTO: 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 be present in 49 lakes in the PRISM. It was newly reported in Utowana Lake in 2019, and in 2020 surveys showed it was more extensive in this lake than previously reported. There were no new reports of this plant in 2020.

MANAGEMENT UPDATE: APIPP partners managed variable-leaf milfoil in Fish Creek Ponds, Lake Placid, Long Lake, 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 STRATEGIC PLAN.

PHOTO: EMILY-BELL DINAN

2020 SEASON SUMMARY

THE YEAR 2020 marked the tenth season in which the terrestrial program coordinated regional terrestrial invasive plant surveillance activities. APIPP staff, four early-detection team members from Invasive Plant Control, Inc., the Invasive Species Management Steward, and partners surveyed 38 NYSDEC campgrounds, 80 recreational access points, sections of 33 Forest Preserve units, and part or all of 62 state and county road corridors. As a result of these activities over 650 new terrestrial infestations were found; bringing the total number of mapped infestations in the APIPP PRISM to 6,019. It is important to note that these newly-found infestations are the result of increasing survey efforts and the ability to survey new areas as sites that were managed in previous years become smaller or locally eradicated.

APIPP advanced 23 priority terrestrial invasive species management projects in 2020 addressing 12 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 *(Ailanthus altissima),* 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 *(Phragmites australis)* and knotweed *(Reynoutria spp.).*

APIPP's 23 priority terrestrial invasive species management projects include over 3,000 distinct infestations. In total, 867 infestations (29%) are under active management. A total of over 23 acres was managed in 2020. An additional 517 sites (17%) had no invasive species observed upon follow-up survey, while 824 (27%) were deemed eradicated after progressing through at least three consecutive years of invasive species absence. Approximately 800 priority infestations (26%) require permits or permissions before management can begin.

In total, 74% of APIPP's priority terrestrial invasive species infestations are currently under active management or have been successfully removed.

2020 also marked the sixth season in which the terrestrial program coordinated with regional partners to train volunteers on forest pest identification, survey techniques and reporting. Unfortunately, 2020 brought eleven new infestations of emerald ash borer in the PRISM including the first occurrences of emerald ash borer within the Adirondack Park with four confirmed occurrences in Warren County. To compound the effects of invasive forest pests, 2020 also brought multiple new infestations of hemlock woolly adelgid in the Lake George watershed including a 250+ acre established infestation on the eastern shore of Lake George and several satellite infestations.

APIPP was privileged to have Adellia Baker serve as the 2020 Invasive Species Management Steward. Adellia brought an exceptional level of plant identification knowledge to her position. She identified new infestations at a number of sites and corrected several past mis-identifications. Throughout her 12-week field season, Adellia visited 38 campgrounds and 80 recreational access points such as trailheads, parking lots, or boat launches, as detailed in the steward's 2020 report posted on APIPP's website.

Adellia found that of the 38 campgrounds surveyed, 35 were found to contain one or more terrestrial invasive species. This was the ninth consecutive year that data was collected for the campgrounds. Throughout this time, stewards have reduced garlic mustard *(Alliaria petiolata)* abundance by approximately 79%, leading to eradication at seven campgrounds and documented one or two years of absence at four others. Stewards have also reduced purple loosestrife *(Lythrum salicaria)* abundance at campgrounds by approximately 78%.

2020 SEASON SUMMARY CONTINUED

ADELLIA BAKER CAPTURES GARLIC MUSTARD DATA AT THE NYSDEC EIGHTH LAKE CAMPGROUND. PHOTO BY TNC STAFF

This year also marked the ninth season that Invasive Plant Control, Inc. (IPC) served as the terrestrial EDRR crew. Throughout their 15-week season, IPC surveyed for and treated invasive species throughout sections of over 30 Forest Preserve units and along part or all of 62 state and county road corridors within the PRISM. As detailed in the team's 2020 report posted on APIPP's website, they were able to perform over 2,200 invasive species assessments and treat over 425 sites. Most treatments were preformed to control common reed grass, knotweed species, or purple loosestrife.

The work of APIPP's Invasive Species Management Steward and EDRR crew are vital to the success of our program.

TERRESTRIAL INVASIVE SPECIES OF CONCERN

SPECIES SURVEYS

PHOTO: LESLIE J. MEHRHOFF, UNIVERSITY OF CONNECTICUT

PHOTO: EMŐKE DÉNES, CC BY-SA 4.0

PHOTO: JAMES ST. JOHN

The APIPP terrestrial project manages or plans to manage 14 terrestrial invasive plants known to be present in the PRISM. These species include: giant hogweed *(Heracleum mantegazzianum)*, Japanese angelica tree *(Aralia elata)*, mile-a-minute, scotch broom, tree-of-heaven, common reed grass, Japanese tree lilac *(Syringa reticulata)*, lesser celandine *(Ficaria verna)*, black swallow-wort *(Cynanchum louiseae)*, pale swallow-wort *(Cynanchum rossicum),* yellow iris *(Iris pseudacorus)*, garlic mustard, knotweed species, and purple loosestrife.

Species are prioritized for management if they are 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 are available, and the project will result in a high return on investment. A searchable map on APIPP's website shows where invasive terrestrial plants occur.

INVASIVE FOREST PESTS

PHOTO: CONNECTICUT AGRICULTURE EXPERIMENT STATION

PHOTO: DEBBIE MILLER, USDA US FOREST SERVICE

APIPP surveys for two terrestrial forest pests: hemlock woolly adelgid and emerald ash borer *(Agrilus planipennis).* Both pests are known to be present in the PRISM. APIPP is currently working with partners to actively manage hemlock woolly adelgid and to identify sites suitable for biological control for emerald ash borer.

TIER 1: EARLY DETECTION AND PREVENTION

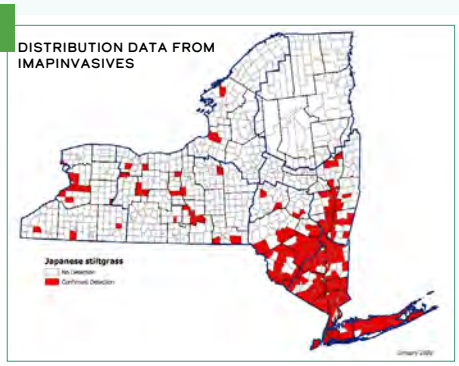
Tier 1 species are not known to occur within a PRISM boundary, but still represent a high potential for spread or establishment if introduced to new geographies. Since Tier 1 plants and animals are not yet found in the area, but occur in neighboring regions, APIPP works to control these species through education, outreach, and awareness building activities.

TIER 1 PLANTS

JAPANESE STILTGRASS *(Microstegium vimineum)*


PHOTO: KATJA SCHULZ

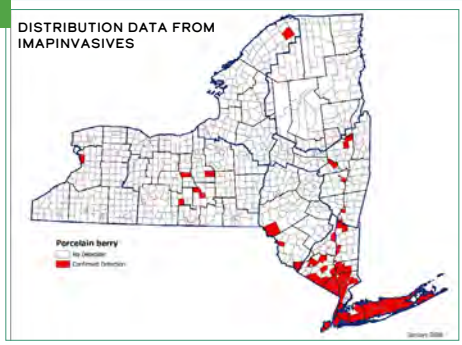

PHOTO: LESLIE J. MEHRHOFF



PORCELAIN BERRY *(Ampelopsis brevipedunculata)*

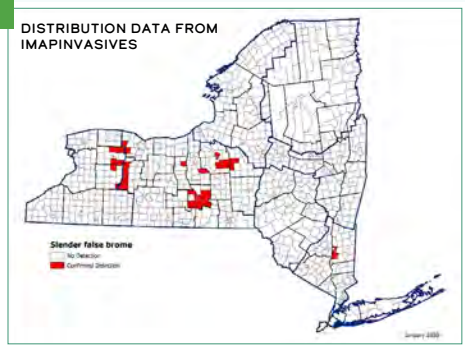

PHOTO: OLIVIER VANPÉ - CC BY-SA 3.0


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



SLENDER FALSEBROME *(Brachypodium sylvaticum)*

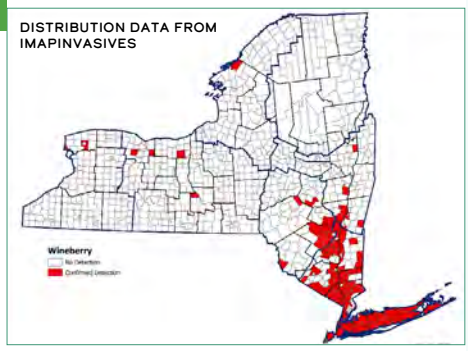

PHOTO: BRUCE NEWHOUSE



WINEBERRY *(Rubus phoenicolasius)*


PHOTO: LESLIE J. MEHRHOFF


PHOTO: WOUTER HAGENS, CC BY-SA 3.0



TIER 1 ANIMALS

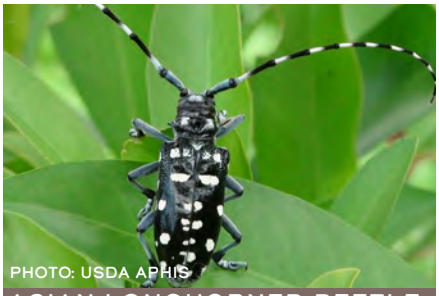


PHOTO: USDA APHIS

ASIAN LONGHORNED BEETLE
(Anoplophora glabripennis)

EURASIAN BOAR
(Sus scrofa)


PHOTO: L. BARRINGER

SPOTTED LANTERNFLY
(Lycorma delicatula)

TIER 2: ERADICATION

Tier 2 species are APIPP's highest priority in early detection and rapid response efforts. 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)*


PHOTO: HUHU UET

DESCRIPTION: Giant hogweed is a biennial herb that grows to 8-14 feet. 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, grasslands/fields, and yards.

MONITORING UPDATE: Since 2008, 16 infestations have been mapped in the PRISM. No new infestations were detected in 2020.

MANAGEMENT UPDATE: In 2020, only four infestations (ranging from 0.001 to 0.006 acre) were still present on the landscape. Three were managed mechanically and one was treated with a selective foliar application of glyphosate-based herbicide. A total of 0.0112 acre was managed. Three infestations have at least one year of documented invasive plant absence and nine infestations are considered locally eradicated.

FIGURE LOCATION: APPENDIX A, PG A1, FIGURE 1

JAPANESE ANGELICA TREE *(Aralia elata)*


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 2020.

MANAGEMENT UPDATE: No management occurred in 2020. Landowner permission is required before management actions can occur. Outreach to obtain landowner permissions is slated for 2021.

TIER 2 PLANTS CONTINUED

MILE-A-MINUTE *(Persicaria perfoliata)*

PHOTO: BY POOKIE FUGGLESTEIN - OWN WORK, CC0, HTTPS://COMMONS.WIKIMEDIA.ORG/W/INDEX.PHP?CURID=31888926

DESCRIPTION: Mile-a-minute is an herbaceous vine that grows at an astonishing rate of up to 6 inches per day under ideal conditions. The light green-colored 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 0.05 acre. One new infestation was detected in 2020.

MANAGEMENT UPDATE: All known infestations (ranging in size from <0.001 to 0.033 acre) were managed in 2020. Three were controlled mechanically and two were treated with a selective foliar application of glyphosate-based herbicide.

FIGURE LOCATION: APPENDIX A, PG A2, FIGURE 2

SCOTCH BROOM *(Cytisus scoparius)*

PHOTO: DARYL MITCHELL

DESCRIPTION: Scotch broom is a perennial shrub that grows up to 10 feet tall. It is characterized by its green, five sided stems, small bright yellow flowers from late May-June, and 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 0.11 acre.

MANAGEMENT UPDATE: One infestation was treated with a selective foliar application of glyphosate-based herbicide.

FIGURE LOCATION: APPENDIX A, PG A3, FIGURE 3

TREE-OF-HEAVEN *(Ailanthus altissima)*

PHOTO: LUIS FERNÁNDEZ GARCÍA

DESCRIPTION: Tree-of-heaven is a deciduous tree that reaches 80 feet in height. 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: Three infestations are present in the PRISM, totaling approximately 0.31 acre. One new, established infestation was detected in 2020 and has yet to be surveyed.

MANAGEMENT UPDATE: One infestation (0.03 acre) was treated with herbicide in 2020. Landowner permission is required to treat the remaining known infestations.

FIGURE LOCATION: APPENDIX A, PG A4, FIGURE 4

TIER 2 ANIMALS

HEMLOCK WOOLLY ADELGID *(Adelges tsugae)*

BECCA BERNACKI SCOUTS FOR HWA, FALL 2020. PHOTO BY TNC STAFF

DESCRIPTION: Hemlock woolly adelgid 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 presumed eradicated. Unfortunately, multiple new infestations of HWA were confirmed in 2020 within the Lake George watershed. An established, 250+ acre infestation was mapped along the eastern shore of Lake George near the Glen Island Campground. Additional satellite infestations were found at Shelving Rock, Buck Mountain trailhead, Dome Island and a private property along the shore of Lake George.

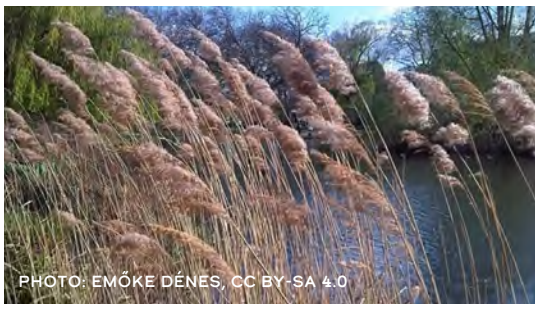
MANAGEMENT UPDATE: APIPP assisted with a NYSDEC-led management effort of the established Glen Island infestation. In total, 2,454 trees were treated across 138+ acres. APIPP, with assistance from LGLC and NYSDEC, treated 342 trees across Dome Island.

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 slow their spread into neighboring areas that remain free of harmful infestations.

TIER 3 PLANTS

COMMON REED GRASS *(Phragmites australis)*



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, over 1,873 infestations have been mapped throughout the PRISM. In total, 194 new infestations were mapped in 2020.

MANAGEMENT UPDATE: Across the 11 priority management projects, 1,128 sites have been prioritized for management. Of these, 281 sites are under active management, 191 sites have at least one year of documented invasive plant absence, and 265 are considered locally eradicated. The remaining 391 sites generally require permits or permission before treatment can begin. In 2020, 210 sites (ranging in size from <0.001 to 1.427 acre) totaling 10.828 acres were managed. This species was moved to Tier 4 in 2021.

FIGURE LOCATION: A SUMMARY TABLE AND FIGURES OF APIPP'S COMMON REED GRASS PRIORTIY MANAGEMENT PROJECTS ARE PRESENTED IN APPENDIX B (PAGES B1-B12)

JAPANESE TREE LILAC *(Syringa reticulata)*

PHOTO: 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: Several reports of infestations were made to iMapInvasives in late 2019. APIPP planned to do initial surveys of these infestations in 2020 but the ideal survey period corresponded with the height of COVID-19. Surveys are a 2021 priority.

