Adirondack Park

Terrestrial Invasive Species Steward

Survey & Management Report

2019



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Table of Contents

Executive Summary	1
Introduction	2
Herkimer Working Circle	5
Alger Island	5
Nicks Lake	6
Indian Lake Working Circle	7
Brown Tract Pond	8
Eighth Lake	9
Forked Lake	10
Golden Beach	11
Lake Durant	13
Lewey Lake	15
Limekiln Lake	17
Indian Lake Islands	18
Tioga Point	18
Moose River Plains Wild Forest	19
Northville Working Circle	20
Caroga Lake	21
Little Sand Point	24
Moffitt Beach	26
Northampton Beach	29
Point Comfort	31
Poplar Point	32
Sacandaga	34
Mason Lake Primitive Campsites & Perkins Clearing Tract Conservation Easement	35
Potsdam Working Circle	
Cranberry Lake	
Ray Brook Working Circle	
Ausable Point	
Buck Pond	41
Crown Point	41
Fish Creek Pond	45
Frontier Town	
Lake Eaton	47
Lake Harris	

Lincoln Pond
Meacham Lake
Meadowbrook
Paradox Lake
Poke-O-Moonshine
Putnam Pond
Rollins Pond
Saranac Lake Islands
Sharp Bridge60
Taylor Pond61
Wilmington Notch
Warrensburg Working Circle
Eagle Point64
Hearthstone Point
Lake George Islands67
Lake George Battleground67
Luzerne
Rogers Rock
Scaroon Manor72
The Nature Conservancy Preserves
Conclusion74
Appendix

Executive Summary

State campgrounds, trailheads, and other recreational access points are high priorities for terrestrial invasive species surveillance and management due to their high levels of human disturbance and use. They are often the first location where new invasive species are introduced or detected. Once invasive species become established, they can serve as source populations for spread into backcountry areas of high conservation value.

During the 2019 field season, the Adirondack Park Invasive Plant Program's (APIPP) Invasive Species Management Steward (Steward) surveyed and/or managed terrestrial invasive species at a record number of recreational facilities and access points including:

- 39 New York State administered campgrounds
- 139 recreational access points, such as trailheads, parking areas, boat launches, etc.
- 2 roadside primitive camping areas on Forest Preserve lands
- 5 Nature Conservancy owned preserves

Of the 39 campgrounds surveyed, 36 were found to contain one or more terrestrial invasive species. Infestations of APIPP's target species were mapped using The Nature Conservancy's (TNC) Invasive Plant and Mobile Monitoring System (IPMMS). Bush honeysuckle was the most commonly mapped species, present at 74% of campgrounds surveyed. Reed canary grass and garlic mustard were the also common, found at 72% and 49% of surveyed campgrounds, respectively. When feasible, infestations were managed using mechanical control techniques.



Figure 1. Summary of invasive plant species mapped in 2019 at DEC administered campgrounds.

Three campgrounds were free of all target terrestrial invasive plant species. Eight years of survey and management results indicate significant opportunity for successful control and eradication of many species at Adirondack campgrounds. Since the program's inception, garlic mustard abundance at Department of Environmental Conservation (DEC) campgrounds has declined by approximately 70%, while purple loosestrife has declined by 76%. With continued annual management, there is a high likelihood for many infestations to be significantly reduced in abundance or locally eradicated. However, there are notable exceptions at select campgrounds where particularly large infestations are unlikely to be eradicated, even with sustained allocation of resources. Nevertheless, most infestations can be effectively suppressed to minimize impacts to the environment, economy, and human health.

Many campground employees were unaware that their facility was infested by an invasive plant species and were not familiar with invasive plant identification and management practices. To rectify this challenge, it would be beneficial to offer trainings in invasive species identification and management to campground staff at the beginning of the season. Ideally, this would occur at all campgrounds, but is especially important at those currently invaded or located near heavily-infested areas. This is also important for campgrounds that are located adjacent to areas of high conservation value such as the Forest Preserve.

Introduction

Overview

Beginning in the summer of 2006, the DEC supported a seasonal Invasive Species Specialist position to implement annual invasive plant inventories and management at state campgrounds in the Adirondack Park. Since state campgrounds are intensive use areas that receive high levels of recreational traffic, they are more susceptible to the inadvertent introduction of invasive species. Once a campground becomes infested, it can serve as a source for invasive species spread into nearby areas of high conservation value. The spread of invasive plants can result from vegetative growth, seed dispersal, root and stem fragmentation, etc. Movement of contaminated soils or equipment, use of non-native plants in landscaping, and transport of seeds on clothing and equipment are likely vectors of invasive species introduction at state campgrounds. As a result, APIPP and DEC have identified state campgrounds as priority areas for invasive species surveillance and management.

The DEC Invasive Species Specialist performed invasive plant surveys and control each field season from 2006 through 2009. In 2010, funding for the position was unavailable, resulting in a lapse of data collection and management. Progress that had been made in controlling garlic mustard and purple loosestrife was set back as plants regrew and infestations went unmanaged. In 2011, APIPP initiated limited management, collecting data for and controlling several infestations at priority campgrounds. From 2012 through the 2018 field season, APIPP in collaboration with the DEC and the State University of New York College of Environmental Science and Forestry (SUNY ESF), deployed an Invasive Species Campground Steward to survey and manage infestations. Over 4,000 acres of DEC-administered lands were surveyed by these stewards, with over 1,000 infestations mapped and 700+ infestations managed.

Beginning in 2019, the campground steward position was incorporated into APIPP's five-year Partnership for Regional Invasive Species Management (PRISM) contract, supported by funding from the Environmental Protection Fund (EPF) as administered by DEC. The restructured Invasive Species Management Steward position expanded the program's scope to include surveys at additional New York State administered and private recreational facilities. APIPP's 2019 Steward brought a greater level of plant identification knowledge and experience than previous Stewards. Their invasive plant identification and survey proficiency is reflected in this report. Invasive plants that previously went undetected, were documented for the first time at several facilities in 2019. In addition, a greater number of plants were removed from several facilities. In most cases, this should not be interpreted as an increase in invasive plant abundance, but rather an increase in the Stewards ability to identify and remove inconspicuous juvenile plants.

Supervision and project oversight for the Steward was provided by APIPP's Terrestrial Invasive Species Project Coordinator. APIPP's terrestrial rapid response teams, two SUNY ESF Conservation Biology Interns -Dan Leavenworth and Makayla Thornton - and other volunteers assisted the Steward with survey and management activities at select facilities in 2019.

The following report summarizes terrestrial invasive species surveillance and management activities performed by the Steward throughout the Adirondack PRISM during the 2019 field season. This report divides the Adirondack PRISM and its state administered campground facilities into working circles, as defined by Wayne G. Blanchard in *Invasive Species Adaptive Management Guiding Document Adirondack Forest Preserve Campgrounds Final Report (2008)*. All remaining trailheads and recreational facilities were categorized by the Steward based on their proximity to campgrounds and are listed in the working circle sections in the appendix at the end of this report.

Standard Monitoring and Management Procedures for Target Invasive Species

The Steward was equipped with The Nature Conservancy's IPMMS to document the location and extent of terrestrial invasive species infestations located at state campgrounds throughout the PRISM. Data was collected using an iPad and Bluetooth GPS antenna, and uploaded daily to TNC's server for processing and storage. At the end of each season, all invasive species observation data is submitted to New York's Invasive Species Database (iMapInvasives). Campgrounds are divided into six working circles based upon their location within the region. The Steward visited one or more campgrounds per day depending on the size of the facility and number of infestations present. In general, management activities started in the southern portion of the PRISM and progressed northward to coincide with the latitudinal advance of the growing season.

Some species were targeted for management, while others were only surveyed due to logistical constraints or lack of effective control measures. The table below provides a summary of species the Steward was trained to detect and their designation as management or survey targets.

Species	Priority	
Garlic mustard	Management target	
Purple loosestrife	Management target	
Wild parsnip	Management target	
Yellow iris	Management target	
Oriental bittersweet	Management target, if isolated	
Bush honeysuckle	Management target, if isolated	
Japanese barberry	Management target, if isolated	
Multiflora rose	Management target, if isolated	
Autumn olive	Management target, if isolated	
Winged burning bush	Management target, if isolated	
Common buckthorn	Management target, if isolated	
Reed canary grass	Survey only	
Norway maple	Survey only	
Common reed (Phragmites)	Survey only	
Knotweed spp.	Survey only	
Balsam woolly adelgid	Survey only	
Emerald ash borer	Survey only	
Hemlock woolly adelgid	Survey only	

 Table 1. Target invasive species and their management status.

Garlic mustard – Second-year plants were pulled up by the root and placed in thick contractor garbage bags. For the first time in 2019, first-year rosettes were also hand pulled. Historically, garlic mustard infestations were too extensive to permit management of all life stages in the project time allotted. However, as historic management efforts have decreased the size and density of infestations, removal of the rosette stage should be prioritized. The bagged plant materials were transported to TNC's headquarters in Keene Valley, NY, where they were solarized until the contents had liquefied and no viable plant material remained. At the end of the season, bags were disposed of at the local transfer station.

Purple loosestrife – Plants were pulled or dug up to remove as much of the root system as possible. Plants were placed in thick contractor garbage bags and transported to TNC's headquarters in Keene Valley, NY, where they were solarized until the contents had liquefied and no viable plant material remained. At the end of the season, bags were disposed of at the local transfer station. Plants with evidence of damage from the biocontrols *Gallerucella spp.* or *Nanophyes marmoratus* were not removed as the biocontrols require purple loosestrife for habitat and food to establish and spread. In some cases, only the flower heads were removed to prevent seed production.

Wild parsnip – Plants were pulled up by the root and placed in thick contractor garbage bags. The bagged materials were transported to TNC's headquarters in Keene Valley, NY, where they were solarized until the contents had liquefied and no viable plant material remained. At the end of the season, bags were disposed of at the local transfer station. NOTE: Protective clothing (long sleeves and gloves, at a minimum) was worn when managing this species, as the sap of this plant is phototoxic and can cause phytophotodermatitis upon contact with exposed skin.

Yellow iris – Plants were pulled or dug up to remove as much of the root system as possible and placed in thick contractor garbage bags. Bags of plant material were transported to TNC's headquarters in Keene Valley, NY, where they were solarized until contents had liquefied and no viable plant material remained. At the end of the season, bags were disposed of at the local transfer station.

Bush honeysuckle, Japanese barberry, multiflora rose, autumn olive, winged burning bush, Oriental bittersweet, common buckthorn, Norway maple – The presence of these invasives was documented, but infestations were managed only when plants were sparsely distributed throughout the campground. These species are a lower priority for management because of their widespread distribution in the Adirondack Park and their ability to be transported long distances by birds. Management of infestations was performed only when adequate time remained after management and inventories of other, higher priority species/infestations had been completed. To manage these species, plants were pulled up by the base to remove the entire root system. Medium-sized plants often required the use of a leverage tool. Extracted plants were hung upside down in nearby trees to dry and decompose. Large plants were left in place and noted for potential cut stump herbicide treatment by APIPP.

