



TEMPORARY REVOCABLE PERMIT APPLICATION

SHORT-TERM PERMIT FOR INDIVIDUALS AND/OR GROUP EVENTS ON DEC-MANAGED PUBLIC LANDS AND CONSERVATION EASEMENTS

APPLICANT INFORMATION

Applicant Name:

Organization:

Email:

Phone:

Street Address:

City: State: Zip Code:

RESEARCH ACTIVITIES

For research activities, please provide the supervising professor or Department head as the contact.

Contact Name: Title:

Email: Phone:

REQUESTED LOCATION & USE

Please specify the name of the State land unit where the activity is requested to occur.

Town(s): County:

State Land Unit Name(s):

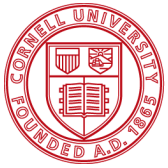
Facility, Trail or Road Name(s):

Estimated Number of Attendees:

Start Date: End Date:

DESCRIPTION OF USE

Please provide a description of the intended use of the public lands, including a description of equipment to be used. Attach additional information as necessary.



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EXAMPLE- For Full Temporary Revocable Permit Submission, please contact a PRISM Coordinator

May 2, 2023

NYS Department of Environmental Conservation
625 Broadway
Albany, NY 12207

To Whom it May Concern:

The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) would like to request permission to conduct detection, monitoring and response activities for invasive species in the locations listed below from 2023-2027. Information regarding invasive species can be found on the [New York Natural Heritage Program Tier List](#). The Capital Region PRISM is hosted by the Cornell Cooperative Extension of Saratoga County administers a five-year contract (CN 012258) on behalf of the New York State Department of Environmental Conservation. The CR-PRISM is financially supported by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation (NYS DEC). The Capital Region PRISM is requesting permission to conduct detection and monitoring from 2023-2027 with an annual notification each year.

The CR-PRISM provides invasive species management efforts in 11 counties throughout the Capital Region, focusing on detection, monitoring and response of high and very high threat invasive species and species that are in low abundance. Invasive species that are encroaching on rare, threatened, endangered and/or species of special concern as well as Tier 3 and 4 species that are in low densities or have a small number of populations within a parcel will be considered for potential management actions with notification to the NYS DEC staff. The CR-PRISM **only conducts manual and mechanical removals**, using tools such as shovels, pick mattocks and brush cutters. Following removals, disturbed soil will be tamped down to reduce favorable habitat for invasive species and be restored from native seed sources found on site. Any permits required will be completed and submitted to the appropriate NYS DEC staff prior to initiating work.

Prior to any actions all appropriate NYS DEC staff will be notified. The CR-PRISM is administering another contract from 2023-2027 for the New York State Department of Environmental Conservation. The Capital Region PRISM's work is based on a Five-Year Strategic Plan which is reviewed and approved by the NYS DEC. To view the CR-PRISM annual reports and Five-Year Strategic Plan, please visit the [Capital Region PRISM Reports Page](#).

Please note that a NYS DEC Temporary Revocable Permit will be submitted for approval prior to the start of each year.

The following documents have been attached to the TRP for supporting information:

- Letter of Request
- CR-PRISM Operational Guidelines
- CR-PRISM Best Management Practices and High Priority Invasive Species Lists
- Proposed Management Actions and Management Maps
- Survey, Treatment and Management Report Templates
- Certificate of Liability Insurance

Points of Contact:

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Invasive Species Coordinator
Capital Region PRISM
Partnership for Regional Invasive Species Management

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2023-2027 Detection, Monitoring and Response Locations at NYS DEC **Region 4** locations:

Albany County

- Cole Hill State Forest (Town of Berne)
- Partridge Run State Forest (Town of Berne)
- Rensselaerville State Forest (Town of Rensselaerville in Albany County and the town of Broome in Schoharie County)
- Scott Patent State Forest (Town of Rensselaerville in Albany County and the town of Broome in Schoharie County)
- Black Creek Marsh Wildlife Management Area (Towns of Guilderland and New Scotland, Albany County)
- Coeymans Creek Wildlife Management Area (Town of Coeymans)
- Five Rivers Environmental Education Center (Delmar)
- Louise Keir Wildlife Management Area (Town of Coeymans)
- Margaret Burke Wildlife Management Area (Town of Knox)
- Partridge Run Wildlife Management Area (Town of Berne)

Columbia County

- Beebe Hill State Forest (Towns of Austerlitz and Canaan)
- Hand Hollow State Forest (Town of New Lebanon)
- Harvey Mountain State Forest (Towns of Austerlitz and Canaan)
- Livingston State Forest (Town of Livingston)
- New Forge state Forest (Town of Taghkanic)
- Charles Flood Wildlife Management Area at the Empire Brickyard (Town of Stockport)
- Doodletown Wildlife Management Area (Towns of Ancram, Taghkanic and Gallatin)
- Rogers Island Wildlife Management Area (Town of Greenport)
- Stockport Flats Research Reserve, including Nutten Hook (Towns of Stockport and Stuyvesant)
- Stockport Wildlife Management Area (Towns of Stockport and Greenport)

Greene County

- Cairo Lockwood State Forest (Town of Cairo)
- Great Vly Wildlife Management Area (Town of Catskill, Greene County; Town of Saugerties, Ulster County)
- Vosburgh Swamp Wildlife Management Area (Towns of Coxsackie and Athens)

Montgomery County

- Charleston State Forest (Towns of Charleston, Montgomery County and Town of Esperance, Schoharie County)
- Lost Valley State Forest (Town of Charleston)
- Rural Grove State Forest (Towns of Charleston, Glen, and Root)
- Yatesville Falls State Forest (Towns of Charleston, Glen, and Root)

Rensselaer County

- Berlin State Forest (Town of Berlin)
- Pittstown State Forest (Towns of Pittstown and Grafton)
- Taconic Ridge State Forest (Towns of Petersburg, Stephentown, and Berlin)
- Tibbits State Forest (Town of Hoosick)
- Capital District Wildlife Management Area (Towns of Stephentown and Berlin)

Schenectady County

- Featherstonaugh State Forest (Town of Duaneburg)

The CR-PRISM detection and monitoring program does not impede park use for public or NYS DEC staff. The CR-PRISM uses a set of [Operational Guidelines](#) that include a framework of response to prioritize sites and species for detection, monitoring or response efforts. The CR-PRISM staff will focus on priority pathways and highly probable areas throughout these locations and alert NYS DEC staff for any high threat invasive species that are detected.

All vehicles that will be on any state property are registered through the Cornell Cooperative Extension of Saratoga County and are exempt from annual registration.

Please review the attached Temporary Revocable Permit and reach out to Kristopher Williams or me if you have any questions or would like additional information on the responsibilities of CR-PRISM or the program. The Capital Region PRISM has a long outstanding relationship with NYS DEC and look forward to continuing the work with the New York State Department of Environmental Conservation to minimize the spread of invasive species in New York State lands and waters.

Sincerely,

Sam Schultz

Terrestrial Invasive Species Coordinator
Capital Region Partnership for Regional Invasive Species Management (CR-PRISM)



Cornell Cooperative Extension | Saratoga County

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Capital Region PRISM Partnership for Regional Invasive Species Management

Operating Guidelines 2023-2027

Acknowledgement

Capital Region PRISM

Partnership for Regional Invasive Species Management

Contract No. 012558 January 1, 2023, to December 31, 2027

The Operational Guidelines Were Prepared By:

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Funding Acknowledgement

The Capital Region PRISM is financially supported by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.

A Special Thank You

The New York State Department of Environmental Conservation, Invasive Species Coordination Section; the New York State Department of Agriculture and Markets; the New York State Invasive Species Council; Invasive Species Advisory Council; New York State Legislature; the Capital Region PRISM Steering Committee and the Cornell Cooperative Extension of Saratoga County.

Cornell Cooperative Extension

Saratoga County



Department of
**Environmental
Conservation**



**Agriculture
and Markets**



A copy of this guide can be obtained from the Capital Region PRISM website:

capitalregionprism.org

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Introduction

The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) is a collaborative organization created to address the threat of invasive species. The CR-PRISM operates across eleven counties and is financially supported by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation (NYS DEC). The CR-PRISM is hosted by the Cornell Cooperative Extension (CCE) of Saratoga County and collaborates with related state agencies, partners, and volunteers to reduce the spread and impact of invasive species. The CR-PRISM deploys a coordinated and strategic approach for invasive species prevention, monitoring, and management in terrestrial and aquatic ecosystems on public and private lands and waters.

The CCE of Saratoga County has hosted the CR-PRISM since 2007 starting as an unfunded entity. Volunteers began to discuss and share the efforts that partner organizations were involved in throughout the eleven-county area, regarding strategies to mitigate the harm caused by invasive species. In 2013, the CCE of Saratoga County became the official host for the CR-PRISM with partial funding from the NYS DEC and then fully funded from 2018 to present.

Operating Procedures

The operating procedures contained in this document define how the CR-PRISM Staff and Partnership engage in work to help mitigate the harmful effects of invasive species. New York State has taken a multifaceted and integrated approach to addressing the challenges presented by invasive species. This approach is outlined in the NYS Invasive Species Comprehensive Management Plan (ISCMP) of 2018, which has an overarching goal to “minimize the introduction, establishment, proliferation, and negative impacts caused by invasive species.”

The focal initiatives of the ISCMP of 2018 are captured in the CR- PRISM Strategic Plan. The CR-PRISM is built around five goals to mitigate the harmful effects of invasive species to the public while protecting critical ecological and economic resources of the region. The goals, objectives, and priority actions of the [Capital Region PRISM Five Year Strategic Plan 2023-2027](#) will be implemented collaboratively among the CR-PRISM staff and partners. The Strategic Plan serves as a basis for building the CR-PRISM’s annual work.

Vision: To cultivate a region in which partners work together to address the harmful impacts associated with invasive species to protect its lands and waters, biodiversity, economy, and quality of life.

Mission: Our mission is to prevent, detect, and respond to harmful invasive species in the PRISM region through collaboration, resource sharing, strategic messaging, and education.

Goals:

Partnership: Coordinate and collaborate with partners to grow and strengthen regional capacity to prevent, detect, and respond to invasive species.

Prevent: Minimize the introduction and spread of harmful invasive species into new areas.

Detect and Monitor: Detect and monitor harmful invasives species approaching and affecting the Capital Region.

Respond: Mitigate ecological and economic impacts of priority invasive species using an integrated pest management approach.

Outreach, Communication and Education: Build engaged communities that understand, support, and invest in the PRISM’s work to prevent, detect, and respond to harmful invasive species in the Capital Region.

New York State Department of Environmental Conservation:

Partnerships for Regional Invasive Species Management (PRISMs) are key to New York's integrated approach to managing invasive species. In 2005, the NYS Invasive Species Task Force sent a report to the Governor and legislature that recommended the state build and fund a network of partnerships to address invasive species. By 2013, the NYS DEC had contracted the administration of eight PRISMs across the state. The PRISMs are designed to work collaboratively in a partnership with community-based entities to address invasive species through research, planning, coordination, early detection, response, outreach, and training of volunteers. The NYS DEC administers the contractual agreements for all eight PRISMs and associated deliverables through a five-year service agreement. The operating procedures contained in this document are one such deliverable to administer the CR-PRISM Partnership from 2023-2027; contract number C012558.

Cornell Cooperative Extension of Saratoga County: The Host Agency

Based in Ballston Spa, New York the CCE of Saratoga County is a 501(c)3 non-profit working to ensure a bright future for all NYS residents. CCE of Saratoga County puts knowledge to work in pursuit of economic vitality, ecological sustainability, and social well-being. The CCE of Saratoga County recognizes that responsible invasive species management is critical for the well-being of the environment and the people who live and work here, both within the geography of the CR-PRISM and the entirety of NYS. CCE of Saratoga County provides the organizational proficiency and the resources required to fulfill the CR-PRISM's organizational purpose. The CCE of Saratoga County historically delivers programs coordinating with partners (stakeholders), and volunteers via various communication methods to appropriately address environmental, societal, and community issues.

The CCE of Saratoga County has the responsibility of personnel, financial management, and oversight of the contract number 012258 with NYS DEC. In consultation with NYS DEC, the CCE of Saratoga County has the authority to make decisions about how CR-PRISM contract funds are spent in accordance with the terms of the contract. The CCE of Saratoga County also has responsibility for soliciting, managing, and implementing grants, contracts, subcontracts, programs, and agreements entered on behalf of the CR-PRISM. The CCE of Saratoga County Board of Directors has established Operational Guidelines and Governance on an annual basis and can be found in Appendix E of this document.

