

Adirondack Park State Campground Terrestrial Invasive Plant Management 2013 Program Report

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Executive Summary:

State campgrounds are high priority areas for invasive species management, especially for early detection and rapid response practices (ED/RR), since many invasive plant outbreaks originate in these areas. In the 2013 field season, 39 campgrounds and intensive-use areas in the Adirondack Park were inventoried for invasive plant species. Infestations of priority species, including garlic mustard, purple loosestrife, Japanese knotweed, and Phragmites, as well as other invasive plants, were managed or mapped via GPS.

Garlic mustard is the most commonly found invasive plant species, currently inhabiting about 2/3 of state campgrounds inventoried in 2013. It was usually found in small, dense pockets at several individual campsites throughout the campgrounds. In general, these infestations were of a manageable size and could be easily cleared by a single person in less than one day. If management is continued for the next several years at these campgrounds, it will likely result in great success. There are also several campgrounds that have large, dense infestations of garlic mustard, including Golden Beach, Eighth Lake, Lake George Battleground, Hearthstone Point, and Rogers Rock, among others. These campgrounds will likely require many years of high intensity management for measureable success to be achieved.

Purple loosestrife was observed at less than 1/3 of all campgrounds visited in 2013. At most of these campgrounds, infestations were small remnants of former infestations, present at just one or two locations. The success of management in past years is evident. Several campgrounds still had large infestations that will likely require additional years of management for success. Also, the two campgrounds on the edge of Lake Champlain (Ausable Point and Crown Point) have dense infestations of purple loosestrife that are unlikely to get smaller with annual digging and handpulling because they are situated in the midst of a region where purple loosestrife is rampant; hence, any managed areas are prone to reinfestation, thus biological controls should be considered.

Japanese knotweed was also observed at five campgrounds in 2013. Most of the individual infestations were no larger than 0.01 of an acre in size and could likely be contained and eradicated with a few years of herbicide treatment. If possible, this should be performed in the offseason, when the campground is not open to the public.

Overall, successful control is likely for garlic mustard and purple loosestrife infestations at state campgrounds, though there are notable exceptions at campgrounds with particularly large infestations. Progress that had been made by previous management efforts was set back in 2010 and 2011 when state seasonal capacity was limited and invasive plants at campgrounds were left unmanaged, reinforcing the importance of annual monitoring and management. Japanese knotweed has been left largely untreated in the past, though it still does not have a significant presence at the campgrounds and can likely be eliminated with sustained treatments.

Campground staff was supportive of invasive plant management efforts, and staff at several of the campgrounds had already managed infestations of garlic mustard and Japanese knotweed. Overall, however, most employees at the campgrounds were unaware that their campground was infested by an invasive plant species and uninformed as to how to identify common invasives and manage them. To aid in the battle against invasive plants, it would be helpful to offer trainings in the identification and management of common invasive plants for campground staff at the beginning of the camping season. Ideally, this would occur at all of the campgrounds, but it is especially important at campgrounds that currently are not densely infested but are near other, heavily-infested campgrounds.

Introduction:

Overview:

In the summer of 2006, the New York State Department of Environmental Conservation (DEC) supported a seasonal Operations Invasive Species Specialist position to implement annual invasive plant inventories and management at state campgrounds in the Adirondack Park. State campgrounds are intensive use areas within the Park and as such are susceptible to infestation by invasive species. Once campgrounds become infested, they can serve as a source from which invasives spread into other areas of conservation value such as forests, rivers and wetlands within the forest preserve. The spread of invasives at campgrounds can be through vegetative growth, seed dispersal on campers' gear and clothing, fragmentation, transfer of infested soils or equipment, and wind dispersal. Because of this, the Adirondack Park Invasive Plant Program (APIPP) and DEC identified state campgrounds as priority areas to manage invasive plants within the Adirondack Park.

The Invasive Species Specialist documented findings and results and continued annual surveys and management through the 2009 field season. In 2010, funding for the position was not available, and data collection and management efforts at campgrounds were not undertaken. Much of the progress that had been made in controlling garlic mustard and purple loosestrife was set back as plants regrew and infestations went unmanaged. In 2011, the APIPP initiated limited management, collecting data for and managing several of the infestations at high priority campgrounds. In 2012 and again in 2013, DEC, APIPP, and the State University of New York College of Environmental Science and Forestry (SUNY ESF) coordinated a Terrestrial Invasive Plant Internship for the summer in order to revitalize an invasive plant inventory and management program at state campgrounds within the Adirondack Park. APIPP's Terrestrial Regional Response Team, members from the Student Conservation Association (SCA), and other volunteers assisted in the management of garlic mustard and purple loosestrife at some of the most densely infested campgrounds.

The following report documents the distribution and management of invasive plant species at New York State Campgrounds in the Adirondack Park during the 2013 field season. Although project work focused primarily on state campgrounds, additional projects included conducting invasive plant inventories along the Branch River as well as at trailheads throughout the Adirondacks. The results of these projects are also described here.

Standard Treatment Procedures Used for Common Plants:

Garlic Mustard – Second year plants were pulled up by the root and placed in thick contractor garbage bags. The bagged materials were transported to the APIPP office in Keene Valley where they were set out in the sun for at least two weeks, until the contents had liquefied and no viable plant material remained. At the end of the season these bags were disposed of at the local transfer station.

Purple Loosestrife – Plants were pulled or often dug up so that as much of the root system as possible was removed. Plants were placed in thick contractor garbage bags. The bagged materials were transported to the APIPP office in Keene Valley where they were set out in the sun for at least two weeks, until the contents had liquefied and no viable plant material remained. At the end of the season these bags were disposed of at the local transfer station.

Japanese Knotweed and Phragmites (Common Reed Grass) – Infestations were mapped with a GPS and uploaded into APIPP's Weeds Information Management System (WIMS), a database containing information about the location and size of infestations of priority invasive plant species within the Adirondack Park. No management was performed for these species. They are best treated with herbicide and thus require an Adopt-A-Natural-Resource Permit which is completed by the APIPP Terrestrial Invasive Species Project Coordinator each year for only high priority sites.