MANAGEMENT UPDATE: No management occurred in 2020 as landowner permission is required to treat the identified sites. Outreach to secure necessary permissions will be conducted in 2021.

LESSER CELANDINE *(Ficaria verna)*

PHOTO: 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, ten infestations have been reported, totaling approximately 0.127 acre. No new infestations were mapped in 2020.

MANAGEMENT UPDATE: No management occurred in 2020.

SWALLOW-WORT SPP. *(Cynanchum louiseae & C. rossicum)*

PHOTO: LESLIE J. MEHRHOFF

PHOTO: 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 present in June, and milkweed like seed pods. These plants thrive in a wide range of conditions.

MONITORING UPDATE: Since 2004, 65 infestations have been mapped, totaling approximately four acres. Nine new infestations were mapped in 2020.

MANAGEMENT UPDATE: Throughout the PRISM, 47 swallow-wort infestations have been prioritized for management. Of these, 22 (ranging in size from <0.001 to 1.784 acre) are under active management, six have at least one year of documented invasive plant absence, and nine are considered locally eradicated. Approximately 3.4 acres were managed in 2020.

FIGURE LOCATION: APPENDIX A, PAGE A5, FIGURE 5

YELLOW IRIS *(Iris pseudacorus)*

PHOTO: ROBERT FLOGAUS-FAUST - CC BY 4.0 VIA WIKIMEDIA COMMONS

DESCRIPTION: Yellow iris is an ornamental perennial that can grow to 3-4 feet and 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, 217 infestations have been mapped in the PRISM. Four new infestations were mapped in 2020. Two yellow iris eradication priority management projects (Saranac River and St. Regis River) exist within the PRISM. As both areas are relatively small with few infestations, yellow iris is presented here as a sum of the activities that occur throughout the PRISM as opposed to looking at the individual management projects.

MANAGEMENT UPDATE: In 2020, 41 infestations were prioritized for management. Of these, nine (ranging in size from 0.001 to 0.02 acre) are under active management, 11 have at least one year of documented invasive plant absence, and 12 are considered locally eradicated. An additional nine sites require permits or permissions before management can begin. Approximately 0.02 acre was managed in 2020.

FIGURE LOCATION: APPENDIX A, PAGE A6, FIGURE 6

TIER 4: SUPPRESSION

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

TIER 4 PLANTS

GARLIC MUSTARD *(Alliaria petiolata)*

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, 899 infestations have been mapped in the PRISM. In total, 10 new infestations were mapped in 2020.

MANAGEMENT UPDATE: In 2020, 807 infestations were prioritized for management. Of these, 206 sites are under active management, 141 sites have at least one year of documented invasive plant absence, and 439 are considered locally eradicated. The remaining 21 sites generally require permits or permission before treatment can begin. In 2020, 164 sites (ranging in size from <0.001 to 1.641 acres) totaling 1.876 acres were managed.

FIGURE LOCATION: APPENDIX A, PAGE A7, FIGURE 7

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

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

JAPANESE KNOTWEED, BY ACABASHI, CREATIVE COMMONS CC-BY-SA 4.0, WIKIMEDIA COMMONS

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

MONITORING UPDATE: Since 2012, 1,289 infestations have been mapped in the PRISM. In total, 96 new infestations were mapped in 2020.

MANAGEMENT UPDATE: In 2020, 534 infestations were prioritized for management. Of these, 169 sites are under active management, 97 sites have at least one year of documented invasive plant absence, and 69 are considered locally eradicated. The remaining 199 sites generally require permits or permission before treatment can begin. In 2020, 105 sites (ranging in size from <0.001 to 0.340 acre) totaling 3.032 acres were managed.

Note: Knotweed managed under the Knotweed Management Partnership is not included in these totals

FIGURE LOCATION: APPENDIX A, PAGE A8, FIGURE 8

PURPLE LOOSESTRIFE *(Lythrum salicaria)*

PHOTO: JOUKO LEHMUSKALLIO.

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, 820 infestations have been mapped in the PRISM. In total, 191 new infestations were mapped in 2020.

MANAGEMENT UPDATE: In 2020, 418 infestations were prioritized for management. Of these, 169 sites are under active management, 67 sites have at least one year of documented invasive plant absence, and 20 are considered locally eradicated. The remaining 162 sites generally require permits or permission before treatment can begin. In 2020, 101 sites (ranging in size from <0.001 to 0.346 acre) totaling 3.079 acres were managed either chemically or mechanically. This suppression project also relies heavily on the use of biocontrol which is not reflected in the control numbers above.

FIGURE LOCATION: APPENDIX A, PAGE A9, FIGURE 9

EMERALD ASH BORER *(Agrilus planipennis)*

PHOTO: MACROSCOPICSOLUTIONS/FLICKR

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: While emerald ash borer was first identified within the PRISM in 2017, this pest was not confirmed within the Adirondack Park until 2020. APIPP staff worked with NYSDEC partners to begin to delineate this infestation. A total of eleven confirmed reports were made to iMapInvasives, with four reports inside the park and seven to the north in Franklin and Clinton Counties.

MANAGEMENT UPDATE: In 2021, APIPP will continue to work with NYSDEC partners to identify sites suitable for biological control release. APIPP will also establish plots to monitor for lingering ash.

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 New York State 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 these species.

While APIPP does not actively manage these species, they are still often highlighted in our educational programing to help educate the public about all invasive species; not just those we manage. APIPP encourages spread prevention measures when discussing all invasive species and identification is a key factor in that mission. APIPP staff also responds to numerous public inquiries about these species, providing guidance and best management practices to property managers interested in carrying out control.

CUP PLANT
(Silphium perfoliatum)

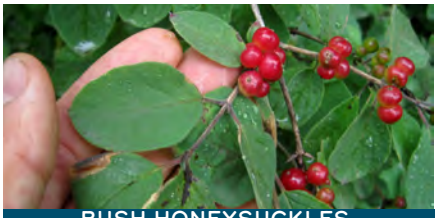
PHOTO: BARTON ARBORETUM

JUMPING WORM
(Amynthas & Metaphire spp.)

PHOTO: SUSAN DAY / UW MADISON ARBORETUM

AUTUMN OLIVE
(Elaeagnus umbellate)

PHOTO: I, KENPEI, CC BY-SA 3.0

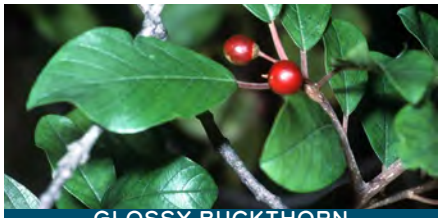


BUSH HONEYSUCKLES
(Lonicera spp.)

PHOTO: ROB ROUTLEDGE, SAULT COLLEGE

COMMON BUCKTHORN
(Rhamnus cathartica)

PHOTO: ANEMONE PROJECTORS, CC BY-SA 2.0



GLOSSY BUCKTHORN
(Frangula alnus)

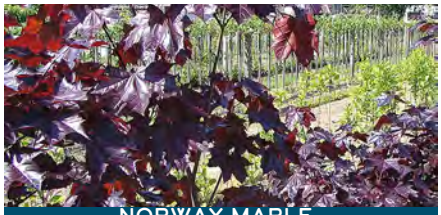
PHOTO: USDA PLANTS DATABASE

JAPANESE BARBERRY
(Berberis thunbergii)

PHOTO: WILDFEUER, CC 2.5

MULTIFLORA ROSE
(Rosa multiflora)

PHOTO: CC BY-SA 3.0



NORWAY MAPLE
(Acer platanoides)

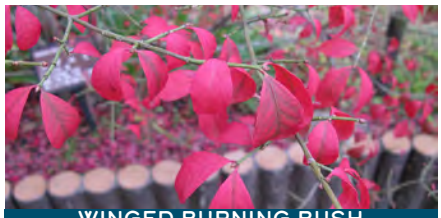
PHOTO: GMIHAIL AT SERBIAN, CC BY-SA 3.0

ORIENTAL BITTERSWEET
(Celastrus orbiculatus)

PHOTO: CBAILE19, CC0, VIA WIKIMEDIA COMMONS

REED CANARY GRASS
(Phalaris arundinacea)

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



WINGED BURNING BUSH
(Euonymus alatus)

PHOTO: I, KENPEI, CC BY-SA 3.0

APIPP PARTNERS

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

2020 AQUATIC EARLY DETECTION TEAM. PHOTO BY ADIRONDACK RESEARCH

APIPP'S 2020 PARTNER COORDINATION

THE SUCCESS OF Adirondack Park invasive species prevention and control efforts is a result of the work of many partners (see a complete list of community partners on the inside cover of this report). APIPP hosted or assisted with the following collaborative meetings and projects with partners in 2020.

- Held an **in-person partner gathering** on **February 13** followed by an AIS spread-prevention conversation hosted by the Adirondack Lakes Alliance.
- Hosted a **virtual partner meeting** on **April 22** celebrating NYSDEC's 50th anniversary along with a presentation on "Biological Controls for Invasive Species" by SLELO PRISM Manager Rob Williams.
- Hosted a **virtual partner meeting** on **November 12** to share highlights from the summer 2020 field season.
- Hosted **five meetings** of a small **AIS spread-prevention** working group.
- Sent **33 listserve "APIPP News" updates** to partners via the APIPP listserve.
- Completed **two partner surveys**; one to guide APIPP's priority-setting process, and one to find out more about training program preferences.
- Participated in **quarterly meetings** with NYSDEC Invasive Species Coordination Section partners and in monthly PRISM webinars.
- Shared a **Conservation and GIS Analyst staff** member with the SLELO PRISM to add increased information management capacity to both PRISMs.
- Worked with **iMapInvasives to build a "crosswalk"** to submit invasive species-related data collected by APIPP to the statewide database. More than 3,600 2020 records were entered via the crosswalk.
- TNC worked closely with the **NY legislature and Governor's office** on an invasive species management exception to the law banning glyphosate application on state lands.

STATE PARTNER UPDATES

STATE PARTNERS are a key part of APIPP's work. We thank these partners for providing the following updates for this annual report. We also thank the Adirondack Watershed Institute of Paul Smith's College for the invaluable role it serves preventing the spread of AIS in the Adirondack Park as part of the statewide Watercraft Inspection Steward Program.

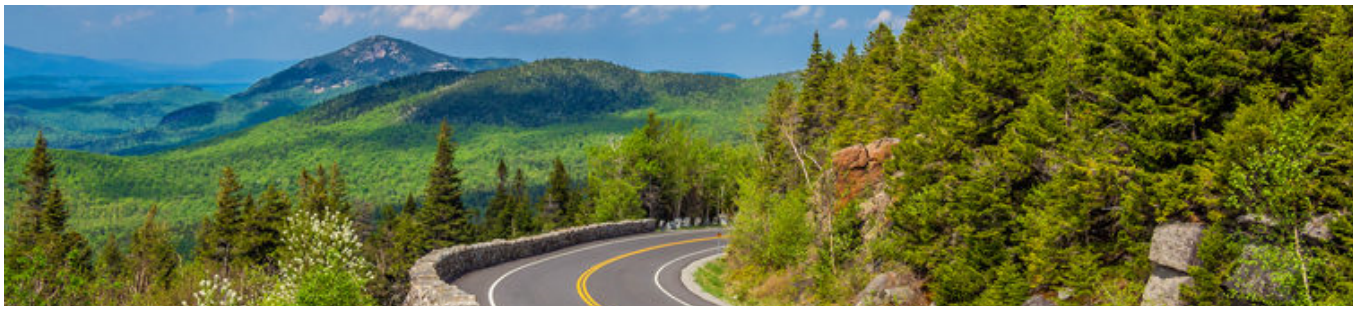
NEW YORK STATE ADIRONDACK PARK AGENCY (APA)

ISSUED A PERMIT for application of pesticides in or within 100 feet of wetlands for the purpose of controlling hemlock woolly adelgid in the Lake George watershed.

AMENDED GENERAL PERMIT 2014G-1A for the management of terrestrial invasive plant species in or within 100 feet of wetlands to allow for the management of terrestrial plant and non-plant species in or impacting wetlands.

DRAFTED A NEW PERMIT application for use of aquatic pesticides to control aquatic invasive vegetation.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT)



CONTINUED FEDERAL State Planning and Research (SPR)-funded research ($1.5 million currently committed) to develop, test and release biological control agents for common reed grass and swallow-wort species. Each research project involves a consortium of academic research institutions. Bernd Blossey, Cornell University, is Principal Investigator for common reed grass; Dylan Parry, SUNY-ESF, is Principal Investigator for swallow-wort.

A WORKING GROUP continued developing soil management guidance for the Adirondack Park, with minimizing disturbance as the first option, reuse of existing topsoil as the second option, and restoration with alternatives to topsoil as the third option. The guidance identifies additional methods to minimize the introduction of topsoil and consequent potential spread of invasives.

A WORKING GROUP continued developing seeding guidance for the Adirondack Park—including minimizing disturbance, use of the recommended seed mixes, and reliance on the native seedbank. Additional methods include the use of native seeds when appropriate.

NYSDOT STAFF continue to inventory and communicate with partners regarding new locations where invasive species are identified, including the identification of the first case of emerald ash borer in the Adirondack Park (Warren County).

NYSDOT CONTINUES to improve invasive species awareness and efficiency by integrating iMapInvasive data into NYSDOT's Environmental Viewer (GIS system), which is used routinely by environmental staff to screen projects and activities.

NYSDOT CONTINUED

DESPITE THERE NO longer being a federal quarantine for EAB, NYSDOT continues to promote best management practices in the handling of woody debris in construction and maintenance projects.

NYSDOT STAFF ARE working with other state agencies as part of a Multi-Agency Coordination (MAC) Task Force to facilitate a coordinated response to the state's spotted lanternfly (SLF) infestation. NYSDOT is engaged in extensive awareness outreach. This includes the distribution of scraper cards, identification posters, and training material. NYSDOT is also reaching out to external partners—such as Scenic Byway Organizations—to extend its network and request assistance in the search for new infestations proximate to areas with known SLF populations.

CONTINUED THE APPLICATION to join the monarch butterfly "Candidate Conservation Agreement with Assurances" (CCAA) program in anticipation of the eventual listing of the monarch by USFWS.

INCLUDED control measures other than mowing into "Integrated Vegetation Management" principles.

INCLUDED PAY ITEMS for the disposal of material containing invasive plant species and cleaning of equipment for several capital program projects.

OVER 75% OF NYSDOT Operations facilities within the Adirondack Park have been screened for invasive species; treatments plans for invasives at each facility are being developed and implemented.

MONITORED AND MANAGED common reed grass and purple loosestrife at NYSDOT residency facilities in the towns of Severance and Warrensburg, as well as in Herkimer County.

TRAINED HERKIMER County mowing operators through tailgate training, provided APIPP invasive species webinar links to operators.