Capital Region Partnership for Regional Invasive Species Management:

The CR-PRISM is hosted by the Cornell Cooperative Extension of Saratoga County and delivers on the scope of work to administer the CR-PRISM Partnership. The office is staffed with a full-time Lead Coordinator, an Aquatic Invasive Species Program Manager, a Terrestrial Invasive Species and Education & Outreach Coordinator(s). The core members that compromise the CR-PRISM have strengths in each individual area of expertise and are essential in delivering programming for the CR-PRISM. Seasonal employees include twelve Watercraft Inspection Stewards and one Assistant Supervisor to deploy a Watercraft Inspection Steward Program (WISP). In addition, three seasonal Invasive Species Technicians are utilized to increase the capacity for detection, monitoring, and response actions of high threat invasive species. All employees, in conjunction with the CCE of Saratoga County, are responsible for delivering the products to administer the Partnership. Together, the PRISM has a foundation to deliver a diverse suite of approaches to help manage invasive species in the Capital Region with PRISM partners.

The CR-PRISM uses a framework of response for invasive species prevention and management strategies that include species tier prioritizations and vector management to mitigate the spread of invasive species. Staff utilize the [CR-PRISM Tier List](#) and the [Statewide Tier List](#) managed by the New York Natural Heritage Program (NYNHP) when considering projects. In addition, the CR-PRISM's Standard Operating Procedures include how services are deployed in the terrestrial and aquatic programs as outlined in Appendix A and B. These documents are used to

identify and prioritize how and where work efforts should be focused. In summary, monitoring and detection systems are conducted by species, impact, and location on both public and private lands and waters. Prevention and outreach strategies focus on high-threat species of concern and emphasize practices that the public and private industry can adopt to help mitigate invasive species detriments and control the further spread of these harmful organisms.

The Watercraft Inspection Steward Program (WISP) utilizes staff to prevent invasive species from spreading to other waterbodies. The program performs three key functions. The program informs boaters about the impacts of AIS while simultaneously educating them on spread prevention measures. These actions help to reduce the spread of AIS between New York State waterbodies and beyond, and empowers boaters to protect the natural resources they cherish. The program additionally serves as an early detection measure through the interception of AIS from watercraft during launch and retrieval surveys.

The recruitment and training of volunteers within the PRISM region to aid in detections of species has been imperative to help slow the spread and prioritize the management of invasive species. Trainings with programs such as iMapInvasives, aid in on-the-ground data collection and has been a valuable tool for the CR-PRISM

A core function of the CR-PRISM is the development and maintenance of a strong Partnership to help mitigate invasive species and their detrimental effects. Collaborations between partner organizations, guided by the CR-PRISM, are paramount in protecting our environment and way of life. Partners and volunteers across the eleven-county region support the CR-PRISM's mission and goals.

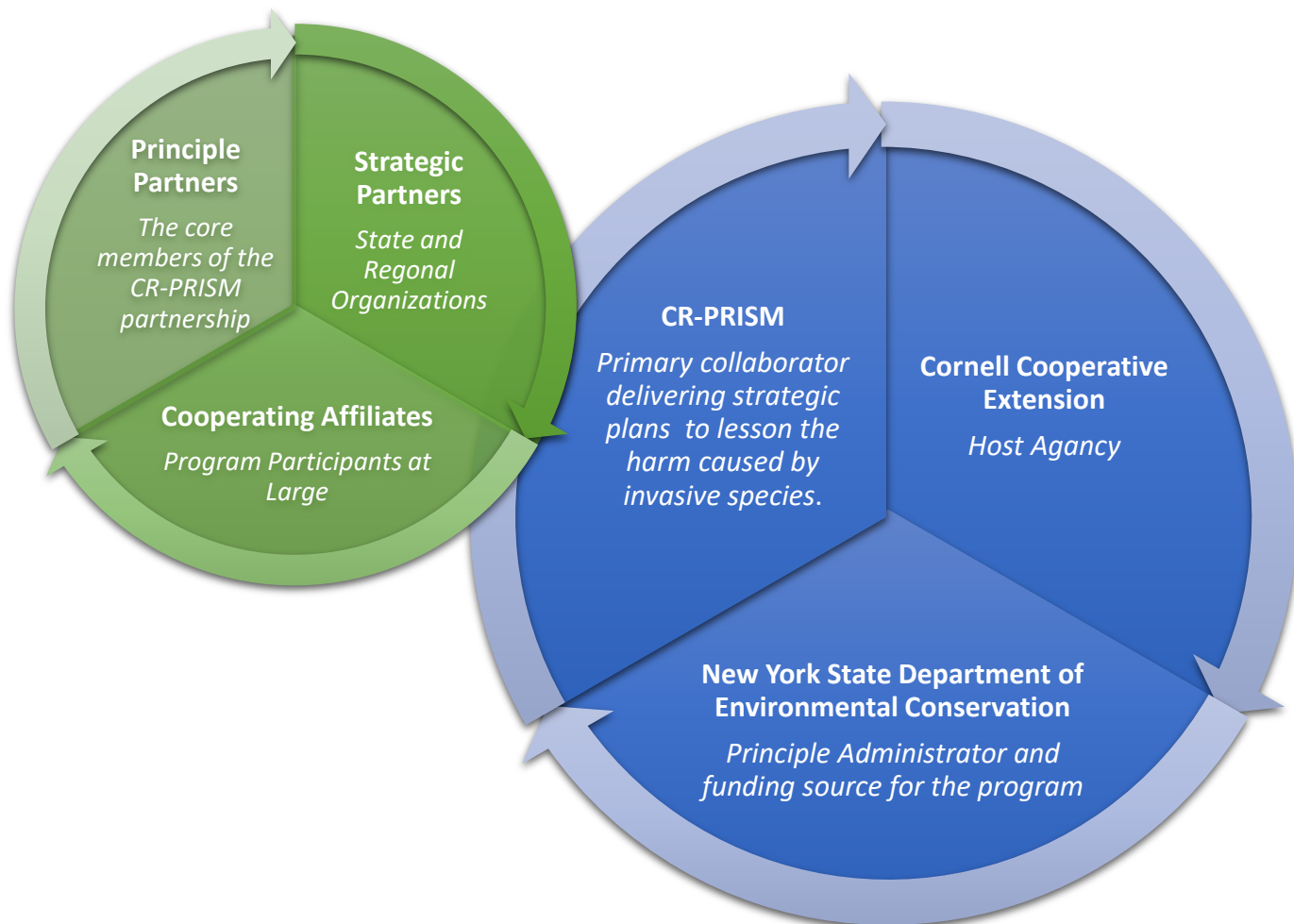
Capital Region PRISM and the Partnership

Partners are an integral component of the CR-PRISM in reaching a common goal of slowing and controlling the spread of invasive species. An essential task of the PRISM is to identify and assist stakeholders to improve opportunities for sharing of resources while delivering up-to-date practices for prevention and management. Collaborating with partners on projects, programs, and events while sharing resources, data, and research saves time and effort. Continually increasing partner capacity is one of the keys to the success of the PRISM and slowing the spread of invasive species on a regional scale.

CR-PRISM Partners Defined

Partners are public agencies or private organizations actively working to achieve outcomes on the ground to minimize the impact of invasive species on the greater capital regions communities, lands, and waters. The Partnership consists of any organization, volunteer, or community member that has an interest in the CR-PRISM's mission and shared vision. The CR-PRISM welcomes partner members from academic institutions, government agencies, municipalities, not-for-profit organizations, private preserves and parks, land trusts, conservancies, lake associations, agricultural institutions, local businesses, environmental groups, community scientists, and other clubs or organizations to join the partnership. Individuals can also serve to assist the PRISM. Partners can also include subcontractors operating under agreements as implemented through a request for proposals, competitive or sole sourced contracts, and memorandums of understanding.

The Partnership and The Program



CR-PRISM Partner Classifications

For organizational purposes our partnership has three classifications:

- 1. Principle Partners** are those organizations with the greatest vested interests with the mission of the CR-PRISM. Principle Partners are critical to the delivery of components of the CR-PRISM Five Year Strategic Plan and engage with the CR-PRISM staff on a regular basis.

Principle Partners

- *are organizations that participate in prevention, monitoring, detection, response, restoration and or research projects*
- *participate in outreach and education strategies related to invasive species and conservation*
- *can be involved with advisory boards, committees, work groups, and task forces that exist to help mitigate and slow the harm caused by invasive species and promote restorative actions*
- *under contractual agreements to conduct invasive species strategies and actions*
- *work with the CR-PRISM staff on a regular and annual basis*

- 2. Strategic Partners** are municipal, county, government and statewide stakeholders who have the capacity to perform critical actions in preventing and managing invasive species within their agencies and are imperative to regional cohesiveness.

Strategic Partners

- *The PRISMs of NYS, Invasive Species Council, and Members of Invasive Species Advisory Committee, and Invasive Species Coordinate Section, New York Department of Environmental Conservation Regional Offices, Department of Agriculture and Markets, Soil and Water Conservation Districts, , Cornell University Integrated Pest Management, Cornell Cooperative Extension Offices, iMapInvasives, NYS Natural Heritage Program, New York State Invasive Species Research Institute, New York State Hemlock Initiative, Cornell University Integrated Pest Management, Office of Parks Recreation and Historic Preservation, NYS Canal Corps, United States Geologic Survey, US Forest Service, National Park Service, Conservation Advisory Boards, Academic Institutions and other.*

- 3. Cooperating Affiliates** is any group, club or organization that takes an active interest and a desire to cooperate in CR-PRISM and support its mission. Cooperating affiliates tend to participate in one-time events or participate in limited engagements and actions. Cooperating affiliates may be active/inactive from year to year.

Benefit and Responsibility of the Partnership

Partners agree to support, participate, and advance the Capital Region PRISMs vision, mission, and goals in ways that are compatible with their own directives. Partners also agree to respond to CR-PRISM inquiries and requests for information and expertise. Partners who actively participate in the Capital Region PRISM in one or more of the following ways below are officially recognized as an CR-PRISM Partner. CR-PRISM Partners will also have greater consideration in funding opportunities for subcontracts. Partners can act in an advisory capacity should the need arise, and participate with projects and activities based on need and or desire. The CR-PRISM is managed as a cooperative effort between the CR-PRISM Coordinators, the NYS DEC and the Invasive Species Coordinate Section, the host organization, and the members of the Partnership.

Partnership Requirements:

1. **All Partners: Principle, Strategic, and Cooperating Affiliates**
 - a. Contribute to an annual CR-PRISM Survey for outreach, monitoring, detection, and response actions.
 - b. Join CR-PRISM Listserv or Partner Distribution List
2. **Principle Partners**
 - a. Attend at least one partner meeting a year and participate in one or more of the following ways:
 - Work directly with CR-PRISM staff or other members of the partnership on an invasive species project(s).
 - Support the CR-PRISM through initiatives, information sharing, and or participate in work groups, advisory panels, task forces, and sub committees.
 - Initiate and or participate in invasive species education, outreach, prevention, monitoring, detection, response, restoration, and/or research efforts in the CR-PRISM geography
3. **Strategic Partners** (*participate in one or more of the following ways*)
 - a. Attendance at a partners meeting is encouraged when possible.
 - b. Work directly with CR-PRISM staff or other members of the partnership on an invasive species project(s).
 - c. Support the CR-PRISM through initiatives, information sharing, and or participate in work groups, advisory panels, task forces, and sub committees when applicable
 - d. Initiate and or participate in invasive species education, outreach, prevention, monitoring, detection, response, restoration, and or research efforts.
4. **Cooperating Affiliates** (*participate in one or more of the following ways*)
 - a. Initiate and or participate in invasive species education, outreach, prevention, monitoring, detection, response, restoration, and or research efforts in the CR-PRISM geography.
 - b. Partner with CR-PRISM staff or other members of the partnership on an invasive species project(s).

Partnership Benefits:

The individual contribution of each partner is magnified by its engagement in the CR-PRISM. Partners receive many benefits by joining in the collective efforts of the CR-PRISM. The greatest benefit is through the power of collaboration and an increase in capacity to conduct invasive species prevention, monitoring, response, and restoration and research efforts to benefit conservation actions.

Networking and Collaboration

CR-PRISM partner meetings and events provide an opportunity to engage with other organizations and individuals committed to minimizing the impact of invasive species. The networking opportunities in these meetings and events allow for sharing ideas and knowledge about natural resource management practices, exploring ways to collaborate and make the most effective use of resources, and identifying innovations within related fields of work.

Access to Expertise and Resources

CR-PRISM partners are at the forefront of regional invasive species research, development, and application of best management practices. Partners can access and contribute to the region's collective knowledge of regional invasive species management issues. In addition, CR-PRISM maintains a collection of technical resources on its website accessible to partners. CR-PRISM staff are available to assist with natural resource planning and implementation of outreach, monitoring, detection, and response activities related to invasive species.

In addition, many of the CR-PRISM partners benefit from shared services. Past examples of services have included; access to natural resource specialist(s), technical training on invasive species identification and

management, assistance in developing a framework of response including prioritization and management planning, access to technical training, data reporting for monitoring and treatment of invasive species, direct assistance in detection and response actions including restoration projects with long-term monitoring, equipment sharing, crew assistance for field work, and recruitment for volunteer engagements. The CR-PRISM also conducts education and outreach activities for the partnership and their constituents and can serve as a consultant in conservation planning.