Wild Parsnip – Plants were pulled up by the root or cut off at the base and placed in thick contractor garbage bags. The bagged materials were transported to the APIPP office in Keene Valley where they were set out in the sun for at least two weeks, until the contents had liquefied and no viable plant material remained. At the end of the season these bags were disposed of at the local transfer station. **NOTE: Protective clothing (long sleeves and gloves, at a minimum) should be worn when treating this species, as the sap of this plant is phototoxic and can cause phytophotodermatitis if it comes in contact with exposed skin.**

Bush Honeysuckle, and Japanese Barberry – The presence of these invasives was noted among the campgrounds, but infestations were treated only when just a few plants were found sporadically around the campground. These species are of a lower priority level compared to the species previously listed because they are locally widespread, and treatments of large infestations were performed only when adequate time remained after treatments and inventories of other, higher priority species had been performed. To treat these species, the plants were pulled up by

the base, with efforts made to pull up the entire root system. Medium sized plants often required the use of a honeysuckle popper for extra leverage and grip. Pulled plants were hung upside down in nearby trees so they would dry out and decompose. Large plants were left in place; the recommended treatment for these was to cut them at the base and paint the stumps with an appropriate herbicide.

Summary Table of Infestations at State Campgrounds

Summary of Infestations at State Campgrounds		
Campground	Invasives Present:	Density of Infestations:
Indian Lake Working Circle		
Brown Tract Pond	Garlic Mustard Bush Honeysuckle	Moderate Low
Eighth Lake	Garlic Mustard	High
Forked Lake	Bush Honeysuckle	Sparse
Golden Beach	Garlic Mustard	High
Indian Lake Islands	Not Inventoried	
Lake Durant	Garlic Mustard Bush Honeysuckle	Low Moderate
Lewey Lake	Garlic Mustard	Low
Limekiln Lake	Garlic Mustard Bush Honeysuckle	High High
Northville Working Circle		
Caroga Lake	Garlic Mustard Purple Loosestrife Phragmites Japanese Knotweed Japanese Barberry Autumn Olive	Low Sparse At least 0.118 Acres At least 0.005 Acres Sparse Sparse
Little Sand Point	Garlic Mustard Japanese Knotweed	Low At least 0.029 Acres
Moffitt Beach	Garlic Mustard Purple Loosestrife	Moderate Low
Northampton Beach	Garlic Mustard	Low
Point Comfort	Garlic Mustard	Low
Poplar Point	Garlic Mustard	Low
Sacandaga	Garlic Mustard Japanese Knotweed	Sparse At least 0.171 Acres
Ray Brook Working Circle		
Ausable Point	Purple Loosestrife Bush Honeysuckle	Extreme Low
Buck Pond	None Observed	
Crown Point	Purple Loosestrife Wild Parsnip Bush Honeysuckle Canada Thistle	High High Sparse Sparse
Fish Creek Pond	None Observed	
Lake Eaton	Garlic Mustard	Sparse
Lake Harris	Purple Loosestrife	Moderate
Lincoln Pond	Garlic Mustard	Low
Meacham Lake	None Observed	

Meadowbrook	Garlic Mustard Bush Honeysuckle	Sparse Low
Paradox Lake	Garlic Mustard Purple Loosestrife	Moderate High
Poke-O-Moonshine	None Observed	
Putnam Pond	Garlic Mustard Purple Loosestrife	Low Sparse
Rollins Pond	Garlic Mustard	Low
Saranac Lake Islands	Not Inventoried	
Sharp Bridge	None Observed	
Taylor Pond	Purple Loosestrife	Moderate
Wilmington Notch	None Observed	
Warrensburg Working Circle		
Eagle Point	None Observed	
Hearthstone Point	Garlic Mustard Japanese Knotweed Japanese Barberry Bush Honeysuckle	High 0.149 Acres Low Moderate
Lake George Battleground	Garlic Mustard Japanese Knotweed Bush Honeysuckle Japanese Barberry Winged Burning Bush Oriental Bittersweet	Extreme Approximately 0.100 acres Low Low Sparse Sparse
Lake George Islands	Not Inventoried	
Luzerne	Garlic Mustard Bush Honeysuckle	Low High
Prospect Mountain Spoils Area	Garlic Mustard Phragmites Bush Honeysuckle Spotted Knapweed Woolly Mullein	High <0.100 acres Low Low Low
Rogers Rock	Garlic Mustard Bush Honeysuckle Japanese Barberry	High Sparse Sparse
Scaroon Manor	Garlic Mustard Winged Burning Bush Bush Honeysuckle Japanese Barberry	High Moderate Moderate Moderate
Herkimer Working Circle		
Alger Island	Not Inventoried	
Nicks Lake	Garlic Mustard Bush Honeysuckle	Moderate Sparse
Potsdam Working Circle		
Cranberry Lake	Garlic Mustard	Moderate

Indian Lake Working Circle

Brown Tract Pond State Campground

Invasive Plant Species: Garlic Mustard, Bush Honeysuckle

Locations:

Garlic mustard was found and pulled from sites 18, 20, 30, 48, 74, 76, 78, 80-82, and near the water spigot across from site 43. The majority of the garlic mustard pulled was from sites 74 to 82. Bush honeysuckle was found at site 32. Bull thistle was found in the past at site 17 and crown vetch was found between sites 34 and 35; neither were observed this year.

Management Totals:

A total of 175 second-year garlic mustard plants were pulled from the campground. A single honeysuckle bush was pulled up by the roots and hung upside down in nearby trees to dry out and decompose.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation and prevent new honeysuckle bushes from taking hold. It is especially imperative to treat the garlic mustard infestation on the elevated section of the campground (sites 74-82), as the relatively dense infestations there will rapidly spread downhill if left untreated, potentially infesting other campsites. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2014 by midsummer, before they go to seed.

Eighth Lake State Campground

Invasive Plant Species: Garlic Mustard

Locations:

Garlic mustard is widely dispersed throughout the Eighth Lake Campground and was found on site numbers 8, 13, 15, 18, 20, 22, 24, 27, 31-35, 38-40, 73, 78, 80, 81, 88-90, 95-98, 100, 101, 105, 106, 108, along the trail to Bug Lake, around the bathrooms behind site 92, and along the road near sites 62, 73, and 85. The most dense infestations were found from sites along the Eighth Lake shore (numbers 30-39), where the infestations stretch all the way from the campsites to the edge of the shore in some cases.

Management Totals:

A total of approximately 1.5 contractor garbage bags full of second-year garlic mustard plants were removed from the campground. The exact number of plants pulled was not tallied due to the number of workers pulling plants (I was joined by 4 members of the SCA to treat this campground).

Recommendations:

The density of the garlic mustard infestations at this campground, though significant, is far less severe than expected, indicating that the treatment performed in 2012 was highly effective. This campground should still be monitored annually in order to combat the dense garlic mustard infestation, but calling in a team or crew of workers (such as an SCA crew or APIPP's Response Team) to help in the treatment of this campground may not be necessary in 2014, as it may only require a single worker one day to treat the garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2014 by midsummer, before they go to seed.