COMPLETED IMPROVEMENTS to the Rocky Mountain Trailhead boat-wash station on Route 28 in Inlet with funding through a capital project.

ASSISTED WITH BOAT-WASH station signage, maintenance and access in partnership with AWI.

ASSISTED WITH TREATMENTS of target invasive plants along I-87, including managing wild parsnip at the Exit 26 offramp where the second year of treatment found about 25% of the number of seed heads removed in 2019.

CONTRACTED WITH AN ECOLOGICAL term agreement consultant to treat an area of common reed grass at a wetland mitigation area near Route 9L in Queensbury. The initial treatment occurred in the fall of 2019, and a second round of treatments was applied in 2020.

MANAGED PURPLE LOOSESTRIFE north of Big Moose Station for the third year and removed this species along Route 28 near the Okara Lakes parking area.

MONITORED THE BLUE MOUNTAIN ACCESS ROAD 2016 reconstruction site; no priority terrestrial invasive species were observed, and spotted knapweed and sweet clover were manually removed.

ADIRONDACK WATERSHED INSTITUTE OF PAUL SMITH'S COLLEGE (AWI)

AWI'S PRELIMINARY report for the seasonal watercraft inspection steward program showed stewards inspected a total of 122,988 boats; more than 75% of which hadn't been in the water for the previous two weeks or remained in the same waterbody. In total, AWI stewards found 0.4% of launching boats and 5.4% of boats returning to shore had invasive species present.

NEW YORK STATE LAKE GEORGE PARK COMMISSION (LGPC)

LAKE GEORGE CONTINUES to operate under a mandatory trailered boat inspection program to eliminate any new invasive species from entering the lake. The year 2020 was the busiest year in the seven years of operation, with more than 37,000 boater contacts at the inspection sites.

INVASIVE SPECIES continue to be transported to Lake George by boaters, as 178 boats were found with visible invasive species on them at the inspection stations. The program provides free decontamination (high-pressure, hot-water washing) of any boat that is not "clean, drained and dry."

NO NEW INVASIVE SPECIES have been identified in Lake George since the creation of the mandatory inspection program in 2014. Fortunately, hydrilla—an extremely invasive species that causes significant environmental and economic harm—was removed from one of the boats inspected in 2020 before this plant could be introduced into Lake George.

THE BATTLE TO ELIMINATE all dense beds of Eurasian watermilfoil in Lake George is working. Through a partnership between the Lake George Park Commission, the Lake George Association, The FUND for Lake George, and Warren County, more than $500,000 was spent on diver-assisted suction harvesting of these dense beds of invasive plants in 2020. This marked the most money spent in one year for this project, and divers removed 175,000 pounds of the invasive plant from the lake, up from 83,000 pounds in 2019.

LGPC ASSISTED with the rapid response efforts to control the major infestation of HWA discovered in July 2020 by providing essential boat transportation for survey and control crews.

EQUIPMENT AND MATERIALS

ZACK SIMEK, WATER CHESTNUT CONTROL AT LAKE ALICE, SUMMER 2020. PHOTO BY TNC STAFF

APIPP'S 2019-2023 CONTRACT with NYSDEC requires reporting on equipment purchased with Environmental Protection Fund moneys. TNC defines durable equipment as items costing more than $5,000. Only one such purchase was made by APIPP in 2020, a $19,000 BirdsEyeView Aerobotics FireFLY6 PRO UAV equipped with a multispectral sensor.

This new technology will bolster APIPP's UAV survey program, allowing staff to survey larger areas and collect higher spectral-resolution data to facilitate more advanced analyses. Potential applications include more accurate and/or semi-automated invasive plant mapping and forest health assessments to inform forest pest survey and management projects.

THANK YOU, APIPP PARTNERS, FOR ALL YOUR WORK IN 2020 TO PROTECT THE ADIRONDACKS FROM INVASIVE SPECIES THREATS!

Adirondack Park Invasive Plant Program
2020 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. Increasing number of sites throughout the years is due to increasing survey efforts and the ability to survey new areas as mores sites become locally eradicated.

2. Invasive species are considered locally eradicated after three consecutive years of documented invasive plant absence.

INVASIVE SPECIES MANAGEMENT
ADIRONDACKS

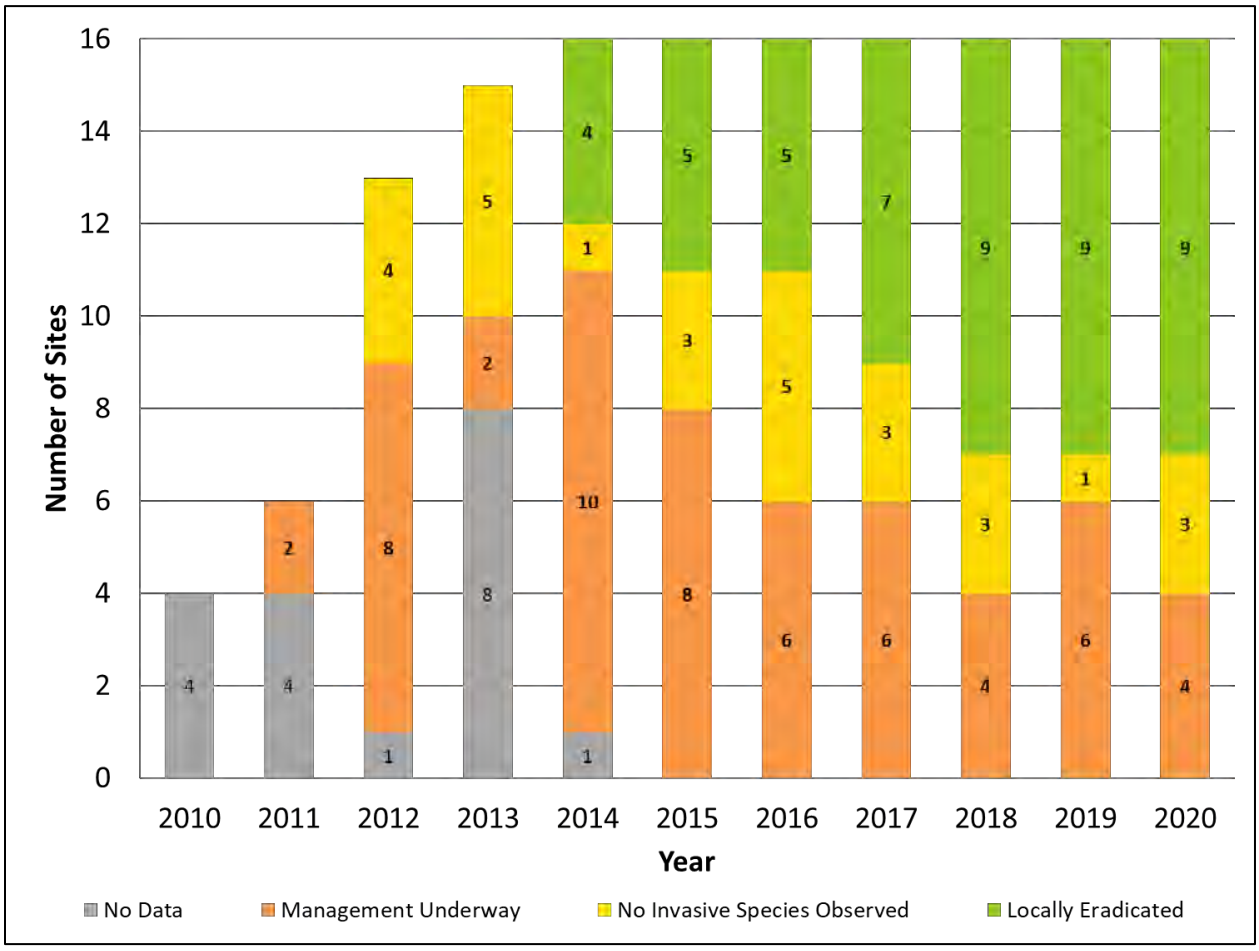


Figure 1. Annual management progress for the APIPP PRISM Giant Hogweed Eradication Project (2011-2020).

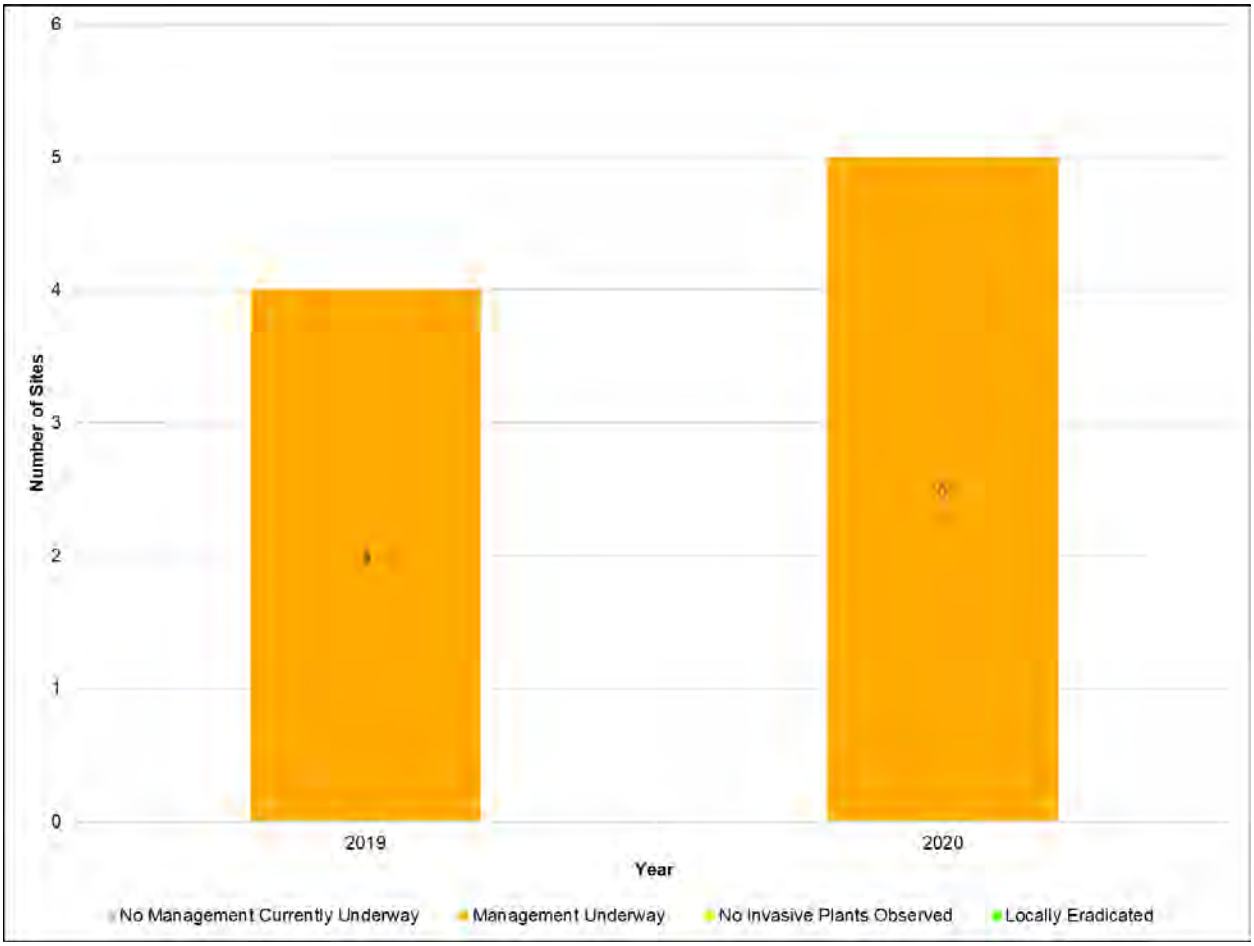


Figure 2. Annual management progress for the APIPP PRISM Mile-a-Minute Eradication Project (2019-2020).

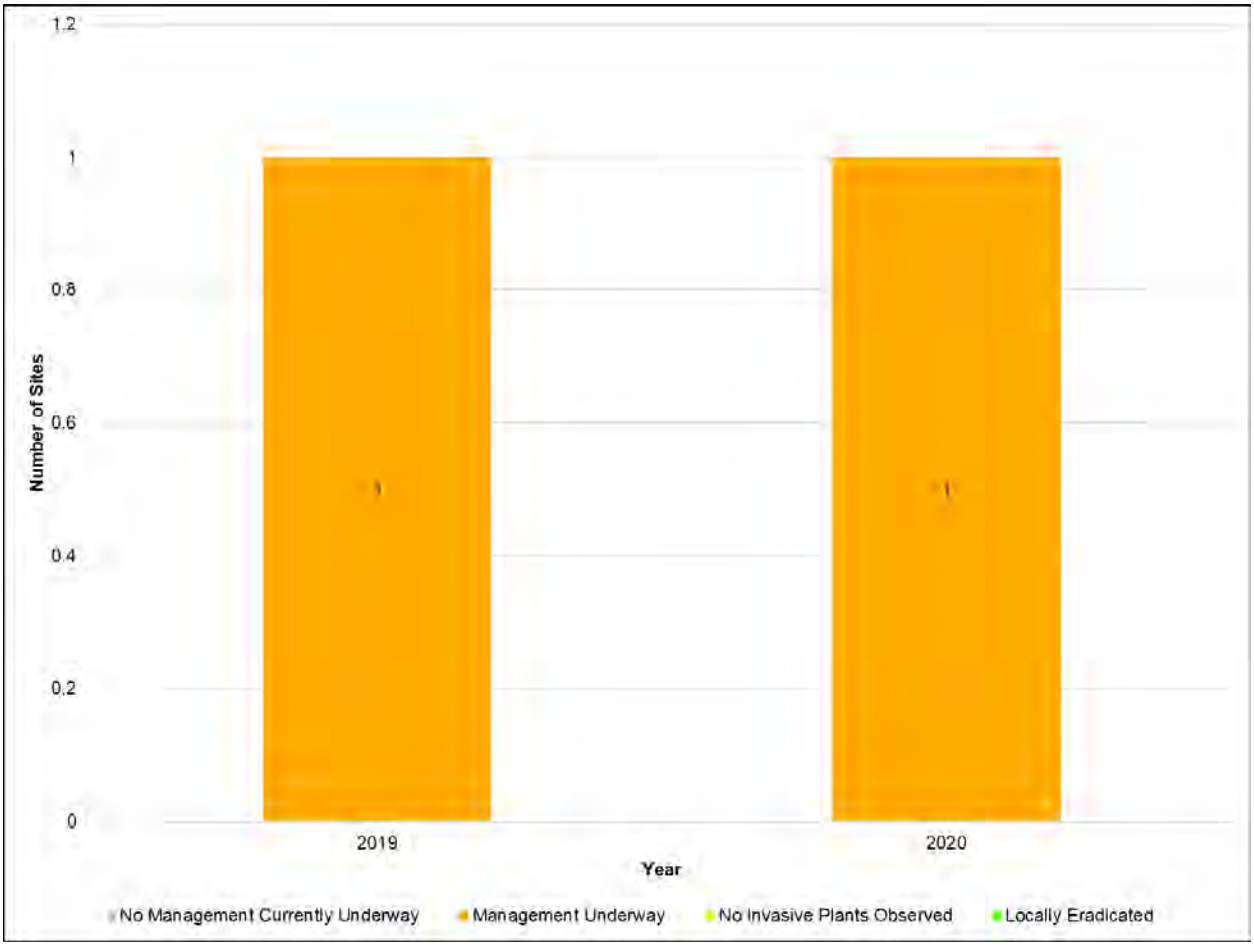


Figure 3. Annual management progress for the APIPP PRISM Scotch Broom Eradication Project (2019-2020).