Funding opportunities

The CR-PRISM allocates resources through an annual Request for Proposals (RFPs) and Memorandums of Understanding (MOUs) from the New York Environmental Protection Fund as administered by the NYS Department of Environmental Conservation. Invasive species related work will be conducted on behalf of the CR-PRISM as aligned to the PRISM's Five-Year Strategic Plan.

Recognition

Partners are recognized by CR-PRISM through the network and in its quarterly and annual report(s). This recognition can help partners demonstrate how their individual contributions add to the collective accomplishments of the CR-PRISM.

Eligibility

Any organization involved in invasive species education, prevention, detection, management, restoration and research is eligible to join. The Capital Region PRISM welcome members from academic institutions, government agencies, municipalities, not-for-profit organizations, private preserves and parks, land trusts, conservancies, lake associations, agricultural institutions, local businesses, environmental groups, and community scientist from the region to participate. Partners are dedicated to slowing the spread of invasive species and protecting our environment.

CR-PRISM Meetings and Committees:

Partner Meetings

There is a minimum of two CR-PRISM Partner Meetings each year. Partner meetings are open to all members of the Partnership including partner members, volunteers, and the public. Meetings are scheduled in advance and held in a central location. Meeting announcements occur through electronic communications including listserv and personal email invitations. The PRISM Coordinator ensures a notice of scheduled meetings is sent to all representative partners and interested individuals. Agendas are prepared in advance by the PRISM Coordinator and includes items as requested by partners. Meeting dates are shared 4-6 weeks prior to the partnership and public. Minutes are recorded and publicly available. The meetings are informal with no quorum requirements.

Purpose of partner meetings:

- Coordinate CR-PRISM and partners
- Provide regular interactive opportunities for partners to collaborate, and learn from one another's successes and challenges
- Discuss concerns, and identify solutions to needs regarding invasive species prevention and management
- Share best management practices, regional updates, and resources

Steering Committee

The CR-PRISM operates through a steering committee and shall meet as needed typically two to three times a year. The Steering Committee is a core group of individuals representing a variety of organizations that can guide the CR-PRISM in decision making processes. The Steering Committee is comprised of principle and strategic partners. The CR-PRISM staff also participates on the steering committee. Guidelines for the CR-PRISM Steering Committee will be revised in 2023. The Steering Committee serves as an advisory board and can convene standing working groups or ad hoc project groups to guide the CR-PRISM. The Steering Committee can also aid in setting projects or programs, set priorities, establish benchmarks for success, and implement components of the CR-PRISM five-year strategic plan. The Steering Committee aids in reviewing the PRISM's annual work plan, drafting, or enhancing strategic plans, and helps to review and select Request for Proposals (RFP) for invasive species projects for the Partnership. Steering Committee members acting on behalf of this Partnership shall be made up of those wishing to volunteer for the committee, cause, or assignment.

AIS and TIS Work Groups / Sub-committees

Work groups will convene in an ad hoc fashion to collaborate, share information, and respond to pertinent to invasive species issues. These work groups shall be developed based on need as identified by the Partnership or CR-PRISM. Workgroups will convene to further CR-PRISM projects and programs. All work groups and sub-committees acting on behalf of this Partnership shall be made up of those wishing to volunteer for the committee, cause, or assignment.

- Members of standing working groups convened by CR-PRISM will be selected by staff based on the skills or experience needed for the effective operation of the group and completion of a program. Interested parties may contact the office for inclusion.
- Working groups may select a chair from among the working group membership. CR-PRISM will be the default chair. Informal notes may be taken with no official minutes.

CR-PRISM partners may also hold working groups. CR-PRISM staff may participate in working groups convened by others and, as appropriate, may engage these working groups in guiding CR-PRISM projects or programs which further the CR- PRISM Five-Year Strategic Plan.

The CR-PRISM will also operate through established sub-committees. These subcommittees will serve as an advisory board to help guide the CR-PRISM in executing the Strategic and Annual Work Plans. The sub-committee membership is comprised of selected principle and strategic partners by the PRISM Coordinator.

Sub-Committees

- TIS Conservation Committee
- AIS Aquatics Committee
- Education Committee
- Agricultural Committee (Local)

CR-PRISM Volunteer Network

CCE of Saratoga County Association Volunteers are individuals who support CCE activities as casual, elected, enrolled, or supervising volunteers. Volunteers connect Cornell Cooperative Extension to communities across New York State. Each year volunteers from across the state share their time and talents with communities through Cornell Cooperative Extension. Individuals who receive payment beyond expenses incurred during the performance of service (whether such payment be in the form of cash, goods, lodging, food, etc.) are not considered volunteers.

To ensure success with volunteers, the CCE of Saratoga County /CR-PRISM

1. Identifies and recruits' individuals with the competence and attitude essential to accomplishing the goals of the program. Volunteers are connected to conservation-based practices and the goals of the CR-PRISM. Search efforts for volunteers occur at the local level within the partnership.
2. Select and place volunteers in roles that meet their needs and those of the CR-PRISM
3. Orient volunteers to the goals of the project and the role that they will play
4. Train volunteers in the specific skills, knowledge, and attitudes necessary for them to successfully accomplish their tasks
5. Utilize volunteers' time and skills effectively and provide communication and feedback
6. Retain, recognize, and appreciate volunteers' contributions

Program Participants of the Cornell Cooperative Extension / CR-PRISM

Any member of the general public, students, former program participants, current or retired employees of CCE may serve as CCE Association Volunteers with the following restrictions:

- Youth under the age of eighteen may serve in only those volunteer roles that do not require a signed volunteer agreement and may do so only with signed parental consent. Youth engaged in service learning or community service activities are considered to be program participants and are not considered to be CCE Association Volunteers for the purposes of the Association Volunteer Policy.
- An employee of CCE may not volunteer in a capacity that is the same or essentially similar to that individual's paid work assignment
- Enrolled or supervising volunteers are required to submit a Volunteer Application prior to serving in a volunteer capacity and may also be required to authorize a Criminal History Check and/or Department of Motor Vehicle Check. Upon acceptance as a CCE Volunteer, volunteers will be asked to sign a Volunteer Agreement, which includes the Volunteer Code of Conduct.

Volunteer Benefits Receive from CCE Cornell Cooperative Extension / CR-PRISM

The individual contribution of each volunteer is synergistically enhanced to a great degree by their engagement in the CR-PRISM. In addition, CR-PRISM volunteers receive many benefits by joining in the collective efforts of the CR-PRISM, including the following.

Satisfaction:

1. A volunteer experience as satisfying for you as it is valuable to the accomplishment of our mission.
2. Volunteers make a difference by helping to protect the places they care about from the threats from invasive species and can connect with other people concerned about the same issues.
3. Orientation, training, and supervision that enhance effective use of your interests, skills and time.
4. A safe environment and protection from liability claims arising from volunteer assignments

Recognition:

1. Pertinent information and communications appropriate to your status respect, recognition, and trust earned through performance.
 - *CR-PRISM thanks individual volunteers in a variety of ways, and the collective contribution of volunteers is widely shared in newsletters, quarterly reports, annual reports, and social media communications.*

Knowledge:

2. Volunteers benefit personally from your relationship with Cornell Cooperative Extension /CR-PRISM. You will have access to educational resources, build friendships with other volunteers, discover new interests, develop new skills and have an impact on your community.
 - *Volunteers are provided with technical training and skill-development opportunities to enhance their ability to identify, survey, manage, and report invasive species.*

Responsibilities of CCE Volunteers to Cornell Cooperative Extension / CR-PRISM

Since CCE volunteers act as representatives of Cornell Cooperative Extension /CR-PRISM when performing assigned duties, you have the responsibility to:

1. Abide by CCE policies and external regulations that govern your actions
2. Execute CCE business in an ethical manner and uphold the established code of conduct
3. Preserve the confidentiality of information about clients and CCE internal affairs
4. Accept only those assignments that are suitable to your capabilities and time availability and then fulfill those commitments
5. Use time wisely and work as a team member with CCE staff and other volunteers

Volunteers of the Cornell Cooperative Extension /CR-PRISM provide valuable services to many PRISM partners.

The contributions of volunteers engaged with partner organizations are essential and are reflected in the annual accomplishments of each partner. Partner organizations may have documents that further define roles, agreements, and benefits for their volunteers. For the purposes of these Operating Principles and for CR-PRISM implementation of the priority actions outlined in the CR-PRISM strategic plan, volunteers are defined as individuals donating their time or expertise to the CR-PRISM as part of a formal volunteer program hosted by CR-PRISM and the Cornell Cooperative Extension of Saratoga County.

1. Cornell Cooperative Extension / CR-PRISM volunteers must sign any required liability or risk waivers.
2. Cornell Cooperative Extension / CR-PRISM volunteers are asked to annually submit a record of their activities and the number of hours of service provided to CCE /CR-PRISM when applicable.

Political Activities and Lobbying

Cooperative Extension associations, as exempt organizations under Section 501(c)(3) of the Internal Revenue Service Code, are strictly regulated regarding their participation in political campaigns and lobbying activities. For greater detail on political activities and lobbying please consult the Financial Operations Resource Manual (FORM) Code 103 in Appendix E.

Political Campaigns:

As tax-exempt organizations under 501(c)(3), Cooperative Extension associations may not participate or intervene in any political campaign on behalf of, or in opposition to, any candidate for public office. Loss of exempt status can occur if associations participate in this type of activity.

Lobbying Activities:

Attempts to influence legislation through lobbying are permitted if the lobbying activity is not a substantial part of the organization's activities. Legislation includes any action by Congress, any state legislature, local council, or similar governing body, or by the public in a referendum, initiative, constitutional amendment, or similar procedure. If lobbying activities constitute substantial activities for the organization, the association may lose its tax-exempt status as a 501(c)(3) organization. Again, consultation with the association's legal counsel is recommended before engaging in lobbying activities.

Capital Region PRISM Recommended Framework for Response to Invasive Species Management

In general, the Capital Region PRISM use the New York State Department of Environmental Conservation DEC Program Policy DLF-16-1 / Rapid Response for Invasive Species as an overarching umbrella for a framework of response. “The Rapid Response Framework for Invasive Species is designed to provide resource managers with a defined response system and list of procedures that can be initiated upon discovery of a new invasive species infestation. The goal of this policy is to promote timely decision-making and communication in the event of a new invasive species infestation while limiting authority conflicts and duplication of effort.” The document is attached in Appendix C. The Chart below is a summary of detect, monitor and respond actions under DLF-16-1.

RAPID RESPONSE PROCEDURE SUMMARY

Early Detection	Passive/ deliberate detection, trained staff and volunteers, priority areas of disturbed ground/ frequent human traffic sites
Verification	Collect sample and document detection, accurate species ID by recognized expert
Notification	Notify Priority 1 Contacts, obtain definitive species ID, disseminate information (iMap)
Rapid Assessment	Determine lead agency and management team, survey extent of infestation, identify resource requirements and resources, prevent spread
Planning	Employ decision analysis tools, determine most effective response action and management action, develop response plan, secure permits if needed
Rapid Response	Implement response plan components, continue outreach, document process
Monitoring & Evaluation	Follow-up surveys, assess ecological indicators, revised plan as necessary
Restoration	Restore ecological function, promote recovery of native species to inhibit re-establishment of invasive species

Setting the Stage and the Need for a Framework of Response

The purpose for following a framework for response is to provide resource managers with a methodology that can be utilized for a logical approach when responding to newly identified invasive species infestations. The framework is also designed to help resource managers prioritize their activities. A framework for response helps to set the stage for the planning process while considering all aspects of management known and possibly unknown. Resource managers should prioritize their management activities based on their goals, objectives, and resources when responding to invasive species infestations.

“When conducting a response effort, it is critical to develop a management plan to ensure the desired outcomes are achievable, cost effective, and measurable. A framework for response helps to assess the relative threat of the species of management interest, determine the potential risks to conservation, economic, and social assets if the infestation is left untreated.” ⁽¹⁾

The basic step in determining if a response project should be initiated is to determine if the invasive plant in question has the potential to cause significant ecological impact, harm to human health, the economy or other values. The impact of an invasive species should be evaluated based on the severity of threat and impact to the environment and is an ongoing process. High threat invasive species alter ecosystem processes and change native species composition. High threat invasive species when identified in low populations are great management targets with a low cost and high rate of return. If left unchecked, the high threat invasive species have a large potential to become widespread if not identified and managed, thus the need for rapid response.