Offering an invasive species identification and management seminar (focused on garlic mustard) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

Bush honeysuckle was found here in the past, though none was noted this year. Any honeysuckle bushes should be treated if found.

Forked Lake State Campground

Invasive Plant Species: Bush Honeysuckle

Locations:

A few honeysuckle bushes were found in the area behind the Facility Supervisor's Cabin.

Management Totals:

The few honeysuckle bushes found were pulled up by the roots and hung upside down in nearby trees to dry and decompose.

Recommendations:

Monitor the campground annually to remove any bush honeysuckle at the campground and also to monitor for the spread of new invasive species, such as garlic mustard, which is present at other campgrounds in the area.

Golden Beach State Campground

Invasive Plant Species: Garlic Mustard

Locations:

Garlic mustard is prolific, with dense infestations covering much of the campground. Specifically, garlic mustard was removed from sites 6, 8, 10, 15, 18, 20, 35, 37, 39, 41, 43, 45, 47, 49, 52-56, 59-70, 74-78, 80, 82-87, 89, 93, 95, 106, 108, 109, 111, 116-118, 123-126, 128, 130-133, 136, 139, 140, 141, 165, 167, 169-175, 177, 179, 180, 183, 184, 206-208, around/behind the shower building, and around bathrooms 5 and 6.

Management Totals:

A total of about 9,000 second year garlic mustard plants were removed from the campground, comprising 12 contractor garbage bags full.

Recommendations:

This campground should be monitored yearly in order to combat the dense garlic mustard infestation. It would be advisable to have a team or crew of workers (such as an SCA crew or APIPP's Response Team) help in the treatment of this campground in 2013, as it would take a single person multiple days to treat the garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed.

Offering an invasive species identification and management seminar (focused on garlic mustard) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

Indian Lake Islands State Campground

Invasive Plant Species: Not Inventoried

Recommendations:

This campground has never been inventoried for invasive plants and was not this year because it is accessible by boat only. An initial inventory of this campground should be performed in 2013 if resources are available to do so.

Lake Durant State Campground

Invasive Plant Species: Garlic Mustard, Bush Honeysuckle

Locations:

Garlic mustard was found at sites 2, 3, 6, 12, 28, 35, 46, 57, and 58. Bush honeysuckle is fairly prevalent at the campground, especially in and around the picnicking, swimming and boat launch areas.

Management Totals:

A total of about 300 second year garlic mustard plants were removed from this campground, comprising about ½ a contractor garbage bag full. No bush honeysuckle plants were removed this year.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation and prevent new, small, easily pulled honeysuckle bushes from taking hold. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed next year by midsummer, before they go to seed.

Due to the relatively widespread honeysuckle infestation, large honeysuckle bushes should be removed only if extra time and resources remain after the higher priority invasive species at this and other campgrounds (such as garlic mustard) have been removed.

Lewey Lake State Campground

Invasive Plant Species: Garlic Mustard, Purple Loosestrife (none observed)

Locations:

Campground staff had treated the garlic mustard infestations before an annual monitoring visit was made this summer. The staff reported finding, pulling, and bagging garlic mustard from behind the Lifeguard cabin, sites 57, 59, 61, and near the water spigot near 185. The regular monitoring visit also revealed a small infestation between sites 171 and 173 and some rosettes found between sites 201 and 204.

No purple loosestrife plants were observed during a second monitoring visit in early August.

Management Totals:

The amount of garlic mustard removed by campground staff is unknown; a few second year garlic mustard plants that had been missed were pulled during the inventory in late June, amounting to about ¼ of a contractor garbage bag full.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed next year by midsummer, before they go to seed.

The shoreline and any wetland areas in the campground should be monitored again in 2013 in mid-August for purple loosestrife, as it has been a problem in past years, especially near sites 1 and 2.

Limekiln Lake State Campground

Invasive Plant Species: Garlic Mustard, Bush Honeysuckle

Locations:

Garlic mustard is spread throughout the campground, and has densely infested some areas. It was found at sites 3, 4, 16, 23, 26, 32, 52, 58, 59, 64, 65, 67, 76, 94, 95, 115, 129-131, 140-142, 147-150, 156, 166-171, 186, 187, 190, 192, 194, 198, 199, 202, 204, 207, 218, and 274. The worst infestation spread across sites 140-142 and adjacent sites 166-171. Honeysuckle bushes were found sporadically throughout the campground, including at sites 1, 19, 39, 57, 81, 83, 86, 102, 112, 116, 120, 124, 126, and 191.

Management Totals:

A total of about 3,100 second year garlic mustard plants were pulled from the campground, comprising about 3 contractor garbage bags full. A total of 12 honeysuckle bushes were pulled from sites 1, 19, 39, and 191, and hung upside down in nearby trees to dry and decompose. Honeysuckle bushes at other sites were left to be pulled in the future.

Recommendations:

This campground should be monitored yearly in order to combat the dense garlic mustard infestation. It would be advisable to have a team or crew of workers (such as an SCA crew or APIPP's Response Team) help in the treatment of this campground in 2013, as it would take a single person multiple days to treat the garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed.

Offering an invasive species identification and management seminar (focused on garlic mustard and bush honeysuckle) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

Due to the relatively widespread honeysuckle infestation, large honeysuckle bushes should be removed only if extra time and resources remain after the higher priority invasive species at this and other campgrounds (such as garlic mustard) have been removed. Small, easily removed bushes should be removed before they get a chance to mature and fruit.

Northville Working Circle

Caroga Lake State Campground

Invasive Plant Species: Garlic Mustard, Phragmites, Purple Loosestrife, Japanese Knotweed, Japanese Barberry, Autumn Olive

Locations:

Small garlic mustard infestations were found at sites 46 and 52. Infestations of Phragmites (common reed grass) occur behind sites 92 and 95, totaling about 0.118 acres. Purple loosestrife was found on the shore of the lake adjacent to site 125 and at the outlet of a stream next to the boat launch. A small infestation of Japanese knotweed totaling 0.005 acres was found along the fence across from sites 144 and 146, adjacent to a main road. Japanese barberry and autumn olive were also found sporadically throughout the campground.

Management Totals:

A total of 15 second year garlic mustard plants were pulled from the campground. Phragmites and Japanese knotweed were both mapped with a GPS and the data uploaded into the WIMS database; none was treated. A total of 34 purple loosestrife stems were removed from the two infested areas. A few Japanese barberry shrubs were pulled and hung upside down to dry and decompose, though some that were too large to pull were left in place. No autumn olive was removed.

