

APIPP HIGHLIGHTS

# 2021 APIPP HIGHLIGHTS

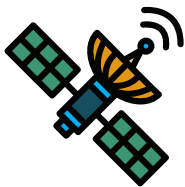
## ADIRONDACK PARK INVASIVE PLANT PROGRAM 2021 HIGHLIGHTS

More than 30 organizations and 100 volunteers share their ideas, time, and resources to advance the mission of the Adirondack Park Invasive Plant Program (APIPP). Together, as these highlights of our collaborative 2021 work show, we are making major advances in reducing the threats invasive species pose to the Adirondack region. Thank you!



BY: APIPP STAFF

## INNOVATION AND PARTNERSHIPS



**APIPP IS COLLABORATING** with the City University of New York (CUNY) Advanced Science Research Center to remotely detect hemlock woolly adelgid (HWA) using freely available remote sensing data.

**IN PARTNERSHIP** with the Lake George Land Conservancy, Adirondack Mountain Club, Capital Region PRISM, iMapInvasives, and the New York State (NYS) Hemlock Initiative at Cornell University, APIPP expanded its volunteer HWA monitoring program and volunteers surveyed over 100 trails in the Lake George region.

**FRIENDS OF MOODY POND** in Saranac Lake became the seventh lake association to work with APIPP's Lake Management Tracker program to assess the effectiveness of efforts to control Eurasian watermilfoil.

**THANKS TO PARTNERSHIPS** with private and nonprofit landowners, APIPP established five long-term study sites to monitor ash trees for resistance to emerald ash borer, with the hope of finding resistant trees for future plant breeding programs.

## AQUATIC INVASIVE SPECIES DETECTION



**VOLUNTEERS, PARTNERS, CONTRACTORS AND STAFF** submitted a near-record number of 131 monitoring reports for 110 lakes.

**AQUATIC INVASIVE PLANTS** were found in two new lakes and additional plant species were identified in two already-invaded lakes. The percentage of lakes with aquatic invasive species (AIS) observed was 22.7%, which is lower than the five-year average.

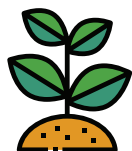
**NO NEW INFESTATIONS** of invasive small-bodied aquatic organisms were found.

**OVER 75% OF THE 463** Adirondack waterways monitored over the last 20 years are AIS free!

110 LAKES  
WITH AIS  
PRESENT

75% OF  
LAKES ARE  
FREE OF AQUATIC  
INVASIVE  
SPECIES

## TERRESTRIAL INVASIVE SPECIES DETECTION



**STAFF, PARTNERS, VOLUNTEERS AND CONTRACTORS** surveyed 38 NYS Department of Environmental Conservation (NYSDEC) campgrounds, over 130 recreational access points (such as trailheads and boat launches), sections of over 30 Forest Preserve units, and part or all of over 40 state and county road corridors.

**APPROXIMATELY 460 NEW** terrestrial infestations were found, bringing the total number of mapped infestations in the Adirondack region to 6,478.

**TWO NEW INFESTATIONS** of emerald ash borer were confirmed within the Adirondack Park; one was identified via APIPP's trapping efforts and one was reported by a concerned landowner.

**APIPP STAFF, CONTRACTORS AND VOLUNTEERS** surveyed more than 550 sites for HWA.

## INVASIVE SPECIES MANAGEMENT



**APIPP MANAGES** 13 terrestrial species and has 860 infestations under active management.

**THANKS TO A REPORT FROM A PRIVATE LANDOWNER**, APIPP was able to identify and treat the first known infestation of Japanese stiltgrass in the Adirondack Park.

**MANAGEMENT EFFORTS ARE WORKING!** Garlic mustard abundance at NYSDEC campgrounds in the Adirondacks has decreased by 78% since management efforts began, and the species has been locally eradicated from six campgrounds.

**APIPP DOCUMENTED** the absence of terrestrial invasive species for three or more years at 947 sites, and for at least one year at 537 sites. In total, 76% of APIPP's priority terrestrial invasive species infestations are currently under active management or have been successfully removed.

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

- Eurasian watermilfoil: 15+ lakes
- Variable-leaf watermilfoil: 5 lakes
- Water chestnut: 3 lakes
- European frog-bit: 2 lakes
- Zebra mussels: 1 lake

## PREVENTION, EDUCATION & OUTREACH



**APIPP RAISED AWARENESS ABOUT INVASIVE SPECIES** identification, prevention, and management by partnering with more than two dozen organizations to deliver 31 presentations that reached nearly 1,700 people. APIPP was mentioned in 26 print, digital, radio or television news stories and our social media presence expanded.