Knotweed spp., **common reed grass**, and **reed canary grass** are difficult to manage, perennial invasives with extensive rhizome systems. Mechanical treatment of established infestations is difficult or often infeasible. Chemical treatments are most often used to control established infestations. When these species were encountered in a campground, they were mapped but not managed.

Herkimer Working Circle

The Herkimer Working Circle contains two campgrounds: Alger Island and Nicks Lake. The following section provides an overview of survey and management activities for these campgrounds. For a comprehensive summary of terrestrial invasive species distribution across all facilities in the working circle – including trailheads, fishing access sites, parking areas, and boat launches – see Appendix Table 1.

Campground	Invasive Plants Present	Total Plants Removed
Alger Island	None Observed	None
Nicks Lake	Bush honeysuckle Garlic mustard Reed canary grass	0 1,715 0

Table 2. Herkimer Working Circle invasive species distribution and management summary.

Alger Island

Invasive Species Distribution and Management Overview:

No target invasive species were observed in 2019. This is most likely due to the island's relatively isolated location and the lower levels of use compared to other facilities.

Recommendations:

Annual surveys should continue at this campground. Garlic mustard, reed canary grass, and Japanese barberry are present at the boat launch used to access Alger Island. It is possible that campers could unintentionally transport these species to Alger Island.



Nicks Lake

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was mapped and removed from sites 1, 7, 8, 11, 13, 14, 30, 31, 40, 42, 57, 61, 62, the roadside in between sites 65 and 68, 72, 76, and 110. Large infestations were also managed at the trailer dumping station, the air quality monitoring station clearing and the stream adjacent to it. There was a significant increase in the number of garlic mustard plants removed in 2019. Last season, this facility was surveyed late in the summer after the plants had gone to seed and management was not completed.



Additionally, the total number of plants removed in 2019 included both rosettes and second-year plants, while previous seasons data only included second-year plants. Despite this increase, garlic mustard abundance remains 36% lower than peak infestation levels observed in 2014 (Figure 2).



Reed canary grass is widespread throughout the campground and was not managed.

Figure 2. Garlic mustard distribution and management progress at Nicks Lake Campground. * indicates years in which control of all known infestations was not completed.

Recommendations:

Garlic mustard survey and management efforts should remain a top priority for this campground. Infestations that were not controlled in 2018 released seed and will require follow-up management for multiple seasons. However, previously managed infestations are still decreasing in extent and percent cover. Local eradication may not be achievable at this facility; however, infestations can be contained or suppressed to mitigate their impacts. Bush honeysuckle and reed canary grass are abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended.

Indian Lake Working Circle

The Indian Lake Working Circle contains eight campgrounds: Brown Tract Pond, Eighth Lake, Forked Lake, Golden Beach, Indian Lake Islands, Lewey Lake, Limekiln Lake, and Tioga Point. The following section provides an overview of survey and management activities for these campgrounds. For a comprehensive summary of terrestrial invasive species distribution across all facilities in the working circle – including trailheads, fishing access sites, parking areas, and boat launches – see Appendix Table 2.

Campground	Invasive Plants Present	Total Plants Removed
Brown Tract Pond	Bush honeysuckle Garlic mustard Reed canary grass	0 248 0
Eighth Lake	Bush honeysuckle Garlic mustard Reed canary grass	0 1,715 0
Forked Lake	Bush honeysuckle	0
Golden Beach	Bush honeysuckle Garlic mustard Reed canary grass Winged euonymus	0 1,132 0 1
Indian Lake Islands	Not Surveyed in 2019	
Lewey Lake	Autumn olive Bush honeysuckle Garlic mustard Purple Loosestrife Reed canary grass	0 0 74 131 0
Limekiln Lake	Autumn olive Bush honeysuckle Garlic mustard Reed canary grass	0 0 323 0
Tioga Point	Not Surveyed in 2019	
Moose River Plains Wild Forest	Bush honeysuckle Garlic mustard Purple loosestrife	0 841 1

Table 3. Indian Lake Working Circle invasive species distribution and management summary.

Brown Tract Pond

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was mapped and removed from sites 30, 74, 80, 81, and 82. There was an increase in the number of garlic mustard plants removed at this facility in 2019, resulting from both rosettes and second-year plants being included in management tallies. In previous seasons, data only included second-year plants. In total, 248 plants were removed from five locations in the campground (Figure 3). This is significantly lower than peak infestation levels observed in 2012 when 1,103 plants were removed from nine locations.





Reed canary grass was mapped in a wet area between sites 89 and 90 but was not managed.

Figure 3. Garlic mustard distribution and management progress at Brown Tract Pond Campground.

Recommendations:

Despite the increase in garlic mustard abundance documented in 2019, the total number of plants removed remains 78% less than peak levels observed in 2012. Rosettes, rather than second-year plants, were the only stage of garlic mustard present in 3 of 5 infested sites. With sustained management effort, garlic mustard will likely be locally eradicated from this facility. Bush honeysuckle is widespread throughout the campground and should be addressed only after management of higher priority species is complete. However, since this species can be spread long distances via bird dispersed seed, reintroduction is likely. Reed canary grass is widespread throughout the campground and surrounding area, and it not considered a high priority for management at this time.

Eighth Lake

Invasive Species Distribution and Management Overview:

Bush honeysuckle is scattered throughout the campground, but plants were too large for mechanical management.

Garlic mustard was mapped and removed from sites 7, 30, 37, 73, 87, 95, 97, and around the maintenance garage. The campground caretaker has been actively managing the infestations by pulling and bagging plants. A few sites that had a high-density last year were found to have no plants this year. In total, 178 plants were removed from 11 locations in the campground (Figure 4). This marks a significant decrease from peak infestation levels observed in



2012 when 3,450 plants were removed from 44 locations.

Reed canary grass is growing behind the maintenance garage and around the soils pit. The infestations were well established and not managed.



Figure 4. Garlic mustard distribution and management progress at Eighth Lake Campground.

Recommendations:

Garlic mustard distribution and abundance has decreased by 95% from peak infestation levels observed in 2012. Through the combined efforts of campground and APIPP staff, local eradication of garlic mustard is likely. Infestations of garlic mustard and reed canary grass were found growing immediately adjacent to a fill source that is used for construction and maintenance projects within the campground. Future management efforts should focus on these infestations to prevent inadvertent spread via contaminated fill. Once target invasives have been eradicated, bush honeysuckle should be pulled using a leverage tool or treated with a basal bark application of herbicide. After mature shrubs are treated, surveys should focus on finding small outliers.

Forked Lake

Invasive Species Distribution and Management Overview:

Bush honeysuckle was mapped at sites 1, 5, 7, 77, and 79. Additional infestations are located around the caretaker's cabin and by the boat launch. Due to the size and density of the infestations, only a single, small shrub was removed.

Recommendations:

This campground should be surveyed annually to search for new target invasive species and monitor changes in bush honeysuckle abundance. If resources are available, bush honeysuckle control should be considered. However, since this species can be spread long distances via bird dispersed seed, reintroduction is likely.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.





Golden Beach

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was mapped and removed from sites 20, 22, 39, 41, 43, 47, 49, 52-57, 65, 82, 93, 95, 108, the bathroom behind site 110, 111, 117, 130, 132, 172, 177, 189, and 206. A second survey was performed by the Steward later in the season. Some sites were retreated, while others were treated for the first time. In addition to the sites listed above, infestations were mapped and removed from



sites 35 and 180. In total, 1,132 plants were removed from 35 locations in the campground (Figure 5). This marks a significant decrease from peak infestation levels observed in 2012 when 9,000 plants were removed from 85 locations.

Winged euonymus was documented at the campground for the first time, located in site 87. A single, small stem was removed.



Reed canary grass is widespread throughout the campground and was not managed.

Figure 5. Garlic mustard distribution and management progress at Golden Beach Campground.

Recommendations:

Despite a slight increase in the number of garlic mustard plants removed this season, the total number of plants remains 78% lower than peak infestation levels documented in 2012. Additionally, rosettes were included in the 2019 tally, contributing to the slight increase. Rosettes alone made up about 30% of the total number of garlic mustard stems removed.

Special attention should be dedicated to searching for and removing woody invasives that are not yet abundant in the facility, such as winged euonymus. Bush honeysuckle and reed canary grass are abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.



Lake Durant

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was mapped and removed from sites 36 and 58. In total, 75 plants were removed from two locations in the campground (Figure 6a). This marks a significant decrease from peak infestation levels observed in 2012 when 300 plants were removed from nine locations.

SUMMARY STATS:
PROGRESS TO DATEPEAKCURRENT
CONDITION300PLANTS
REMOVED166

Wild parsnip was mapped and removed along a

campground road. The Steward pulled a total of 91 plants, a decrease from the 231 plants removed in 2018 (Figure 6b).



Figure 6 a-b. Garlic mustard (a) and wild parsnip (b) distribution and management progress at Lake Durant Campground.

Garlic mustard should remain a top survey and management priority for this facility. This species was not observed in 2018 but reemerged during the 2019 field season. However, garlic mustard abundance remains 75% lower than peak infestation levels observed in 2012. Care should be taken to remove all stages of garlic mustard in the coming seasons, including rosettes. The number of wild parsnip plants removed decreased for the first time this season. This is likely attributed to APIPP's manual removal efforts and continued mowing by campground staff to suppress infestations. Bush honeysuckle is widespread throughout the campground and should be addressed only after management of higher priority species is complete. However, since this species can be spread long distances via bird dispersed seed, reintroduction is likely.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.



Lewey Lake

Invasive Species Distribution and Management Overview:

Autumn olive was mapped near the assistant caretaker's cabin. The plant had been mowed prior to the Steward's survey and could not be removed.

Bush honeysuckle is scattered throughout the campground and was not managed due to time constraints.

Garlic mustard was mapped and removed from sites 36, 47, 59, 149, and 187. A total of 74 plants were removed, marking an increase compared to 2018 (Figure 7a).



Purple loosestrife was found growing along Indian Lake below sites 23 and 24, plants were pulled and bagged. The number of plants removed this year was 135, a significant increase from last year's report. Historically, the number of plants removed by Stewards has fluctuated greatly (see Figure 7b). This could be attributed to ongoing efforts of campground staff who are also managing the infestation(s).

Reed canary grass is widespread throughout the campground and was not managed.





Figure 7 a-b. Garlic mustard (a) and purple loosestrife (b) distribution and management progress at Lewey Lake Campground.

Garlic mustard should remain a top survey and management priority for this facility. The increase in total number of plants removed in 2019 is partly due to the inclusion of the rosettes in management tallies. In previous years, only second-year plants were counted. Despite this small increase, the overall abundance of garlic mustard has decreased by 76% from peak infestation levels observed in 2013. A surge in purple loosestrife abundance was also observed, increasing from eight plants removed in 2018 to 135 in 2019. Surveillance and mechanical management efforts soul continue for this species. If the population continues to increase, a biocontrol release should be considered. As of 2019, autumn olive was only present in one location near the assistant caretaker's cabin. This species should be managed to prevent additional spread throughout the facility. Bush honeysuckle and reed canary grass are abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended.

Limekiln Lake

Invasive Species Distribution and Management Overview:

Autumn olive was documented for the first time this season. A single plant was mapped by the boat launch area but was too large to remove mechanically.