Recommendations:

Due to the southerly location of this campground in the Adirondack Park, it becomes very busy during the summer season and should be monitored early in the season, if possible. The campground should be monitored annually to contain and hopefully eliminate the currently small garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed.

The Phragmites and Japanese knotweed infestations should be treated with herbicide treatment in 2013, if possible, so that they do not grow and spread further throughout the campground and surrounding areas. Japanese barberry bushes should be pulled and/or cut at ground level and left to dry and decompose, as they are currently a potential hazard to campers due to their spines and by providing excellent tick habitat.

A monitoring visit should also take place again in mid-August to pull any purple loosestrife that comes back next year. The size of the loosestrife infestation is very small now – an encouraging sign that total elimination from the campground is a real possibility.

Little Sand Point State Campground

Invasive Plant Species: Japanese Knotweed, Bush Honeysuckle (none observed)

Locations:

Two small patches of Japanese knotweed exist just behind the registration booth as one enters the campground. The first is bordering site 4, while the second borders sites 5 and 6, and combined, the total infestation is about 0.029 acres in size. No bush honeysuckle was observed at the campground this year, though it has been found in the past throughout the campground.

Management Totals:

The Japanese knotweed infestations were mapped by GPS and the data uploaded into APIPP's WIMS database.

Recommendations:

The Japanese knotweed infestations should be treated with herbicide next year, if possible, so that they do not grow and spread further throughout the campground and surrounding areas. The rest of the campground should also be monitored for bush honeysuckle, which has been there in the past, as well as garlic mustard and purple loosestrife, which are present at other campgrounds close by.

Moffitt Beach State Campground

Invasive Plant Species: Garlic Mustard, Purple Loosestrife, Autumn Olive

Locations:

Garlic mustard is currently only found in the western half of the campground, past the area of private property. It was found at sites 180, 182-184, 207, 209, 212-214, 216, 224, and 258. Purple loosestrife was found on the eastern side of the campground, just before the land turns to private property. This infestation stretches along the edge of the beach/parking area in front of site 3A and 4A, in a marshy area along the beach toward the privately-owned land, and in the area surrounding the boat launch. Autumn olive was found in a clearing across the road from site number 101.

Management Totals:

A total of about 600 second year garlic mustard plants were pulled from the campground, comprising about 1 contractor garbage bag full. A total of about 136 purple loosestrife plants were pulled from the campground, totaling 1 full bag. Most of the loosestrife (~100 plants) was pulled from the area near the beach in front of sites 3A and 4A. No autumn olive was removed.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed.

A second monitoring visit should be made in mid to late August to dig/pull any purple loosestrife that reappears.

Northampton Beach State Campground

Invasive Plant Species: Not surveyed (Japanese Knotweed and Bush Honeysuckle likely)

Locations:

This campground was not surveyed this year due to a lack of time in the field season.

Management Totals:

No management occurred in 2012.

Recommendations:

This campground should be monitored annually to ensure that the small Japanese knotweed infestation reported in 2009 does not return or spread to other places. Small honeysuckle bushes should be removed before they have a chance to take hold and fruit. The tree-sized honeysuckle bushes should be removed if time and resources are available so that this campground may be brought to an invasive-free status in the future.

Point Comfort State Campground

Invasive Plant Species: No invasive plant species were observed here in 2012 or in past years.

Recommendations:

This campground should be monitored annually for invasive plants such as purple loosestrife, bush honeysuckle, and others, as these invasives have been found at other nearby campgrounds.

Poplar Point State Campground

Invasive Species Present: Purple Loosestrife

Locations:

A small infestation of purple loosestrife was found along the beach behind site number 2.

Management Totals:

A total of 2 purple loosestrife plants were removed from the campground, roots and all.

Recommendations:

This campground should be monitored annually for any reappearing purple loosestrife, as well as any new invasives to the campground.

Sacandaga State Campground

Invasive Plant Species: Japanese Knotweed

Locations:

A very small infestation (one stem) of Japanese knotweed was found in the garden in front of the caretaker's cabin. Two larger Japanese knotweed infestations occur along the Route 30 right-of-way and spread down onto the campground behind sites 34 and 30, totaling approximately 0.171 acres.

Management Totals:

The caretaker and campground staff have been active in the treatment of the Japanese knotweed at the campground. For the past several years they have cut all of the knotweed on campground property at ground level, gathered the stems, and dried and burned them. This repeated effort has yielded impressive results – they apparently rid one of the patches that used to grow behind the shower building, and other patches appear to be severely stunted. The sections that are growing in the DOT ROW along Route 30, however, have not been treated in several years and remain strong. The two roadside knotweed infestations were mapped by GPS and uploaded into APIPP's WIMS database.

Recommendations:

This campground should be monitored annually for any signs of new invasives. The status of the Japanese knotweed infestations should be monitored and mapped annually to document their change in size overtime. Outreach to the local branch of the NYSDOT should take place to see

if they will treat the patches of knotweed within the Route 30 right-of-way for the next several years. Cooperation and coordination of efforts between the campground staff and DOT could likely yield an invasives-free campground in the future.

Be careful when mapping/treating the knotweed patches adjacent to the road, as poison ivy also grows densely there, representing a potential health hazard.

Ray Brook Working Circle

Ausable Point State Campground

Invasive Plant Species: Purple Loosestrife, Bush Honeysuckle

Locations:

This campground has one of the most extensive infestations of purple loosestrife present at any of the state campgrounds described in this report. Part of the problem is the massive infestation of purple loosestrife in the adjacent AuSable Marsh Wildlife Management Area, which has spread onto the campground. The most densely invaded parts of the campground are the marshy areas on either side of the entrance road, near the entrance booth. A small infestation was also found between sites 102 and 106. More was observed across the river from the car top boat launch, though this is not on campground property.

Management Totals:

Approximately 15 plants were removed from the infestation between sites 102 and 106. An additional 16 contractor garbage bags full of purple loosestrife were removed from the campground via digging and pulling, though this covered only a small area on one side of the entrance booth. No more was pulled because the level of infestation present at the campground has limited the potential positive impact of this type of treatment, which is very labor intensive and time consuming. No bush honeysuckle plants were removed in 2012.

Recommendations:

This campground should be monitored annually to prevent the spread of new invasives to the campground. Due to the current state of the purple loosestrife infestation, mechanical treatment methods are not advised, but a biological control through the release of *Gallerucella* beetles that feed only on purple loosestrife is a potential option. This is likely the most cost- and time-efficient option available to treat this infestation. Any small honeysuckle plants found should be removed and hung upside down to dry and decompose.