**APIPP'S NEW "PROTECT YOUR FORESTS" AND "PROTECT YOUR WATERS"** outreach materials were provided to over 100 businesses and organizations and the posters and brochures are available at more than 250 locations.

**NEW BOOT BRUSH STATIONS** were installed at preserves owned by The Nature Conservancy and APIPP developed two new boot brush stations for the Ausable River Association.

**THE ADIRONDACK WATERSHED INSTITUTE (AWI)** of Paul Smith's College is an important spread-prevention partner. AWI staffed 44 locations with trained stewards who educated boaters and inspected a total of 84,817 boats.

# SPECIAL INITIATIVES

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

## SPOTTED LANTERNFLY AND TREE-OF-HEAVEN



TREE-OF-HEAVEN LEAF. BY: APIPP STAFF

**TREE-OF-HEAVEN** (*Ailanthus altissima*) is a rapidly growing deciduous tree that can reach 80 feet in height. This tree's rapid growth, coupled with its prolific seed production and ability to sprout suckers from its roots, allow it to outcompete native species for space and resources. It also exudes chemicals from its roots that can suppress the growth of surrounding plants. In addition to being an invasive species itself, tree-of-heaven is the preferred host plant for the invasive spotted lanternfly (*Lycorma delicatula*).

The spotted lanternfly feeds on more than 70 host species and can damage agricultural crops such as grapes and hops and trees such as sugar maple. The insects suck sap from stems and branches which can weaken and damage the plant. The feeding also leaves behind a sticky substance (honeydew) that can form sooty mold and further damage crops.

Fortunately, spotted lanternfly has not yet reached the Adirondacks. We do, however, have several populations of tree-of-heaven. APIPP ranks the tree as a "Tier 2" species (see page 23), which means—based on current knowledge—that eradication from our region is possible.

To protect our region from the threat of these two invasive species, landowners in the PRISM known to have tree-of-heaven on their property were contacted by APIPP in 2021 with an offer to manage this species at no charge. If a landowner responded, APIPP deployed its early detection and rapid response (EDRR) crew to manage the tree-of-heaven. In one case, an arborist was hired to remove a large tree. Treated sites will be monitored annually, and landowners who did not respond will be contacted again in 2022.



SPOTTED LANTERNFLY. BY: LAWRENCE BARRINGER, PA  
DEPARTMENT OF AGRICULTURE, BUGWOOD.ORG



## HEMLOCK WOOLLY ADELGID

**HWA (*ADELGES TSUGAE*) IS A SMALL INSECT** that poses big risks to Adirondack hemlock trees. APIPP is working to address this threat with the help of remote sensing and citizen scientists.

### SURVEYING WITH SATELLITES AND AIRPLANES

**NEW YORK (NY)** has a greater abundance of eastern hemlock (*Tsuga canadensis*) than any other state in the continental US. In parts of the Adirondacks, such as the southeastern region around Lake George, hemlock comprises over 80% of forest cover. So how do we find such a small insect across an expansive landscape filled with hemlock trees? The answer may be over our heads.

APIPP is collaborating with CUNY's Advanced Science Research Center to remotely detect HWA using freely available remote sensing data. While airplanes and satellites cannot detect the insect itself, they can be used to detect changes in tree health that may be associated with HWA presence. This information can help APIPP more strategically deploy on-the-ground surveyors and expand early-detection efforts.

The CUNY team, led by Dr. Andrew Reinmann, is assessing the use of Landsat and Sentinel satellites and NYS Orthoimagery to detect changes in "greenness" of target hemlocks. By calculating normalized difference vegetation index (NDVI) for hemlock forests over multiple years, the team can assess changes in greenness (aka health) of the resource. Stands with a slow, yet significant decline in greenness/health, may indicate presence of HWA and warrant ground surveys (Figure 1).

The research team used field data collected by APIPP and partners in 2020-2021 to further refine the assessment algorithm. In addition, CUNY researcher Dr. Kyle McDonald is working to incorporate synthetic aperture radar (SAR) data into the algorithm. APIPP is optimistic this combined dataset will facilitate more efficient deployment of staff and citizen scientists, ultimately improving opportunities for HWA early detection and treatment intervention.