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was mapped and removed from sites 28, 36, 141, 149, 168, 190, 193, and 210. An increase in the number of plants removed was noted, rising from 79 in 2018 to 323 in 2019 (Figure 8).



Reed canary grass is widespread throughout the campground, particularly near sites 1-220, and was not managed.



Figure 8. Garlic mustard distribution and management progress at Limekiln Lake Campground.

Recommendations:

Despite a slight increase in garlic mustard abundance, significant management progress has been achieved. The total number of garlic mustard plants removed in 2019 remains 90% less than peak infestation levels observed in 2012. The small increase from 2018 to 2019 is likely attributed to the inclusion of rosettes in management tallies. In previous years, only second-year plants were counted. Bush honeysuckle and reed canary grass are abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended. Autumn olive was only documented near the boat launch area and appears to be under mechanical management by campground staff. Manual control should continue to ensure this species does not produce fruit and spread further into the campground.

Indian Lake Islands

Invasive Species Distribution and Management Overview:

This facility was not surveyed for terrestrial invasive species in 2019 due to limited time and resources. The first survey was performed in 2015 with assistance from a student conservation association (SCA) crew. Purple loosestrife was found in a small bay near site 29. If resources are available, a survey should be performed in 2020.

Tioga Point

Invasive Species Distribution and Management Overview:

This facility was not surveyed for terrestrial invasive species in 2019 due to limited time and resources. The first survey was performed in 2015 and no target invasive species were found. The risk of invasive species introduction is presumed low due to the campground's isolated location. If resources are available, a survey should be performed in 2020.



Moose River Plains – Primitive Campsites

Invasive Species Distribution and Management Overview:

Bush honeysuckle shrubs were mapped near the sign-in kiosk at the entrance to Moose River Road near Limekiln Lake Campground. Plants were too large for mechanical management and were not removed.

Garlic mustard was mapped and removed from primitive campsites 12, 36, 90, 122, 125A, 129, 136, 137, roadside by a culvert on the western side of the Forest, and near the Northville Placid trail parking area within the Moose River Plains. A few historic infestations could not be surveyed this season due to time constraints and camper occupancy. In total, 841 garlic mustard plants were removed, including the rosette stage. The Moose River Plains Forest DEC Steward indicated garlic mustard was also being managed by DEC staff.

Purple loosestrife was mapped growing on a rockface fed by a small seep. A single stem was removed.

Wild parsnip had been historically mapped within the campsite areas but was not found in 2019. However, the infestation at the Wakely Dam area contained numerous plants. At the time of the survey, all wild parsnip plants had gone to seed and were not managed.

Recommendations:

Surveys for invasive species should continue with effort taken to check all primitive campsites. The area is popular with RV and trailers, which can be vectors for seed and plant fragment distribution. If time and resources are available, the surveys should take place before garlic mustard and wild parsnip senescence.



Northville Working Circle

The Northville Working Circle contains seven campgrounds: Caroga Lake, Little Sand Point, Moffitt Beach, Northampton Beach, Point Comfort, Poplar Point, and Sacandaga. This section contains individual reports for each of the campgrounds. For a comprehensive summary of terrestrial invasive species distribution across all facilities in the working circle – including trailheads, fishing access sites, parking areas, and boat launches – see Appendix Table 3.

Campground	Invasive Plants Present	Total Plants Removed
Caroga Lake	Autumn olive Bush honeysuckle Common reed grass Garlic mustard Japanese barberry Japanese knotweed Multiflora rose Purple loosestrife Reed canary grass Yellow Iris	0 0 1,115 0 0 0 1 0 5
Little Sand Point	Bush honeysuckle Garlic mustard Japanese knotweed Reed canary grass	0 23 0 0
Moffitt Beach	Bush honeysuckle Common reed grass Garlic mustard Purple loosestrife Reed canary grass	3 0 534 59 0
Northampton Beach	Autumn olive Bush honeysuckle Buckthorn spp. Garlic mustard Japanese barberry Norway maple Oriental bittersweet	0 0 0 1 0 0 0
Point Comfort	Bush honeysuckle Garlic mustard	3 1
Poplar Point	Japanese barberry Oriental bittersweet Reed canary grass	1 0 0
Sacandaga	Autumn olive Japanese knotweed Reed canary grass	0 0 0
Mason Lake Primitive Campsites & Perkins Clearing Tract Conservation Easement	Garlic mustard Purple loosestrife Reed canary grass Wild parsnip	37 1 0 0

Table 4. Northville Working Circle distribution and management summary.

Caroga Lake

Invasive Species Distribution and Management Overview:

Autumn olive was mapped at three locations throughout the campground, but plants were too large for mechanical management. One infestation that was treated in 2018 had no plants observed upon follow-up survey.

Bush honeysuckle is widespread throughout the campground and was not managed.

Common reed grass (*Phragmites***)** is growing near a culvert by site 91, at a culvert outflow by the



beach, and near the bathhouses at the swimming area. Mechanical control of Phragmites is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.

Garlic mustard was mapped and removed from sites 17 and 64. A new, large infestation was mapped and managed on the sanitary sewer cap. In total, 1,121 plants were removed from four locations in the campground (Figure 9a). This marks a significant increase from the historic peak infestation levels observed in 2013 when 164 plants were removed from eight locations.

Japanese barberry was found growing in sites 73 and 80 but was not managed due to time constraints.

Japanese knotweed was mapped along a fence behind former sites 155 and 156. Mechanical control of knotweed is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.

Multiflora rose was found growing at edge of the Loop F road, before the stream. Plants are growing in a thicket and would require machinery or herbicide treatment for effective control. No management was performed.

Purple loosestrife was present at the end of the culvert drainage by the swimming area, but plants showed signs of biocontrol beetle presence and were not removed. In addition, a single plant was mapped and removed in a wet area behind site 85 (Figure 9b).

Reed canary grass was growing as a dense patch at site 104. Since mechanical control is generally ineffective, no management was performed.

Yellow iris was mapped along the lake shoreline by the boat launch, swimming area, and picnic area. A new population was mapped and removed by the swimming area. A historic infestation located near the boat launch had been mowed and could not be controlled manually. In total, five large plants were dug out and bagged this season (Figure 9c).



Figure 9 a-c. Garlic mustard (a), purple loosestrife (b) and yellow iris (c) distribution and management progress at Caroga Lake Campground.

Garlic mustard should remain a top survey and management priority for this campground. With the discovery of a large new infestation in 2019, the total number of plants removed within the campground increased by approximately 98% compared to 2018. The new occurrence managed at the sanitary sewer cap could have potentially been serving as a source for spread to the interior campground. Yellow iris should also remain a priority at this facility. One historic infestation could not be managed in 2019 due to mowing by the campground staff. Special attention should be dedicated to this site in 2020 to address potential reemergence. Nevertheless, significant progress has been made at reducing yellow iris extent within the campground. However, additional infestations of yellow iris were mapped by APIPP staff along the shoreline of East Caroga Lake in 2019. These infestations should also be managed by APIPP staff or its Terrestrial Early Detection and Rapid Response Team. Purple loosestrife – and the presence of biocontrol beetles – should be monitored. Unless there is a decrease in *Galerucella* population, purple loosestrife should be left to provide habitat for the beetles. Isolated purple loosestrife plants can be removed manually. *Phragmites* and knotweed species should be prioritized for chemical treatment in 2020. The remaining woody species and reed canary grass are lower priorities and should not be considered for management at this time.



Little Sand Point

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was mapped and removed from sites 7, 12, 22A and 23. In total, 23 plants were removed from four locations in the campground. This marks a significant decrease from peak infestation levels observed in 2013 when 229 plants were removed from three locations (Figure 10).

Japanese barberry was documented at the campground in 2018 but was not observed in 2019.



Japanese knotweed was mapped around the entrance booth and sites 4,5, and 6. Previous chemical treatments performed by APIPP's terrestrial response team significantly reduced the extent and cover of the infestations. Follow up treatments will be conducted by APIPP's response team.

Reed canary grass was mapped at the campground for the first time in 2019. The infestation was well established, and no management was performed.



Figure 10. Garlic mustard distribution and management progress at Little Sand Point Campground.

Despite a 74% increase from the total number of garlic mustard plants removed in 2018, a long-term decline in abundance is still present. Overall garlic mustard has decreased by 90% from peak infestation levels observed in 2013. With continued surveillance and management, local eradication can likely be achieved at this facility. Infestations of knotweed spp. are also in decline as a result of chemical treatments performed by APIPP's Terrestrial Early Detection and Rapid Response Team. Chemical treatments should continue to facilitate local eradication. Bush honeysuckle and reed canary grass are abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended.



Moffitt Beach

Invasive Species Distribution and Management Overview:

Bush honeysuckle is found sporadically throughout the campground. Due to the size of the plants and time constraints, only small/isolated stems were managed.

Common reed (*Phragmites***)** was mapped near site 106 on the beach. Mechanical control of Phragmites is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.



Garlic mustard was mapped and removed from sites 182, 184, 185, 208, 209, 224, 252A, and around the

bathroom located near site 249. Two infestations were mapped and managed for the first time in 2019. In total, 534 plants were removed from nine locations in the campground (Figure 11a). This marks a significant decrease from peak infestation levels observed in 2014 when 1,100 plants were removed from 13 locations.

Japanese barberry was documented at the campground in 2018 but was not observed in 2019.

Purple loosestrife was mapped and removed from the swampy area in front of sites 102-105, near the waste area, and boat launch parking lot. In total, 59 plants were removed from the campground (Figure 11b). This marks a significant decrease from peak infestation levels observed in 2014 when 1,000 plants were removed from three locations in the facility. Several historic infestations were covered with fill material and documented as having no invasive plants observed.

Reed canary grass is widespread throughout the campground and was not managed.

Wild parsnip was managed in 2018, but no plants were detected for the first time in 2019 (Figure 11c).



Figure 11 a-c. Garlic mustard (a), purple loosestrife (b), and wild parsnip (C) distribution and management progress at Moffit Beach Campground.

Garlic mustard surveillance and management should remain a high priority for this campground. There was a 46% increase in total plants removed compared to 2018. However, the total quantity of plants removed throughout the campground remains 75% lower than peak infestation levels observed in 2014. The increase observed in 2019 results from the discovery of two new infestations and including rosettes in management tallies. In previous years, only second-year plants were counted. Monitoring purple loosestrife – and its biocontrol beetles – should also remain a high priority. Many historic infestations were covered by fill as part of a regrading project. Other populations were in a swamp with standing water and could not be accessed. A biocontrol release is recommended if purple loosestrife grows through the new fill in the spoils pit area. Wild parsnip was not found at the campground for the first time this year. It is possible that the area had been mowed prior to the survey, so continued surveillance is recommended.



Northampton Beach

Invasive Species Distribution and Management Overview:

Autumn olive is found sporadically throughout the campground and was not managed.

Bush honeysuckle is widespread throughout the campground and was not managed.

Common buckthorn is found sporadically throughout the campground and was not managed.

Garlic mustard a single plant was mapped and removed from site 91. This marks a significant



decrease from peak infestation levels observed in 2014 when 38 plants were removed from two locations in this facility (Figure 12).

