

Catskill Regional Invasive Species Partnership 2023 Annual Report



**INVASIVE SPECIES
MANAGEMENT**
CATSKILLS



CATSKILLCENTER
conservation creates opportunity

Catskill Regional Invasive Species
Partnership

Catskill Center

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Ashokan Rail Trail Volunteer Workday May 11th.

Executive Summary

The Catskill Regional Invasive Species Partnership (CRISP) had a very successful year in invasive species management and outreach in 2023. CRISP surveyed 6,229 acres of waterbodies and uplands and led 46 outreach events for 1,135 participants. Two new invasive species were found in CRISP, brittle naiad (*Najas minor*) and elm zigzag sawfly (*Aproceros leucopoda*). A number of new infestations of CRISP Tier 2 species were found including European frogbit (*Hydrocharis morsus-ranae*), winter creeper (*Euonymus fortunei*), Japanese hops (*Humulus japonicus*), and mile-a-minute (*Persicaria perfoliata*).

In 2023, CRISP led a total of 46 outreach events for 1,135 participants, including programs for both terrestrial and aquatic invasive species, reporting invasive species through iMapInvasives and best management practices for invasive species treatments.

CRISP identified Invasive Species Prevention Zones, high value conservation areas that lack invasive species, and surveyed 1,738 acres of those zones. Alexa Tumbarello was hired as the Volunteer and Outreach Coordinator and worked to build the CRISP volunteer program. A CRISP Cooperation Agreement was developed by the CRISP Steering Committee and seven Partners signed the agreement to support invasive species management in the Catskills region. Two subcontracts were awarded through the CRISP 2023 Request For Proposals, one to the Canadarago Lake Improvement Association (CLIA) to support the CLIA Watershed Stewards Program and one to the Otsego County Conservation Association to support the Otsego County Aquatic Invasives Rapid Response Team.

Dedication

We were sorry to lose Ian Dunn (1980-2023) and hope to honor his memory by carrying on his legacy of love and dedication to stewarding the Catskills.



Ian Dunn leading a public program.

Acknowledgements

The bulk of Catskill Regional Invasive Species Partnership funding was provided from the Environmental Protection Fund as administered by the New York State Department Conservation. Additional funding was provided by the New York City Department of Environmental Protection to support volunteer engagement in invasive species management on the Ashokan Rail Trail

Introduction

The Catskill Regional Invasive Species Partnership (CRISP), hosted by the Catskill Center, coordinated and collaborated with state agencies, local governments, for-profit organizations and nonprofit organizations on a regional scale. CRISP also worked with other Partnerships for Regional Invasive Species Management (PRISM) in adjacent regions and throughout New York State. The CRISP Strike Team surveyed a total of 6,229 acres of waterbodies and uplands and managed a total of 52.7 acres. The area surveyed was an increase of 60% over 2022 while the area managed was down 60% from 2022. In 2023, CRISP led a total of 46 outreach events for 1,135 participants, including twenty-three trainings for 224 people.

During the summer, potential Invasive Species Prevention Zones were identified and 1,738 acres were surveyed. This project was presented as a poster during the New York State Invasive Species Expo in Saratoga Springs.

In October, Alexa Tumbarello joined the Catskill Center staff as Volunteer and Outreach Coordinator.

A CRISP Cooperation Agreement was developed by the CRISP Steering Committee and signed by seven partners by the end of the year.

New CRISP Staff

Alexa Tumbarello joined the CRISP staff, as half-time Volunteer and Outreach Coordinator, on October 2nd. Alexa studied environmental science in college and comes to us with experience in conservation, higher education, public relations, communications, photography and digital strategy.



Alexa Tumbarello, Volunteer and Outreach Coordinator.

Prevention

Boot brush stations were built at two trailheads along the Ashokan Rail Trail, one at the Woodstock Dike trailhead and the other at the Ashokan Station trailhead. Signage was designed that highlighted jumping worm, Japanese barberry, Japanese stiltgrass and Asian bittersweet as invasives that could be moved on shoes. Boot brushes have been shown as effective in slowing the spread of some invasive species and also provide the benefit of raising awareness about invasives. CRISP staff are exploring partnerships and support for building more boot brush stations that will help protect vulnerable sites.



Example of boot brush station sign installed at Ashokan Rail Trail.