Buck Pond State Campground

Invasive Plant Species: None observed

Recommendations:

This campground should be monitored annually for infestation by invasive plants.

Crown Point State Campground

Invasive Plant Species: Purple Loosestrife, Wild Parsnip, Bush Honeysuckle, Canada Thistle

Locations:

The largest infestation of purple loosestrife was found in a circle on the shore near the new boat launch. Single plants were removed by the roots along the shore between site 10 and the lighthouse, and in an opening near the maintenance center. Wild parsnip heavily infests much of the campground, especially on banks near sites 2, 3, 5, 6, 11, 15-17, 19, 20, 23, 32, around the lighthouse, in a patch near the maintenance center, and on the hill behind the Information Center. A single, large honeysuckle bush was found between the old fort ruins and site 11. Canada thistle is also sporadically scattered throughout the campground.

Management Totals:

About 12 contractor garbage bags full of wild parsnip were removed from the campground, mostly coming from the hill behind the Information Center, where the largest and most dense infestation occurs. About 2 bags full of purple loosestrife were also removed from the campground. The honeysuckle was not removed, as it was too large to be pulled up. No Canada thistle was removed from the campground.

Recommendations:

This campground should be monitored annually to remove wild parsnip from the campground and to monitor for other invasive species. Wild parsnip sap is phototoxic to skin and represents a health hazard for campers and staff at the campground. It should be pulled up by the root and removed from the grounds sometime in early to mid-June, while still in flower. Pulling should be done in long sleeves and with gloves on to prevent skin contact with the hazardous sap.

A second visit should take place in mid-August to pull any reoccurring purple loosestrife plants on the campground. This is a relatively low priority purple loosestrife location, however, because loosestrife is very prevalent in the surrounding area, and reinfestation is likely even after treatment.

The honeysuckle should be removed, if possible, either through pulling or stem cutting. Canada thistle should be monitored and potentially removed if the time and resources are available.

Fish Creek Pond State Campground

Invasive Plant Species: Purple Loosestrife (none observed)

Locations:

Purple loosestrife was found at the campground in a wet, grassy area across the road from site 182 in 2008 and again in 2009. None was observed in 2012.

Management Totals:

None necessary.

Recommendations:

This campground should be monitored annually for reinfestation by purple loosestrife, as well as infestation by other invasives, especially with garlic mustard already infesting Rollins Pond Campground next door.

Lake Eaton State Campground

Invasive Plant Species: Garlic Mustard

Locations:

Garlic mustard is spreading sporadically across the campground, specifically at sites 27, 89, 92, 95, 105, 106, 108, and 133.

Management Totals:

A total of about 250 second year garlic mustard plants were pulled from the campground, comprising about 1/3 of a contractor garbage bag full.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation and prevent any new invasives from taking hold. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed next year by midsummer, before they go to seed.

Lake Harris State Campground

Invasive Plant Species: Purple Loosestrife

Locations:

Purple loosestrife is in two main locations. An infestation occurs along the densely vegetated shoreline in front of sites 12-20, and the second infestation is in a less vegetated area along the shore in front of the parking and bathhouse area.

Management Totals:

Over 1,000 stems were pulled from the campground (roughly 300-350 plants), comprising about 3 contractor garbage bags full. A majority of the plants were pulled from in front of the parking area, though there the plants were mostly small and young.

Recommendations:

This campground should be monitored annually around mid-August for any reappearing purple loosestrife plants, as well as for signs of any other invasives. Plants should be dug or pulled up by the roots while still in flower.

Lincoln Pond State Campground

Invasive Plant Species: Garlic Mustard, Black Locust

Locations:

Garlic mustard was discovered for the first time at Lincoln Pond this year. The infestation is currently only found at site 17, extending down the hill behind the site. Small black locust trees are also found on the campground between site 1 and the beach.

Management Totals:

Approximately 35 second year garlic mustard plants were removed from site 17 and down the hill behind it. No black locust trees were removed.

Recommendations:

This campground should be monitored annually so that the garlic mustard can be contained to site 17 and hopefully eliminated from the campground in the coming years. Garlic mustard tends to disperse itself rapidly and widely when it grows on a hillside such as this one, so careful monitoring and treatments to remove all viable plants is key. The impact of black locust trees as

an invasive plant in the Adirondacks should be evaluated and actions should be taken accordingly at the campground.

Meacham Lake State Campground

Invasive Plant Species: None observed

Recommendations:

This campground should be monitored annually for infestations of invasive plants. Garlic mustard, yellow iris, and wild chervil have all been found here in years past and these species should be especially monitored for in the future to prevent reinvasion.

Meadowbrook State Campground

Invasive Plant Species: Garlic Mustard, Bush Honeysuckle

Locations:

Garlic mustard was found in only one location here this year, on the back side of site 20. Honeysuckle bushes were found behind site 23, along the trail to Scarface. The bushes were on the left hand side of the trail just before it reaches the railroad tracks. Honeysuckle was also found near site 29.

Amount of Eradication:

Approximately 60 small second year garlic mustard plants were pulled from site 20. Seven honeysuckle bushes were pulled on the trail to Scarface near the railroad tracks and three small bushes were also pulled from site 29. The 10 honeysuckle bushes were pulled up by the roots and hung upside down in nearby trees to dry and decompose.

Recommendations:

This campground should be monitored annually to control and hopefully eliminate the present garlic mustard infestation. Some garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed. Any bush honeysuckle plants found on the campground should be pulled and hung up to dry if time and resources are available to do so after higher priority invasives have been managed.

Paradox Lake State Campground

Invasive Plant Species: Garlic Mustard, Purple Loosestrife

Locations:

Garlic mustard infestations are present at sites 30, 48, and 50. The infestation at site 50 is the most extensive, as it extends down the bank toward the adjacent restroom. Purple loosestrife infests the marshy area to the right side of the boat launch, extending a short way down the shore.

Management Totals:

In early June, approximately 500 second year garlic mustard plants were removed from the campground, comprising about $\frac{3}{4}$ of a contractor garbage bag full. On a second visit to the campground in early August, approximately 400 purple loosestrife plants were dug and pulled up, roots and all, comprising about $7\frac{1}{2}$ bags.

Recommendations:

This campground should be monitored annually in early summer to treat the current garlic mustard infestation and to monitor for any signs of new invasives to the campground. Many garlic mustard rosettes were observed in 2012, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed.

The campground should also be visited again in late summer to remove any returning purple loosestrife.