Japanese barberry was documented at the campground in 2015 but has not been observed since. The site was flooded in 2019 and could not be accessed, but the infestation is presumed to be locally eradicated.

Norway maple was mapped along the campsite road by site 203. The trees were large and not managed by the Steward.

Oriental bittersweet was mapped growing around the base of a few trees at the intersection of the campsite roads by site 20 and 80. The infestation consisted of a large vine and suckers that have topped trees and are beginning to constrict others. The vines were too large for mechanical management.



Figure 12. Garlic mustard distribution and management progress at Northampton Beach Campground.

Significant flooding occurred at the campground in 2019. High water persisted from June into July and its unknown whether its presence will hinder or promote the spread of APIPP's target invasive species. Special attention should be dedicated in 2020 to survey for new infestations that could have been transported by high water. Several historic infestations of bush honeysuckle and Japanese barberry located at lakefront sites could not be accessed this season and should be resurveyed next year. Garlic mustard reemerged after not being detected in 2018. A single plant was removed from site 91; however, this still represents a 97% decrease from peak infestation levels observed in 2014. With sustained survey and management efforts, garlic mustard will likely be locally eradicated from the campground. It is recommended that the Norway maples and large bittersweet vines are cut and receive chemical treatment. The remaining woody invasive species and reed canary grass are lower priorities and should not be considered for management at this time.



Point Comfort

Invasive Species Distribution and Management Overview:

Bush honeysuckle was mapped at site 12. Three small shrubs were pulled and hung in trees to dry and decompse. No other infestations were found within the campground.

Garlic mustard was mapped and removed near the boat launch and a small building at the edge of the tree line. A single, large plant was removed before going to seed. This marks a decrease from last year's peak infestation levels of 16 plants removed from three locations (Figure 13).





Figure 13. Garlic mustard distribution and management progress at Point Comfort Campground.

Recommendations:

Garlic mustard should remain a top survey and management priority at this campground. Infestations have decreased by approximately 94% from peak infestation levels observed in 2018. With sustained survey and management effort, this species will likely be locally eradicated. Surveillance efforts should focus on early detection of additional target species that are located at nearby facilities on Piseco Lake. Campground staff are contributing to management efforts by mowing the edges of the sites, minimizing bush honeysuckle seed production.

Poplar Point

*This facility is no longer administered as a campground; however, it is open and accessible as a boat launch.

Invasive Species Distribution and Management Overview:

Garlic mustard was not observed in 2019 and is now considered locally eradicated.

Japanese barberry was mapped near the road across from site 16. A single plant was removed and hung in a nearby tree to dry and decompose.

Japanese knotweed has not been observed at the facility since 2016 and is presumed locally eradicated.

Oriental bittersweet was found at the facility for the first time in 2019. It was mapped adjacent to the boat



wash station shed. Vines are beginning to top small maple saplings, and several native shrubs. Due to the size of the vine and time constraints, no management was performed.

Purple loosestrife was not observed in 2019. This marks two consecutive years that this species has been absent from the campground

Reed canary grass was mapped along the main campsite road, running the length of the facility where the ground received plenty of sunlight. Due to the size of the infestation, no management was performed.





Figure 14 a-b. Garlic mustard (a) and purple loosestrife (b) distribution and management progress at Poplar Point Campground.

As illustrated in the figures above, significant progress has been achieved at this facility. Garlic mustard and Japanese knotweed are deemed locally eradicated after progressing through three consecutive years of invasive plant absence. Purple loosestrife has been absent from the facility for two years and will likely be locally eradicated. Japanese barberry is also declining as a result of management, with only one plant found in 2019. A cut-stump treatment is recommended to control the burgeoning Oriental bittersweet infestation. After the above listed species are eradicated, reed canary grass should be evaluated for treatment. However, the nearby town road serves a prominent source and vector for this species.
Sacandaga

Invasive Species Distribution and Management Overview:

Autumn olive was found growing along the road leading to the trailer dump station. A single tree has been repeatedly cut by campground staff, halting the production of fruit.

Garlic mustard was not found at the facility and is deemed locally eradicated (Figure 15).

Japanese knotweed was mapped in two locations throughout the campground. Previous chemical treatments performed by APIPP's terrestrial response SUMMARY STATS:
PROGRESS TO DATEPEAKCURRENT
CONDITION1PLANTS
REMOVED0

team have significantly reduced the extent and cover of the infestations. Follow up treatments will be conducted by APIPP's response team.

Reed canary grass was mapped on the bank of the Sacandaga River below sites 142 and 143. No management was performed.



Figure 15. Garlic mustard distribution and management progress at Sacandaga Campground.

Recommendations:

Garlic mustard is deemed locally eradicated from the facility. However, surveillance should continue to facilitate rapid response to any reemergence or new plants brought in by campers. It is recommended that the knotweed species herbicide treatments continue. As mentioned above, the plants are responding well to chemical treatment. With continued effort, this infestation can likely be eradicated. In 2016, a single purple loosestrife plant was removed about 1/2 mile upstream from the campground. Surveys should include the shoreline of the facility to ensure a rapid response to any possible encroachment.

Mason Lake Primitive Campsites & Perkins Clearing Tract Conservation Easement

Invasive Species Distribution and Management Overview:

Garlic mustard was mapped and removed from primitive campsite 5. The infestation consisted primarily of rosettes, with only a few mature plants. A total of 37 stems were removed; however, the infestation had already gone to seed. Survey and management activities were conducted in early September when many of the mature plants had already senesced and dropped seed. No other plants were found, but this does not necessarily indicate low population levels, the survey simply could have taken place too late in the season.

Purple loosestrife was mapped and removed in two different locations within the easement property. A single stem was mapped and removed along Perkins Clearing Road, just before the single lane bridge over the Jessup River. The second, single stem infestation was removed from a wet area across the road from the backwater of Mason Lake.

Wild parsnip was found growing in an open meadow across from Peaceful Pines camp on Perkins Clearing Road. At the time of the survey, the plants had fully senesced and dropped all but a few seeds, so no management was performed.

Recommendations:

Surveys for invasive species should continue with effort taken to check all sites. The area is popular with RV and camper trailers, which could potentially serve as vectors for seed and plant fragment distribution. If time and resources are available, the surveys should take place before garlic mustard and wild parsnip senescence and seed set. The infestation of purple loosestrife near the backwater of Mason Lake should also be monitored for reemergence.



Potsdam Working Circle

The Potsdam Working Circle contains one campground, Cranberry Lake. This section contains the individual report for the campground. For a comprehensive summary of terrestrial invasive species distribution across all facilities in the working circle – including trailheads, fishing access sites, parking areas, and boat launches – see Appendix Table 4.

Table 5. Potsdam Working Circle distribution and management summary.

Campground	Invasive Plants Present	Total Plants Removed
Cranberry Lake	Bush honeysuckle Common buckthorn Garlic mustard Reed canary grass	0 0 533 0



Cranberry Lake

Invasive Species Distribution and Management Overview:

Bush honeysuckle was found growing near some of the bathrooms but was not managed due to the size of the shrubs.

Common buckthorn is found sporadically throughout the campground; however, the plants were too large for mechanical management.

Garlic mustard was growing sporadically throughout the facility. A large patch containing around 300 plants was mapped and removed near site 24. The removal of stems from this location alone accounts for approximately 57% of all garlic mustard removed from

INFESTATION CONDITION PLANTS 3,188 533 REMOVED the campground. The remaining plants were mapped and removed from sites 11, 39, 98, 99, 124, the

PEAK

SUMMARY STATS:

PROGRESS TO DATE

CURRENT

roadside by site 143, and in site 146. In total, 533 plants were removed from five locations in the campground (Figure 16). This marks a significant decrease from peak infestation levels observed in 2012 when 3,188 plants were removed from 52 locations.

Reed canary grass is growing sporadically throughout the campground and was not managed.



Figure 16. Garlic mustard distribution and management progress at Cranberry Lake Campground.

Recommendations:

The total number of garlic mustard plants removed decreased by approximately 57% from 2018 and approximately 82% from peak infestation levels observed in 2012. With ongoing surveillance and management efforts, garlic mustard may be locally eradicated. Bush honeysuckle, common buckthorn, and reed canary grass abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended.

Ray Brook Working Circle

The Ray Brook Working Circle contains 17 campgrounds: Ausable Point, Buck Pond, Crown Point, Fish Creek Pond, Lake Eaton, Lake Harris, Lincoln Pond, Meacham Lake, Meadowbrook, Paradox Lake, Poke-O-Moonshine, Putnam Pond, Rollins Pond, Saranac Lake Islands, Sharp Bridge, Taylor Pond, and Wilmington Notch. This section contains the individual reports for each of the campgrounds. For a comprehensive summary of terrestrial invasive species distribution across all facilities in the working circle – including trailheads, fishing access sites, parking areas, and boat launches – see Appendix Table 5.

Campground	Invasive Plants Present	Total Plants Removed
	Common buckthorn	0
	Bush honeysuckle	0
Ausable Point	Oriental bittersweet	0
	Purple loosestrife	28
	Reed canary grass	0
Buck Pond	None Observed	0
	Autumn olive	0
	Common buckthorn	0
	Bush honeysuckle	0
	Common reed	0
	(Phragmites)	51
Crown Boint	Garlic mustard	0
Crown Foint	Japanese barberry	0
	Oriental bittersweet	0
	Purple loosestrife	33
	Reed canary grass	
	Wild parsnip	23
	Yellow iris	22
Frontior Town	Purple loosestrife	2
FIORITER TOWN	Reed canary grass	0
	Autumn olive	0
	Bush honeysuckle	0
Fish Creek Pond	Norway maple	0
	Purple loosestrife	6
	Reed canary grass	0
Lake Eaton	Bush honeysuckle	0
	Garlic mustard	0
Lake Harris	Bush honeysuckle	0
	Purple loosestrife	474
	Reed canary grass	0
Lincoln Pond	Barberry species	0
	Common buckthorn	0
	Bush honeysuckle	0
	Garlic mustard	0
	Oriental bittersweet	0
	Purple loosestrife	45
	Reed canary grass	0

Table 6. Ray Brook Working Circle distribution and management summary.

Company and		Total Dianta Damayod
Campground	Invasive Plants Present	Total Plants Removed
	Garlic mustard	0
Meacham Lake	Japanese knotweed	0
Meachann Lake	Purple loosestrife	1
	Reed canary grass	6
	Bush honeysuckle	0
Maadawbraak	Garlic mustard	0
IVIeadowbrook	Japanese barberry	0
	Reed canary grass	0
	Bush honeysuckle	0
	Garlic mustard	0
Paradox Lake	Purple loosestrife	219
	Reed canary grass	0
	Common buckthorn	0
Poke-O-Moonshine	Oriental bittersweet	0
	Reed canary grass	0
	Autumn olive	0
	Garlic mustard	0
Putnam Pond	Multiflora rose	0
	Purple loosestrife	0
	Reed canary grass	0
	Autumn olive	0
	Bush honevsuckle	0
Rollins Pond	Garlic mustard	0
	Winged evonymus	0
Saranac Lake Islands	Not Surveyed in 2019	
Sharp Bridge	Bush honevsuckle	0
	Purple loosestrife	113
	Reed canary grass	0
	Purple loosestrife	74
Taylor Pond	Reed canary grass	0
Wilmington Notoh	Reed canary grass	0

 Table 6 continued.
 Ray Brook Working Circle distribution and management summary.