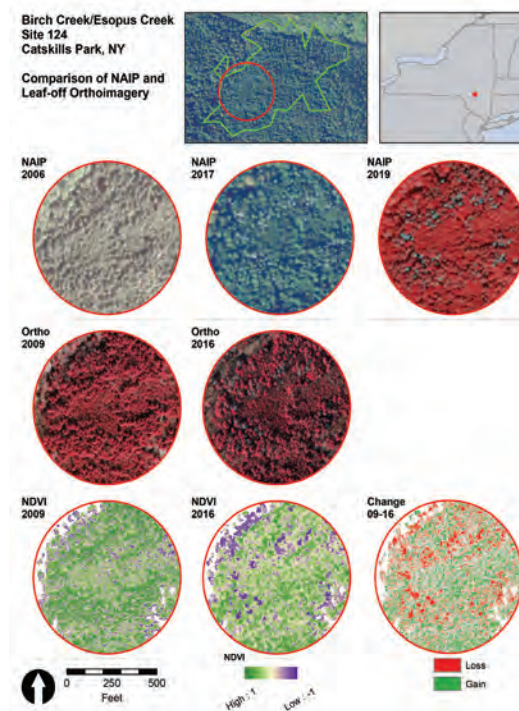


FIGURE 1. EXAMPLE OF REMOTE SENSING DATA.  
BY: J. BOWERS & A. REINMANN, CUNY ADVANCED  
SCIENCE RESEARCH CENTER



VOLUNTEER SURVEYING FOR HWA IN THE LAKE  
GEORGE WATERSHED. BY: KATHY WELCH

### VOLUNTEER FOREST PEST HUNTERS

**APIPP PILOTED A COLLABORATIVE**, citizen-science effort to search for HWA infestations in the Lake George watershed. Partners from the Lake George Land Conservancy, Adirondack Mountain Club, Capital Region PRISM, iMapInvasives, and the NYS Hemlock Initiative at Cornell University helped recruit and train volunteers in how to search for HWA and track their findings.

The program kicked off with an HWA identification webinar in February. A follow-up workshop in March provided more detail for volunteer surveyors. APIPP developed an interactive webmap to enable these citizen scientists to adopt priority trails in the Lake George watershed to survey. The adoption map provided a way for volunteers to select where they would survey and showed regions that needed more attention. The interactive map was so successful that it was adapted for APIPP's summer Lake Protector program.

The pilot program was a resounding success! A total of 26 individuals adopted 102 trails in the Lake George region and uploaded over 150 "not-detected" observations for HWA into iMapInvasives.

## LAKE MANAGEMENT TRACKER AT MOODY POND



FRIENDS OF MOODY POND MEMBERS PROMOTING THEIR FUNDRAISING CHALLENGE. BY: FRIENDS OF MOODY POND, SARANAC LAKE, NY

**MANAGING INVASIVE SPECIES** can often feel like an impossible task with the arrival of new invasive species and the challenge of removing existing invaders. It is important to be reminded of success stories and of communities taking positive steps to reduce the negative impacts of invasive species. A great example of this is the work of a small community in Saranac Lake, NY, on Moody Pond.

In 2018, a local citizen scientist, Margaret Worden, discovered Eurasian watermilfoil (*Myriophyllum spicatum*) in the pond while volunteering for the APIPP Lake Protector program. In 2019, APIPP helped map the infestation; fortunately, Margaret found the milfoil early and only a small population had established.

The community joined together in 2020 to form Friends of Moody Pond (FMP) and to fundraise to remove the invasive milfoil. FMP raised enough money to hire a crew to hand harvest the milfoil in 2021. A team of FMP volunteers participated in the APIPP Lake Management Tracker program, which helps lake associations monitor the effectiveness of milfoil removal.

Early results indicate management is moving in the right direction. With an additional harvest planned for 2022, it is hoped that the milfoil population can be kept in check and will not negatively impact the pond.

"We've been incredibly impressed with the level of commitment from pond neighbors, the wider Saranac Lake community, and locally-based organizations such as APIPP to work collaboratively on tackling this invasive species challenge," noted FMP Board President Heidi Kretser.

This is a great model for how a small group of committed community members can work together to reduce the impact of invasive species. APIPP extends its appreciation to FMP for being a great partner and for being an active steward of Moody Pond.