The CRISP region is biologically diverse, supporting 70 New York State rare (S1 and S2) species and 11 state rare ecological communities. Recognizing this, CRISP Partners discussed methods to protect this biodiversity and the creation of Invasive Species Prevention Zones (ISPZ's) was proposed as a strategy to protect areas of high conservation value. Areas will be identified that would be targeted for surveys and spread prevention techniques. Methods to identify ISPZ's were discussed at the May 16 Partners Meeting. The criteria selected included the following: lack of invasive species (from iMapInvasive records), rare species and rare ecological communities (from New York Natural Heritage data), first growth forest (from Michael Kudish

records), unfragmented forest blocks (NY Natural Heritage Program and The Nature Conservancy), New York regulated freshwater wetlands (NYS DEC), and protected land (New York Protected Areas Database). Through an ArcGIS analysis, areas greater than 30 acres were identified as potential ISPZ's and would be targeted for ground-truthing to determine the suitability of this designation. A total of 2,350 acres were identified as having high conservation value and few or no invasive species.

The CRISP team has completed assessment of 1,738 acres of these ISPZ sites and have selected 20 trailheads to trails nearing or intersecting with the ISPZ's for bootbrush and signage installation.

During the 2023 season, 6 areas, totaling over 1000 acres, were surveyed with no invasive species found in those areas.

Early Detection Rapid Response and Control

During 2023, the CRISP Aquatic and Terrestrial Strike Teams surveyed a total of 6,229 acres of waterbodies and uplands and managed a total of 52.7 acres. The area surveyed was an increase of 60% over 2022 while the area managed was down 60% from 2022. Some of the decline in area managed is due to success of management over time - a resulting decrease in the coverage of the managed species. Two new invasive species were found in CRISP during 2023, brittle naiad (*Najas minor*) and elm zigzag sawfly (*Aproceros leucopoda*).



Bea Moss pulling water chestnut at Stump Lot.

The CRISP Aquatic Invasive Species (AIS) 2023 season kicked off in May and ended in September. The Aquatic Strike Team surveyed a total of 3,568 acres of lakes and ponds and 50 miles of river and creeks. Working with our partners we managed to pull hundreds of pounds of invasive plants this season and were thrilled to find little to no water chestnut at several sites we've previously managed. The

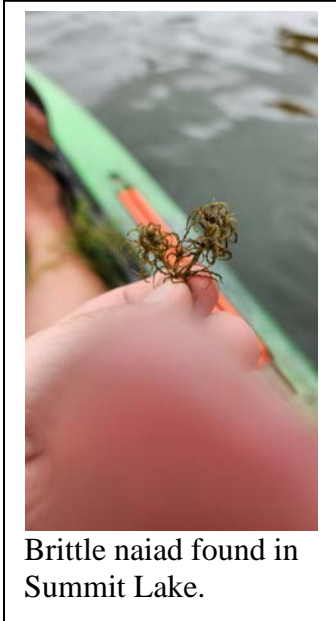
team focused on pulling invasive water chestnut (*Trapa natans*), European frogbit (*Hydrocharis morsus-ranae*), and Yellow-floating heart (*Nymphoides peltata*) at several sites in CRISP.

The CRISP Aquatic Strike Team managed a total of 46 acres of frogbit at three sites and 0.5 acres of yellow floating heart at one site. Working with our partners at the Otsego County Conservation Association (OCCA) the CRISP AIS team managed frogbit again this year at Clarke Pond in Otsego County and we're happy to say that no frogbit has been found in Otsego Lake. However, this year marks the most we've seen below the Clarke Pond dam in Cripple Creek, a direct tributary to Otsego Lake, pulling over

80 plants in one day. We will continue to work with OCCA to pull frogbit in Clarke Pond, however, frogbit continues to spread in the Upper Susquehanna Watershed. Frogbit was found in Summit Lake for the first time this August, a small lake connected to Otsego Lake by Hayden Creek. There are now two sources of frogbit directly connected to Otsego Lake, the headwaters for the Susquehanna Watershed. We will continue to address frogbit in the Susquehanna Watershed in 2024 and beyond.

Our partners at OCCA also helped the CRISP AIS team to manage approximately one-half acre of yellow floating heart in a small pond in Schoharie County. This is the first detection of yellow floating heart in CRISP and is a high priority species for management. The yellow floating heart created a monoculture in the one-acre pond, though it seems to be contained as it has not been found downstream or in the surrounding area. Yellow floating heart is difficult to remove due to its extensive rhizome system, but CRISP and OCCA will continue to remove it with eradication as our goal. The CRISP team is currently working to control or eradicate water chestnut at nine sites and removed water chestnut over 184 acres. We are happy to report that water chestnut was not detected at four of our nine sites by the end of the season after repeated removals and surveys. Two sites were recent introductions and only 2-3 plants were found and removed. Continued monitoring is needed to prevent any regrowth as nutlets can stay in the seed bank for over a decade, but we are well on our way to eradicating water chestnut at these sites.