Ausable Point

Invasive Species Distribution and Management Overview:

Common buckthorn is widespread throughout the campground and was not managed.

Bush honeysuckle is widespread throughout the campground and was not managed.

Oriental bittersweet is widespread throughout the campground and many vines are too large for mechanical management.

Purple loosestrife is growing sporadically throughout the campground. Some infestations will require a cance or kayak to access. These locations were not assessed by the Steward this year. Historic data suggested purple loosestrife is beyond the point of effective mechanical control. However, within the interior campground, only 23 plants were removed in 2019. Many infestations showed signs of *Galerucella* damage and were left in place to provide habitat and a food for the biocontrol. In areas where purple loosestrife had begun flowering and beetles were present, flowerheads were removed to minimize seed production.



Reed canary grass is growing widespread throughout the campground and was not managed.

Figure 17. Purple loosestrife distribution at Ausable Point Campground. * indicates years in which control of all known infestations was not completed.

Recommendations:

Surveillance of purple loosestrife and its biocontrol beetles should remain a high priority. The infestations along Dead Creek may not be in the campground property, but act as a source population. It is recommended that an additional biocontrol release is conducted to bolster existing *Galerucella* populations and increase management efficacy. Bush honeysuckle, common buckthorn, and reed canary grass are abundant throughout the campground and surrounding landscape. Given their widespread distribution and likelihood for reintroduction, management is not currently recommended.

Buck Pond

Invasive Species Distribution and Management Overview:

No target invasive species were detected at this facility in 2019, marking the eighth consecutive year of invasive plant absence. Surveys should continue to facilitate early detection and rapid response to new or reemerging infestations.



Crown Point

Invasive Species Distribution and Management Overview:

Autumn olive was mapped near the "Disc Golf Trail" but plants were too large for mechanical management.

Bush honeysuckle is found growing sporadically throughout the facility but was not managed.

Common buckthorn is growing sporadically throughout the campground, but plants were too large for mechanical management.

Common reed grass (*Phragmites***)** was mapped in a patch of cattails along Bridge Road. Mechanical control



of Phragmites is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.

Garlic mustard was mapped and removed from site 14. In total, 51 plants were removed from one location in the campground (Figure 18a). This marks a significant decrease from peak infestation levels observed in 2016 when 1,704 plants were removed from one location.

Japanese barberry was mapped growing on a cliff over Lake Champlain. The plant was inaccessible and not managed.

Oriental bittersweet was mapped near the lighthouse and the lean-to, but plants were too large for mechanical management.

Purple loosestrife was mapped and removed along the edge of Lake Champlain near the wooden staircase adjacent to site 32 and site 17. In total, 33 plants were removed from two locations (Figure 18b). This marks a significant decrease from the peak infestation levels of 2014 when 300 were removed from three locations within the facility. This decrease can possibly be attributed to the staff mowing closer to wet areas and wood lines.

Reed canary grass is widespread throughout the campground and was not managed.

Wild parsnip is widespread throughout the facility. Infestations are dense and mechanical management efforts over the last two seasons have had little impact at reducing overall abundance. The Steward removed plants in high use areas, such as the road leading to the boat launch and immediately adjacent to a few campsites. Staff at this facility have been mowing and weed whacking some of the plants, which has minimized seed production. In total, 23 plants were removed from seven locations (Figure 18c).

Yellow iris was found growing along the shoreline, adjacent to a wooden staircase located by site 32. In total, 22 plants were removed (Figure 18d). This marks an increase from peak infestation levels observed in 2016 when 15 plants were removed from the same location.





Figure 18 a-d. Garlic mustard (a), purple loosestrife (b), wild parsnip (c) and yellow iris (d) distribution and management progress at Crown Point Campground. * indicates years in which control of all known infestations was not completed.

Surveillance and management of garlic mustard should remain a top priority at this high use campground. Despite a slight increase from the number of plants removed in 2018, overall abundance has declined by approximately 97% from peak infestation levels observed in 2016. With continued management efforts, this species can likely be locally eradicated.

As garlic mustard continues to decline in abundance, management efforts can begin to focus on other herbaceous species such as purple loosestrife, yellow iris, and wild parsnip. There was a 57% decrease in the total number of purple loosestrife plants removed in 2019. With continued effort, this population will be suppressed to a level that can be maintained by biocontrol. The shoreline where yellow iris is growing should be monitored and managed as the infestations appears relatively isolated. However, the population increased by about 35% since 2016. This could be a result of misidentification or failure to remove the entire root system during management.

Fish Creek Pond

Invasive Species Distribution and Management Overview:

Autumn olive was mapped next to the recycling center, but the single plant was too large for mechanical management.

Bush honeysuckle is widespread throughout the campground and was not managed.

Norway maple was mapped near the entrance of the boat launch, but was not managed.

Purple loosestrife was mapped and removed from a

small wet area across from site 182. In total, six small, nonflowering plants were removed from one location.



Reed canary grass is growing sporadically throughout the campground and was not managed.

Figure 19. Purple loosestrife distribution and management progress at Fish Creek Pond Campground.

Recommendations:

Purple loosestrife should remain a top survey and management priority for this facility. Only six plants were removed this season, a slight decrease from seven in 2018. With continued efforts, this species can likely be locally eradicated. Once purple loosestrife is eradicated, management efforts should focus on suppression of autumn olive and bush honeysuckle. However, since these species can be spread long distances via bird dispersed seed, reintroduction is likely.



Frontier Town

* This facility opened to the public in 2019. This is the first survey performed by a Steward.

Invasive Species Distribution and Management Overview:

Bush honeysuckle is growing near the Schroon River and the day use area. Plants were too large for mechanical management.

Purple loosestrife was mapped and removed along an old fence line in the Day Use area. Scattered stems were also mapped and removed from the root balls of newly planted trees near Building 22. The introduction of these infestations was the direct result of contaminated nursery stock. In total, three plants were removed.

Reed canary grass is widespread throughout the day use area field and was not managed.

Recommendations:

Early detection surveys should remain a high priority at this facility. It is likely that new species will be appear as vestiges of construction activity and from increased visitor use. Management of existing purple loosestrife infestations should remain a high priority to prevent continued spread throughout the facility. In an effort to not damage the newly planted trees, it is possible that not all of the purple loosestrife root nodes were removed. Therefore, resprouting is expected in 2020.



Lake Eaton

Invasive Species Distribution and Management Overview:

Bush honeysuckle was not observed for the second **SUMMARY STATS:** consecutive year at this facility. **PROGRESS TO DATE** Garlic mustard was not observed for the fifth PEAK CURRENT consecutive year and is considered locally eradicated **INFESTATION** CONDITION from this facility (Figure 20). PLANTS 250 0 REMOVED 9 300 250 **Period** 200 **B** 8 Number of Infestations 7 6 Number of Plants 5 150 4 3 100 2 50 1 0 0 2008 2015 2010 2009 2012 2013 2018 2006 2007 2010 2011 2014 2019 2017 Number of Infestations Plants Removed

Figure 20. Garlic mustard distribution and management progress at Lake Eaton Campground.

Recommendations:

This facility is currently free of all target terrestrial invasive species. Early detection surveys should continue to facilitate rapid response to new species or reemerging infestations. Since bush honeysuckle is present in the surrounding landscape and can be spread long distances via bird dispersed seed, reintroduction is likely.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.

Lake Harris

Invasive Species Distribution and Management Overview:

Bush honeysuckle was mapped at this facility for the first time in 2019, but was not managed due to its widespread distribution.

Purple loosestrife was mapped and removed behind sites 12-20 and next to the old lifeguard cabin. In total, 474 plants were removed from two locations (Figure 21). Some plants in the marsh area by sites 12-20 showed signs of biocontrol weevil damage and were not removed to maintain habitat and food for the bicontrol.





Reed canary grass was mapped near the old life guard cabin but was not managed.

Figure 21. Purple loosestrife distribution and management progress at Lake Harris Campground. * indicates years in which control of all known infestations was not completed.

Recommendations:

The total number of purple loosestrife plants removed increased by approximately 42% from 2018; however, the total number of plants removed remains 59% lower than peak infestation levels observed in 2012. Moving forward, this facility should be prioritized for biocontrol, with mechanical management efforts focusing on small/isolated incipient infestations.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.

Lincoln Pond

Invasive Species Distribution and Management Overview:

Common buckthorn was found sporadically throughout the campground and was not managed.

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was not observed at this facility for the third consecutive year and is deemed locally eradicated (Figure 22a).

Oriental bittersweet was mapped near site 17

SUMMARY STATS:
PROGRESS TO DATEPEAK
INFESTATIONCURRENT
CONDITION172PLANTS
REMOVED45

growing as a large vine. Due to time constraints, no management was performed.

Purple loosestrife was mapped and removed in a single location, near the kayak/canoe rental. A total of 45 plants were bagged and removed. This marks a significant decrease from peak infestation levels observed in 2015 when 163 plants were removed from two locations.

Reed canary grass was found growing along some of the campsite roads and was not managed.





Figure 22 a-b. Garlic mustard (a) and purple loosestrife (b) distribution and management progress at Lincoln Pond Campground.

Garlic mustard was deemed locally eradicated from this facility in 2019. Surveys should continue to quickly address any new infestations or reemergence from the seed bank. Unfortunately, purple loosestrife increased in abundance compared to 2018. Despite the surge in the number of plants removed, overall abundance has decreased by 72% from peak infestation levels documented in 2015. Another positive take away from this year's treatment is the size and vigor of remaining plants. All purple loosestrife plants removed in 2019 were small, non-flowering stems. Bush honeysuckle, oriental bittersweet, buckthorns, and reed canary grass should not be considered for management at this time.

Meacham Lake

Invasive Species Distribution and Management Overview:

Garlic mustard was mapped and managed in 2006 but has not been observed since. It is considered locally eradicated at this facility (Figure 23).

Japanese knotweed was mapped for the first time this season behind a sand pile across the swimming area parking lot. Mechanical control of knotweed is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.



Purple loosestrife was mapped for the first time this year at the main boat launch, on the slope over the parking area. One large plant was removed, but the infestation was too widespread for manual control in the time allotted.

Reed canary grass is widespread throughout the campground and was not managed.

Wild parsnip was mapped for the first time this year on the slope above the boat launch parking area. In total, six large plants were removed. At the time of treatment, a few plants had begun dropping seed. Care was taken to dig out the plants without disturbing or releasing seeds.

**All invasive plant infestations are located within the main campground of Meacham Lake, Meacham Lake West was also surveyed, no invasive plants were observed.



Figure 23. Garlic mustard distribution and management progress at Meacham Lake Campground.

Garlic mustard has not been observed at the campground since 2006 and re-emergence from the seed bank is unlikely. Management efforts should now focus on addressing newly detected infestations of purple loosestrife and wild parsnip. Given the size of the purple loosestrife infestation, suppression through biocontrol may be the most viable management strategy. Wild parsnip remains in low abundance and can be effectively managed with manual control techniques. With persistent management effort, wild parsnip can likely be locally eradicated. The knotweed infestation should be prioritized for chemical control by APIPP's terrestrial response team in 2020.