Invasive Plant Management Decision Analysis Tool (IPMDAT)

The “Invasive Plant Management Decision Analysis Tool” constructed by The Nature Conservancy is an instrument that can be used to guide management planning. Invasive Plant Management Decision Analysis Tool (IPMDAT) is used in a framework of response to help to decide if an invasive plant management project is likely to be successful. “The primary focus of the IPMDAT is on the control of invasive species. An “invasive species” is a species that is non-native to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. The intent of the tool is to address unknown and known variables. The tool is designed to help the land manager to make a more informed decision regarding proposed actions. The tool may not be applicable to all projects. In specific situations the CR-PRISM utilizes this approach and tool to guide management decisions. Adaptive management and post treatment monitoring actions are also important when looking at a framework of response.

The components of IPMDAT direct resource managers to consider and, where possible, address the following aspects prior to conducting management activities. These critical questions are applicable in all planning measures with or without the tool.

1. Ecological Impact and/or Harm to other Values
“Does the work benefit a conservation goal or target area, community, or audience?”
2. Distribution and Abundance
“What tier and what threat level does the species pose?”
3. Socio-Political Environment
“Are there invested stakeholders present or are there barriers?”
4. Control Effectiveness
“Are there effective tools available to manage the infestation?”
5. Non-target Impacts and Unintended Consequences
“Are there rare or endangered species, what level of incidental harm is acceptable?”
6. Preventing Reinvansion and Spread
“Does the work proposed have lasting effects and are restoration practices evident?”
7. Detectability

“Will eradication efforts be reassessed over time?” “What thresholds are acceptable for containment/suppression?”

8. Resource Availability

“Are there sufficient resources available to complete the project. In the case of education, outreach, early detection, or research how will those measures protect a conservation target?”

9. Return on Investment

“Are the goals and intended outcomes for the project realistic, cost effective, measurable...?”

10. Learning to live with invasive we cannot control

“What strategies are considered when eradication is not acceptable?”

In the event of identifying a high threat invasive species the control of those species becomes paramount. The general categories for management control are eradication, containment, exclusion, and suppression. Each management strategies should be considered based on desired outcomes and conservation goals when managing those invasive species. Each control method intern can be executed using different levels of integrated pest management and subject to adaptive management measures.

Eradication is considered successful when no plants are recovered from the initial infested area for three consecutive years or depending on the depletion of the seed bank⁽²⁾. Eradication should be considered when emerging or new species are introduced to an environment. Often these infestations have low density/abundance and few populations over a wide geographic area.

Containment is a method to prevent an infestation which can't be eliminated from spreading into an uninfected portion of the project area⁽³⁾ Containment may involve methods that prevent reproduction and dispersal by birds, wind, treating the leading edge of an infestation and/or eliminating small rogue infestations from a hot spot.

Exclusion is a technique to eliminate occurrences within the project area and/or prevent the invasive species from spreading into the project area from outside the conservation target area.

Suppression is to reduce an invasive plant population in size, abundance, or density. Suppression can include limiting reproductive output (seed) and cover. Suppression is designed to reduce numbers below a threshold to maintain ecologic balance. “Suppression should only be undertaken if there is a clear conservation outcome that can be attained with an effective use of resources.”⁽¹⁾

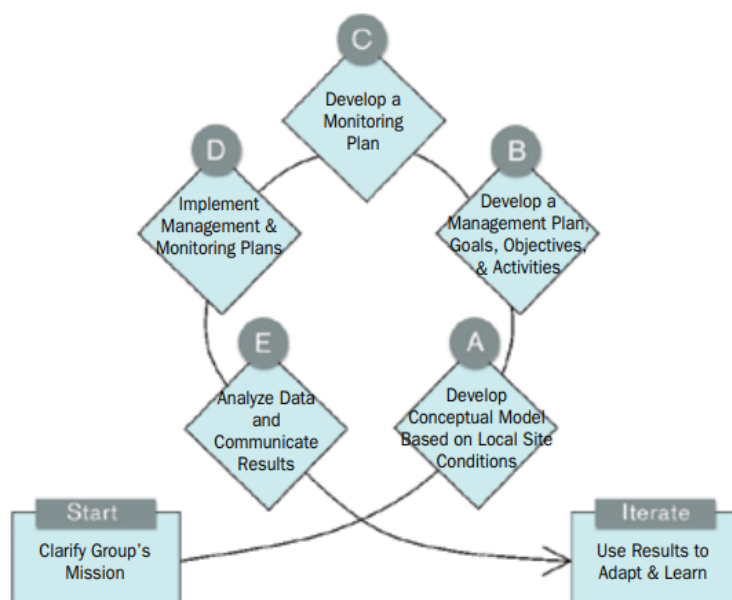
Integrated Pest Management Approach

Integrated pest management (IPM) is a process used to manage invasive species infestations. The goal of IPM is to maximize effective control and to minimize negative environmental, economic, and social impacts. IPM is an adaptive ecosystem-based approach that focuses on multiple control options targeting invasive species to prevent, eradicate, contain, or suppress populations. IPM integrates best management practices across a broad spectrum while using a range of techniques. Pesticides are used only after approaches with monitoring indicate that their use is needed according to established guidelines. (The CR-PRISM does not use chemical controls on State Lands.) Treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment. IPM means using control methods that reflect the values of a community, land use goals, and resources like time, labor, and finances. IPM requires years of dedication to monitor post treatment outcomes.

As part of a framework of response the CR-PRISM consider the following items:

1. What would the cost to the environment and society look like if no treatment was executed compared to implementing a treatment?
2. What are the risks associated with treatment(s) versus the threat posed by an invasive species?
3. Are high threat low abundance/density infestations being considered that are cost effective to manage versus a low threat and widespread invasive species?
4. Has a threshold of acceptable damage and risks to the native environment been set when considering a management approach?
5. Have the predicted and likely pathways of introduction been examined? Are the vectors of spread and reintroduction from anthropogenic sources or is the species dispersed by wind, water, or animals? How are these vectors of dispersal accounted for in the decision process?
6. What will restoration and adaptive management and monitoring of treatment look like and cost?

Figure 1. The Adaptive Management Cycle



IPM programs combine management approaches for greater effectiveness. The most effective way to manage pests is by using a combination of methods that work better together than separately. Approaches for managing pests are often grouped into the following categories:

Manual and Mechanical Controls

Manual and mechanical methods eliminate an invasive directly through removal. Practices include hand pulling, grubbing, cutting, girdling, grazing, hoeing, mowing, and/or excavating. Physical controls include barrier techniques by benthic or terrestrial mats, mulches for weed management, water drawdowns, or even steam sterilization of the soil for disease management. Fire is also a form of management.

Cultural Controls

Cultural controls are practices that reduce pest establishment, reproduction, dispersal, and survival. Limiting exposed soil at work sites and restoring the environment with a natural seed bank can help limit re-infestations and keep populations of non-native plants to a minimum.

Biological Control

Biological control is the use of natural enemies like predators, parasites, pathogens, and competitors to feed on or disrupt an invasive species. Biocontrols are not expected to eliminate invasive species completely and it often takes years or even decades after repeated releases before their effects are substantial. When successful, biocontrol agents can provide long-term, widespread control with a very favorable cost-benefit ratio.

Chemical Control

Chemical control is the use of pesticides. In IPM, pesticides are used only when needed and in combination with other approaches for more effective, long-term control. Pesticides are selected and applied in a way that minimizes their possible harm to people, non-target organisms, and the environment.

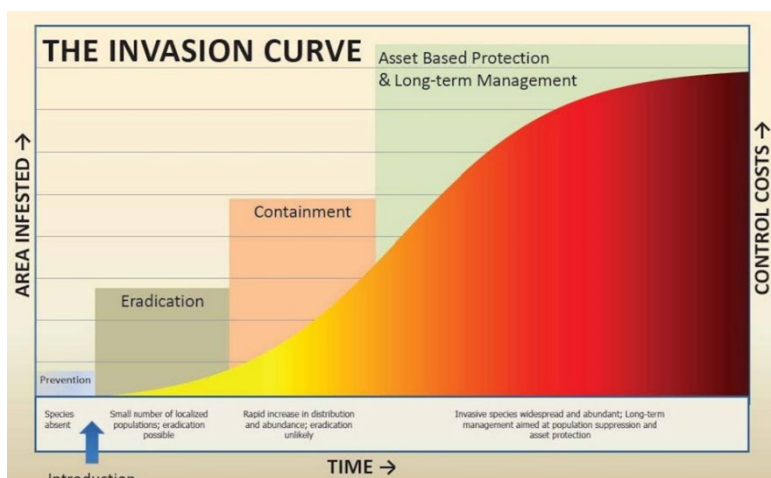
Adaptive Management and Monitoring

Adaptive management is described as an adapt-and-learn methodology as it pertains to implementing conservation practices. Adaptive management is a tool that enables natural resource agencies evaluate how they are meeting their short and long-term goals. To determine if a management response is working adaptive management provides a system to make that happen in real time. Adaptive management, including monitoring and evaluation along with the reporting of results, is critical to successful conservation. “In a conservation project context, adaptive management is a systematically trying different actions to achieve a desired outcome.”⁽⁴⁾

Tier List for Ranking Invasive Species

The PRISM has categorized invasive species based on known populations into a tier ranking system. The purpose of the tier system is to focus attention on high threat species that are not found in our region or are appearing in small populations that are manageable with limited resources. Preventing the introduction of new species is the most cost-effective strategy in controlling invasive species. Early identification and rapid response to new infestations that are found in small populations can result in successful eradication. When an invasive species is found regionally over a widespread area the cost to control populations can become prohibitive.

The Invasion Curve below demonstrates that prevention is the most efficient and cost-effective method of controlling invasive species. As invasive species becomes more established over time, the effort, and associated costs of addressing infestations increases significantly. The PRISM has categorized populations into a Tier System that follows the invasion curve. Species are evaluated over time for proper designation.



(Photo by: USDA Forest Service 2005 Invasive Plant Environmental Impact Statement) VIRIN: 140305-A-CE999-053.JPG

New York State Natural Heritage Program Invasive Species Tier List

Invasive Species Tiers

Standardized species lists for each PRISM

		Difficulty of Eradication / Cost of Control Abundance (In PRISM plus Buffer)			
		None in PRISM	Low (Eradication/ Full containment may be feasible)	Medium (Strategic management to contain infestations and slow spread in PRISM)	High (Established/widespread in PRISM; only strategic localized management)
Impact (current and future)	Very High or High	TIER 1 <i>Early Detection/Prevention</i> Highest level of early detection survey efforts. Should conduct delineation surveys and assign to appropriate Tier if detected. a) Inside buffer, but not in PRISM b) Outside PRISM and Buffer, but close (eastern North America) c) Far outside PRISM and buffer (not in east NA), but introduction pathway exists	TIER 2 <i>Eradication</i> Highest level of early detection response efforts. High impact species with low enough abundance and suitable treatment method available to make eradication feasible within the PRISM. Need delineation surveys to determine extent.	TIER 3 <i>Containment</i> Target strategic management to slow the spread, as likely too widespread for eradication, but many surrounding regions could be at risk if left unattended. For plants, use the IPMDAT. Possible eradication candidate only if adequate resources and effective control methods available.	TIER 4 <i>Local Control</i> Eradication from PRISM not feasible; focus on localized management over time to contain, exclude, or suppress to protect high-priority resources like rare species or recreation assets. Be strategic when deciding if / where to control.
	Medium	<i>Evaluate (Medium Impact)</i> Further evaluate impacts and PRISM resources to see if the species should be assigned to one of the other lists. If this species could feasibly become high impact with climatic or other environmental changes, consider moving to the appropriate High Impact row based on abundance. If too little is known, consider moving to "Monitor".			
	Unknown	X	TIER 5 <i>Monitor</i> Species that need more research, mapping, and monitoring to understand their invasiveness. This includes naturalized species and cultivated-only species that are known to be invasive in other regions but are not yet invasive here. Invasiveness may change with environmental or genetic changes. Should monitor populations on a regular basis to see if they are starting to become invasive and assign to appropriate Tier if invasive infestations detected.		

Tier 1 - Prevention / Early Detection

Not in yet PRISM, with anticipated high or very high impacts. Highest level of survey efforts. Should conduct delineation surveys and assign to appropriate Tier if detected.

Tier 1a: Species not in the PRISM, but in the buffer (surrounding PRISM)

Tier 1b: Species not in PRISM or the buffer, but in Eastern North America (with potential for establishment) Tier 1c:

Species far outside PRISM and buffer (not in east NA), but introduction pathway exists

Tier 2 – Eradication / Full Containment may be Feasible

High and very high impact species with low enough abundance to make eradication feasible within the PRISM. Highest level of response efforts. Need delineation surveys to determine full extent. (at the low end of invasion curve)

Tier 3 – Containment / Strategic Management

High and very high impact species that are likely too widespread for eradication, but low enough abundance to think about regional containment. Target strategic management to slow the spread since many surrounding regions could be at risk if left unattended.

Tier 4 – Local Control / Exclusion or Suppression

Well-established species with high and very high impacts. Eradication efforts not feasible; only localized management over time to contain, exclude, or suppress, if justified to meet local management goals. (Suppression efforts) *Subcategory: Not established outside of PRISM, manage to contain within PRISM.