We have worked with our partners at the Canadarago Lake Improvement Association (CLIA) to conduct monthly plant surveys looking at the growth of invasive starry stonewort (*Nitellopsis obtusa*) around the lake and monitor for highly invasive hydrilla (*Hydrilla verticillata*). Stewards at the Canadarago Lake public boat launch detected hydrilla on a boat trailer late last year and it was feared that it had been introduced to the lake. No hydrilla was detected in the lake in 2023 and we will continue to work with CLIA to monitor existing invasive species and new introductions.



Brittle naiad found in Summit Lake.

The CRISP AIS Strike team found brittle naiad for the first time in CRISP this September. While new to CRISP, brittle naiad has been found in surrounding PRISMs and has been in NY since the 1930s. Like many aquatic invasive plants, it spreads easily through fragmentation and can grow densely in shallow areas, competing with native naiads and other aquatic plants and impeding recreation.

The CRISP terrestrial invasive species team surveyed 2,661 acres, found 19.9 acres of target invasive species, and managed 6.7 acres of target invasive species. Overall, we are finding most sites reducing in size: Managed giant hogweed (*Heracleum mantegazzianum*) sites have shrunk by 78% since last year, and managed mile-a-minute vine (*Persicaria perfoliata*) sites have shrunk by 52.3% since last year.

One new forest pest was reported in CRISP for the first time, elm zigzag sawfly (*Aproceros leucopoda*). EZS was reported in Mt. Tremper in July. Elm zigzag sawfly was reported in a number of new locations throughout New York State in 2023. A second forest pest, beech leaf disease (*Litylenchus crenatae* ssp. *mccanni*) also has spread quickly through the CRISP region. In 2022, BLD was only reported in Sullivan County, by the end of 2023, BLD had also been found in Delaware, Ulster, and Greene Counties. BLD has not yet been reported in Otsego or Schoharie Counties.

The CRISP team discovered an infestation of winter creeper (*Euonymus fortunei*) in Callicoon, only the second winter creeper site in CRISP. Several new sites of other tier 2 species were also confirmed by CRISP staff and Partners: 1 new Japanese hops (*Humulus japonicus*) infestation, spreading from upstream infestations; 3 new Mile-a-Minute Vine sites were found as well.

CRISP participated in an experimental release of *Hypena opulenta*, a biological control for both pale and black swallowwort, two very aggressive invasive twining vine species. 40 pupae were released at a large infestation of pale swallowwort,

and at least 4 adult moths successfully emerging were documented. Unfortunately, as the release and study progressed, very little herbivory of the moths on the vines was documented, and it is unlikely that the moths were able to establish.

The long-term survey and management of DEC campgrounds within the Catskills Park targeting Japanese barberry (*Berberis thunbergii*), Asian bittersweet (*Celastrus orbiculatus*), and Japanese knotweed (*Reynoutria japonica* var. *japonica*) continued into its 5th year. Populations of all plants continue to shrink, with some parks nearing eradication of all three.



Elm zigzag sawfly, iNaturalist.

Catskill Center staff and volunteers performed invasive species and restoration management along the Ashokan Rail Trail (ART) corridor. A number of Catskill Center staff participated in the project, including the Catskill Regional Invasive Species Partnership Director, Volunteer and Outreach Coordinator, and three members of the CRISP seasonal invasive species strike team.

During this project, 16 vistas on the west end of ART were targeted for monitoring, invasive species removals, and native plantings (see map <https://arcg.is/154za00>). Removals at each of the vistas generally focused on vines and shrubs that could block the view from the vista. Invasive species removed included Asian bittersweet (*Celastrus orbiculatus*), bush honeysuckles (*Lonicera* spp.), multiflora rose (*Rosa multiflora*), Japanese barberry, border privet (*Ligustrum obtusifolium*), autumn olive (*Elaeagnus umbellata*) and Japanese knotweed. In addition, several small black locust (*Robinia pseudoacacia*) saplings were removed within vistas to prevent them from obscuring the view.

During the workdays, volunteers were taught how to identify each of the invasive species in the vistas and how to best manage them. Native plants were planted in bare areas of soil. The Catskill Regional Invasive Species Partnership provided most of the tools during the season. As a result of this project, over 8,000 square feet of invasive plant cover was removed from the vistas. 32 volunteers contributed a total of 215 volunteer hours, an 80% increase over the 2022 effort.