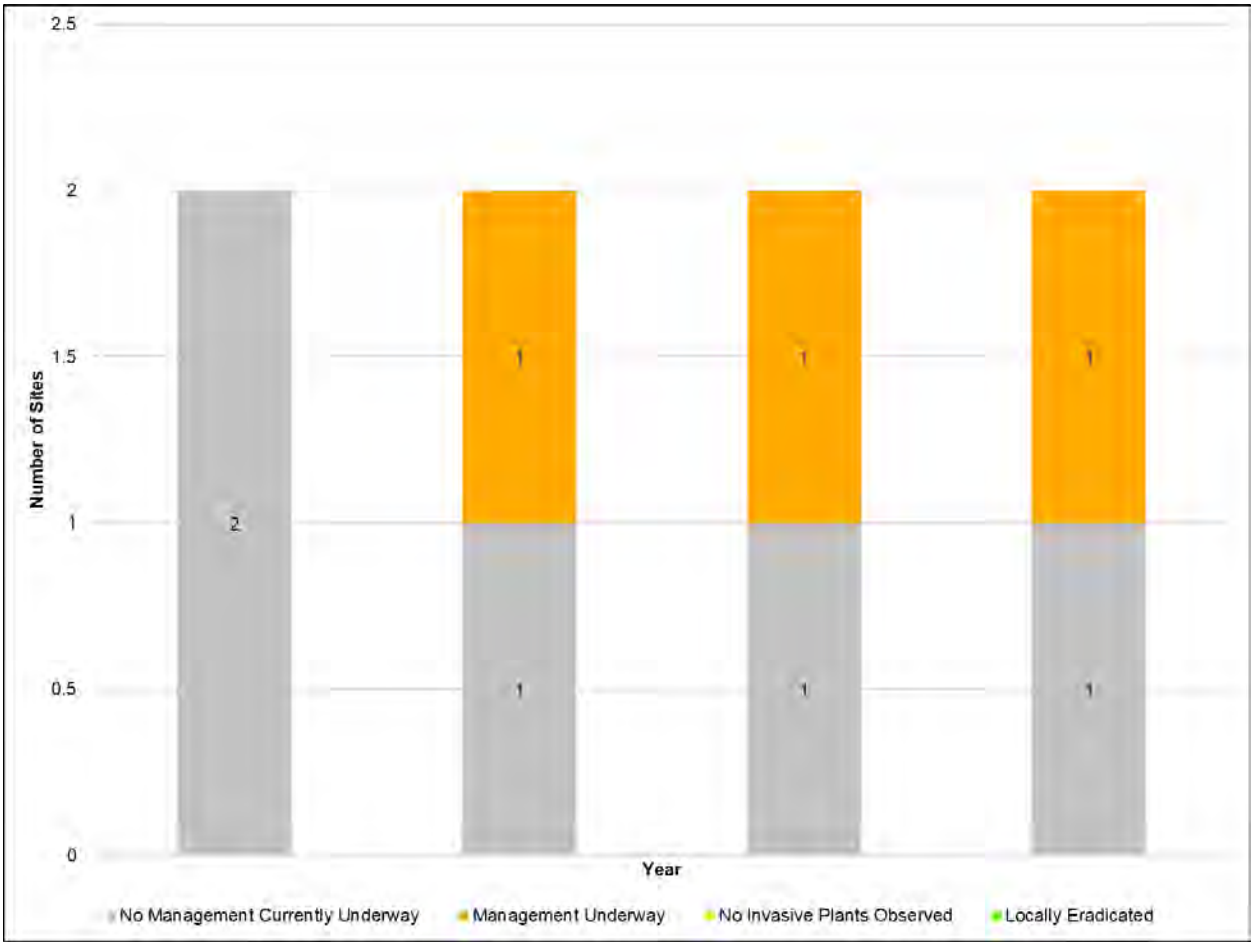


Figure 4. Annual management progress for the APIPP PRISM Tree-of-Heaven Eradication Project (2017-2020).

Tier 3 Species

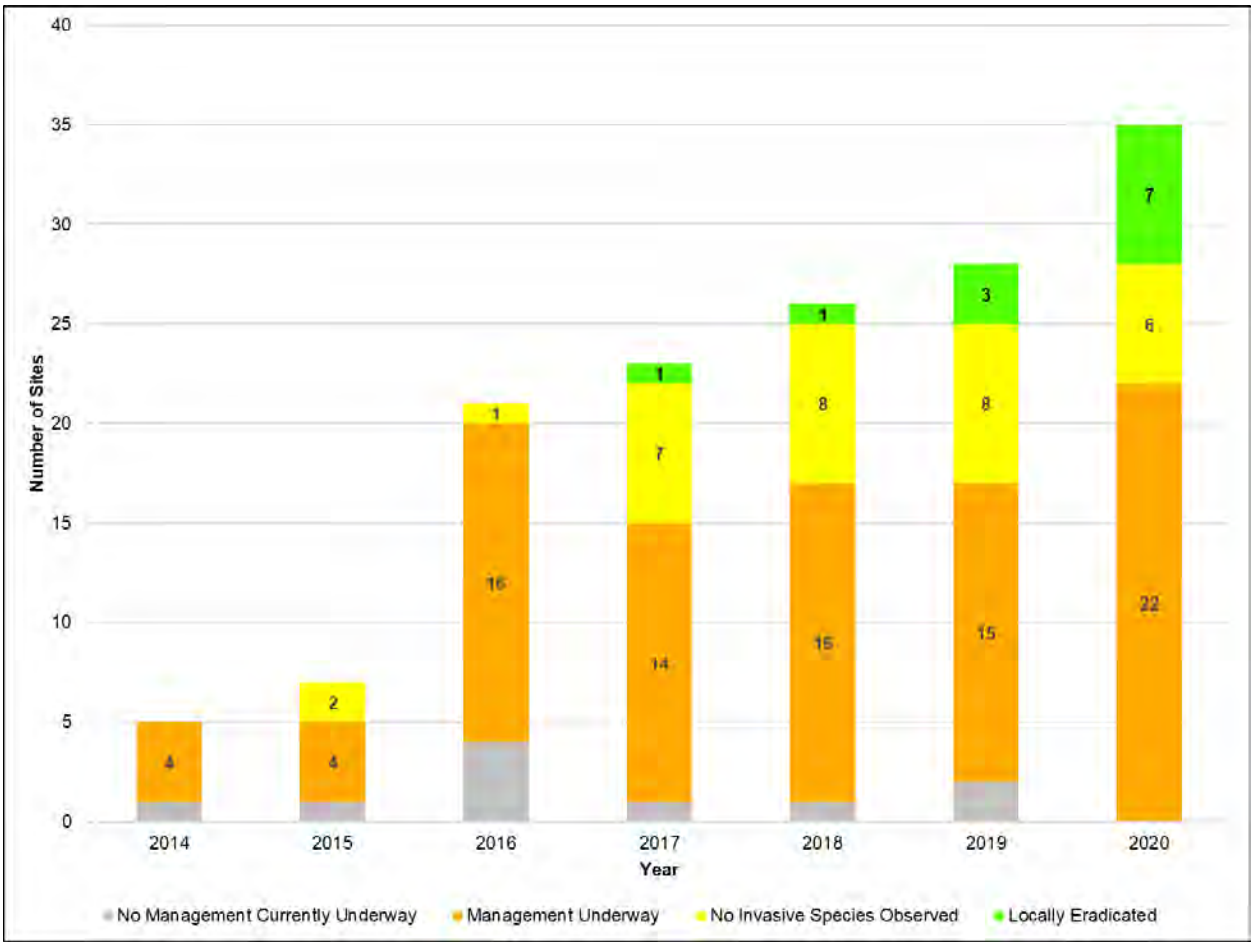


Figure 5. Annual management progress for the Resilient and Connected Land Network Swallow-wort Exclusion Project (2011-2020).

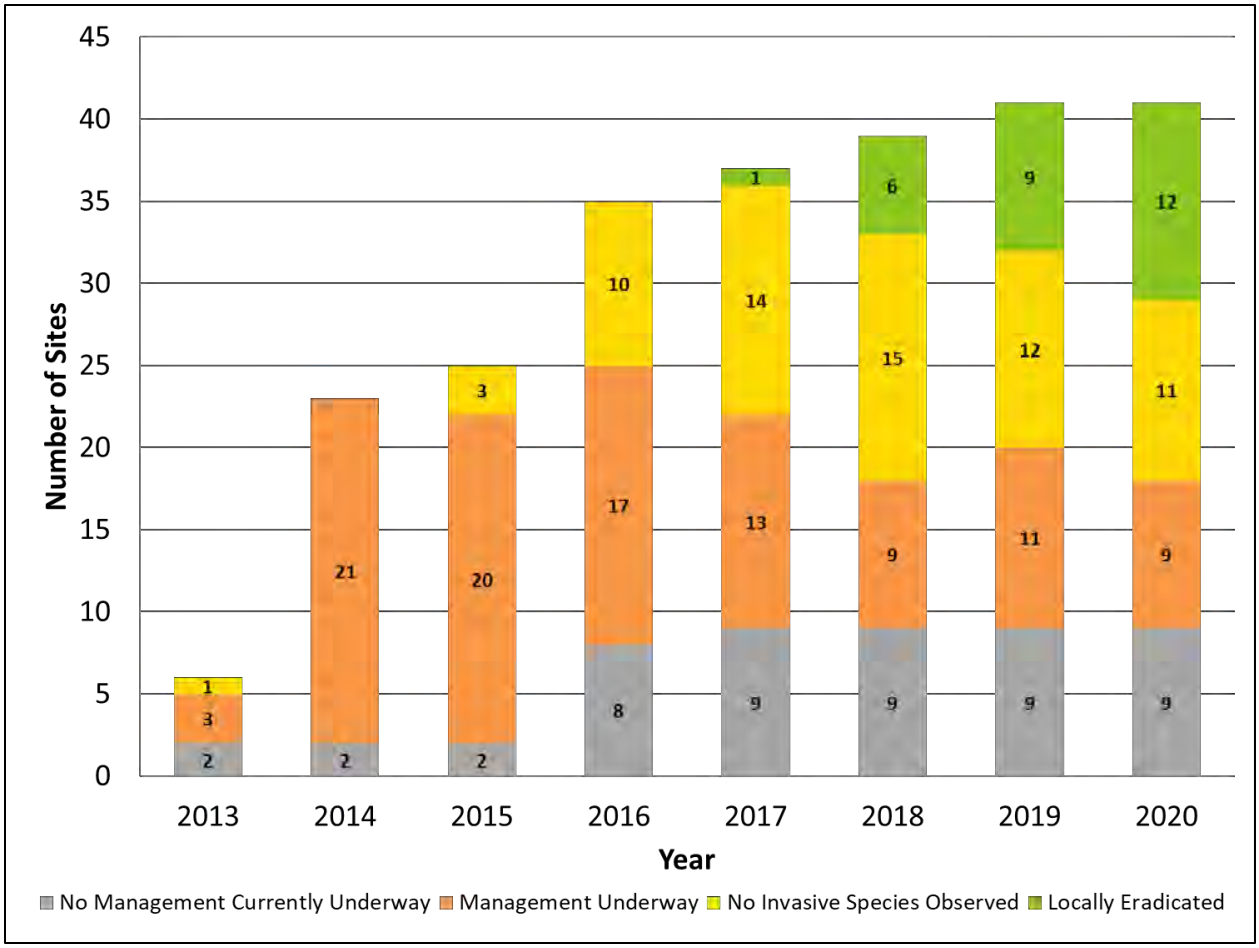


Figure 6. Annual management progress for the Saranac River and St. Regis River Watershed Yellow Iris Eradication Projects (2013-2019).

Tier 4 Species

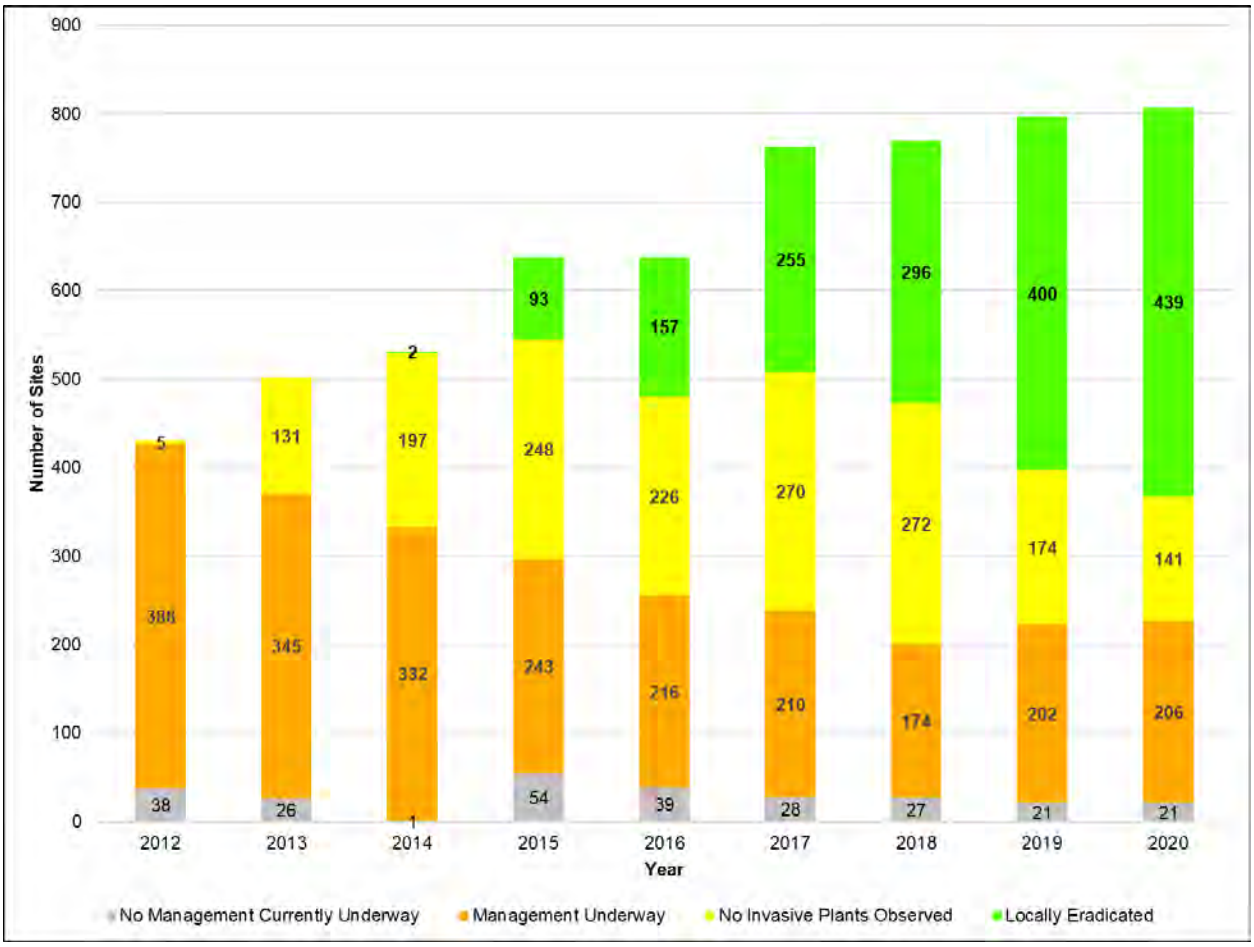


Figure 7. Annual management progress for the Resilient and Connected Land Network Garlic Mustard Suppression Project (2012-2020).