Meadowbrook

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was not found for the sixth consecutive year and is considered locally eradicated (Figure 24).

Japanese barberry was last documented in 2015 when two shrubs were removed. No plants were observed in 2019 and this species is considered locally eradicated.



Reed canary grass is growing sporadically through the campground, with large populations located along State Route 86 at the front of the campground and along the trail that connects to Scarface Mountain. Due to its widespread distribution, no management was performed.



Figure 24. Garlic mustard distribution and management progress at Meadowbrook Campground.

Recommendations:

Surveillance should remain a high priority to ensure any new species or infestations are quickly detected and managed. Since garlic mustard has been eradicated for several years, management efforts can begin to focus on suppression of existing bush honeysuckle infestations. However, since this species can spread long distances via bird dispersed seed, reintroduction is likely. Management efforts must be sustained to maintain suppression.

Paradox Lake

Invasive Species Distribution and Management Overview:

Bush honeysuckle is growing sporadically throughout the campground. It is possible this species was

once used in landscaping. Due to the size of the shrubs and their widespread distribution, no management was performed.

Garlic mustard was not observed in the campground for the first time in 2019 (Figure 25a).

Purple loosestrife was mapped and removed at the boat launch, in a small bay, and adjacent to the dock along the rocky shoreline. In total, 219 plants were removed from four locations in the campground. This



marks a decrease in abundance from peak infestation levels observed in 2012 when 400 plants were removed from one location.

Reed canary grass is widespread throughout the campground and was not managed.





Figure 25 a-b. Garlic mustard (a) and purple loosestrife (b) distribution and management progress at Paradox Lake Campground.

Garlic mustard and purple loosestrife should remain top survey and management priorities for this campground. Garlic mustard was not observed in 2019 and will likely be deemed locally eradicated in the coming years. The number of purple loosestrife plants removed has declined by approximately 45% from peak infestation levels observed in 2012; however, management efficacy has fluctuated widely over previous years. It is possible the root system of plants is not being completely removed, which facilitates reemergence. If management efficacy remains low in the coming years, suppression through biocontrol should be considered.

Poke-O-Moonshine

**This facility is no longer administered as a public campground. However, it is open and frequently visited as a day use facility by land-based outdoor recreationalists.

Invasive Species Distribution and Management Overview:

Common buckthorn is growing throughout the facility and was not managed.

Oriental bittersweet was found growing in an old campsite but was too large for mechanical management.

Reed canary grass grows densely throughout much of the facility and was not managed.

Recommendations:

Surveys should continue to monitor the current infestations and facilitate rapid response of any new invasive species that are introduced. Given this facility's high volume of use and proximity to the heavily invaded Champlain Valley, new species introductions are likely.



Putnam Pond

Invasive Species Distribution and Management Overview:

Autumn olive was mapped by the canoe launch but was too large for mechanical management.

Garlic mustard was not observed in 2019 and is considered locally eradicated (Figure 26a).

Multiflora rose was mapped in a wet area by the intersection of the main campsite road and the loop for sites 1-11. The single plant was too large for mechanical management.

SUMMARY STATS: PROGRESS TO DATE				
PEAK	CURRENT			
INFESTATION	CONDITION			
331 PLA	NTS			
REMO	OVED 0			

Purple loosestrife was not observed in 2019 and is considered locally eradicated (Figure 26b).

Reed canary grass can be found in many drainages throughout the campground and was not managed.



Photo Credit: John Haywood, The Outdoor Project



Figure 26 a-b. Garlic mustard (a) and purple loosestrife (b) distribution and management progress at Putnam Pond Campground.

Both garlic mustard and purple loosestrife were deemed eradicated from the campground in 2019. Both species should remain a high priority for future surveys to quickly detect and address reemergence or reintroduction. If no new species or infestations are detected, future management efforts should focus on woody species in low abundance such as autumn olive and multiflora rose. The large plants may require herbicide treatment or removal with a leverage tool. However, since these woody species can be spread long distances via bird dispersed seed, reintroduction is likely.

Rollins Pond

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was not observed in 2019 and is considered locally eradicated (Figure 27).

Winged euonymus is planted as an ornamental shrub by the bathhouse and was not removed by the Steward.





Figure 27. Garlic mustard distribution and management progress at Rollins Pond Campground.

Recommendations:

Garlic mustard should remain a top survey priority for this campground to quickly detect and address reemergence or reintroduction. Since it is believed to be in low abundance, management efforts should next focus on removing winged euonymus. It is recommended that the ornamental shrubs are removed and, if necessary, replaced with a native species. Bush honeysuckle should be managed if additional time and resources are available. However, since these woody species can be spread long distances via bird dispersed seed, reintroduction is likely.

Saranac Lake Islands

This facility is only accessible by boat and has never been inventoried. If time and resources are available, the campground should be surveyed in 2020.

Sharp Bridge

Invasive Species Distribution and Management Overview:

Bush honeysuckle is widespread throughout the campground and was not managed.

Purple loosestrife was mapped along the Schroon River adjacent to the campground. Some plants had evidence of one or more biocontrols. Any plant with one or both biocontrols present was not removed in order to maintain habitat and food for both insects. In total, 113 plants were removed from three locations.



Reed canary grass is widespread along the Schroon River and was not managed.



Figure 28. Purple loosestrife distribution and management progress at Sharp Bridge Campground.

Recommendations:

Purple loosestrife should remain a top priority for surveillance and management at this facility. However, given the abundance of plants present, future management effort should focus on suppression through increased release of biocontrols. Mechanical management should be prioritized for isolated/new infestations.

Taylor Pond

Invasive Species Distribution and Management Overview:

Purple loosestrife was mapped and removed by the foot bridge, the boat launch, and along the lakeshore behind sites 19-22. In total, 74 plants were removed from three locations. This marks a significant decrease from peak infestation levels observed in 2012 when 800 plants were removed from two locations (Figure 29).

Reed canary grass is growing sporadically throughout the campground and was not managed.





Figure 29. Purple loosestrife distribution and management progress at Taylor Pond Campground.

Recommendations:

The number of purple loosestrife plants removed increase slightly from 2018; however, overall abundance remains approximately 91% than peak levels observed in 2012. With continued management, this species can likely be locally eradicated. Reed canary grass is abundant throughout the campground and surrounding landscape and is not considered a priority for management at this time.

Wilmington Notch

Invasive Species Distribution and Management Overview:

Reed canary grass was mapped in the campground growing along State Route 86. The infestation was widespread and not managed.

Recommendations:

This facility should be monitored annually for new infestations of invasive species. Due to its widespread distribution, reed canary grass is not considered a priority for management by APIPP at this time. If desired, the campground staff could repeatedly mow the infestation to minimize seed production and spread.



Warrensburg Working Circle

The Warrensburg Working contains seven campgrounds: Eagle Point, Hearthstone Point, Lake George Battleground, Lake George Islands, Luzerne, Rogers Rock, and Scaroon Manor. This section contains the individual reports for each of the campgrounds. For a comprehensive summary of terrestrial invasive species distribution across all facilities in the working circle – including trailheads, fishing access sites, parking areas, and boat launches – see Appendix Table 6.

Campground	Invasive Plants Present	Total Plants Removed
Eagle Point	Bush honeysuckle	0
	Gariic mustard	1
	Autumn olive	0
	Bush noneysuckie	14
	Gariic mustard	249
	Japanese barberry	0
Hearthstone Point	Japanese knotweed	0
	Nultifiora rose	0
	Norway maple	0
	Oriental bittersweet	5
	Vvinged euonymus	0
	Bush honeysuckle	0
	Garlic mustard	12,471
	Japanese barberry	0
Lake George Battleground	Japanese knotweed	0
	Norway maple	0
	Oriental bittersweet	0
	Winged euonymus	0
Lake George Islands	Not Surveyed in 2019	1
	Bush honeysuckle	0
Luzerne	Garlic mustard	1
Luzenne	Oriental bittersweet	0
	Reed canary grass	0
	Autumn olive	0
	Common buckthorn	0
	Bush honeysuckle	0
	Garlic mustard	1,540
Rogers Rock	Japanese barberry	0
	Japanese knotweed	0
	Oriental bittersweet	0
	Reed canary grass	0
	Wild parsnip	0
	Winged euonymus	0
	Autumn olive	0
	Common buckthorn	1
Scaroon Manor	Bush honeysuckle	0
	Garlic mustard	0
	Japanese barberry	0
	Oriental bittersweet	0
	Reed canary grass	0
	Winged euonymus	1

Table 7. Warrensburg Working Circle distribution and management summary.

Eagle Point

Invasive Species Distribution and Management Overview:

Bush honeysuckle was mapped in site 10, but plants were too large for mechanical management.

Garlic mustard was mapped and removed from site 45. Only one plant was detected. This was the first-time garlic mustard has been observed at the facility since 2016 (Figure 30).





Figure 30. Garlic mustard distribution and management progress at Eagle Point Campground.

Recommendations:

Garlic mustard and bush honeysuckle should remain high surveillance and management priorities for this facility. Garlic mustard was not observed from 2017-2018, but a single plant re-emerged in 2019. However, the total number of plants removed remains 97% lower than peak infestation levels observed in 2014. With continued control and depletion of the seed bank, garlic mustard can likely be locally eradicated.

A single infestation of bush honeysuckle was mapped in 2019, but plants were too large for mechanical management. This site should be prioritized for cut stem treatment or managed with a leverage tool in 2020. However, since bush honeysuckle can spread long distances via bird dispersed seed, reintroduction is likely. Surveillance and management efforts must be sustained to maintain suppression.

Hearthstone Point

Invasive Species Distribution and Management Overview:

Autumn olive was mapped growing near a bathroom, but plants were too large for mechanical management.

Bush honeysuckle is found sporadically throughout the campground. A total of 14 smaller shrubs were hand pulled, but many others were too large for management.

Garlic mustard was mapped and removed from sites 4, 5, 48, 62, between sites 73 and 74, and around site 78. In total, 249 plants were removed from eight locations throughout the campground. This marks a significant



decrease since the peak infestation levels observed in 2013 when 21,500 plants were removed from 10 locations (Figure 31).

Japanese barberry is found sporadically throughout the facility and was not managed.

Japanese knotweed was mapped at the end of the campsite road past site 73. Mechanical control of knotweed is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.

Multiflora rose was found growing at site 192, across from site 198, as well as in the spoils pit area. No management was performed.

Norway maple was mapped in site 70 but was not managed.

Oriental bittersweet is growing sporadically throughout the campground. Larger vines were not managed, but smaller vines were removed. A total of 5 plants were hand pulled.



Winged euonymus was mapped sporadically throughout the facility but was not managed.

Figure 31. Garlic mustard distribution and management progress at Hearthstone Point Campground. * indicates years in which control of all known infestations was not completed.

Garlic mustard should remain the top survey and management priority for this campground. This facility should be visited earlier in the year to ensure all garlic mustard plants are removed before seed set. In 2018, several infestations had already senesced and were not managed, resulting in a slight increase in infestation extent for 2019. However, the total number of garlic mustard plants removed remains 99% lower than peak infestation levels observed in 2013. With continued management efforts this species can likely be locally eradicated.