Callicoon Riverside Park Volunteer Workday July 8th.

The Sullivan County Planning Department is working to develop Callicoon Riverside Park, in Callicoon, and approached CRISP to develop an invasive species management plan in anticipation of the development of the park. CRISP staff surveyed and mapped invasive species at the site. Twelve invasive plants were

identified on the site and one invasive animal, jumping worms. Invasive species management strategies at this park were made that focused on the goal of creating and maintaining a usable public park. CRISP is working with Partners to implement the invasive species management plan. In addition, this project uses the presence of invasive species as an opportunity for public engagement and outreach. CRISP, Sullivan County Center for Workforce Development, Sullivan Renaissance, Friends of

the Delaware River, and Catskill Mountainkeeper collaboratively did outreach to members of the public, interns, and others about invasive species. These partners will also co-host volunteer workdays to help manage the invasive species on-site.

Three volunteer workdays were led at Callicoon Riverside Park for 17 volunteers. During each workday, volunteers were trained to use iMapInvasives, identify invasive species on the site, and use best management practices to remove invasive species. Upland woods were identified that were the target of the volunteer workdays. Japanese barberry, bush honeysuckle and multiflora rose were removed from the forests. In addition, Dan led a forest pests and iMapInvasives webinar for the Upper Delaware River Conservation Corps.

Mountain Top Arboretum continued treating white ash against emerald ash borer in coordination with Mark Whitmore of the New York State Hemlock Initiative. In addition, the arboretum is treating lesser celandine, Japanese barberry, burning bush, bush honeysuckles, multiflora rose and marsh thistle.

CRISP staff surveyed a property owned by the Onteora Club during the summer of 2023 and mapped 1.2 acres infested with invasive species. Eight different invasive species were identified and recommendations were made to the club to manage and slow the spread of invasive species on their property.

Restoration



Volunteer planting a native shrub on Ashokan Rail Trail, Kristen Artz.

A Native Planting Working Group was formed by John Thompson and Sarah Coney with members from Mountain Top Arboretum, SUNY Oneonta, NYS DOT, and Delaware County Soil and Water Conservation District. We've developed a "Plant Native!" Webpage (www.catskillinvasives.com/plant-native) to highlight the importance of native plants and provide resources for people considering planting natives.

Two acres of restoration projects were maintained at Thorn Preserve and the Catskills Visitor Center. Additionally in 2023, a total of 38 native plants were planted at vistas along the Ashokan Rail Trail, to minimize erosion of exposed soils after invasive species removals. Native plants included 21 lowbush blueberry (*Vaccinium angustifolium*), 15 sweet fern (*Comptonia peregrina*), and two bush honeysuckle (*Diervilla lonicera*). Native plants were planted at five different vistas (Vista 2, 3, 5, 7 and 15, see <https://arcg.is/154za00>). For

each native shrub that was planted wire mesh was staked around each plant to protect the plant from deer browse. After planting, each plant was watered regularly by either a volunteer or staff to help the plants better establish.

Awareness

In 2023, CRISP led a total of 46 events for 1,135 participants. Twenty-three trainings were offered for identification, reporting, early detection, control, and prevention of invasive species (Table 1). Of the trainings, 14 (for 69 participants) included instruction on iMapInvasives. Four of the trainings, offered for 115 people, primarily focused on aquatic invasives; while 19 trainings, for 109 people, primarily focused on terrestrial species. Other CRISP outreach programs raised awareness about spotted lanternfly, beech leaf disease, jumping worms, and other emerging species (Table 2). Programming was offered both remotely and in-person during the year. The most popular program was the Aquatic Invasive Species presentation by Sarah to the Burke School, with 108 participants.

Table 1. CRISP 2023 Trainings.

| Date | Title | Location | iMap | Terrestrial or Aquatic | # of Participants | # of Hours | Total Hours |
|------|---|---------------------------|------|------------------------|-------------------|------------|-------------|
| 5/13 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 3 | 5 | 15 |
| 5/18 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 2 | 5 | 10 |
| 5/20 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 1 | 5 | 5 |
| 5/21 | CRISP WSP Training | BFS Thayer Farm Boathouse | N | A | 25 | 1 | 25 |
| 5/22 | CRISP WSP Hands-on Training | BFS Thayer Farm Boathouse | N | A | 30 | 2 | 60 |
| 5/23 | CRISP WSP Hands-on Training | BFS Thayer Farm Boathouse | N | A | 30 | 2 | 60 |
| 5/24 | CRISP WSP Hands-on Training | BFS Thayer Farm Boathouse | N | A | 30 | 2 | 60 |
| 5/25 | Bike Tour & Invasive Species Scavenger Hunt | Ashokan Rail Trail | N | T | 3 | 5 | 15 |