Poke-O-Moonshine State Campground

Invasive Plant Species: None observed

Recommendations:

This campground is currently closed to the public and not in use by the state. Camping here is currently prohibited. Because no invasive plants were observed here this year or in the past, and this area will no longer be in frequent use as a campground, it probably does not require annual monitoring unless the campground reopens. However, the trailhead to climb up Poke-O-Moonshine Mountain is still in use, located at the far left side of the former campground, and this trail/trailhead should still be monitored annually for signs of invasive plants.

Putnam Pond State Campground

Invasive Plant Species: Purple Loosestrife

Locations:

A small patch of purple loosestrife was observed in the drainage area to the right of the entrance to site number 16.

Management Totals:

A total of 2 purple loosestrife plants were dug up by the roots and removed from the campground.

Recommendations:

This campground should be monitored annually for purple loosestrife as well as signs of any other invasive plants. Site 16 should be closely monitored and any reappearing purple loosestrife plants should be pulled so the campground may someday be invasives-free.

One of the campground staff mentioned having seen purple loosestrife growing near the beach at nearby Lost Pond. The trailhead to Lost Pond is located on the left hand side of the road on the way in to Putnam Pond State Campground. The trail in to Lost Pond is just over one mile long and was not monitored this year due to a lack of time in the field season. In the future, however, this area should be surveyed and any invasives found should be mapped, evaluated, and managed accordingly.

Rollins Pond State Campground

Invasive Plant Species: Garlic Mustard

Locations:

Garlic mustard was found at sites 83, 93, 113, and 205.

Management Totals:

A total of about 750 second year garlic mustard plants were pulled, mostly from site 93.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation and prevent any new invasives from taking hold. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed. The sandpit area, which is located on a path behind a stop gate on the left hand side of

the entrance road as one drives into the campground, should be monitored as well because it used to be infested with garlic mustard, though none was found there this year.

Saranac Lake Islands State Campground

Invasive Plant Species: Not Inventoried

Recommendations:

This campground has never been inventoried for invasive plants and was not this year because it is accessible by boat only. An initial inventory of this campground should be performed next year if resources are available to do so.

Sharp Bridge State Campground

Invasive Plant Species: None observed

Recommendations:

This campground should be monitored annually for any signs of invasive plants.

Taylor Pond State Campground

Invasive Plant Species: Purple Loosestrife

Locations:

Purple loosestrife was found in two locations. It surrounds the shore on both sides of the boat launch and also runs along the shore and up into the campground along both sides of a path leading to the water between sites 20 and 21.

Management Totals:

A total of 6 ½ contractor garbage bags full of purple loosestrife were dug up and removed from the campground.

Recommendations:

This campground should be monitored annually in late summer so the purple loosestrife infestation may be managed and the campground monitored for signs of other invasives and new infestations.

Wilmington Notch State Campground

Invasive Plant Species: None observed

Recommendations:

This campground should be monitored annually for any signs of invasive plants.

Warrensburg Working Circle

Eagle Point Campground

Invasive Plant Species: Woolly Mullein

Locations:

Woolly mullein, or lamb's ear, was found growing along the retaining wall behind the parking area by the beach and picnic area.

Management Totals:

Approximately 8 woolly mullein plants were pulled.

Recommendations:

This campground should be monitored annually to prevent any other invasives from taking hold. Woolly mullein is an invasive species of very low priority but should be removed from the campground if it is found in low numbers because it is very easily pulled up, requiring minimal time and resources.

Hearthstone Point State Campground

Invasive Plant Species: Garlic Mustard, Japanese Knotweed, Japanese Barberry, Bush Honeysuckle, Autumn Olive

Locations:

Garlic mustard is found scattered throughout the campground at sites 49, 50, 58, 60, 61, 71, 83, 84, 89, 92, 103, and in the large spoils area behind sites 187 and 189. The infestation at the spoils area is extremely large, extending back to and along Flat Rock Road, off of campground property.

A large infestation of Japanese knotweed approximately 0.149 acres in size exists within the spoils area described above, surrounded by the garlic mustard infestation. Japanese barberry and bush honeysuckle are also present at the campground, especially in the spoils area. A single autumn olive appears to have been planted near the parking area by site 24.

Management Totals:

A total of approximately 18 contractor garbage bags full of second year garlic mustard plants were removed from the campground, primarily coming from the spoils area. The infestation of

Japanese knotweed was mapped by GPS and uploaded into APIPP's WIMS database, but none was treated in 2012. No Japanese barberry, bush honeysuckle, or autumn olive was removed from the campground.

Recommendations:

This campground should be monitored annually to pull and treat the garlic mustard infestations at the campsites throughout the campground and to prevent any other invasive species from taking a strong hold. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed next year by midsummer, before they go to seed.

Offering an invasive species identification and management seminar (focused on garlic mustard) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

The dense infestations of garlic mustard, Japanese knotweed, Japanese barberry, and bush honeysuckle located at the spoils area should be managed in a less labor intensive way, perhaps through the use of herbicide or by covering the area for several years with a thick tarp so the plants cannot attain enough sunlight and water to survive.

Any honeysuckle bushes or Japanese barberry plants throughout the rest of the campground should be pulled and hung upside down to dry and decompose if time and resources allow.

Lake George Battleground Campground

Invasive Plant Species: Garlic Mustard, Japanese Knotweed, Bush Honeysuckle, Japanese Barberry, Winged Burning Bush, Oriental Bittersweet

Locations:

The infestation of garlic mustard at this campground is one of the most dense and widespread at any of the public campgrounds described in this report. Sites infested include 8, 10, 12,14, 16-20, 34, 38, 44, 45, 50, and 54, though the worst infestations occur in the woods behind sites 8-19, along the road to the recycling center, and in the gully behind the shower building, and by the recycling center. The infestation also extends to the other side of a fence, onto private property.

An infestation of Japanese knotweed exists toward the back of the garlic mustard infestation behind sites 8-19 and extends on to private land. Bush honeysuckle is present throughout the campground but is especially present in the area behind sites 8-19, with many large specimens. Japanese barberry was found at the end of the road just past site 50. Winged burning bush was

located on the end of the “island” that site 43 is on, and some Oriental bittersweet was found on the left hand side of the road near site 64.

Management Totals:

Approximately 20 contractor garbage bags full of second year garlic mustard plants were pulled and removed. The Japanese knotweed infestation was mapped by GPS and uploaded into APIPP’s WIMS database. Approximately 7 Japanese barberry plants and 1 winged burning bush were pulled and hung upside down in nearby trees to dry and decompose. No bush honeysuckle or Oriental bittersweet was managed.