The dense knotweed infestation located at the spoils area should be treated with herbicide by APIPP's terrestrial response team in 2020 to limit its continued spread into the campground.

Bush honeysuckle, oriental bittersweet, and Japanese barberry are widespread throughout the campground at varying densities and are not high priorities for management. The Norway maple in site 70 should be removed, if possible, to minimize further spread throughout the facility. Multiflora rose, winged euonymus, and autumn olive are large plants in only a few locations throughout the facility and should be managed if time and resources allow. However, since these woody species can be spread long distances via bird dispersed seed and in some cases wind, reintroduction is likely.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.



Lake George Islands

Invasive Species Distribution and Management Overview:

This facility was not visited in 2019. A partial inventory was performed in 2007, documenting purple loosestrife, bush honeysuckle, Japanese barberry, spotted knapweed, and multiflora rose at various campsites. Long Island was found to be infested with all five of these species, while Speaker Heck Island was only found to have bush honeysuckle, purple loosestrife, and spotted knapweed. Diamond Island only had bush honeysuckle. A complete inventory of the islands should be prioritized for 2020 to assess the distribution and abundance of any target species and evaluate management opportunities.

Lake George Battleground

Invasive Species Distribution and Management Overview:

Bush honeysuckle was mapped in site 42, but plants were too large for mechanical management.

Garlic mustard was mapped and removed from sites 7, 8, 10, 12, 16-18, 34, 38, 42, 44, 45, 50, 54, behind a shower building, and in the woods behind sites 8-19. In total, 12,471 were removed 11 locations in the campground. This marks a significant decrease in numbers since the peak infestation levels observed in 2013 when 21,500 plants were removed from 16 locations (Figure 32).



Japanese barberry was mapped in site 7 but plants were too large for mechanical management.

Japanese knotweed was marked as present in previous seasons but was not detected in 2019.

Norway maple was mapped historically but was not detected in 2019.

Oriental bittersweet mapped historically but was not detected in 2019.

Winged euonymus was mapped sporadically throughout the facility and was not managed.



Figure 32. Garlic mustard distribution and management progress at Lake George Battleground Campground. * indicates years in which control of all known infestations was not completed.

The abundance of garlic mustard at this campground has fluctuated over the last four-years. Several infestations mapped in 2018 had already senesced and were not managed, resulting in an increase in infestation extent for 2019. However, the total number of plants removed remains 43% lower than peak infestation levels observed in 2013. Given the extent of garlic mustard infestations at this facility, local eradication is unlikely. However, infestations can be contained or significantly suppressed to minimize the species impacts.

As garlic mustard abundance continues to decrease, management focus can expand to include control of woody invasive species. However, since these species can spread long distances via bird dispersed seed, reintroduction is likely. It is recommended that the historic infestation of Japanese knotweed is resurveyed next season and, if present, treated with herbicide.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.



Luzerne

Invasive Species Distribution and Management Overview:

Bush honeysuckle was mapped sporadically throughout the facility but was not managed due to time constraints.

Garlic mustard was mapped and managed along the campsite road. A single stem was removed. This marks a significant decrease from peak infestation levels observed in 2015 when 310 plants were removed from four locations (Figure 33).



Oriental bittersweet was mapped near an apple tree by the horse paddocks, but plants were too large for mechanical management.



Reed canary grass was mapped sporadically throughout the facility and was not managed.

Figure 33. Garlic mustard distribution and management progress at Luzerne Campground. * indicates years in which control of all known infestations was not completed.

Recommendations:

Garlic mustard abundance has decreased by over 99% from peak infestation levels observed in 2015. With sustained survey and management effort, this species can likely be locally eradicated. Future management efforts should be expanded to address small or isolated oriental bittersweet and bush honeysuckle infestations. However, since these species can spread long distances via bird dispersed seed, reintroduction is likely. Management efforts must be sustained to maintain suppression.
Rogers Rock

Invasive Species Distribution and Management Overview:

Autumn olive is growing sporadically throughout the facility and was not managed.

Common buckthorn is growing sporadically throughout the facility and were not managed.

Bush honeysuckle is growing sporadically throughout the facility and was not managed.

Garlic mustard was mapped and removed from sites

3, 7-9, 11, 14, 21, between 73 and 74, 75, 162, 165, 167-171, and 176. In total, 1,540 plants were removed from 20 locations. This represents an increase from peak infestation levels observed in 2014, when 791 plants were removed from 36 locations. However, the increase is driven by the inclusion of rosettes in management efforts and does not represent an increase in the total number of infestations (Figure 34).

Japanese barberry is growing sporadically throughout the facility and was not managed.

Japanese knotweed was mapped for the first time this year between Lake Shore Road and bathroom #6. Mechanical control of knotweed is generally not effective, so no management was performed. This infestation will be prioritized for chemical control by APIPP's response team in 2020.

Oriental bittersweet is growing sporadically throughout the facility and was not managed.

Reed canary grass is growing widespread throughout the facility and was not managed.

Winged euonymus is growing sporadically throughout the facility and was not managed.



Figure 34. Garlic mustard distribution and management progress at Rogers Rock Campground. * indicates years in which control of all known infestations was not completed



Recommendations:

Garlic mustard should remain a top survey and management priority for this facility. The increase in total number of plants removed in 2019 resulted primarily from the inclusion of rosettes in management efforts and does not translate to an expansion in overall infestation extent. In previous years, only second-year plants were removed and included in management tallies. However, a minor increase in infestation extent was observed at a small number of sites where management was not completed in 2018 due to seasonal timing.

As garlic mustard continues to decline in abundance, management efforts can be expanded to address less common woody species such as winged euonymus, Japanese barberry, and oriental bittersweet. However, since these species can spread long distances via bird dispersed seed, reintroduction is likely. Management efforts must be sustained to maintain suppression.

SUNY ESF Conservation Biology Interns Makayla Thornton and Dan Leavenworth assisted with survey and management efforts at this facility in 2019.



Scaroon Manor

Invasive Species Distribution and Management Overview:

Autumn olive is growing sporadically throughout the facility and was not managed.

Common buckthorn is growing sporadically throughout the facility. Many plants were too large for mechanical management. A single plant removed from site 9.

Bush honeysuckle is widespread throughout the campground and was not managed.

Garlic mustard was not observed at the campground for the second consecutive year (Figure 35).

Japanese barberry was mapped across the camp road from site 9, but not removed due to size.

Oriental bittersweet is widespread throughout the facility and was not managed.

Reed canary grass is growing sporadically throughout the facility and was not managed.

Winged euonymus was mapped in several locations throughout the campground. Due to the size of the plants, only a single stem was removed was removed from site 9.





Recommendations:

Garlic mustard should remain the top survey and management priority for this facility. This species has not been observed for two consecutive years and could be deemed locally eradicated in 2020. If garlic mustard is eradicated, management efforts can shift to address less abundant woody species, such as Japanese barberry and winged euonymus. However, since these species can spread long distances via bird dispersed seed, reintroduction is likely. Management efforts must be sustained to maintain suppression.

SUMM	ARY STATS:
PROGR	ESS TO DATE
PEAK	CURRENT
INFESTATION	CONDITION
791	PLANTS REMOVED 2

The Nature Conservancy Preserves

Everton Falls, Gadway Sandstone Pavement Barrens, Silver Lake Bog, and Spring Pond Bog were surveyed for terrestrial invasive species this season. No target management species were observed at any of the facilities. However, bush honeysuckle and common buckthorn was present at the Clintonville Pine Barrens growing on an old access road. No infestations were found where trails or parking areas are located. The risk of anthropogenic spread is presumed low, since the area where these infestations are located is not open to the public. Management plans are underway for the 2020 season for this Preserve.

Boardwalk at the Silver Lake Bog Preserve.

Conclusion

The Invasive Species Campground Stewards have achieved significant progress in documenting and managing terrestrial invasive species on DEC administered lands throughout the Adirondack PRISM. The additional seasonal management capacity provided through this position has greatly increased APIPP's ability to reduce and/or eliminate priority invasive plant infestations and limit spread potential by land-based outdoor recreation. Since 2012 Stewards have:

- Surveyed approximately 5,000 acres of priority areas (~600 annually)
- Documented over 1,100 infestations of 17 target terrestrial invasive species
- Reduced garlic mustard abundance at DEC campgrounds by approximately 70%. In 2019, only 20,198 plants were removed, compared to 68,048 in 2012 (Figure 36).
- Eradicated garlic mustard from eight campgrounds and documented one or two years of absence at two others.



• Reduced purple loosestrife abundance at DEC campgrounds by approximately 76%. In 2019, only 1,194 plants were removed, compared to a peak of 4,956.

Figure 36. Garlic mustard management progress (2012-2019) at DEC administered campgrounds in the Adirondack PRISM.

Trend analysis suggests that target species distribution and abundance at DEC campgrounds will continue to decline with continued support and advancement of the program. Ten campgrounds had significantly reduced levels of garlic mustard in 2019 and are candidates for local eradication over the coming years. An additional four campgrounds had extremely low levels of purple loosestrife that are expected to be locally eradicated over the coming year.

Appendix

Appendix Table 1. Invasive Species Distribution Across the Herkimer Working Circle.

	Autumn olive	Bush honeysuckle	Common buckthorn	Common reed grass	Garlic mustard	Japanese barberry	Japanese knotweed	Multiflora rose	Norway maple	Oriental bittersweet	Purple loosestrife	Reed canary grass	Wild parsnip	Winged euonymus	Yellow iris	NONE
ALGER ISLAND CAMPGROUND																
BRANDY LAKE TRAIL PARKING																
CASCADE LAKE TRAIL PARKING																
FOURTH LAKE PARKING																
MOSS LAKE TRAIL PARKING																
NELSON LAKE TRAIL PARKING																
NICKS LAKE CAMPGROUND																
SAFFORD POND TRAIL PARKING																
THIRD LAKE CREEK PARKING																
WINDFALL POND PARKING																



Appendix Table 2. Invasive Species Distribution Across the Indian Lake Working Circle.

	n olive	sh suckle	mon thorn	mon grass	rlic tard	nese erry	nese veed	flora se	way ple	intal sweet	ple strife	canary Iss	arsnip	ged ymus	w iris	NE
	Autum	Bu honey:	Com buck	Com reed (Gai mus	Japa barb	Japa knotv	Multi ro	Nor ma	Orie bitters	Pur loose	Reed o	Wild p	Win euon	Yello	ON
BROOKTROUT LAKE TRAIL PARKING LOT																
BROWN TRACT POND CAMPGROUND																
EIGHTH LAKE CAMPGROUND																
FORKED LAKE CAMPGROUND																
GOLDEN BEACH CAMPGROUND																
LAKE DURANT CAMPGROUND																
LAKE DURANT PARKING AREA																
LEWEY LAKE CAMPGROUND																
LIMEKILN LAKE CAMPGROUND																
MASON LAKE PARKING																
NORTHVILLE PLACID TRAIL AT LAKE DURANT																
PAYNE MOUNTAIN TRAIL PARKING																
PILLSBURY MOUNTAIN TRAIL PARKING																
SOUTH POND WATER ACCESS PARKING																
SPRAGUE POND PARKING AREA																
WAKELY DAM AREA																
WAKELY MOUNTAIN TRAILHEAD PARKING																
WAKELY POND ACCESSIBLE FISHING DOCK																
WILSON POND PARKING																

	Autumn olive	Bush honeysuckle	Common buckthorn	Common reed grass	Garlic mustard	Japanese barberry	Japanese knotweed	Multiflora rose	Norway maple	Oriental bittersweet	Purple loosestrife	Reed canary grass	Wild parsnip	Winged euonymus	Yellow iris	NONE
AUGER FALLS PARKING																
CAROGA LAKE CAMPGROUND																
COD POND PARKING																
EAST BRANCH GORGE TRAIL PARKING																
EAST SACANDAGA PARKING																
GEORGIA CREEK PARKING																
GRIFFIN GORGE RT. 8 PARKING																
KIBBY POND PARKING																
LITTLE SAND POINT CAMPGROUND																
LITTLE SAND POINT PARKING																
MOFFITT BEACH CAMPGROUND																
NORTHAMPTON BEACH CAMPGROUND																
NORTHVILLE PLACID TRAIL AT PISECO WHITEHOUSE JUNCTION																
PANTHER MOUNTAIN TRAILHEAD																
POINT COMFORT CAMPGROUND																
POPLAR POINT CAMPGROUND																
SHANTY FALLS PARKING																
SACANDAGA CAMPGROUND																



Appendix Table 4. Invasive Species Distribution Across the Potsdam Working Circle.