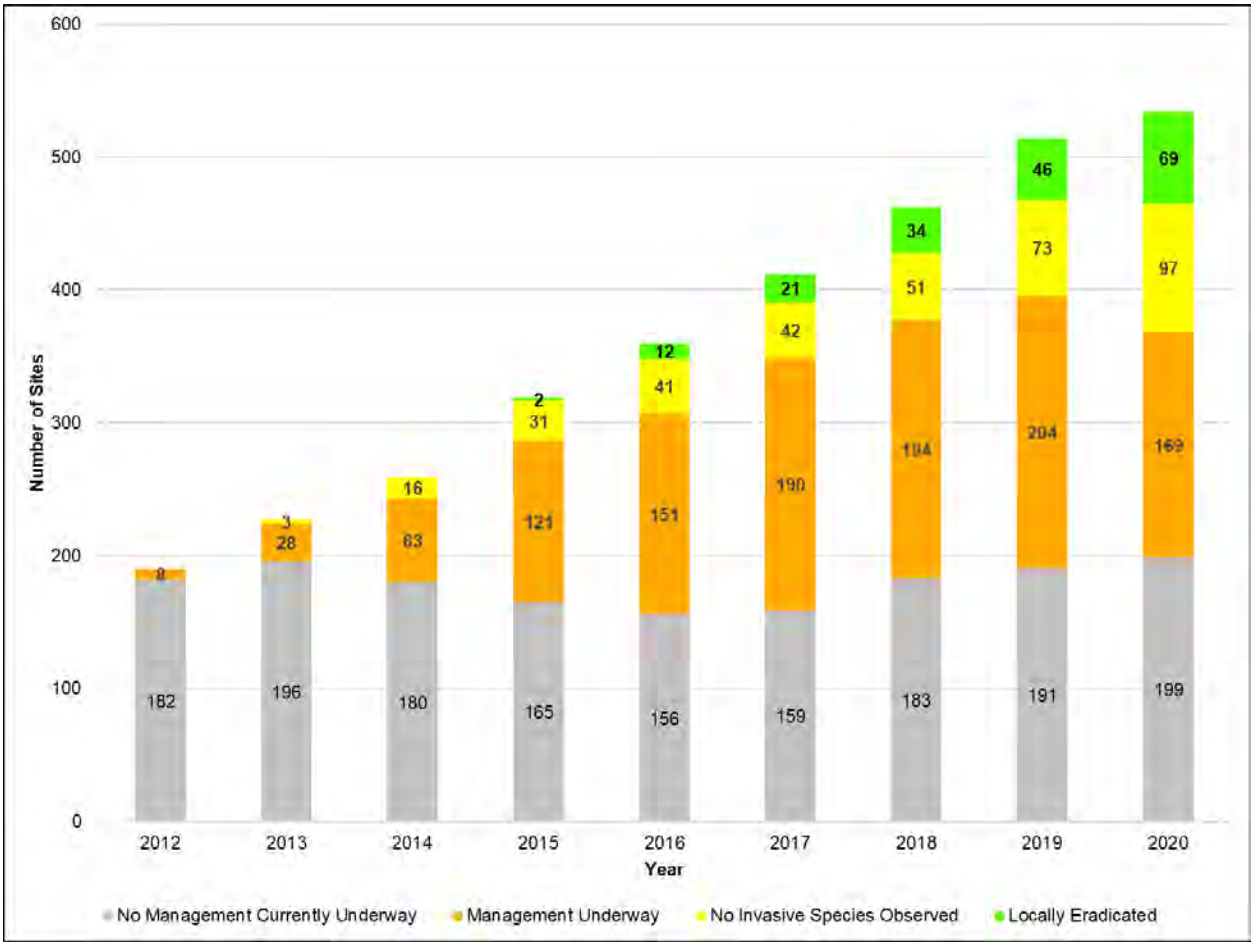


Figure 8. Annual management progress for the Resilient and Connect Land Knotweed Suppression Project (2012-2020).

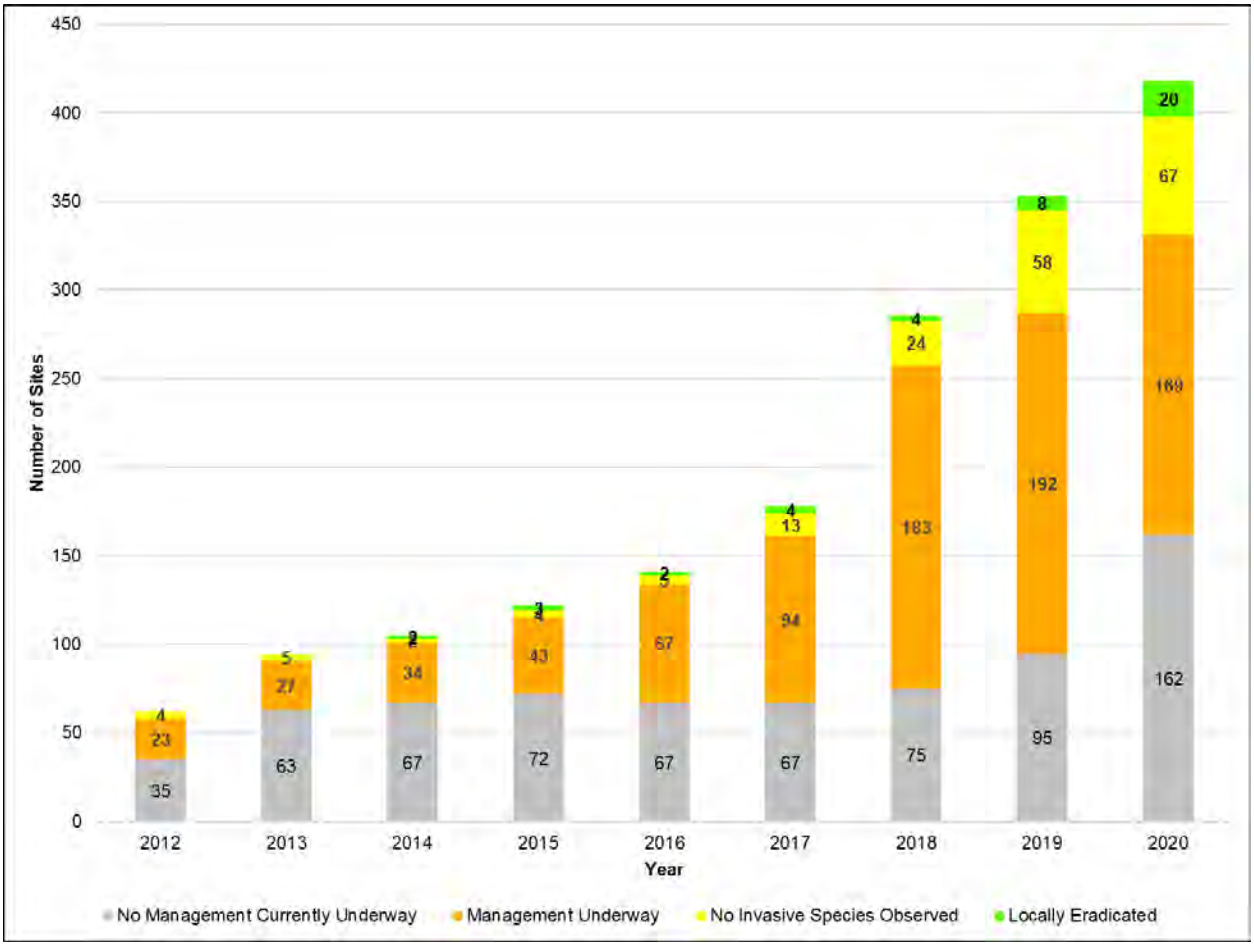


Figure 9. Annual management progress for the Resilient and Connected Land Network Purple Loosestrife Suppression Project (2012-2020).

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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 suppression projects. Charts on the following pages show year-by-year annual management progress for each suppression project. There are two important notes related to these charts.

1. Increasing number of sites throughout the years is due to increasing survey efforts and the ability to survey new areas as mores sites become locally eradicated.

2. Invasive species are considered locally eradicated after three consecutive years of documented invasive plant absence.

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Table 1. Summary of Common Reed Grass Management Projects.

Management Project	Figure*	Total Mapped Infestations	New (2020) Mapped Infestations	Priority Infestations	Sites Under Active Management*	Sites Treated In 2020*	Size Range of Sites Managed in 2020 (acres)*	Total Area Managed in 2020 (acres)*	Total With At Least 1 Year of Documented Invasive Plant Absence*	Total Locally Eradicated*
Ausable River Watershed Common Reed Grass Suppression	1	136	9	95	27	4	<0.001 – 0.037	0.070	10	17
Chateaugay-English River Watershed Common Reed Grass Suppression	2	71	0	28	5	5	0.002 – 0.187	0.234	5	2
Lake Champlain Watershed Common Reed Grass Suppression	3	784	127	217	89	67	<0.001 – 1.427	4.877	25	3
Mohawk River Watershed Common Reed Grass Exclusion	4	165	4	157	29	25	<0.001 – 0.182	0.777	17	34
Northeastern Lake Ontario Common Reed Grass Exclusion	5	40	4	36	2	1	0.010	0.010	7	12
Sacandaga River Watershed Common Reed Grass Exclusion	6	128	4	124	30	20	<0.001 – 0.274	0.591	31	28
Salmon River Watershed Common Reed Grass Suppression	7	46	5	7	1	1	0.040	0.040	1	0
Saranac River Watershed Common Reed Grass Suppression	8	89	9	69	8	7	<0.001 – 0.032	0.079	13	26
Southern St. Lawrence Watershed Common Reed Grass Exclusion	9	190	1	185	45	37	<0.001 – 0.862	1.900	41	80
St. Regis River Watershed Common Reed Grass Exclusion	10	98	21	84	9	9	<0.001 – 0.025	0.069	20	29
Upper Hudson Watershed Common Reed Grass Exclusion	11	126	10	126	36	34	<0.001 – 0.798	2.181	21	34
Common Reed Grass Summary	**N/A**	**1,873**	**194**	**1,128**	**281**	**210**	**<0.001 – 1.427**	**10.828**	**191**	**265**
***only includes priority sites**										

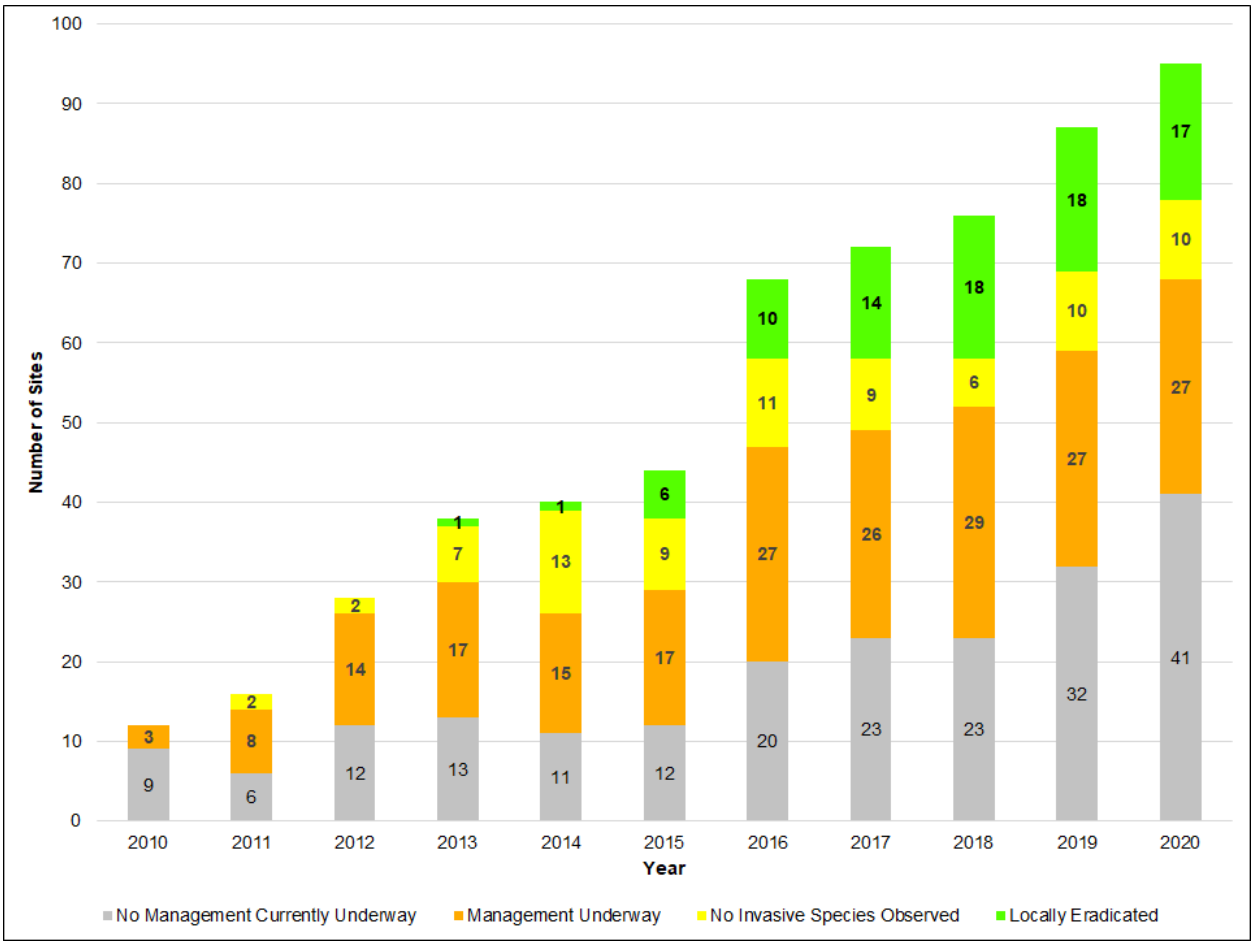

Figure 1. Annual management progress for the Ausable River Watershed Common Reed Grass Suppression Project (2010-2020).