Tier 5 - Monitor:

Tier 5a: Species in our PRISM that need more research, mapping, and monitoring to understand impacts.

Tier 5b: Species surrounding our PRISM that need more research, mapping, and monitoring to understand invasiveness and impacts.

The Capital Region tier list is not comprehensive. The tier list focuses on invasive species found within or near a PRISM that have a high or very high invasiveness ranking or are found to act aggressively enough in our region to be on the tier list. The CR-PRISM Tier List is a subset of invasive species and does not include all regulated and prohibited species, however, includes some sleeper species that have not yet been assessed for regulation.

- For a full list of NYS prohibited and regulated species as per NYCRR Part 575, please visit [here](#).
- For a full list of Invasive Threat Rankings of Non-Native Plant and Animal Assessments visit the New York Invasive Species Information website [here](#).
- The New York State Natural Heritage Program has a comprehensive state-wide tier list. To view that page click [here](#). On an annual basis the CR-PRISM does reevaluate and update the [tier list](#) for the Capital Region.

Response Prioritizations

Purpose: The Capital Region PRISM prioritizes high threat invasive species with a low number of populations. Invasive species are non-native and are a serious threat to the economy, environment and/or human health. Efforts are focused on conservation targets that are highly significant or protect rare and endangered species.

The PRISM prioritizes projects that have a high probability of success and the greatest impact with a limited capacity. The prioritization document provides an overview of considerations to be implemented when determining work efforts. These work efforts include prevention, monitoring and detection surveys, control, management restoration and adaptive management with post treatment monitoring. Part of the PRISM's framework of response also includes education and outreach strategies to targeted audiences with behavioral change messaging.

The framework below is specific to the CR-PRISM. The framework outlined here in is a method of response that permits the efficient use of resources while providing the greatest return on work efforts. The Capital Region PRISM focuses on Priority Conservation Areas and Priority Waterbodies. Secondary sites are considered based on ecological connectivity, social, cultural, or partner priorities at the discretion of the PRISM.

By Impact, Threat, Regulation, and Tier:

- Species are evaluated to determine their [invasiveness ranking](#) by assessing each species ecological impact, biological characteristics and dispersal ability, ecological amplitude and distribution, and difficulty to control. These assessments can be used for species that are established in New York State, new arrivals or even species that are not yet present. The rankings are based on a scale of 0 to 100, with 100 being the highest threat. The Capital Region PRISM focuses efforts on species with higher threat rankings due to their ability to invade areas at a faster rate and/or have a higher impact on the environment.
- Select invasive species are regulated by New York State to help reduce new infestations and spread of existing populations. Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species. Regulated invasive species are species which cannot be knowingly introduced into a free-living state, or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate and transport. The CR-PRISM targets prohibited species first to ensure the existing populations of these species are contained or eliminated.

- [New York State Prohibited and Regulated Invasive Plants](#)
 - [New York State Prohibited and Regulated Invasive Animals](#)
- Species are assigned to a tier based on state invasiveness ranks and abundance. A [statewide tier list](#) was developed by the New York Natural Heritage Program (NYNHP) to guide management priorities across New York State. Additionally, each PRISM has developed a [tier list](#) to guide management priorities within each region. It is important to note that tier rankings are dynamic and need to be reevaluated as new information becomes available (such as new recorded infestations or updates to invasiveness rankings).
 - **Tier 1** species are not yet present in the region and surveying efforts are targeted for early detection of these species. Targeting invasive species early is the most cost-effective approach to prevent further damages.
 - **Tier 2** species are present in low abundance and are possible eradication candidates. They are another high priority target during early detection surveys. If a tier 2 species is detected and the project is applicable, it can be run through the [Invasive Plant Management Decision Analysis Tool \(IPMDAT\)](#) to determine if eradication is feasible. If so, it will be added to the list of priority control projects for CR-PRISM staff and partners.
 - Actions regarding **tier 3 and 4** species are dependent on location and are addressed below.

By Location:

- Highly probable areas are the most likely areas invasive species will be introduced and/or established, especially pertaining to areas with a lot of human movement and disturbance. To protect larger areas that don't have invasive species or have a very low abundance of invasive species, the CR-PRISM prioritizes prevention, detection, monitoring, and response efforts in these areas.
 - For example: parking lots, boat launches & high use areas, trailheads, picnic areas, campgrounds, gravel/brush piles, rights-of-way, roadways, etc.
- The [New York Natural Heritage Program \(NYNHP\) Prioritization Models](#) were created to highlight areas of the state that have high ecological significance, a high risk of spread of invasives into the area, and high value according to their protected status. Areas that overlap with high values for all three categories (high ecological significance, high risk of spread and high value due to protected status) are locations where the CR-PRISM focuses prevention, detection, monitoring, and response efforts.
- The [New York Protected Area Database \(NYPAD\)](#) is a spatial database of lands protected, designated, or functioning as open space, natural areas, conservation lands, or recreational areas. These lands cover over six million acres, approximately 20% of New York State. While the database has 'Protected' in its name, that term is used broadly. Lands in NYPAD may be public or private, open or closed to public use, permanently protected from development or subject to future changes in management. The CR-PRISM focuses its efforts on public and protected land, therefore this database is a great resource for assisting in identifying those areas.
- The [Environmental Resource Mapper](#) is an interactive mapping application that can be used to identify some of New York State's natural resources and environmental features that are protected by the state or federal government, or of conservation concern. These maps are intended as one source of information for landowners, land managers, citizens, local officials, and project sponsors engaged in land use decision making, conservation, or environmental assessment. Additionally, the maps can assist in determining if a permit may be needed for projects in that area. These maps also show significant natural communities, rare plants or animals and wetlands. This is another great tool that helps the CR-PRISM prioritize which sites to manage.

- The CR-PRISM has established areas where efforts are focused within the PRISM boundary, called Priority Conservation Zones. These sites have high ecological significance, greater possibility of invasion, and/or are aesthetically appealing. The CR-PRISM surveys for and manages invasive species within 26 PCAs and 22 PWBs throughout the Capital Region that have been identified through these models.
 - Examples of these sites include: bird conservation areas, wildlife management areas, important bird areas, wild forests, state forests, preserves, parks, grasslands, and historic sites.
- The CR-PRISM has also designated an [Invasive Species Prevention Zone \(ISPZ\)](#), a formal designation for a natural area that is dominated by native species and is known to support exceptional biodiversity concentrations as stated by the New York Natural Heritage Program (NYNHP 2006). The goal of an ISPZ is to protect an area against the intrusion of invasive species. The ISPZ will allow land managers to maximize their limited resources by focusing on areas of high ecological value. In addition, an ISPZ will serve as a point to protect and preserve land holdings in their natural state for future generations.
- The [AIS Pond and Lake Vulnerability Prioritization for New York](#) is summarized on the NYNHP webpage as providing spatial information to help prioritize aquatic invasive species surveys and management efforts of lakes and ponds. With guidance from statewide partners, this online tool allows users to select risk thresholds for invasive species introduction, establishment, and impact to select a subset of lakes. Managers can use the resulting outputs to help guide their aquatic survey or management priorities.
- [Hudson River Aquatic Invasive Species Task Force Prioritization](#). The Hudson River is an expansive corridor that provides valuable habitat and migration pathways for native species across the Northeast US and beyond, as well as a myriad of ecosystem services for local (human) communities. It has been well established that invasive species pose a key threat to the ecological and economic resources that the River provides. The Hudson River Aquatic Invasive Species Task Force brings together state, nonprofit, and community partners to coordinate invasive species monitoring and control in this important watershed. At present, our geographic scope includes the Hudson River and its tributaries.
- [CR-PRISM Water Chestnut Prioritization](#): Water chestnut (*Trapa natans*) colonizes areas of freshwater lakes and ponds and slow-moving streams and rivers, where it forms dense mats of floating vegetation, causing problems for boaters and swimmers, and negatively impacting aquatic ecosystem functioning. The aquatic plant has been introduced to the northeast for over a century and is widespread. A prioritization document has been drafted to determine if an effort is warranted to manually control a plant through hand harvesting, or if a recommendation for mechanical harvesting should be pursued.

Using the tools above we can decide where to survey for and manage tier species. Additionally, these tools are used to determine areas to focus efforts by creating a list of Priority Conservation Areas (PCAs) and Priority Waterbodies (PWBs).

- **Tier 3** species are containment candidates, as they are too widespread to eradicate from the region, but certain areas may be at risk if they are not managed. Actions to contain these species are evaluated by the CR-PRISM staff to identify the most ecologically significant areas.
- **Tier 4** species are suppressed within and excluded from pristine areas that are dominated by native species and support exceptional biodiversity concentrations. Invasive Species Prevention Zones and other high priority areas are prime target locations for these efforts.

[By Presence of Rare, Threatened, Endangered & Species of Special Concern:](#)

Site assessments should be completed prior to treatment and restoration efforts to ensure actions will not disrupt rare, threatened, and endangered (RTE) species. RTE species are protected by New York State or by the United States Federal government. The CR-PRISM focuses efforts in areas with rare, threatened, or endangered species to ensure these species are protected and native biodiversity is maintained.

- The New York Natural Heritage Program (NYNHP) maintains a [rare plants list](#) and [rare animals list](#) for species in New York State. The NYS DEC maintains a [State Protected Plant List](#) and a [list of Endangered, Threatened and Special Concern Fish and Wildlife Species of New York State](#). The definitions of endangered, threatened, and rare plants and [animals](#) within New York State can be found on the [NYNHP Conservation Status Definitions webpage](#).
- The NYNHP also maintains [conservation guides](#) of native plants and animals as well as communities that provide more information about specific species and habitat types.

By Ecological Connectivity:

Landscapes are a mosaic of natural and developed parcels, which change overtime resulting in fragmentation of habitat, impacting biodiversity and ecological services provided. Connected corridors of land and forest are essential for many species to thrive, especially migratory species. Ecological connectivity is crucial to ensuring genetic diversity in populations and adapting to the impacts of climate change. The CR-PRISM considers areas that will provide ecological connectivity as a higher priority because of the services they provide.

The fragmentation of ecosystems impacts the ecological services provided by ecosystems which benefit wildlife and humans. There are four types of ecosystem services that serve important roles in human cultures, livelihoods, and survival.

- Provisioning Services- material benefits that are extracted from nature such as food, drinking water, timber, medicinal herbs, etc.
- Regulating Services- processes that benefit humans and wildlife indirectly such as pollination, decomposition, water purification, climate regulation, etc.
- Cultural Services- non-material benefits that contribute to development of people such as recreation, creativity inspired by nature, indigenous knowledge, etc.
- Supporting Services- natural processes that support all other ecological services such as photosynthesis, nutrient cycling, water cycle, etc.

By Hazard:

- Some species impact human health and the economy; therefore, they are the focus of removal and exclusion efforts to prevent harm to these groups. These are typically partner-led projects with the CR-PRISM available to assist based on funding or capacity.
- The CR-PRISM has also created High Priority Invasive Species Lists for aquatic, terrestrial, forest pests and agricultural species. These lists are reviewed and updated annually, as needed. Species on these lists are Tier 1 or 2 invasive species which pose a high or very high threat that are of particular concern with significant impacts to our ecosystems, economy, agricultural systems, and human health.