| | | | | | | | |
|------|--|------------------------------|---|---|----|------|------|
| 5/27 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 3 | 5 | 15 |
| 6/4 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 2 | 5 | 10 |
| 6/6 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 3 | 5 | 15 |
| 6/7 | Invasive Plant ID, BMP's | Catskills Visitor Center | N | T | 22 | 6 | 132 |
| 6/9 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 3 | 5 | 15 |
| 6/11 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 15 | 5 | 75 |
| 6/11 | Beech Leaf Disease & Spotted Lanternfly Training | Zoom | Y | T | 3 | 2.5 | 7.5 |
| 6/14 | Invasive Plant ID & iMapInvasives Training | Catskills Visitor Center | Y | T | 10 | 3 | 30 |
| 6/15 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 3 | 5 | 15 |
| 6/17 | Invasive Plant ID, iMapInvasives & BMP's | Ashokan Rail Trail | Y | T | 3 | 5 | 15 |
| 6/26 | Forest Pests and iMapInvasives | Webinar | Y | T | 7 | 3 | 21 |
| 7/8 | Invasive Plant ID, iMapInvasives & BMP's | Callicoon Riverside Park | Y | T | 11 | 5 | 55 |
| 7/29 | Backyard Invasives ID | Ashokan Watershed Conference | N | T | 9 | 0.75 | 6.75 |
| 8/19 | Invasive Plant ID & BMP's | Callicoon Riverside Park | N | T | 2 | 3 | 6 |

| | | | | | | | |
|--------------|---------------------------|--------------------------|---|---|------------|---|---------------|
| 8/26 | Invasive Plant ID & BMP's | Callicoon Riverside Park | N | T | 4 | 3 | 12 |
| TOTAL | 23 | | | | 224 | | 680.25 |

Table 2. CRISP 2023 General Programs

| Date | Title | # Participants |
|--------------|--|----------------|
| 2/22 | CRISP Partners Virtual Meeting | 24 |
| 2/23 | Riparian Buffer Working Group Meeting | 37 |
| 3/24 | Burke School AIS Presentations | 108 |
| 4/15 | Tabling at OCCA Earth Fest | 83 |
| 4/22 | Invasive Species on the Move! Birdsong Community Farm | 9 |
| 5/11 | Chase Elementary AIS Presentation | 32 |
| 5/16 | CRISP Partners Meeting | 12 |
| 5/18 | Let's Talk About Ticks - Hosted by Senator Michelle Hinchey! | 75 |
| 6/3 | Tabling at REI | 67 |
| 6/7 | Canadarago WC Pull | 3 |
| 7/26 | iSPY Invasive Species Paddle | 7 |
| 7/29 | Emerging Invasives in the Watershed | 35 |
| 8/5 | Thorn Macro Program | 16 |
| 8/12 | Lawson Lake Fishing Event | 50 |
| 8/16 | CRISP Partners Meeting | 12 |
| 9/9 | Catskill Center Family Fun Day Macro Table | 25 |
| 9/24 | Tabling at Invasive Species Expo | 150 |
| 9/25 | Tabling at Invasive Species Expo | 50 |
| 9/25 | Invasive Species Walk | 24 |
| 9/26 | Invasive Species Tabling | 25 |
| 10/19 | Richfield Springs Garden Club IS Talk | 26 |
| 10/21 | Friends of the Upper Delaware Riverfest Tabling | 20 |
| 11/16 | CRISP Partners Virtual Meeting | 21 |
| Total | 23 | 911 |

All CRISP staff and two Strike Team Technicians tabled at the New York State Invasive Species Expo, from 9/24-9/26, and led an invasive species walk on 9/25.

CRISP staff shared all upcoming events through its website, the Catskill Center's website, the Catskills Visitor Center website and the CRISP Facebook page (www.facebook.com/catskillinvasives/).

In 2023, the CRISP Facebook audience grew 26% from 1,026 to 1,186 followers, and the number of page visits increased 97% from 368 to 725. Our top performing post was “The CRISP Team is Hiring!” reaching over 2.6k users. Our second top performing post was “Baitfish: Just a Hop, Skip, and Dump Away Fish” reaching over 2,000 users. The CRISP Facebook reach decreased 65.4% and content interactions decreased 10.2%.