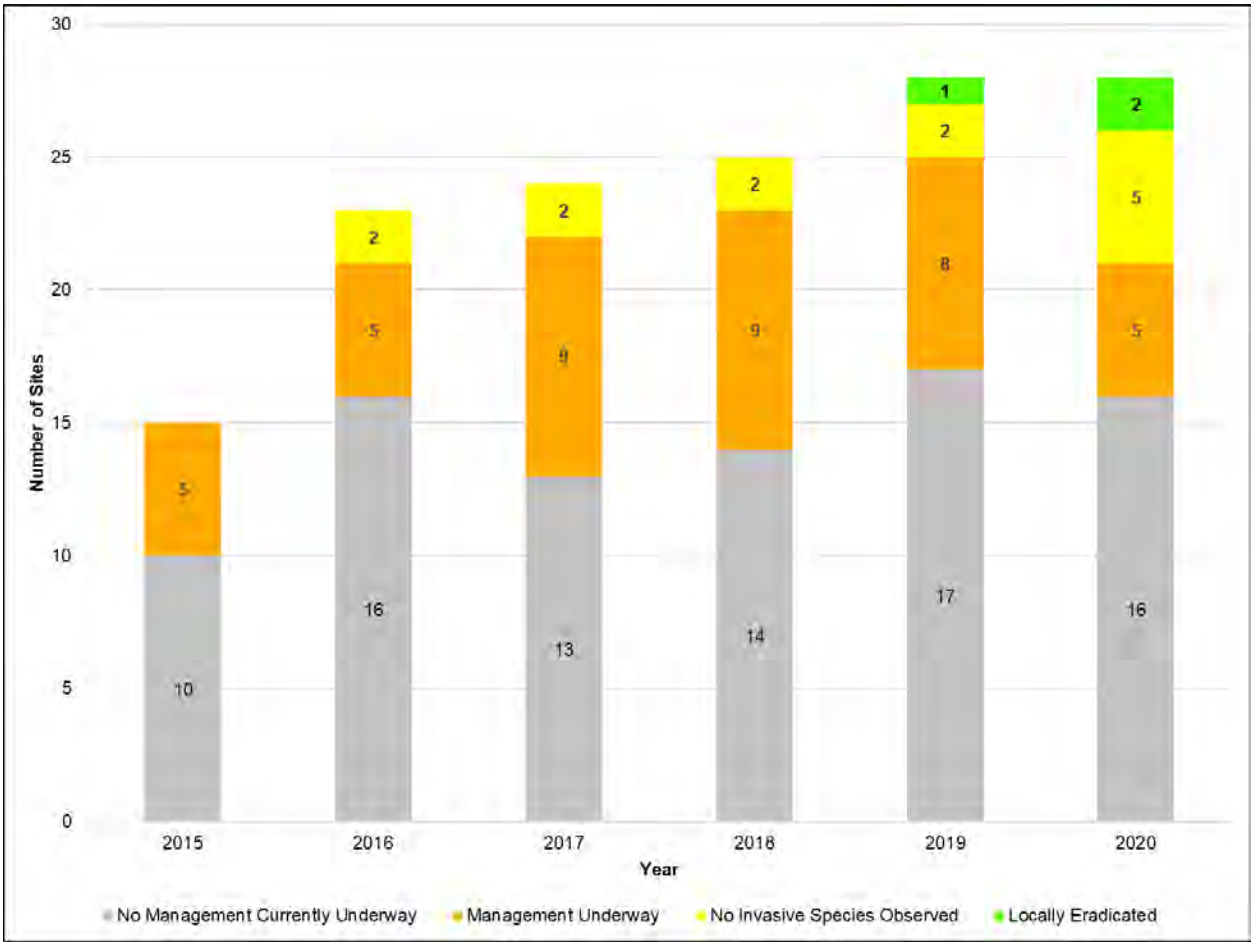

Figure 2. Annual management progress for the Chateaugay-English River Watershed Common Reed Grass Suppression Project (2015-2020).

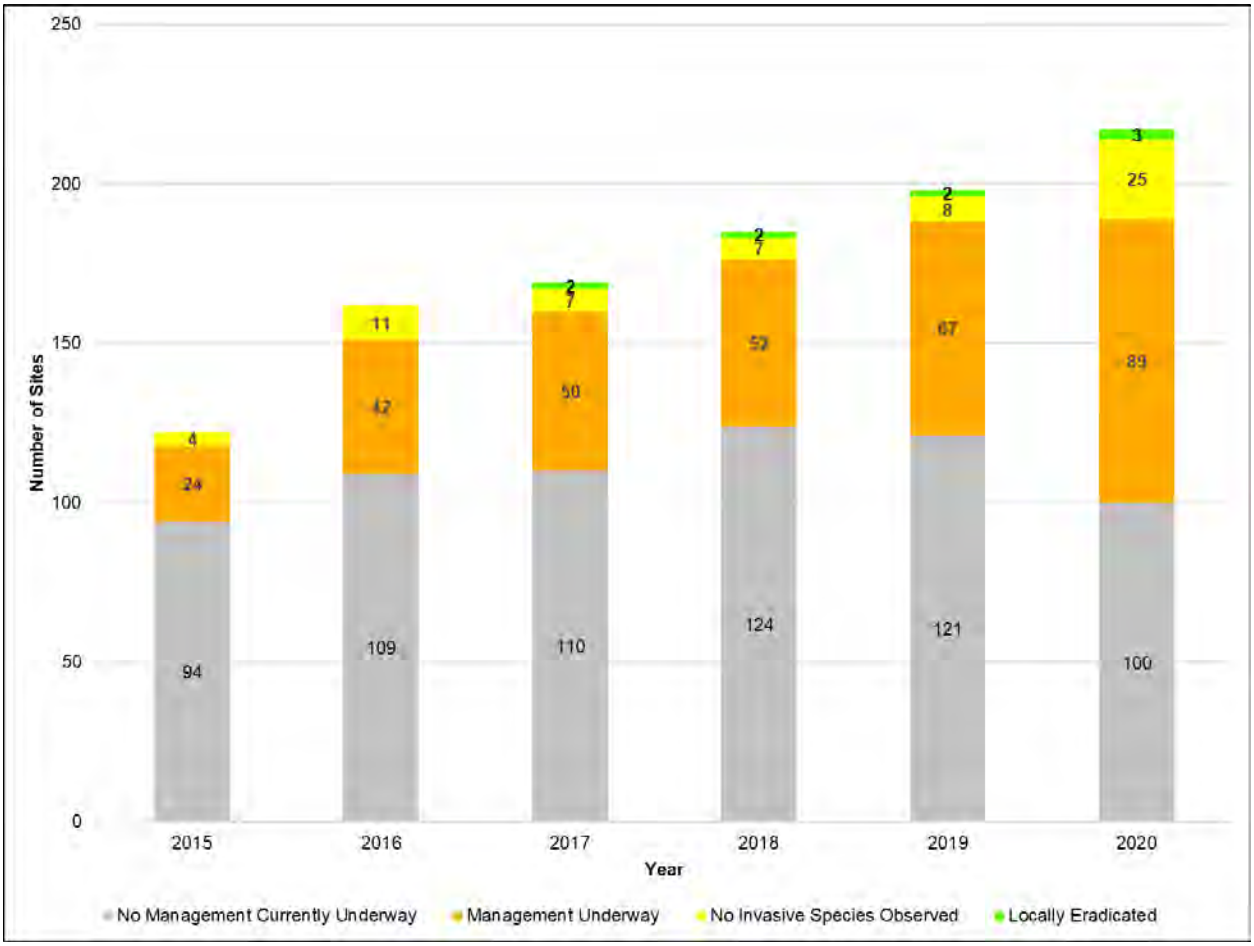

Figure 3. Annual management progress for the Lake Champlain Watershed Common Reed Grass Suppression Project (2015-2020).

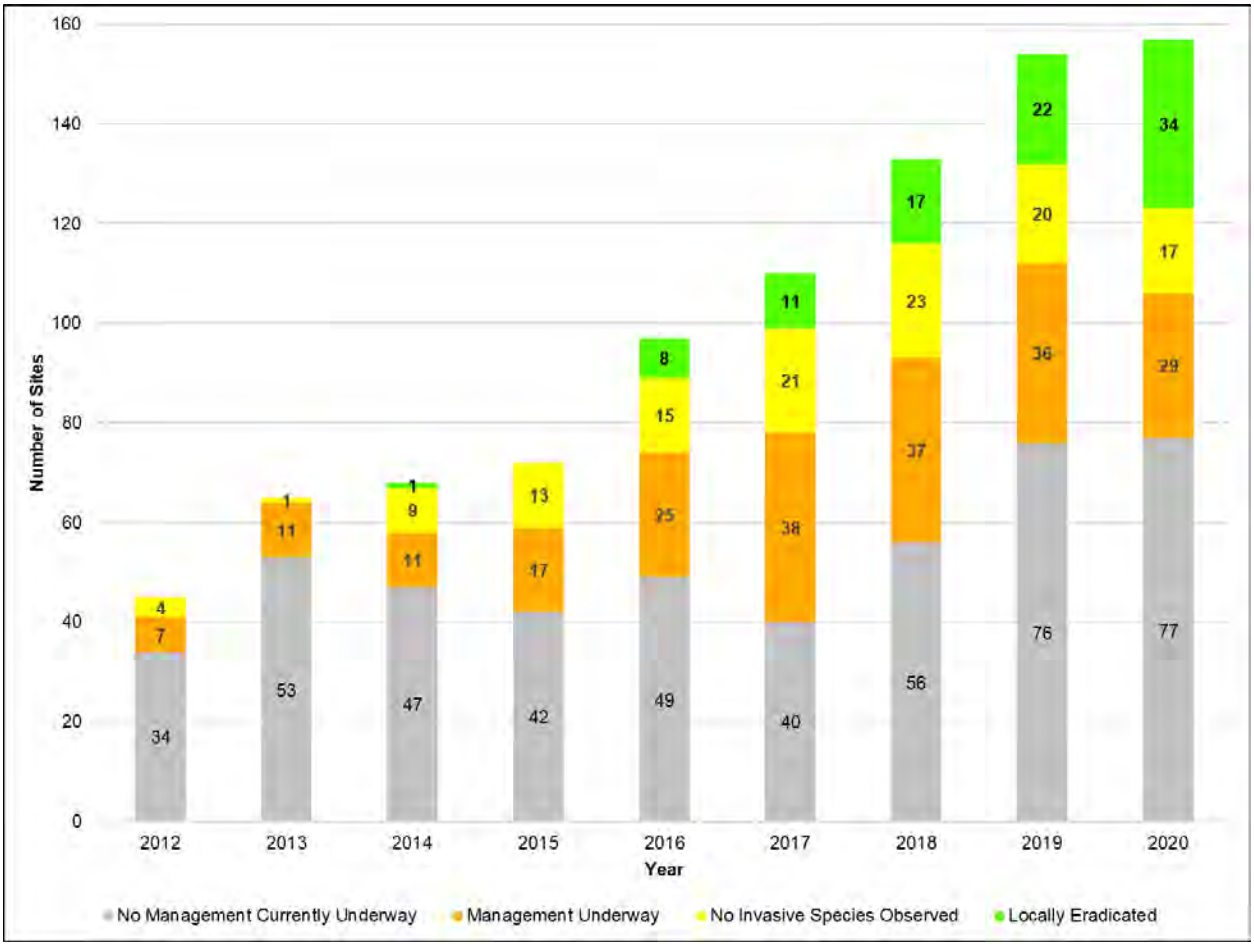

Figure 4.Annual management progress for the Mohawk River Watershed Common Reed Grass Exclusion Project (2012-2020).

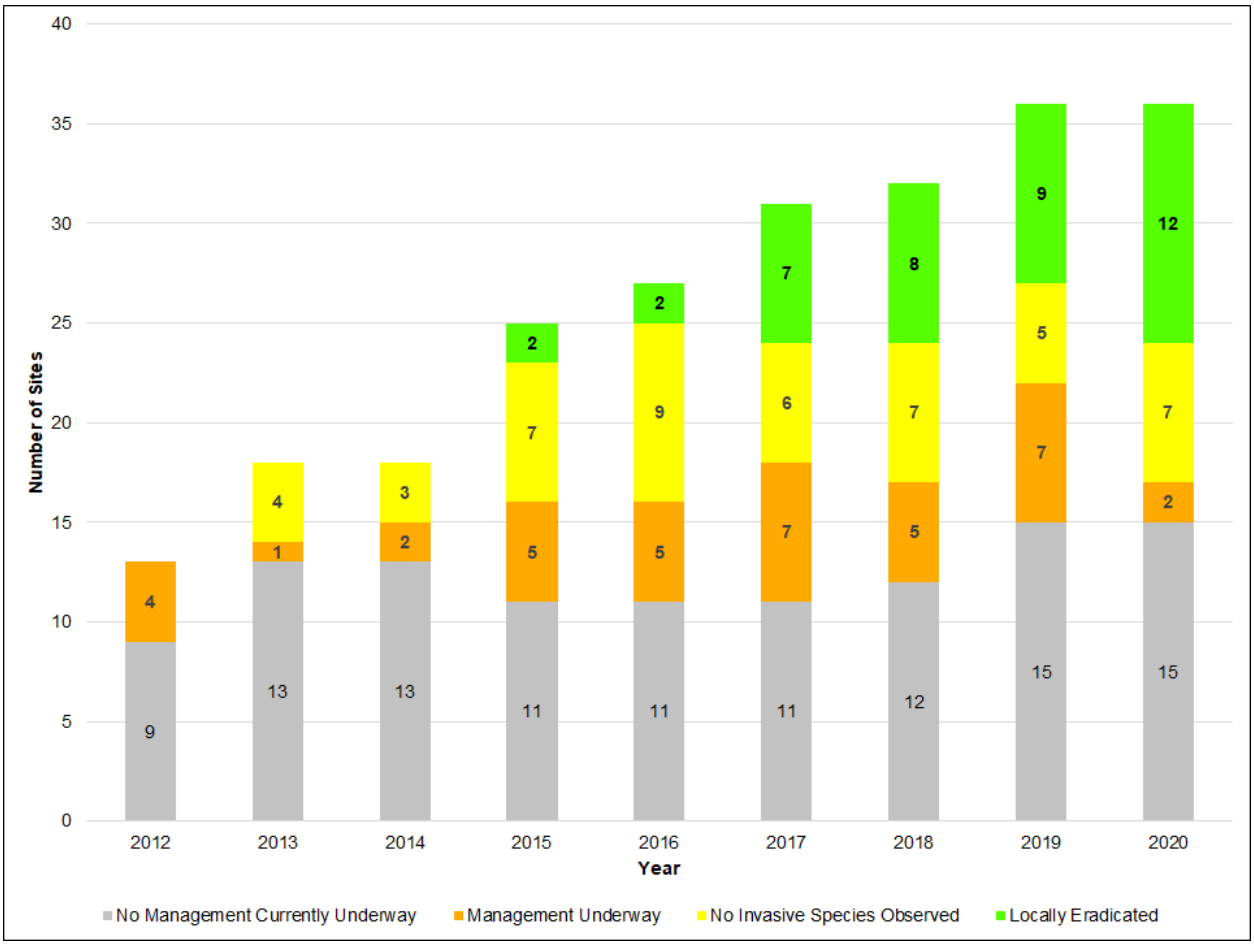

Figure 5. Annual management progress for the Northeastern Lake Ontario Watershed Common Reed Grass Exclusion Project (2012-2020).