Using the above information and data, actions can be assigned to conservation areas based on the following guidelines:

Ecological Significance (model value)	Risk of Spread (model value)	# of iMap observations	Action
High	High	Low	Focus Capital Region PRISM surveys for Tier 1 and 2 species (but also create list of Tier 3 and 4 species for parcel). Focus control efforts if found.
High	Low	Low	Encourage volunteer surveys to report Tier 3 and 4 species (also include Tier 1 and 2 for more advanced surveyors)
High	Any	High	Provide information about Tier 1 and 2 species to conservation partner that has been collecting iMap data

Terrestrial Priority Conservation Areas*

1. Ann Lee Pond (Albany)
2. Ashford Glen Preserve (Albany)
3. Black Creek Marsh WMA (Albany)
4. Charleston State Forest (Montgomery)
5. Cherry Plain S.P. & Capital District WMA (Rensselaer)
6. Eldridge Swamp State Forest (Washington)
7. Four Mile Point Preserve (Greene)
8. Ft. Edward Grasslands (Washington)
9. Goose Egg State Forest (Washington)
10. Grafton Lakes State Park (Rensselaer)
11. Indian Kill (Schenectady)
12. Moreau Lake State Park ISPZ (Saratoga, Warren)
13. Partridge Run WMA (Albany)
14. Peck Hill State Forest & Willie Wildlife Marsh (Fulton)
15. Plantation Island WMA (Herkimer)
16. Ralph Rd State Forest (Warren)
17. Rockwood State Forest (Fulton)
18. Rural Grove State Forest (Montgomery)
19. Sanders Preserve (Schenectady)
20. Saratoga Sand Plains WMA (Saratoga)
21. Spruce Creek & Lake Reservoir (Herkimer)
22. Stockport Flats & Nutten Hook Tidal Wetland (Columbia)
23. Thacher State Park (Albany)
24. Vosburgh Swamp (Greene)
25. Washington County Grasslands (Washington)
26. Wilton Wildlife Preserve (Saratoga)

Aquatic Priority Waterbodies*:

1. Partridge Run WMA (Albany)
 - Fawn Lake
 - White Birch Pond
 - Tubbs Pond
 - Newt lake
2. Basic Creek Reservoir (Albany)
3. Thompson Lake (Albany)
4. Queechy Lake (Columbia)
5. Rockwood Lake (Fulton)
6. North-South Lake (Greene)
7. Spruce Lake (Herkimer)
8. Grafton Lakes State Park (Rensselaer)
 - Long Pond
 - Shaver Pond
 - Second Pond
 - Mill Pond
9. Black River Pond (Rensselaer)
10. Dunham Reservoir (Rensselaer)
11. Moreau Lake State Park (Saratoga)
 - Moreau Lake
 - Lake Bonita
12. Delegan Pond (Saratoga)
13. Round Lake/Little Round Lake (Saratoga)
14. Colonie Reservoir (Saratoga)
15. Featherstonhaugh Lake (Schenectady)
16. Collins Lake (Schenectady)
17. Mariaville Lake (Schenectady)
18. Butler Pond (Warren)
19. Rush Pond (Warren)
20. Halfway Creek/Ann Pond (Warren)
21. Carters Pond WMA (Washington)
 - Carters Pond
22. Battenkill River (Washington)

*The designation of these areas are subject to review.

Supporting Documents and Tools:

The CR-PRISM uses a [Framework for Response and Integrated Pest Management Approach](#) which can be used for a logical approach when responding to newly identified invasive species infestations. The framework is also designed to help the PRISM prioritize management activities while considering all aspects of management known and possibly unknown.

Invasive Species:

- [Invasiveness ranking](#)
- [Statewide tier list](#)
- [CR-PRISM Tier List](#)
- [iMapInvasives Online](#)
- [New York State Prohibited and Regulated Invasive Plants](#)
- [New York State Prohibited and Regulated Invasive Animals](#)

Rare, Threatened and Endangered Species:

- [NYNHP Conservation Status Definitions](#)
- [NYNHP Rare Plant Lists](#)
- [NYNHP Rare Animal Lists](#)
- [State Protected Plant List](#)
- [List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State](#)
- [NYNHP Conservation Guides](#)

Locations:

- [NYNHP Prioritization Models](#)
- [Environmental Resource Mapper](#)
- [New York Protected Area Database \(NYPAD\)](#)
- [Invasive Species Prevention Zone \(ISPZ\)](#)
- [NYNHP Natural Community Lists](#)
- [NYNHP Conservation Guides](#)

Reporting Templates:

- [Survey Report](#)
- [Treatment Report](#)
- [Invasive Species Management Plan](#)

Reporting Tools:

- [iMapInvasives Online](#)
- [iNaturalist Mobile App](#)
- [iMapInvasives Advanced Data Collection Tools](#)

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Appendix A: Aquatic Invasive Species Standard Operating Procedures

Capital Region Partnership for Regional Invasive Species Management

Aquatic Invasive Species Monitor, Detect, and Response Standard Operating Procedures 2023-2027



**INVASIVE SPECIES
MANAGEMENT**
CAPITAL REGION

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AIS Program Introduction

The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) is hosted by the Cornell Cooperative Extension of Saratoga County, and receives its funding from the New York State Department of Environmental Conservation via the Environmental Protection Fund. This document was revised in 2023 from the original version provided by the APIPP PRISM. The CR-PRISM is comprised of a core staff of four: Lead Coordinator, Terrestrial Invasive Species Coordinator, Education & Outreach Coordinator, and an Aquatic Invasive Species Program Manager. This document outlines the standard operating procedures for surveys and treatments for the Aquatic Invasive Species (AIS) Program Manager.

The CR-PRISM AIS program is deployed to address the PRISM goals of prevention, detect and monitor, and respond of the [Capital Region PRISM Five Year Strategic Plan](#). Prevention programs are deployed through the Watercraft Inspection Steward Program and outreach activities. Detection and monitoring services are deployed with an Aquatic Invasive Species Team (AIS Team) on predetermined priority waterbodies, and supplemented with subcontract work with a partner agency. On a limited basis, response efforts are conducted for high threat species in low abundance alongside other prioritizations. Prevention, detection, and response actions are determined by the [invasive species tiers](#), locations, and capacity, and occur on both public and private lands.

The New York State Invasive Species Comprehensive Management Plan (ISCMP) of 2018 is a supporting document that the CR-PRISM uses to address the threats posed by invasive species. The ISCMP is built on eight focal initiatives. Several of these initiatives such as prevention, detection, and management are incorporated into the decision-making process and operating procedures for the CR-PRISM TIS Program. Similarly, the elements of these focal initiatives can be found in the CR-PRISM Five Year Strategic Plan from 2023-2027.



“Prevention is a hallmark of an effective IS management plan, and remains a core strategy undertaken by New York’s collaborative network of partners. Yet despite best efforts, all invasions will not be averted. Thus, advancements in preparation are needed to limit the extent of negative impacts from new invasions. Though investment in prevention measures at all scales is the first line of defense, even the most robust prevention efforts will not be 100% effective. For this reason, early detection (and rapid response of IS infestations) is essential”

In addition, The [Watercraft Inspection Steward Program](#) (WISP) deploys watercraft stewards to perform three key functions in protecting waterbodies in the CR-PRISM and beyond. The WISP Program informs boat launch users of AIS impacts and spread prevention measures they can take, while also empowering boaters to protect the natural resources they cherish. The program additionally serves as early detection, by intercepting AIS from watercraft during launch and retrieval. The program is part of a statewide network to protect New York State resources.

The primary focus of the AIS Standard Operating Procedures is to outline the framework and methods for conducting prevention, detect and monitor, and response strategies in the CR-PRISM. The AIS Team uses two primary data collection applications for searched areas, presence detections and response measures. Data is uploaded in the statewide database iMapInvasives for both points and polygons including non-detections. First, iMap Mobile Advanced (IMMA) is used for AIS data collection for invasive aquatic plant bed polygons and points. IMMA is also used for treatment data collection, such as water chestnut response actions. The second data collection application is SAS_Pro (Simple Aquatic Survey). This application is recommended for most surveys, that do not require the mapping of aquatic plant beds.

Permitting and permissions are required prior to accessing a waterbody. Steps to acquiring permissions are outlined in this document. Water chestnut removals can be considered a form of dredging (dependent on the removal method) and may require additional permissions. When conducting a water chestnut removal, step-by-step instructions are provided in this document. Please refer to the safety section for guidance when working with volunteers, as well as reviewing the Pre-Site Assessment document prior to surveys or treatments.

Acronyms and Abbreviations

- AIS (Aquatic Invasive Species)
- AIS Team (Aquatic Invasive Species Team)
- CCE (Cornell Cooperative Extension of Saratoga County)
- CR-PRISM (Capital Region Partnership for Regional Invasive Species Management)
- IMMA (iMap Mobile Advanced)
- High Priority Invasive Species (HPIS)
- IS (Invasive Species)
- NYNHP (New York Natural Heritage Program)
- NYPAD (New York Protected Area Database)
- NYSDEC (New York State Department of Environmental Conservation)
- OPRHP (Office of Parks, Recreation & Historic Preservation)
- PWB (Priority Waterbody)
- RTE (Rare, Threatened and Endangered)
- SAS_Pro (Simple Aquatic Survey)
- TIS (Terrestrial Invasive Species)
- WC (Water Chestnut)

Invasive Species A species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purpose of 6 NYCRR Part 575, the harm must significantly outweigh any benefits.

Prohibited Species: Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species.

Regulated Species: Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate, and transport.

Horizon Scanning: A process for identifying and assessing potential risks posed by non-native species that may be introduced and become established.

High Priority Invasive Species (HPIS): A Tier 1 or 2 invasive species which poses a high or very high threat that are of particular concern with significant impacts to our ecosystems, economy, agricultural systems, and human health.

Species of Concern (SOC): Species that have unknown consequences and impacts to our environment, economy, agricultural systems, and human health. These species have shown evidence of invasive tendencies that could pose moderate to very high threats. These species can be approaching the region or found locally.

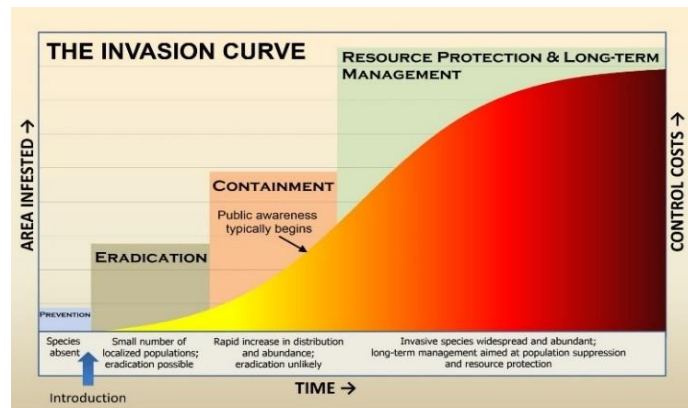
Sleeper Species: Species naturalized in a region, potentially invasive, but not yet invasive because they are limited by biotic or abiotic conditions. Many naturalized species remain at low abundance and will never become invasive, but others are constrained by unfavorable climate conditions. Climate change could create newly favorable conditions for naturalized species limited by climate, enabling them to 'awaken' and resulting in rapid population growth and invasion.

Goals

The Aquatic Invasive Species Team (AIS Team) is an important part of the CR-PRISMs AIS program. It is critical to have a trained group of professionals surveying waterbodies in the greater Capital Region to detect AIS. The AIS Team is comprised of the AIS Program Manager, AIS Watercraft Steward Assistant Supervisor, and additional seasonal staff as available/needed. Early detection of AIS allows for more effective treatments with a higher likelihood of eradicating or limiting the negative impacts. The Invasion Curve demonstrates the need for early detection and monitoring, depicting the greater the amount of time AIS is present, the higher the control costs and area populated.

Monitor and Detection Goals

- Identify the presence, distribution and abundance of AIS in waterbodies, with a special focus on early detection of small populations
- Collect data in a systematic way that allows for better management of lakes
- Reduce the chance of spread of AIS through monitoring and detection surveys on a rotational basis of PWB and non-PWBs
- Promote AIS awareness by being a visible presence to the general public



Waterbody Prioritization

Each year the AIS Team surveys a set number of lakes based on CR-PRISM priorities. The waterbodies are selected using a Priority Waterbody (PWB) model. A PWB is determined based on factors which make a lake more likely to be invaded (ex. public access, distant to major roadways, distance to invaded lakes, expert opinion, etc.), input from partners, working groups and logistical constraints. The current primary methods of surveying include meandering rake tosses and top side visual surveys. The AIS Program additionally uses a framework of response to prioritize sites. The framework considers: the presence of rare, threatened, endangered species and species of special concern, ecological connectivity, threat and tier of invasive species, with occasional consideration of socially and culturally significant sites based on accessibility.

The CR-PRISM has close to 296 waterbodies in the eleven-county region. To prioritize waterbodies for early detection surveys and response a Priority Waterbody Model was finalized in 2021. The model was created to help prioritize lake surveys where the greatest attention and efforts are needed with limited resources. In general, waterbodies with no or limited invasive species introductions, that are ecologically significant, and with public access should receive the greatest attention for early detection and response efforts. The prioritization model is based on a point system that assigns a given waterbody a

Factors for Classification as a Priority Waterbody for Surveying:

Prioritization Criteria	Points	Points Awarded
No AIS present in waterbody	15	
Access		
Public boat launch	15	
Public access w/out boat launch (shoreline fishing, etc.)	10	
Private access	5	
Survey History		
Has not been surveyed	15	
Has not been surveyed in 3-5 years	10	
Has not been surveyed in 2 years	5	
Comprehensive Score		
High Comprehensive Score	15	
Medium Comprehensive Score	10	
Low Comprehensive Score	5	
Nearby AIS (consider elevation)		
Tier 2 High of Very High threat species nearby	15	
Tier 3 or 4 High of Very High threat species nearby	10	
Other Criteria to consider		
Drinking water supply	10	
NY Protected Area	5	
Lake association present or under active lake management	-5	
Remote location with limited access/long carry or portages	-10	
Total		

priority ranking. Any given waterbody could be ranked with a priority level between 1-3. Priority 1 waterbodies receiving the greatest need for early detection efforts. Waterbodies, depending on their designated level can be surveyed annually or on a rotational basis.