Recommendations:

This campground has one of the most extensive garlic mustard infestations of any of the state campgrounds and should either be annually handpulled by a large crew of people or herbicide treated in the off season, when campers are not present. Successful containment of this infestation will likely take multiple years of treatment. The owner of the private property that the infestations of garlic mustard and Japanese knotweed extend upon should also be contacted to help in the treatment of these infestations.

Offering an invasive species identification and management seminar (focused on garlic mustard) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

The Japanese knotweed infestation should be monitored annually and treated with herbicide or tarped once appropriate landowner permission is attained. Any Japanese barberry or winged burning bush plants found on the campground should be pulled if possible and hung upside down to dry and decompose. The Oriental bittersweet infestation seemed relatively small and should be treated with herbicide, if possible. The bush honeysuckle infestation is large and fairly pervasive throughout the campground; it should only be treated if adequate time and resources are available after higher priority invasives are managed.

Lake George Islands Campground

Invasive Plant Species: Not Inventoried

Recommendations:

This campground was not inventoried in 2012 because the campsites are accessible by boat only. In 2007, however, an inventory was conducted, revealing that purple loosestrife, bush honeysuckle, Japanese barberry, spotted knapweed, and multiflora rose were all found at different campsites here. Long Island was found to be infested with all five of these invasives,

while Speaker Heck Island was only found to have bush honeysuckle, purple loosestrife, and spotted knapweed, and Diamond Island had only bush honeysuckle.

These islands should be inventoried again and the invasive plants there managed, as guided by best management practices, if resources and time are available to do so. These infestations were not managed when inventoried in 2007 and likely have not been managed since.

Luzerne State Campground

Invasive Plant Species: Garlic Mustard, Bush Honeysuckle

Locations:

A single infestation of garlic mustard was found for the first time at this campground in 2012. It is located on the left hand side of the main campground road in between the “Field of Dreams” and a bridge. More specifically, it is about 20 feet past one of the speed limit 15 mph signs next to an unmarked side road.

A single honeysuckle bush was found in the day use area, but honeysuckle grows prolifically along the roadsides when approaching and after passing the “Field of Dreams.” The infestations along the roadsides are composed of many very large, tree-like bushes that would be nearly impossible to pull.

Management Totals:

No garlic mustard was pulled from the campground this year because it was not discovered until it had already gone to seed. A single honeysuckle bush was pulled from the day use area; none were pulled from along the roadside.

Recommendations:

This campground should be monitored annually in early summer to treat the current garlic mustard infestation and to monitor for any signs of new invasives to the campground. Many garlic mustard rosettes were observed; these plants need to be removed in 2013 by midsummer, before they go to seed. Since no plants were pulled in 2012, this will be a priority campground to manage during the 2013 field season.

The honeysuckle infestation here should be cut and the stumps treated with herbicide, only if time and resources allow after other, higher priority invasive species treatments have been managed.

Prospect Mountain Spoils Areas

Invasive Plant Species: Garlic Mustard, Phragmites, Bush Honeysuckle, Spotted Knapweed, Woolly Mullein

Locations:

The two Prospect Mountain Spoils Areas are located at the first side road on the left after passing the toll booth to go up the Prospect Mountain Highway. The first spoils area is off the left hand side of the side road, and had infestations of bush honeysuckle, spotted knapweed, and woolly mullein. Continuing past the turn for the first spoils area on the side road is the second spoils area, which is infested with garlic mustard, Phragmites, spotted knapweed, and woolly mullein.

Management Totals:

No garlic mustard was removed from the area, as it was not discovered until it had already gone to seed. The Phragmites infestation was mapped with a GPS and uploaded into APIPP's WIMS database. No bush honeysuckle, spotted knapweed or woolly mullein was removed.

Recommendations:

This area is heavily infested with multiple invasive plant species. The most threatening invasives (garlic mustard and Phragmites) are concentrated approximately in the same area, which is also where a Japanese knotweed infestation once existed. This area in the second spoils area was covered at some point after 2009 with a thick tarp to prevent these species from getting enough light and water to survive. This treatment has appeared to work thus far in controlling the Japanese knotweed infestation, as none was observed in 2012. The Phragmites infestation appears to have sent runners out and shot up outside the tarp, and a dense infestation of garlic mustard exists on the opposite side of this cover.

This area should be monitored/treated annually due to the current infestation of garlic mustard. In addition to the seeding plants, many garlic mustard rosettes were observed, but none were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed. The Phragmites should also be monitored annually and treated as necessary with herbicide so that the currently small infestation may be eliminated before it has a chance to spread further. This spoils area also appears to have fill piles for the Prospect Mountain highway only a few hundred yards away from the current garlic mustard and Phragmites infestations, making these high priority infestations, as contaminated fill is one of the primary ways that these invasive plants spread to new areas.

Rogers Rock State Campground

Invasive Plant Species: Garlic Mustard, Multiflora Rose, Bush Honeysuckle, Japanese Barberry

Locations:

This campground's garlic mustard infestation is one of the most extensive of any of the state campgrounds. Among the sites infested are numbers 4, 6, 7, 9, 11-17, 21-23, 30, 32, 59, 73-76, 82, 102, 113, 120, 122, 124, 134, 135, 160, 162, 164-171, 182, 184, 206, 209, 227, on top of a large rock past the bathrooms by mooring buoy 30, in a patch along the stream by sites 30 and 32. The most massive infestation exists throughout the forest and onto private property behind sites 162-170.

Multiflora rose was found scattered in a few small patches among the southern part of the campground (near sites 33, 119 and 132). Japanese barberry is also scattered in a few areas throughout the campground, specifically near sites 17 and 132. Bush honeysuckle is similarly scattered.

Management Totals:

Approximately 22 contractor garbage bags full of second year garlic mustard plants were removed from the campground, mostly from the densely infested area behind sites 162-170. Multiflora rose bushes and Japanese barberry plants were also pulled up and removed where found. No bush honeysuckle was removed from the campground.

Recommendations:

This campground should be monitored annually to treat the garlic mustard infestation within the campground, as well as the infestations of multiflora rose, Japanese barberry, and bush honeysuckle. It would be advisable to have a team or crew of workers (such as an SCA crew or APIPP's Response Team) help in the treatment of this campground in 2013, as it would take a single person multiple days to treat the garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed in 2013 by midsummer, before they go to seed. Due to the extent of the garlic mustard infestation behind sites 162-170, it would probably be best to only treat the leading edge of this infestation with hopes of containing it, at least until permission has been gained from the adjacent landowner to treat the whole area.

Scaroon Manor State Campground

Invasive Plant Species: Winged Burning Bush, Bush Honeysuckle, Japanese barberry.