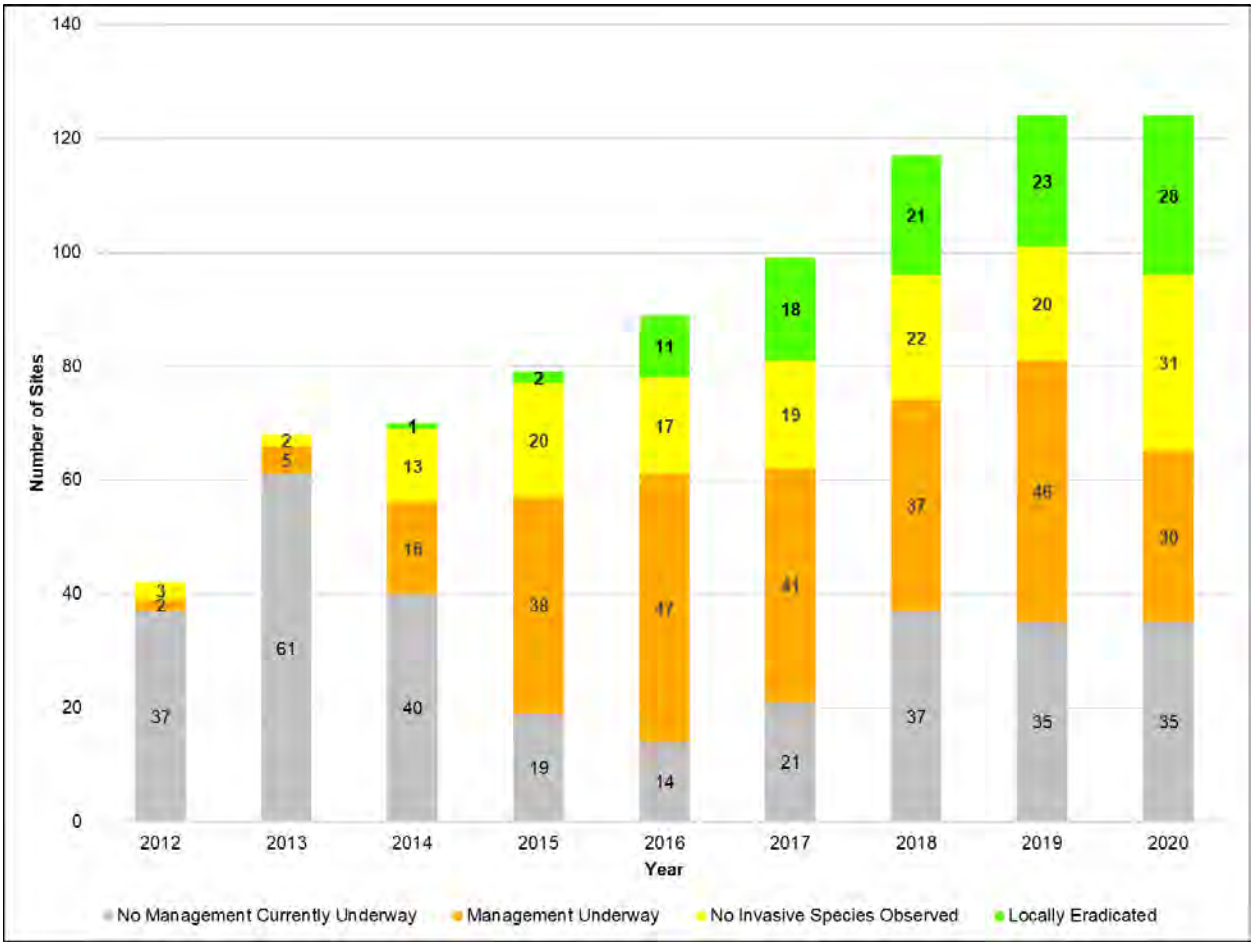

Figure 6. Annual management progress for the Sacandaga River Watershed Common Reed Grass Exclusion Project (2012-2020).

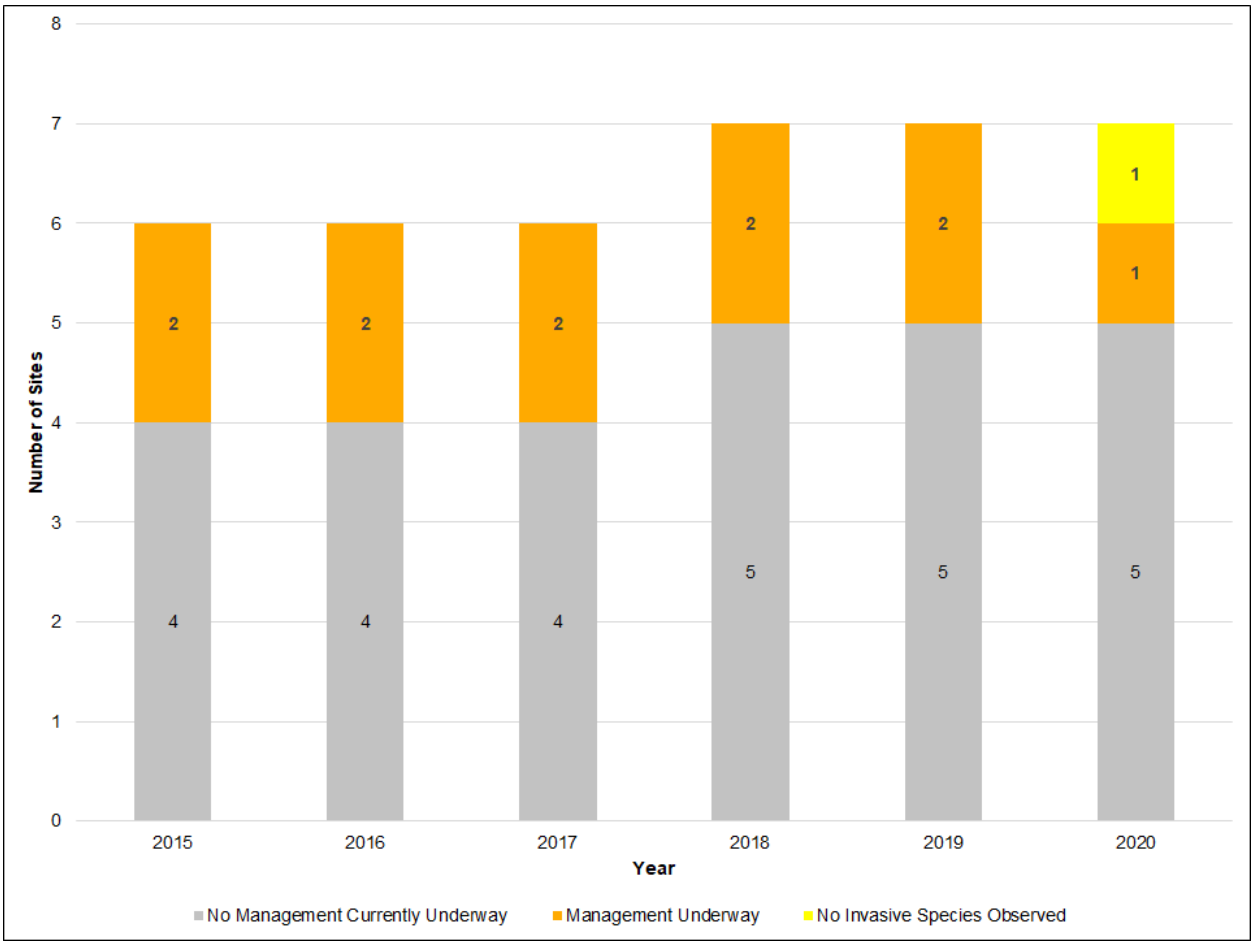

Figure 7. Annual management progress for the Salmon River Watershed Common Reed Grass Suppression Project (2015-2020).

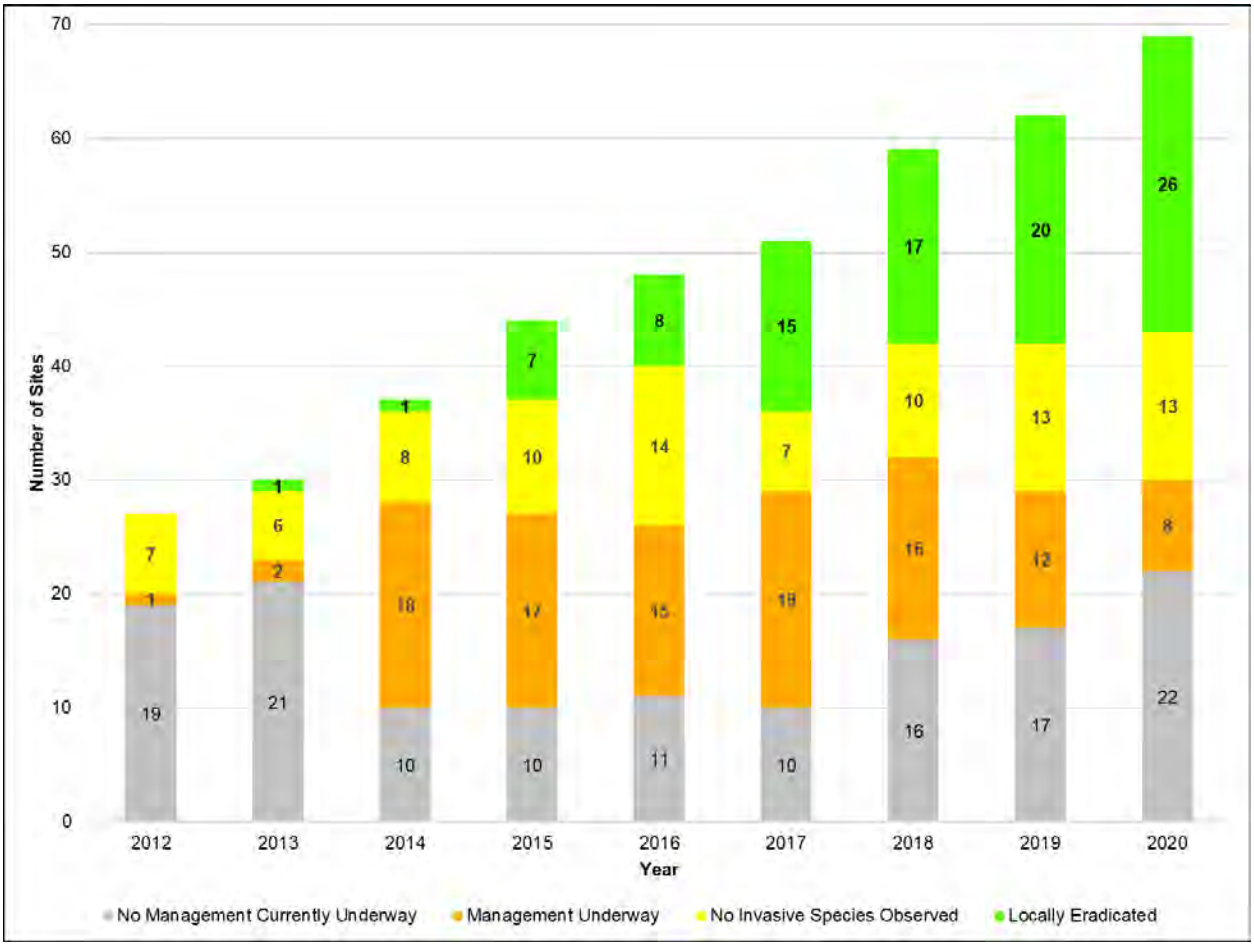

Figure 8. Annual management progress for the Saranac River Watershed Common Reed Grass Suppression Project (2012-2020).

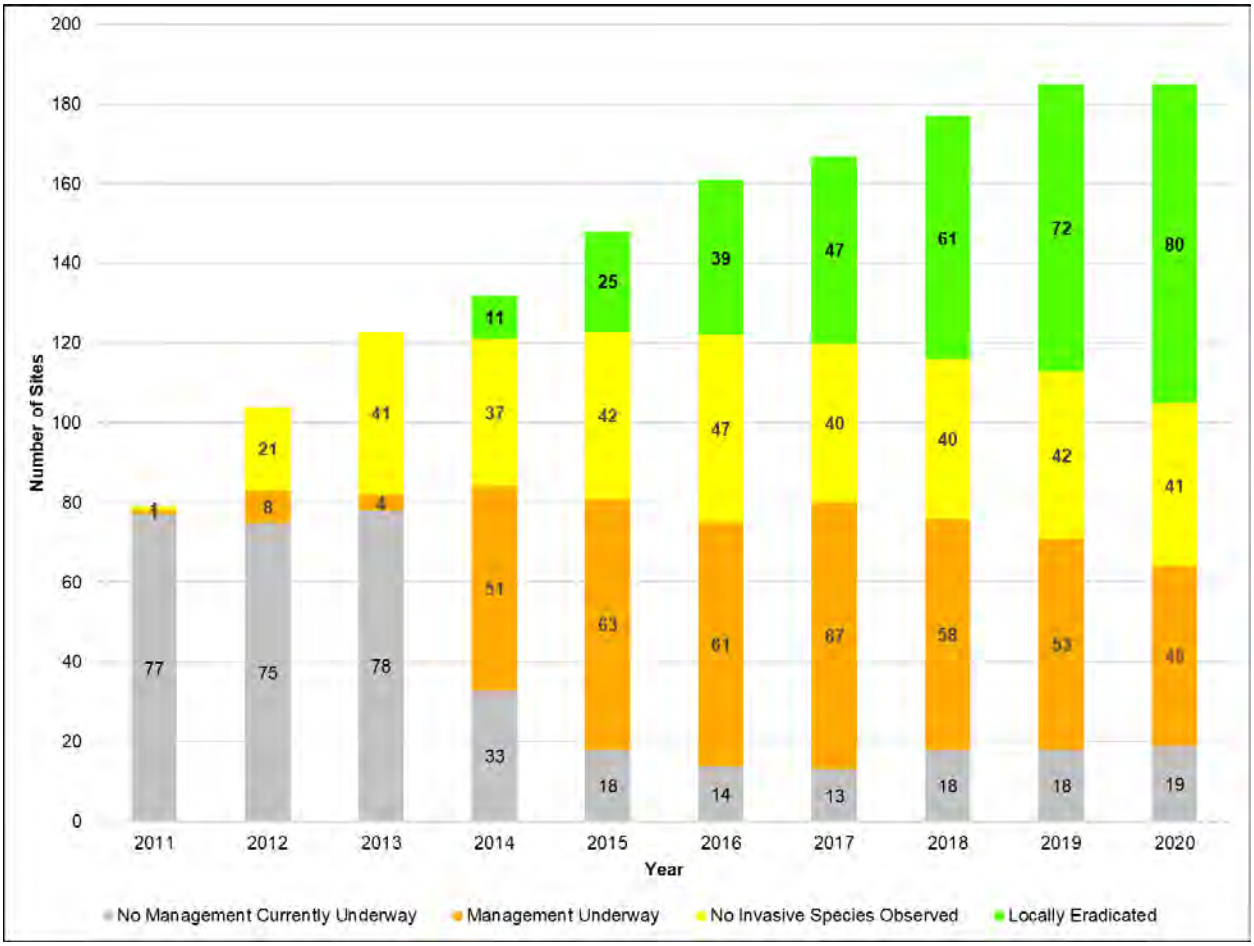

Figure 9. Annual management progress for the Southern St. Lawrence Watershed Common Reed Grass Exclusion Project (2011-2020).