On a limited basis eDNA will be deployed to supplement the AIS Teams work to detect the presence of high threat AIS species of great concern. Such actions including survey efforts will be in advisement with the NYSDEC Invasive Species Coordinate Section.

Prioritization:

Multiple factors are incorporated into the PWB Model. Additional factors come from resources including the [Environmental Resource Mapper](#), [iMapInvasives](#), [NYNHP Tier List](#), [NY Protected Area Database \(NYPAD\)](#), [AIS Pond and Lake Vulnerability Prioritization for New York](#), [Prioritization Mapper](#) and the [NYS Invasive Species Prioritization Model](#).

A comprehensive list of waterbodies within the CR-PRISM is available upon request.

Highly Probable Areas:

Highly probable areas are the most likely areas invasive species will be introduced and/or establish, especially pertaining to areas with a lot of human movement and disturbance. To protect larger areas that don't have invasive species or have a very low abundance of invasive species, the CR-PRISM prioritizes surveying and removals in these areas.

- For example: public boat launches and high recreational areas

Permitting

Permissions must be obtained from the landowner prior to accessing the waterbody for survey and removal work. Written permission is preferred using the CR-PRISM Permission Form. [County Tax identification maps](#) can be used to identify landowners with water access. All affected landowners must be contacted prior to accessing their property.

Permits may need to be obtained prior to access and/or response actions, depending on the location. It is the responsibility of the agency accessing the property to obtain the proper permits. Identify all state, federal, and local regulatory requirements. Consult with DEC to determine if an environmental assessment or environmental impact statement is required. Site assessments and necessary permits should be completed prior to treatment efforts to ensure actions will not disrupt rare, threatened and endangered (RTE) species. Please see the permits below that may be required for water chestnut treatments:

1. Office of Parks, Recreation and Historic Preservation (OPRHP) Scientific Research Application Permit
2. [DEC Statewide Offices Contact Information](#)
 - For questions contact your Regional Permit Administrator
3. General Permit for Management of Invasive Species
[Article 15 Protection of Waters Program](#)
 - Types of [General Permits](#)
 - [General Permit for Management of Invasive Species](#)
4. Freshwater Wetlands Permitting
 - [ECL Article 24 Freshwater Wetlands](#)
 - [Fresh Water Wetlands Joint Application](#)
5. Other:
 - Office of Parks, Recreation and Historic Preservation (OPRHP)
 - [Scientific Research Application Permit](#)

iMap Mobile Advanced (IMMA)



The iMapInvasives Mobile Advanced (iMMA) database system was developed by the New York Natural Heritage Program (NYNHP) for professionals in New York to monitor invasive species (*both terrestrial and aquatic*). The device requires connectivity to ArcGIS and downloadable maps and there are many different fields to collect data. The ArcGIS based program can be accessed through the Field Map mobile app. iMMA is useful for collecting treatment points and polygons, searched area, presence, detect, and non-detects. The data collection tool is also editable in ArcGIS Online. iMMA will primary be used for collecting treatment points and polygons.

When to Use:

The CR-PRISM typically uses iMMA (through Field Maps) as a water chestnut treatment data collection tool, but it can also be used as a more thorough data collection tool when mapping aquatic invasive species beds. An example of the latter can be found on the 2022 Moreau Lake State Park AIS survey report form, accessible on the [CR-PRISM Reports Webpage](#).

How to Access:

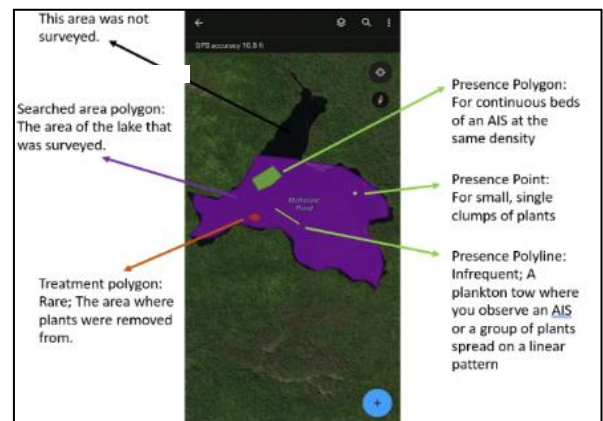
1. Download the Field Maps app onto your phone
2. Contact the iMapInvasives team at the New York Natural Heritage Program for access to IMMA ArcGIS Group (*note* you will also need access to the following groups for other projects: iMap Water Chestnut Work Groups, Simple Aquatic Survey (SAS) Pro Editor Map, WISP CRP*)
3. After the invite request has been approved, accept the group invite through ArcGIS online through your Cornell CCEgeomaps account.
4. Practice entering data in the mobile app before conducting field work.
5. Practice entering the field code
 - a. Note: It can be tricky to both enter field codes/points and paddle at the same time. It is recommended to use the tandem to better map invasive aquatic beds

Recording Data in iMMA

If you observe AIS while on your survey you will need to delineate its presence polygon (shape). There are three parts. First is the general presence shape and second the metadata fields. Third is the specific information about the species. See Additional Record Keeping for continued directions

Step One: Basic Protocol

1. Presence Polygon – You are mapping areas that have AIS. Normally this is one species with one percent cover class (Ex. Water Chestnut). The same species in a different area (normally greater than 100 feet away) would get a separate presence shape. You can map one area that has multiple AIS (and would need multiple Present Species Layers), but this would be a rare situation. See Appendix C for iMMA Data Tips.



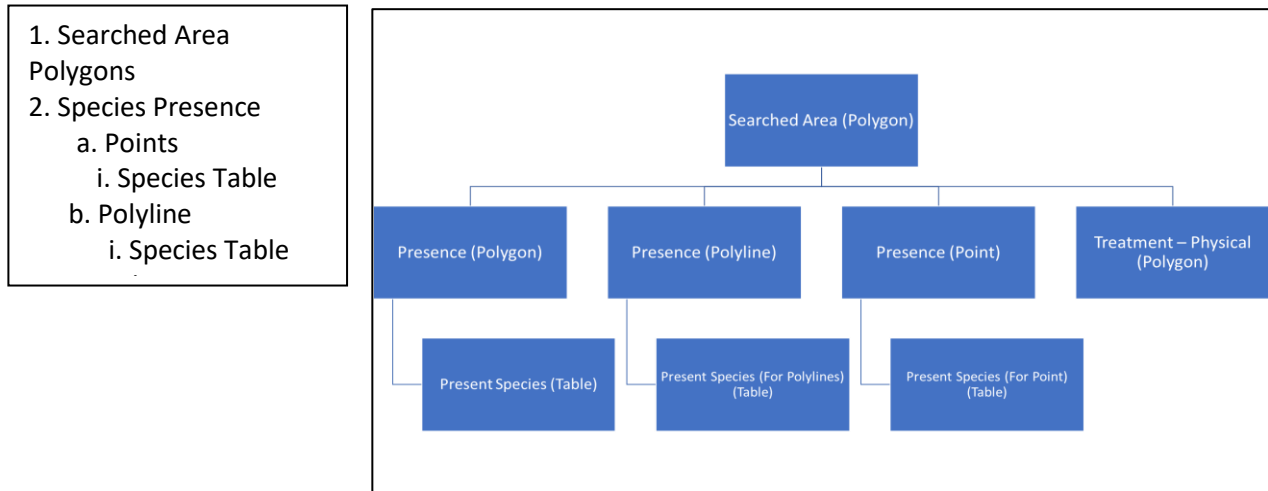
- Polygon: The most common shape. Outline the shape of the area that the AIS occupies. Drop points on the map to make the polygon. Points can be streamed as a continuous line but require large sets of data points that can use up battery time on your device. (Not recommended)
- Point: This is a single point for a small clump of individual plants. Generally, for an infestation less than 5 meters in diameter
- Polyline: This is to record species in a linear option. You will also use this to mark a plankton tow that had a positive or negative observation.

Step Two: Entering point and polygon data on the Application

2. Presence Polygon (Shape) Data Fields:
 - Observer ID: Your iMap ID
 - Date: Current date
 - Time Searched: Leave blank

Step Three: Entering Associated Field Data to the Polygon

3. Present Species: After you have mapped the presence shape you will add an associated present species table to identify the species and percent cover
 - Take Photo: If this is the first time that you have observed this species today, then you need to take a high-quality photo. **See the specific directions about photos*
 - Present Species: The name of the species
 - Number Found: Record if it is a small discrete number. If it's not easy to quantify, leave blank
 - Plant Percent Cover Class Estimate: For the Presence Point, Line, or Polygon (less than 5%, 5-25%, 26-50%, 51-75%, 76-100%)
 - Follow up: Optional to record if you think this infestation needs further assessment, management, or could be good for rapid response
 - Animal Found Alive: True or False. Leave blank for plants. This is mostly for snail species, clams, or mussels where you can come upon shells of dead individuals



1. Searched Area Polygons
2. Species Presence
 - a. Points
 - i. Species Table
 - b. Polyline
 - i. Species Table

Step Four: Treatment Specific Information

Treatment of an invasive aquatic macrophyte infestation. There are frequent cases in the CR-PRISM where you would hand harvest and remove floating plants. In general, this would have to be an isolated population that you felt you could collect almost all of the individuals in a 1-4-hour time frame. Species that this would be most likely for are water chestnut or European frog bit. If you do remove species all materials would need to be placed in a sealed trash bag and disposed of in a proper receptacle. You need to record a polygon in iMMA of the area that you removed plants from and collect the following data. In the event there is a Tier 1 or 2 species detected, a sample voucher will need to be collected and submitted to the office and the NYNHP/NYS DEC.

Treatment Polygon

- Treatment Target Species Name
- Treatment Start Date
- Treatment End Date
- Lead Contact Person iMap ID
- Organization iMap ID
- Mechanical Method: treatments are almost always manual pulling for the CR-PRISM
- General Treatment Comments: If it is a smaller quantifiable number you can record the number of individuals

Step Five (Less Frequent): Non-Detection of Invertebrates (Asian Clam & Two Waterfleas)

4. Plankton Tows

- When you are ready to start a plankton tow, go to the Searched Area Polygon and select Presence Polygon. Then click the add button and use the three button options to select start streaming. This will trace the line as you tow the plankton. When you are done you hit stop streaming
- Record Observer iMap Person ID and Date for the Line
- Next you need to add a present species to the Line
- If you found a water flea present Y/N
- Complete step 3 (Present Species) for the species observed
- If you did not observe any waterflea
 1. In the Present Species drop down select, "A fake species"
 2. In the comments write "no waterfleas observed"

Laptop Follow Up:

1. Field Map data will need to be submitted before it is visible on ArcGIS
2. Data will be uploaded onto IMMA
3. Log onto ArcGIS, Groups, click on IMap Invasives Mobile Advanced – iMMA (Only), **important:* Click on `imap3_mobile_advanced` map (*data only visible on this map*)

Additional Notes:

- Use the Water Chestnut Prioritization document prior to deciding on treatment locations

Simple Aquatic Survey (SAS_Pro)



The Survey123 SAS_Pro system was developed by the iMapInvasives Team of the New York Natural Heritage Program (NYNHP) for professionals to use as an aquatic survey collection tool. The CR-PRISM uses the Cornell Rake Toss method in conjunction with SAS_Pro. The Cornell Rake Toss method estimates the abundance of aquatic invasive and native species attached to the rake as space, trace, or dense. SAS_Pro uses searched area polygons in which rake toss points are imbedded into the search area. SAS_Pro functions without connectivity, and the pre-downloading of maps is not required.

When to Use:

The CR-PRISM uses SAS_Pro for basic aquatic surveys. The SAS_Pro application documents two major pieces of information: the first being rake toss locations and adjoining information, the second being species detected outside of rake tosses and adjoining information. SAS_Pro does not have the ability to map out invasive aquatic beds. SAS_Pro will typically be used with a meandering rake toss methodology and top side visual surveying in the littoral zone. The process is not as precise as a point intercept method but efficient for reporting general findings.

How to Access:

Contact the iMapInvasives Team at the New York Natural Heritage Program for desktop accessibility. After the invite request has been honored accept the group invite through ArcGIS online through your Cornell CCEgeomaps account.

1. Download Survey123 onto your phone and follow the directions in the link below
 - a. https://www.nynhp.org/documents/171/sas_pro_setup_guide.pdf
2. SAS_Pro iMapInvasives Online Training: <https://www.youtube.com/watch?v=2klmA3MizWM>

Recording Data in SAS_Pro:

Prior to leaving the office, create a Searched Area Polygon of the portion of the lake that you anticipate you will survey that day. Each survey team for each day needs to create a Searched Area Polygon.

- Example: One lake with two teams surveyed on one day would have two searched area polygons. One lake with two teams each day for two days would have 4 searched area polygons

You probably don't know the exact locations that you will cover, so you can make a general outline of the area that you think you will cover. At the end of the day you can adjust the polygon to the area if needed that you surveyed.