Science

CRISP staff collaborated with Dr. Andrew Reinmann and his CUNY graduate student, Justin Bowers, in data collection for a beech leaf disease study. Staff helped to locate research plots at the Catskills Visitor Center in Mount Tremper. Mountain Top Arboretum is also participating in this beech leaf disease study.

CRISP staff worked with the U.S. Army Corps of Engineers and Little Bear Environmental Consulting in an experimental application of herbicide on water chestnut (*Trapa natans*) at the Catskill Center’s Thorn Preserve pond. This is part of a larger study to determine various herbicide effectiveness on water chestnut during various life stages. The study will take place over two seasons and a follow up application will be done in 2024.

CRISP staff also participated in an experimental release and monitoring of *Hypena opulenta*, a swallowwort biocontrol described above.

Partnership

CRISP Partner Meetings were held on February 22 (virtual), May 16 (in-person at DEP Arkville Office), August 16 (in-person at Catskills Visitor Center in Mt. Tremper) and November 16 (virtual). CRISP Steering Committee Meetings were held on February 22 (virtual), May 16 (in-person), August 16 (in-person), and November 16 (virtual).



CRISP Partners Meeting May 18th.

Since 2021, the CRISP Steering Committee has been working to develop an agreement for Partners involved in invasive species education, community science, surveys, early detection, rapid response, control, restoration and research programs. The CRISP Cooperation Agreement was finalized and signed by the following organizations by the end of 2023:

- New York City Department of Environmental Protection
- SUNY Oneonta
- Catskill Center for Conservation and Development
- Cornell Cooperative Extension of Columbia and Greene Counties
- Delaware River Soil and Water Conservation District
- Mountain Top Arboretum
- Otsego County Conservation Association

In addition, some organizations already have existing agreements in regard to the mission of the CRISP PRISM including New York State Department of Environmental Conservation and New York State Department of Agriculture and Markets and did not sign this additional agreement.

The CRISP listserv was used frequently by CRISP staff, New York Invasive Species Research Institute, NYS DEC, and other partners to share information, promote events and share the latest findings on invasive species. The CRISP listserv continues to grow, adding 17 new members in 2023, a 6% increase over 2022, and now reaches a total of 301 individuals.

The CRISP Steering Committee was saddened to lose Ian Dunn, who passed away on July 14, 2023. Ian represented NYS DEC on the committee since 2017 and this passion and devotion for the Catskills will be immeasurably missed. Michael Callan, Supervising Forester, represented NYS DEC at Steering Committee meetings in the latter half of 2023. Connor Young left CCE and Becky Polmateer, Program Director CCE Columbia and Greene Counties, replaced Connor on the Steering Committee. The current makeup of the Steering Committee is shown in Table 3.

Table 3. CRISP 2023 Steering Committee

| Name | Position | Organization |
|-----------------|-------------------------------|---|
| Meredith Taylor | Invasive Species Biologist | New York City Department of Environmental Protection |
| Thom Allgaier | Senior Horticulture Inspector | New York State Department of Agriculture and Markets |
| Mike Callan | Supervising Forester | New York State Department of Environmental Conservation |
| Kris Gilbert | Senior Landscape Architect | New York State Department of Transportation |

| | | |
|---------------------|---|---|
| John McNaught | Forest Program Manager | Catskill Forest Association |
| Tom Pavlesich | Forestry Program Manager | Watershed Agricultural Council |
| Kali Bird | Deputy Executive Director | Catskill Center for Conservation and Development |
| Catherine Skalda | CSBI Coordinator | Delaware County Soil and Water Conservation District |
| Donna Vogler | Professor of Biology | SUNY Oneonta |
| Marc Wolf | Director of Horticulture & Environmental Stewardship | Mountain Top Arboretum |
| Becky Polmateer | Program Director | Cornell Cooperative Extension of Greene County |
| Chris Zimmerman | Conservation Ecologist | The Nature Conservancy |

A 2023 Request for Proposals for CRISP funding was released on December 23rd, 2022. The deadline for applications was February 3rd, 2023. Priorities for funding included the following:

1. Stop emerging invasive species through Early Detection and Rapid Response Surveys for Tier 1 or Tier 2 Species beyond what is documented in iMapInvasives and EDDMapS and rapid response for Tier 2 Species found through surveys. Observations and treatments will be documented in iMapInvasives.
2. Raise public awareness of Tier 1 and Tier 2 Species to address introduction pathways and slow the spread of forest pests, pathogens, or species approaching or spreading within the region. A list of CRISP Invasive Species Tiers is available here: <https://www.catskillinvasives.com/crisp-tiers>
3. Improve the scientific understanding of the extent, ecological impact, and effective controls of invasive species in the CRISP region.