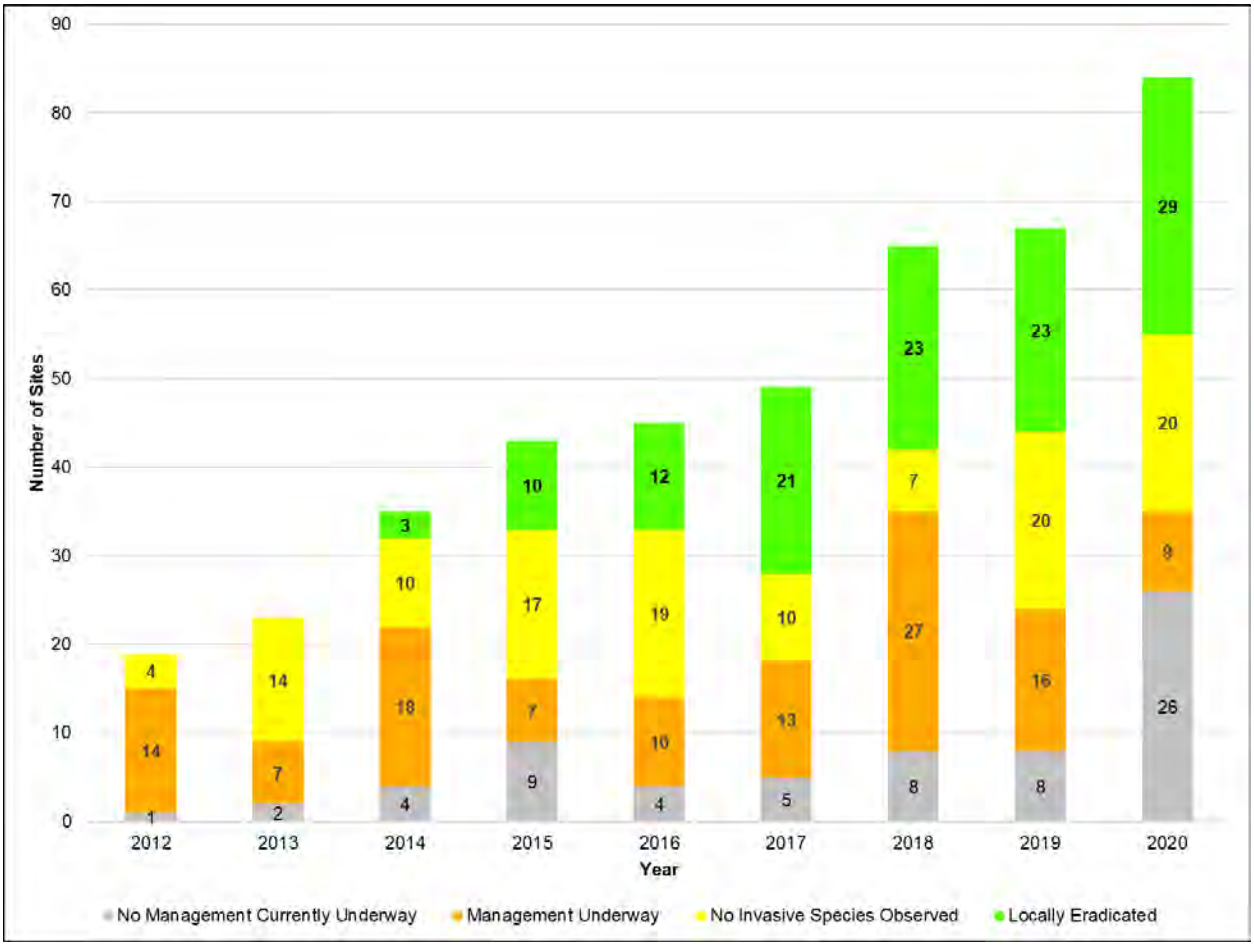

Figure 10. Annual management progress for the St. Regis River Watershed Common Reed Grass Exclusion Project (2012-2020).

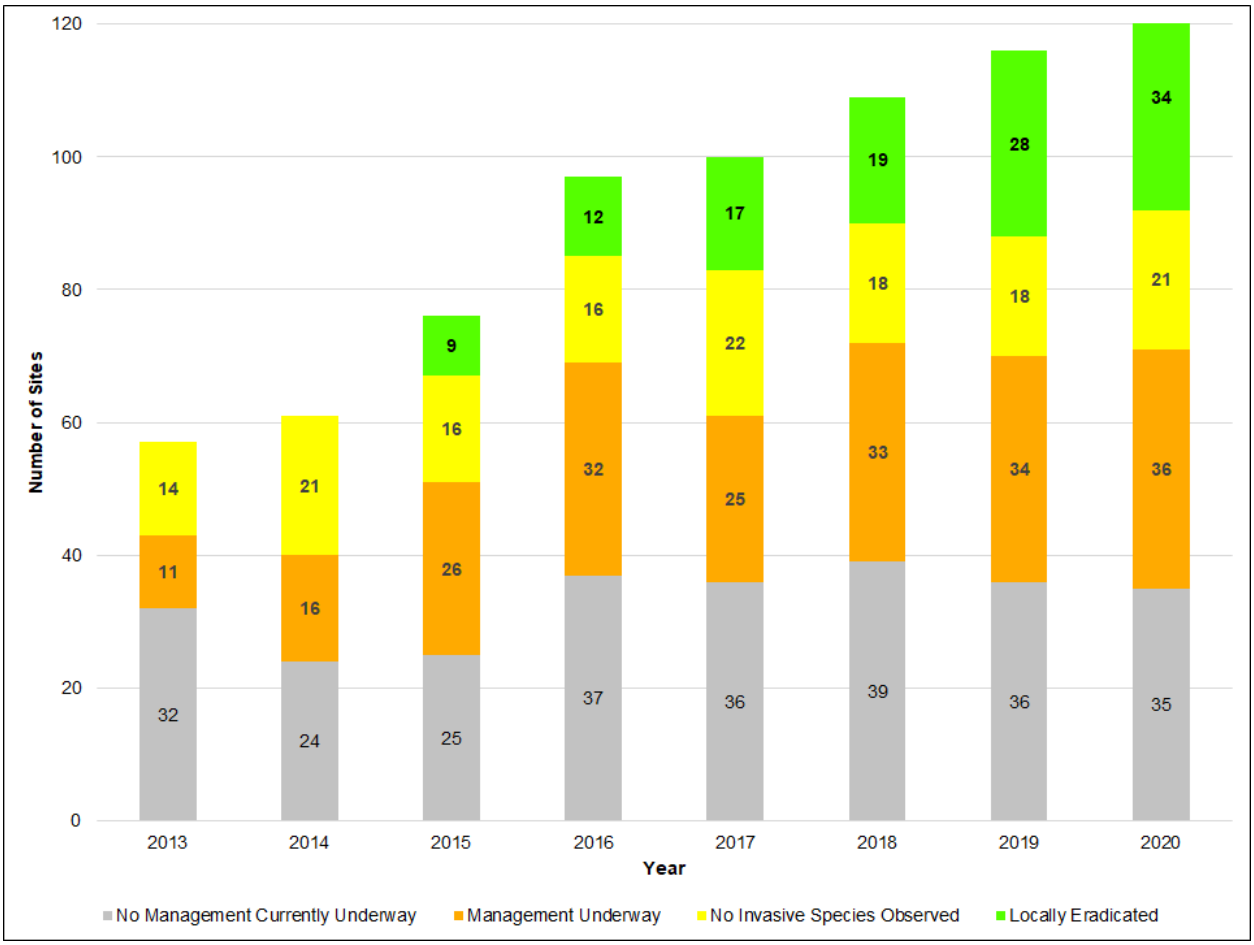

Figure 11. Annual management progress for the Upper Hudson Watershed Common Reed Grass Exclusion Project (2013-2020).

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Appendix C: iMapInvasives APIPP PRISM Metrics 2020

The enclosed report detailing metrics for the Adirondack Park Invasive Plant Program was provided by iMapInvasives. Thank you iMapInvasives for being such a great partner!

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APIPP PRISM METRICS 2020

Records by Data Entry Method*	2020*	Total* 2010-Present
Bulk Upload	1,954	8,950
Mobile App	242	615
On-line	64	1,550
Natureserve Survey 123	0	0
iMMA	0	4
SAS Pro	0	0
Forest Pest	0	0

Records by Species Type*	2020*	Total* 2010-Present
Animal Insect -Terrestrial	66	169
Animal Other Invertebrate - Aquatic	1	337
Animal Other Invertebrate - Terrestrial	0	4
Animal Vertebrate -Aquatic	0	67
Animal Vertebrate -Terrestrial	0	11
Plant -Aquatic	31	846
Plant -Terrestrial	1,458	9,699
TOTAL	**1,556**	**11,133**

*** Data entry date as of 11/30/2020.** These totals are both unconfirmed and confirmed data. Numbers for 2020 ***do not*** include approximate data. Prior to August 2020, the numbers for iMMA, SAS Pro, and Forest Pest custom apps were included in the "Bulk Upload" data entry method.

2020 Training Classes

Date	Trainer	Training Class Name	Number Trained
14-Apr-20	Mitchell O'Neill, Meg Wilkinson	iMapInvasives for Adirondack Mountain Club	4
1-Jul-20	Mitchell O'Neill	iMap Training for the Adirondacks	10

Top 10 Reported Present Species in 2020	
Japanese Knotweed	305
European Common Reed	228
Garlic Mustard	198
Purple Loosestrife	132
Wild Parsnip	128
Bush Honeysuckle (species unknown)	99
Emerald Ash Borer	54
Reed Canarygrass	54
Giant Hogweed	50
Oriental Bittersweet	35
Black Swallow-wort	25

View a map of the top 10 reported species in 2020.

Top 10 Not Detected Species in 2020*	
Garlic Mustard	658
European Common Reed	336
Japanese Knotweed	153
Yellow Iris	75
Purple Loosestrife	57
Giant Hogweed	56
Hemlock Woolly Adelgid	53
Water Chestnut	50
Common Frogbit	48
Eurasian Water-milfoil	47

Please login to iMapInvasives to View a map of the top 10 Not- Detected species in 2020.

Top 10 Treated Species in 2020*	
Common Reed	199
Garlic Mustard	163
Japanese Knotweed	116
Purple Loosestrife	110
Black Swallow-wort	20
Wild Parsnip	15
Yellow Iris	12
Honeysuckle (species unknown)	7
Giant Hogweed	4
Mile-a-minute Weed	4

Please login to iMapInvasives to View a map of the top 10 Treated species in 2020.

Top 10 Organizations Submitting Observations in 2020	Observations 2020*
Adirondack Park Invasive Plant Program (APIPP)	1,128
Warren County Soil and Water Conservation District	125
Regional Inlet Invasive Plant Program (RIIPP)	103
New York Natural Heritage Program (NYNHP) – NY	60
New York State Department of Environmental Conservation (NYSDEC) (NY)	58
No Organization Affiliation (NY)	30
Capital Mohawk PRISM	23
New York State Office of Parks Recreation and Historic Preservation (NYS OPRHP)	13
Ausable and Boquet River Associations	4
Franklin County Soil and Water Conservation District	4

New to County Species Reported in 2020*

Lymantria dispar ,Gypsy Moth	9/11/2020	Clinton
Cynanchum spp. (species unknown) ,Swallowwort (species unknown)	9/11/2020	Clinton
Rorippa nasturtium-aquaticum ,Watercress	11/2/2020	Essex
Ranunculus ficaria var. bulbifera ,Fig-root Buttercup	4/24/2020	Essex
Petasites hybridus ,Purple Butter-bur	7/1/2020	Essex
Alnus glutinosa ,European Alder	11/2/2020	Essex
Epipactis helleborine ,Eastern Helleborine	11/2/2020	Essex
Trifolium repens ,White Clover	11/2/2020	Essex
Verbascum thapsus ,Common Mullein	11/2/2020	Essex
Rorippa nasturtium-aquaticum ,Watercress	11/2/2020	Franklin
Epipactis helleborine ,Eastern Helleborine	11/2/2020	Franklin
Ranunculus ficaria var. bulbifera ,Fig-root Buttercup	5/30/2020	Franklin
Coronilla varia ,Common Crown-vetch	5/30/2020	Franklin
Acer platanoides ,Norway Maple	7/9/2020	Fulton
Centaurea spp (species unknown) ,Centaurea (species unknown)	6/4/2020	Fulton
Elaeagnus umbellata ,Autumn-olive	7/8/2020	Hamilton
Phalaris arundinacea ,Reed Canarygrass	7/8/2020	Hamilton
Cynanchum rossicum ,European Swallow-wort	8/11/2020	Hamilton
Lonicera spp (species unknown) ,Bush Honeysuckle (species unknown)	7/8/2020	Hamilton
Epipactis helleborine ,Eastern Helleborine	11/2/2020	Hamilton
Vicia cracca ssp. tenuifolia ,Bramble Vetch	11/2/2020	Warren
Fiorinia externa ,Elongate Hemlock Scale	10/11/2020	Washington
Epipactis helleborine ,Eastern Helleborine	11/2/2020	Washington

*** Data entry date as of 11/30/2020.** These totals are both unconfirmed and confirmed data. Numbers for 2020 ***do not*** include approximate data. Prior to August 2020, the numbers for iMMA, SAS Pro, and Forest Pest custom apps were included in the "Bulk Upload" data entry method.