## KNOTWEED MANAGEMENT PARTNERSHIP

**THE KNOTWEED MANAGEMENT PARTNERSHIP** helps expand APIPP's knotweed (*Reynoutria japonica*, *Reynoutria sachalinensis*, and *Reynoutria x bohemica*) control efforts. APIPP's involvement with this program began in 2020 when it assumed management of the former Regional Inlet Invasive Plant Program (RIIPP) and adapted the program to also meet TNC's goals.

The objective of the partnership is to reduce the severity of knotweed infestations in ecologically sensitive areas by assisting landowners with herbicide treatment for several years until they can control the infestation on their own. This is a volunteer-led program. Volunteers identify knotweed locations, secure indemnification forms and treatment permissions from landowners, and provide information about how to slow the spread of invasive species.



FOLIAR SPRAY TREATMENT OF KNOTWEED SPP. BY: APIPP STAFF

In 2021, volunteers helped obtain approximately 85 private landowner and municipal permission forms. APIPP contracted with a certified pesticide applicator to treat these priority areas, and a total of 117 sites were managed. An additional 15 sites were surveyed and found to no longer have knotweed present.



## EMERALD ASH BORER RESPONSE

**EMERALD ASH BORER** (*Agrilus planipennis*) feeds on and eventually kills native ash trees (*Fraxinus spp.*). Ash species are a valuable component of our Adirondack forests. Ash seeds are a food source for birds and mammals. The wood is used for baseball bats, flooring, furniture, and lumber. Some species of ash are also used in crafting traditional Adirondack pack baskets.

In response to the 2020 discovery of the first emerald ash borer finding in the Adirondack Park (Warren County), APIPP set up five emerald ash borer traps in 2021 to help determine the extent of this infestation. Four traps were placed around the initial site, one in each cardinal direction: to the north, the NYSDEC Camp Cayuga, part of the Scaroon Manor Campground; to the west, Riparius Bridge; to the east, Amy's Park; and, to the south, the Warren County Fish Hatchery. A fifth trap was deployed at TNC's Boquet River Nature Preserve in Willsboro.

Traps were in place from June to October, and each trap was equipped with Manuka oil and hexanol lures which were changed every four weeks. Traps were checked every two weeks and the insects collected were sent to the NYSDEC Forest Health Diagnostic Lab for species identification. Trapping resulted in four positive identifications of emerald ash borer at Amy's Park in Bolton Landing. All other traps were found to be free of this pest.

In addition to our trapping efforts, five Monitoring and Managing Ash (MaMA) plots were established following the protocol developed by the Ecological Research Institute. MaMA plots are placed in naturally occurring native ash stands and the plots are monitored annually for ash trees that remain healthy when surrounding trees are killed by emerald ash borer. The hope is that healthy trees ("lingering ash") can someday be used to breed genetically resistant ash trees.



EMERALD ASH BORER TRAP AT TNC'S BOQUET RIVER NATURE PRESERVE. BY: APIPP STAFF

## INVASIVE JUMPING WORMS



SURVEYING FOR JUMPING WORMS. BY: APIPP STAFF



**JUMPING WORMS** (*Amynthas spp.* and *Metaphire spp.*) are invasive earthworms from Asia that threaten forests, gardens, and landscapes. As their name implies, they can be identified by rapid, jerking or "jumping" movements. In addition, they have a milky white band around their body (the clitellum), a feature that distinguishes them from European earthworms.

Jumping worms reproduce quickly, forming dense populations that can negatively alter soil structure and chemistry. They strip the soil of nutrients and expel abundant castings that give the soil a loose, coffee ground-like appearance. Jumping worms can damage plant roots and reduce the diversity and productivity of forest systems. Humans assist in the expansion of the range of this species by inadvertently transporting jumping worms on plants or in soil, compost or mulch. Once established, there are no known controls for this species.

The first confirmed observation of jumping worms in the Adirondack PRISM was reported to iMapInvasives in August 2019; however, unconfirmed reports date back to 2017. In 2021, APIPP launched the first targeted survey effort for this species to better understand its regional distribution. Staff surveyed high-priority locations (such as trailheads and campground waste areas) near previously documented jumping worm infestations. Surveys were also performed opportunistically along roadsides and at private properties in response to public reports.

APIPP staff completed 71 surveys across seven counties. Staff documented invasive jumping worm absence at 62 locations and confirmed its presence at nine sites, including two first-in-county records (Franklin County and Hamilton County). An additional 12 "detected" and four "not-detected" records were submitted by citizen scientists. Knowing where jumping worms are present is critical to helping prevent the spread of this invasive species.