Subcontracts were awarded through the RFP to Canadarago Lake Improvement Association and Otsego County Conservation Association. The Otsego County Conservation Association's (OCCA) Otsego County Aquatic Invasives Rapid Response Team was a success overall, though suffered from some slight setbacks. It operated from August into September and focused on hand-pulling water chestnut, European frogbit, and yellow floating heart at five waterbodies, treating approximately 30 acres. Issues stemmed from a late start, scheduling and communication issues, and inconsistent participation of hired stewards. OCCA is seeking funding to extend the program into 2024 and will address the challenges by getting an earlier start, establishing a schedule well in advance, and by setting up more consistent methods of communication. OCCA also offered several volunteer opportunities throughout the 2023 season, but suffered from a lack of volunteer participation, with only 21 unique volunteers participating in nine events. Dwindling volunteer numbers have been observed since before the pandemic and OCCA suggests that a lack of long-term urgency in addressing AIS and marketing and promotion might contribute. Going forward, OCCA is currently unifying their marketing and promotion efforts under a single staff member, setting up protocols and procedures for marketing, including timelines, formats, etc., and are looking at ways to increase volunteer retention, including awards, recognitions, trainings, etc.

The Canadarago Lake Improvement Association's (CLIA) Watershed Steward Program (WSP) had another successful year. It operated for a total of 126 days (May 20 to September 23), an increase of 13 days over the previous year. Stewards made or performed 2,255 contacts and inspections, an average of 17.89 contacts and inspections per day, with those numbers typically being much higher on weekends and holidays, and lower on rainy weekdays. A total of 82 species, invasive, potentially invasive, and native to Canadarago Lake, were intercepted by CLIA WSP and removed using various methods such as heated pressuring washing, draining standing water, and KCl while also educating boaters about the importance of Clean, Drain, Dry. Most interceptions were of Eurasian watermilfoil, curly leaf pondweed, and zebra mussels, and nothing new to the lake was intercepted or reported.

Cornell Cooperative Extension of Columbia and Greene Counties (CCE-CG) was successful in providing invasive species education and outreach in Columbia, Greene, Ulster, Sullivan, Delaware, Otsego, and Schoharie counties. CCE-CG provided free invasive species education and outreach materials to the public, attended at least one major event in each county, and offered 16 invasive species education programs and workshops throughout the year. Just over 8,000 people were reached at the 13 major events attended by the CCE-CG and 194 people participated in the 16 programs offered. Additionally, 10,843 downloads of the When Nature Calls podcast were recorded. The CCE-CG also received 339 calls on the invasive species hotline and had 2,694 views on the CCE website, mostly concerning western conifer seed bug, jumping worm, spotted lanternfly, squash bug, exotic bush honeysuckle, southern pine beetle, general invasive species, and long horned tick.

Buck Environmental Solutions completed a chemical treatment of Japanese angelica tree in Daisy. Moran Landscaping and Lawncare provided maintenance services for an ecological restoration and the hemlock insectary at Thorn Preserve.

Appendix A. Equipment List Purchased through PRISM Funds

| Equipment | Quantity |
|----------------|----------|
| Wetsuit | 1 |
| Plant Press | 1 |
| Minnow Trap | 1 |
| Rugged Tablets | 2 |

Appendix B. iMapInvasives 2023 Summary for CRISP

Table 1. Top ten species reported statewide and by the CRISP PRISM with confirmed presence detection from 12/10/2022 to 12/10/2023.

| Presence Detected | | | | |
|-------------------|--|-------|---|------------|
| Statewide | | | CRISP | |
| 1 | Eurasian Water-milfoil | 4,187 | Oriental Bittersweet | 143 |
| 2 | European Common Reed | 1,626 | Hemlock Woolly Adelgid | 132 |
| 3 | Curly Pondweed | 1,571 | Japanese Barberry | 113 |
| 4 | Multiflora Rose | 1,445 | Japanese Knotweed | 81 |
| 5 | Starry Stonewort | 1,394 | Garlic Mustard | 76 |
| 6 | Oriental Bittersweet | 1,147 | Water Chestnut | 63 |
| 7 | Giant Hogweed | 1,060 | Common Wormwood | 50 |
| 8 | Buckthorn | 1,029 | Multiflora Rose | 45 |
| 9 | Japanese stiltgrass; Nepalese Browntop | 1,012 | Mile-a-minute-weed | 30 |
| 10 | Southern Pine Beetle | 947 | Bush Honeysuckle (species unknown) | 22 |