	Autumn olive	Bush honeysuckle	Common buckthorn	Common reed grass	Garlic mustard	Japanese barberry	Japanese knotweed	Multiflora rose	Norway maple	Oriental bittersweet	Purple loosestrife	Reed canary grass	Wild parsnip	Winged euonymus	Yellow iris	NONE
BEAR MOUNTAIN TRAIL PARKING																
BOUNDARY LINE TRAIL PARKING																
BURNTBRIDGE POND TRAIL PARKING																
CRANBERRY LAKE CAMPGROUND																
CRANBERRY LAKE CAMPGROUND MAINTENANCE PARKING LOT																
CRANBERRY LAKE CAMPGROUND PARKING LOT																
DEAD CREEK TRAIL PARKING AREA																
GILBERT TRACT PARKING AREA																
LITTLE RIVER ROAD PARKING AREA																
MOORE TRAIL PARKING																
PEAVINE SWAMP NORTH PARKING AREA																
TAMARACK CREEK ROAD PARKING AREA																
YOUNGS ROAD PARKING																

Appendix Table 5. Invasive Species Distribution Across the Ray Brook Working Circle.

	nn olive	ush ysuckle	mmon kthorn	mmon I grass	arlic ıstard	anese rberry	anese tweed	ltiflora ose	aple	iental srsweet	urple sestrife	l canary rass	parsnip	inged nymus	ow iris	ONE
	Autui	B hone	Col buc	Col	D D	Jap bai	Jap kno	Mul	N E	Or bitte	Ploos	Reed	Wild	Wi euo	Yell	Z
10TH MOUNTAIN DIVISION MEMORIAL																
AMR PARKING LOT																
ANDREW BROOK PARKING AREA																
AUSABLE BRIDGE #1 TRAIL PARKING																
AUSABLE BRIDGE #2 TRAIL PARKING																
AUSABLE POINT CAMPGROUND																
AUSABLE RIVER #1 RIVER ACCESS PARKING																
AUSABLE RIVER #2 RIVER ACCESS PARKING																
AUSABLE RIVER #3 RIVER ACCESS PARKING																
AUSABLE RIVER #4 RIVER ACCESS PARKING																
AUSABLE RIVER #5 RIVER ACCESS PARKING																
BEERWALLS PARKING LOT																
BLUE MOUNTAIN LAKE TIRRELL POND PARKING																
BUCK POND CAMPGROUND																
BUCK POND BOAT LAUNCH PARKING																
CAMP SANTANONI PARKING LOT																
CASCADE MOUNTAIN PARKING 1																
CASCADE MOUNTAIN PARKING 2																
CASCADE MOUNTAIN PARKING 3																
CASCADE MOUNTAIN PARKING 4																
CHAPEL POND PARKING LOT																
CHENEY POND TRAIL																
CHERRY PATCH POND TRAIL PARKING																
CLEAR POND PARKING LOT																
CLEMENTS POND TRAIL PARKING																
COBBLE HILL TRAIL PARKING																

Appendix Table 5, continued. Invasive Species Distribution Across the Ray Brook Working Circle.

	n olive	sh suckle	mon thorn	mon grass	rlic tard	nese erry	nese veed	flora se	way ple	intal sweet	ple strife	canary Iss	arsnip	ged ymus	w iris	NE
	Autum	Bu honey:	Com buckt	Com	Gai mus	Japa barb	Japa knotv	Multi ro	Nor ma	Orie bitter	Pur loose	Reed o	Wild p	Win euon	Yello	ON
CONEY MOUNTAIN PARKING AREA																
CONNERY POND PARKING LOT																
CONNERY POND #3 TRAIL PARKING																
CONNERY RANGE MISC. PARKING																
COOPERKILL POND TRAIL - BONNIEVIEW ROAD																
COPPERAS POND PARKING																
CROWN POINT CAMPGROUND																
DEBAR MOUNTAIN PARKING AREA																
EAST PINE POND FISHING ACCESS PARKING																
EVERTON FALLS PARKING LOT																
FISH CREEK POND CAMPGROUND																
FLOODWOOD MOUNTAIN TRAIL PARKING																
FLOODWOOD RESERVATION TRAIL PARKING																
FLOODWOOD ROAD, GORDON POND PARKING																
FRONTIER TOWN CAMPGROUND																
GOODMAN MOUNTAIN PARKING AREA																
GULF BROOK ROAD PARKING LOT																
HAYES BROOK TRAIL PARKING LOT																
HAYSTACK MOUNTAIN PARKING																
HOFFMAN NOTCH BROOK TRAIL PARKING																
HOFFMAN ROAD BIG POND TRAILHEAD																
JACK RABBIT SKI TRAIL PARKING																
JOHN BROWN FARM TRAIL PARKING																
KING PHILLIPS SPRING PARKING LOT																
LAKE COLBY FISHING ACCESS PARKING																
LAKE EATON CAMPGROUND																

Appendix Table 5, continued. Invasive Species Distribution Across the Ray Brook Working Circle.

	olive	ckle	on orn	on ass	rd C	ise ry	se	ora	λ e	al 'eet	e rife	nary	snip	snu pi	iris	
	tumn e	Bush neysu	commo ucktho	commo sed gra	Garlic nustai	apane oarber	apane notwe	Aultiflo rose	Norwa maple	Orient ttersw	Purplo	ed car grass	ld par	Winge Jonym	ellow i	NON
	Au	oq	0 q	D ar			Ч Г	2		b _	lo	Re	Wi	Ŭ.	≻	
LAKE FLOWER BOAT LAUNCH PARKING																
LAKE HARRIS CAMPGROUND																
LITTLE CHERRY PATCH POND WATER ACCESS PARKING																
LINCOLN POND CAMPGROUND																
LONG POND PARKING LOT																
MCDERMITT ROAD PARKING																
MCKENZIE BOULDERING TRAIL PARKING																
MEACHAM LAKE CAMPGROUND																
MEADOWBROOK CAMPGROUND																
MIDDLE POND TRAIL PARKING																
MONUMENT FALLS PARKING LOT																
MONUMENT FALLS PULL OFF																
MOUNTAIN LANE TRAIL PARKING																
NORTH BRANCH BOQUET RIVER PARKING LOT																
NORTH CONNERY POND PARKING LOT																
NORTH TRAIL TO GIANT MOUNTAIN PARKING LOT																
NPT AT RT. 28N PARKING LOT																
OSEETAH TRAIL PARKING																
PARADOX LAKE CAMPGROUND																
POKE-O-MOONSHINE CAMPGROUND																
POKE-O-MOONSHINE FIRE TOWER TRAILHEAD																
POKE-O-MOONSHINE PARKING AREA																
POLLIWOG POND WATER ACCESS PARKING																
PUTNAM POND CAMPGROUND																
ROARING BROOK FALLS PARKING LOT																
ROLLINS POND CAMPGROUND																

Appendix Table 5, continued. Invasive Species Distribution Across the Ray Brook Working Circle.

	olive	h uckle	non Iorn	ion ass	ic ard	ese rry	ese eed	ora e	ay le	tal veet	le trife	inary s	rsnip	ed nus	iris	Ξ
	Autumn	Bush	Comm buckth	Comm reed gr	Garli musta	Japan barbe	Japan knotw	Multifl	Norw mapl	Orien bittersv	Purp looses	Reed ca gras	Wild par	Wing euonyr	Yellow	NON
ROLLINS POND PARKING																
ROOSTER COMB TRAILHEAD PARKING LOT																
ROUND POND PARKING LOT																
ROUTE 73 CASCADE BROOK PARKING LOT																
ROUTE 9N HURRICANE PARKING LOT																
RT. 86 OLD LOGGERS ROAD TRAIL PARKING																
RT. 86 PULL OFF																
SCARFACE MOUNTAIN TRAILHEAD																
SHARP BRIDGE CAMPGROUND																
SILVER LAKE MOUNTAIN PARKING LOT																
SOUTH BRANCH BOQUET RIVER PARKING LOT																
SPANKY'S WALL PARKING LOT																
TARBELL ROAD SHOULDER PARKING LOT																
TAYLOR POND CAMPGROUND																
TAYLOR POND LOOP PARKING LOT																
TUBMILL MARSH/SHORT SWING TRAIL PARKING																
TURTLE POND ACCESS PARKING																
UNION FALLS ROAD PARKING LOT																
WEBB-ROYCE TRAIL PARKING LOT																
WEST PINE POND TRAIL PARKING																
WHITEFACE MOUNTAIN SKI PARKING AREA																
WILMINGTON NOTCH CAMPGROUND																
WOLF POND TRAILHEAD PARKING AREA																
ZANDER SCOTT TRAILHEAD PARKING																



Appendix Table 6. Invasive Species Distribution Across the Warrensburg Working Circle.

	Autumn olive	Bush honeysuckle	Common buckthorn	Common reed grass	Garlic mustard	Japanese barberry	Japanese knotweed	Multiflora rose	Norway maple	Oriental bittersweet	Purple loosestrife	Reed canary grass	Wild parsnip	Winged euonymus	Yellow iris	NONE
CLAY MEADOWS OVERFLOW PARKING AREA																
CLAY MEADOWS PARKING AREA																
EAGLE POINT CAMPGROUND																
FOURTH LAKE DAY USE PARKING LOT																
HEARTHSTONE POINT CAMPGROUND																
LAKE GEORGE BATTLEGROUND CAMPGROUND																
LILY POND CAMPSITE PARKING																
LILY POND PARKING AREA																
LUZERNE CAMPGROUND																
NORTHWEST BAY PARKING																
PIKE BROOK ROAD PARKING LOT																
POLE HILL PARKING																
ROGERS ROCK CAMPGROUND																
SCAROON MANOR CAMPGROUND																