Locations:

Winged burning bush is present throughout the campground, a descendent of those planted as ornamentals at the resort here in the 1940s. Bush honeysuckle and Japanese barberry also infest much of the campground.

Management Totals:

No plants were removed this year. Due to the extent of these infestations, it was deemed important to spend time and resources treating higher priority sites elsewhere.

Recommendations:

This campground should be monitored annually for signs of other invasives, such as purple loosestrife, which infested this campground as recently as 2007. If time and resources are available, treatments of the winged burning bush, bush honeysuckle, and Japanese barberry should take place, as these infestations extend far into the surrounding acreage.

Herkimer Working Circle

Alger Island State Campground

Invasive Plant Species: Not inventoried in 2012 because it is accessible by boat only.

Recommendations:

This campground should be monitored every other year, if time and resources are available, so that any new infestations of invasive plants may be treated before they develop a strong hold. It was inventoried in 2008 and no invasive plants were found.

Nicks Lake State Campground

Invasive Plant Species: Garlic Mustard, Bush Honeysuckle

Locations:

Garlic mustard is spread thoroughly throughout this campground, infesting sites 1-3, 7-21, 24, 30, 31, 33, 38-40, 42-46, 48, 52, 53, 55-57, 59, 61, 62, 64, 70, 72, 76, 83, 86, 92, 94, 101, 103-106, and 110. Bush honeysuckle was found sporadically throughout the campground, including near sites 21, 52, and 54.

Management Totals:

About 1,700 second year garlic mustard plants were pulled from the campground, comprising about 3 ½ contractor garbage bags full. Approximately 5 honeysuckle bushes were removed from throughout the campground.

Recommendations:

This campground should be monitored yearly to combat the current garlic mustard infestation and prevent new honeysuckle bushes from taking hold. It would be advisable to have a team or crew of workers (such as an SCA crew or APIPP's Response Team) help in the treatment of this campground in 2013, as it would take a single person multiple days to treat the garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed next year by midsummer, before they go to seed.

Offering an invasive species identification and management seminar (focused on garlic mustard) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

Potsdam Working Circle

Cranberry Lake Campground

Invasive Plant Species: Garlic Mustard

Locations:

Garlic mustard infestations are spread throughout this campground, infesting sites 24, 29, 31, 34, 35, 38, 39, 45, 50, 54, 64, 69-71, 80, 82, 86, 94-96, 98-101, 108, 109, 112-114, 117, 121, 124, 125, 128-132, 134-137, 140, 141, 144, 146, 148, 149, 151, 164, 170, 171, near the bathrooms in Loops I, II, III, IV, V and the Peninsula Loop. There are also a few infestations along the roadside between the Peninsula Loop and the amphitheater parking area, one is by a picnic table while the others are not near any good reference points. A few large infestations also exist in the spoils area, the trail to which is behind site 172.

Management Totals:

A total of approximately 3,000 second year garlic mustard plants were pulled and removed from the campground, comprising approximately 4 ½ contractor garbage bags full.

Recommendations:

This campground should be monitored yearly in order to combat the dense garlic mustard infestation. It would be advisable to have a team or crew of workers (such as an SCA crew or APIPP's Response Team) help in the treatment of this campground in 2013, as it would take a single person multiple days to treat the garlic mustard infestation. Many garlic mustard rosettes were observed, but not all were pulled; these plants need to be removed next year by midsummer, before they go to seed.

Offering an invasive species identification and management seminar (focused on garlic mustard) for the staff here would be useful if time and resources are available. This would increase awareness among the staff about invasive plants, and their help could contribute to the success of future management efforts at this campground.

Judging this campground strictly by the number of sites infested is misleading. Many of the sites had only a handful of plants in 2012, indicating that prior treatments may be depleting the seedbank at sites that were previously heavily infested.

Five Ponds Wilderness Area Invasive Species Prevention Zone (ISPZ) Survey

In 2011, the Five Ponds Wilderness Area was designated as the APIPP's first Invasive Species Prevention Zone (ISPZ). An ISPZ is a designation for a large, in-tact, natural area that is dominated by native species and natural communities and where prevention of invasive species spread is likely. By delineating Invasive Species Prevention Zones, land managers can maximize limited staff, equipment, and funding resources by focusing on sites that are relatively free of invasive species, have high ecological value, and thus are most likely to yield successful prevention and management results. The APIPP staff and its Terrestrial Invasive Species Regional Response Team conducted a preliminary survey of the roads, trails, and trailheads bordering or intersecting the Five Ponds ISPZ in 2011; however, not all sections of these trails and roads were able to be surveyed. In 2012, the remaining sections were surveyed by Dan Dohman (DEC's Invasive Species Control Intern), Sarah Walsh (APIPP's 2012 Summer Educator), and Amy Ignatuk (the Adirondack Chapter of The Nature Conservancy's Conservation Intern) over a three day period in August. Through these surveys, infestations of wild parsnip (*Pastinaca sativa*), common chicory (*Cichorium intybus*), white sweet clover (*Melilotus alba*), spotted knapweed (*Centaurea biebersteinii*), purple loosestrife (*Lythrum salicaria*), Oriental bittersweet (*Celastrus orbiculatus*), garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), mugwort (*Artemisia vulgaris*), Japanese knotweed (*Polygonum cuspidatum*), and common reed grass (*Phragmites australis*) were documented and mapped using APIPP's Weed Information Management System (WIMS) database. Priority infestations documented through these surveys will be managed by the APIPP in coming years.

Ausable River and Japanese Knotweed Inventory

After hurricane Irene hit the Northeast in August 2011, there was much concern among invasive species managers that populations of Japanese knotweed and common reed grass, that had already been established in riparian corridors prior to the storm, would spread significantly due to the amount of flood disturbance. Japanese knotweed and common reed grass both spread easily by stem fragmentation; therefore, flood waters can easily spread these fragments for miles downstream of an infestation. Several Japanese knotweed infestations had been documented, mapped, and occasionally managed along the banks of the Ausable River in the years prior to hurricane Irene. Because of this, an inventory of these stream corridors after the storm was deemed necessary in order to ensure that no new infestations were beginning to establish. The East branch of the Ausable River was inventoried during the month of August from the Village of Keene to Ausable Forks. Twenty-three infestations were documented and mapped along this

section of river. Several of the infestations were new occurrences as of 2012 and are suspected to have become established after hurricane Irene. Following this initial inventory, APIPP's Terrestrial Invasive Species Regional Response Team managed several of these new infestations. The APIPP plans to manage all of the existing Japanese knotweed infestations along this stretch of river in the coming years.