Table 2. Top ten species not-detected statewide and by the CRISP PRISM from 12/10/2022 to 12/10/2023.

| Not-Detected | | | | |
|--------------|-----------------------------|-------|-------------------------------|-----------|
| Statewide | | | CRISP | |
| 1 | Hemlock Woolly Adelgid | 1,525 | Hemlock Woolly Adelgid | 69 |
| 2 | Garlic Mustard | 981 | Spotted Lanternfly | 54 |
| 3 | Giant Hogweed | 968 | Tree-of-Heaven | 48 |
| 4 | European Common Reed | 564 | Giant Hogweed | 35 |
| 5 | Beech leaf disease nematode | 456 | Oriental Bittersweet | 28 |
| 6 | Japanese Knotweed | 357 | Japanese Knotweed | 27 |
| 7 | Purple Loosestrife | 241 | Mile-a-minute-weed | 27 |
| 8 | Longhorn Tick | 163 | Japanese Barberry | 26 |
| 9 | Curly Pondweed | 155 | Longhorn Tick | 22 |
| 10 | Eurasian Water-milfoil | 149 | Common Frogbit | 10 |

Table 3. Top ten treated species reported statewide and by the CRISP PRISM from 12/10/2022 to 12/10/2023.

| Treatment | | | | |
|-----------|------------------------------------|-----|-----------------------------|-----------|
| Statewide | | | CRISP | |
| 1 | Garlic Mustard | 176 | Mile-a-Minute | 61 |
| 2 | Japanese Knotweed, Japanese Bamboo | 99 | Japanese Barberry | 59 |
| 3 | Water Chestnut | 98 | Water Chestnut | 31 |
| 4 | Wild Parsnip | 54 | Oriental Bittersweet | 30 |
| 5 | Autumn Olive | 51 | Common frogbit | 9 |

| | | | | |
|----|-------------------------------|----|--------------------------------------|----------|
| 6 | Common reed grass, phragmites | 45 | Honeysuckle (species unknown) | 8 |
| 7 | Japanese Stiltgrass | 34 | Giant Hogweed | 7 |
| 8 | Purple Loosestrife | 32 | Japanese Knotweed | 7 |
| 9 | Pale Swallowwort | 23 | Multiflora Rose | 6 |
| 10 | Oriental Bittersweet | 16 | Japanese Angelica Tree | 4 |

Table 4. Number of unique species reported statewide and by the CRISP PRISM with confirmed presence detection from 12/10/2022 to 12/10/2023.

| | Statewide | CRISP |
|-----------------------------------|------------|------------|
| Number of Species Reported | 238 | 133 |

Table 5. Presence, not-detected, searched area, & acres of searched areas statewide and by the CRISP PRISM from 12/10/2022 to 12/10/2023. The acres of searched areas were calculated from GIS.

| | Presence | | Not-Detected Records | Searched Areas | Acres of Searched Areas |
|------------------|--------------|-------------|----------------------|----------------|-------------------------|
| | Confirmed | Unconfirmed | | | |
| Statewide | 31,142 | 2,754 | 20,188 | 38,094 | 253,667 |
| CRISP | 1,010 | 308 | 396 | 1,216 | 7,803 |

Table 6. Presence and not-detected records by data entry method from 12/10/2022 to 12/10/2023. Data includes confirmed and unconfirmed detections.

| | Presence | | | | | Not Detected | | | | | |
|--------------|------------|------------|-------------|--------------|--------------------------|--------------|------------|-------------|--------------|--------------------------|------------|
| | Online | Mobile App | Bulk Upload | NS Survey123 | Custom Jurisdiction Apps | Online | Mobile App | Bulk Upload | NS Survey123 | Custom Jurisdiction Apps | |
| Statewide | 1,726 | 5,660 | 10,759 | 1,090 | 14,682 | 850 | 11,434 | 1,542 | 1,068 | 5,294 | 1,726 |
| CRISP | 214 | 671 | 82 | 2 | 349 | 85 | 109 | 47 | 12 | 143 | 214 |

Table 7. Reasons for not detecting from 12/10/2022 to 12/10/2023.

| | Statewide | CRISP |
|---|-----------|-----------|
| Presumed eliminated due to treatment | 2,577 | 5 |
| Habitat No Longer Exists | 13 | 3 |
| Low Detectability (wrong timing, season, low abundance, etc.) | 270 | 22 |
| Species has never been detected here previously | 1,302 | 59 |

Not defined

15,360

307