SAS_Pro *Quick* Directions

1. Create a searched area polygon
2. Survey the littoral zone (deep waters) or entire waterbody (shallow waters)
3. Survey for selected AIS
 - a. Plankton tows, Rake Toss, Top Side Visual methods
4. Record data in SAS_Pro
 - a. AIS observed
 - b. Non-detections of AIS put into iMapInvasives
5. See Additional Record Keeping for continued directions

SAS_Pro *Detailed* Directions

Step One:

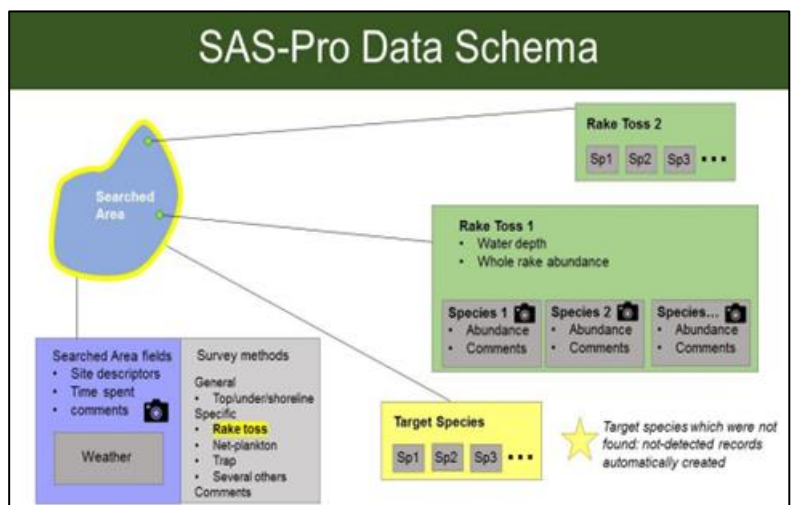
1. Make the polygon. Add points along the perimeter of the area you anticipate surveying.

Step Two:

2. Fill out the fields of data
 - 2.1. Items to complete before you start to go out on the water and survey:
 - iMapInvasives Person ID – This is the iMap ID of the lead person conducting the survey. This is so we know who to ask if we have questions
 - Organization ID – The CR-PRISM iMap Organization ID
 - Project ID not needed
 - Date – Today's date
 - Waterbody Name
 - Target Species List
 - Searched Area Field (includes fields like weather, waterbody type, substrate, survey methods, etc.)

Step Three

3. During Survey:
 - 3.1. Dependent on the 'Specific Survey Methods' selected, enter the appropriate field code
 - When conducting rake tosses, your GPS location will come up automatically
 - Recommended to practice entering a rake toss in office: some field codes can be cumbersome when entering multiple rake tosses and species.
 - Record native macrophytes found during the survey.



Step Four

4. Items to complete after the survey is done for the day:

- Native Vegetation Distribution: This is a qualitative assessment of the native plants that will be entered into the CR-PRISM Survey Report. This cannot be filled out until the end of the survey. The options are:
 - Dominant (Natives are the most common plants and widespread),
 - Subdominant (Natives are present, but invasive plants are more common and widespread),
 - Absent (There are no native plants either because there are no plants at all or just about all the plants are invasive)
- Crew Number: How many people are on the survey
- Crew Paid Hours: Total work time on the survey. For example, if there were two people and you spent 3.5 hours surveying the lake that day it would be 7 hours ($2 \times 3.5 = 7$). This does not include time driving, launching, or cleaning Equipment: It includes time only spent on the water or surveying from shore
- Searched Area Comments: Record any general comments about the survey. Note who was on the crew. Record if there was a reason why you did not survey a particular area. Record if you see any examples of people managing for AIS
- Cloud Cover: Percent of cloud cover in 20 percent bins
- Weather Comments: If there are any special weather comments like wind or lack of sun that would make observations more difficult
- Boat Type Permitted: Select the type of boat you used, motorized or non-motorized

Post-Survey Follow Up:

After you have finished the survey and gotten off the water, remember to update the searched area polygon shape if needed and fill out the fields. Lakes can take multiple days to survey, be sure to record all notes at the end of each day. Create a new record for the second day.

1. You will first need to finalize and submit the survey via phone or tablet. It can sometimes take a little time before data appears on desktop
2. Log onto ArcGIS and go to Groups
3. The Group is called Simple Aquatic Survey (SAS) Pro. *(At this time, the group was created in 2020)*
4. Click on the SAS_Pro Editor New map
5. You will need to zoom in to be able to view ArcGIS layers
 - a. Once you have identified your newly created points/polygons you have the ability to edit them as needed by simply clicking on it. A box will appear and you should see "Edit" on the bottom of the popup

Additional Notes:

It can be tricky to both enter field codes/points and paddle at the same time. It is recommended to enter all possible field codes before leaving office.

iMapInvasives



The CR-PRISM uses the New York State Invasive Species Database tools for collecting invasive species distribution information. These tools are products developed by the New York Natural Heritage Program through the iMapInvasives program. The CR-PRISM also encourages and trains partners and volunteers in the use of the data collection tools available to iMap users. The use of these tools is a contractual obligation, secondary applications are also used to assist in data collection. As online databases and applications are developed and improved these products may change over time.

The iMapInvasives Mobile application should be used throughout the season to upload invasive species presence points. The iMapInvasives desktop version should be used to record invasive species polygons. The number of

points for each PRISM is collected annually and reported in the CR-PRISM annual report. For more information and to watch a virtual demonstration please use the following links:

- [iMapInvasives Home Webpage](#)
- [iMapInvasives Self-Guided Training](#)
- [iMapInvasives Creating Polygons](#)

Record and Geometry Types:

Record Types

- **Searched Area:** the entirety of the area where detection surveys were conducted. Automatically generated for all other types of records.
- **Detect Record:** presence record, shows the presence of specific invasives
- **Non-Detect Record:** the surveyors looked for a specific species but did not find it
- **Treatment Record:** an individual or a population of invasive species were managed

Geometry Types

- **Points:** used when reporting only detect and non-detects. Can be reported through iMapInvasives Mobile App, Survey123, and Field Maps.
- **Polylines:** used when reporting only detect and non-detects. These can be input through Field Maps (detect only), Survey123 (detect and non-detect) and iMapInvasives Online (detect and non-detect).
- **Polygons:** can be used for searched area, detect, non-detect and treatment records. These can be input through Field Maps, Survey123 and iMapInvasives Online.

The Importance of Non-Detect Data Entry:

- It is a record of which locations have been surveyed
- A species is not detected during a follow-up survey, which could be an indicator of effective management
- An area that is likely to have a specific aquatic invasive species, and the invasive species is not found
- Non-detect records can be used to track the speed at which invasive species are spreading and determine potential vectors of spread

Additional CR-PRISM Record Keeping

1. Upload completed Surveys from SAS_Pro or IMMA at the end of the day
2. Complete an AIS Survey Report (SAS_Pro) **OR** AIS Treatment Report (IMMA)
 - Native plants will be recorded in the CR-PRISM Survey Report
 - Rare and Endangered Species of Concern will be documented internally. Information on these species can be accessed in Appendix B and accessible only to core PRISM staff members.
 - New or confirmations of existing populations will be reported to the NYNHP with photo evidence.
 - Complete the NYNHP Rare Species Form (Appendix A)
 - Upload onto CR-PRISM Website once complete
3. SharePoint Tracker: Survey/Control Work Tab
4. If a water chestnut treatment occurred, document in: ArcGIS, Groups, iMap Water Chestnut Work Group, Water Chestnut Action Sites (*editable*) Map

Safety & General Review Before You Go on The Lake

****Review the Aquatic Pre-Site Assessment Document Prior to your survey****

****Text location coordinates for safety, be aware of no-service areas****

The AIS Program Manager holds the lead responsibility to train and reinforce safety measures for seasonal staff and volunteers on a regular basis. Seasonal staff, partners and employees have the responsibility to practice all safety protocols.

NYSDEC Resource Mapper Should be Checked for RTE Species or the NYNHP Elemental Occurrences throughout data sharing agreement. This should be completed prior to all surveys and treatments.

Have all PPE and first aid present and prepped before leaving. Weather forecast should be checked for storms and prevailing and sustained winds. Tide charts should be noted for the surveys on the Hudson South of the Troy dam to NYC.

It is useful to review the area via iMapInvasives, that you will survey beforehand. This will give you background information on the area and indicate how many existing AIS there are.

- Visit [iMapInvasives Public Map](#) and zoom in on the area that you are planning on surveying
 - Note the species, number, and relative area of AIS in the area to survey
- Look at the lakes depth profile to know where littoral zones with plant growth will likely occur

The AIS Team surveys for both invasive invertebrates and plants. The AIS Team uses the following methods for surveys:

- **Invertebrates**
 - Plankton tows for macroinvertebrates
- **Plants**
 - Visual top side surveys from boats
 - Rake tosses
 - Sonar to inform rake tosses

Survey Equipment Needed

Survey Equipment	Survey Safety Equipment
Watercraft	Life Preserver
Paddles	First Aid Equipment
Plankton Net	Hat
Sonar (will need tandem Hornback boat)	Water/Food
Aquatic Rake(s)	Sunscreen/ Sun preventative clothing
Cooler & Water Jug for Samples	Area Maps (refer to pre-site assessment checklist)
Decontamination Equipment (see Decon section)	Locations of additional launches, inlets, outlets and impoundments
Tablet/Phone to collect survey data	Completed Pre-Site Assessment Checklist
Identification Guides	Whistle

Defining AIS Surveys

Waterbodies are surveyed on a rotational basis based on the CR-PRISMs Priority Waterbody Scoring Criteria.

- **Whole Waterbody Survey:** Surveying the entirety of the waterbody. Conducted when average of waterbody is comprised of littoral zone depth.
- **Littoral Zone Survey:** Surveying the littoral zone of the waterbody. Conducted when majority of the lake depth reaches beyond littoral parameters.

Surveying the Littoral Zone Basics

Move across the lake in a zig-zag pattern to cover all littoral zones (generally areas less than 18 ft deep) so you can observe as much area as possible. You have three general ways to observe: visual, rake tosses, and the current occasional use of the sonar.

Visual Observations: Using your eyes to see plants and animals in the water

- Polarized glasses help cut the glare of the water and are required at all times
- Pay special attention around key areas like docks, boat launches and other structures where you could see attached plants or animals (like zebra mussels on a dock piling)
- Best conducted on low wind days and low turbidity conditions
- Future Option/Purchase: Use of an aquascope that can aid in being able to see better under the water

Consider Advancing these Survey Tools: Sonar and GPS: Tools That Can Aid in Your Observations

- The GPS allows you to see your general area and provides context about where you are in the lake. Record your GPS track while you are conducting a survey as this will be used to map the areas that you went to
- Sonar is an additional tool that allows you to “see” what is on the bottom of the lake bed. With experience you can see readings that indicate plant beds on the lake bottom that you might not be able to visually see. You can then use a rake toss to retrieve these “hidden” plants

Top Side Visual Survey Protocols

Refer to Visual Observations (above). Top Side Visual surveying generally means looking over both sides of the watercraft while paddling for AIS.

Meandering Rake Toss Survey Protocols

The AIS Team surveys the littoral zone of a lake using a zig-zag meander of the lake paying special attention to frequently invaded locations such as:

- [Meandering Rake Toss Survey Protocol Cornell Methodology](#)
 - Inlets/ Outlets - Boat Launches/ Public Beaches – Marinas -Leeward sides of lakes
 - Prioritize Highly probable areas first, and ecologically significant areas second
1. Rake Tosses are a standard technique to help retrieve plants on the lake bottom. This allows you to bring in plants and observe them up close!
 - If you can see a plant on the bottom of the lake bed and want to pull it up to get a better look or to collect a sample use a rake toss to retrieve the plants
 - If the water clarity or depth does not let you see the lake, but you are still in less than 18 feet of water it is good to do some rake tosses to confirm if there are plants present or absent that you cannot see
 - In general, if you have been boating around for a bit and not seen any invasive species it is a good practice to throw out a rake toss from time to time to see if there are any invasive species that you can collect
 2. See Appendix B for additional meandering rake toss protocol resources



Surveying for Aquatic Invasive Zooplankton, Mussels, Snails, or Crayfish

Besides visual observations one method is used to survey primarily for invasive zooplankton and mussels.

- Plankton Tows: Plankton tows are used to search for aquatic invasive zooplankton using a 500- micron plankton net at the deepest point of the lake. Species of primary concern include: *Bythotrephes longimanus* (spiny waterflea) and *Cercopagis pengoi* (fishhook waterflea). The plankton tow is dropped off the bow of the stationary boat, released to a depth below the thermocline, and then towed for two minutes at a speed of 2mph behind the motorboat or as fast as possible by canoe, allowing the attached line to lie at a 45-degree angle. The net is then retrieved and samples can be placed into Nalgene jars or plain white containers for examination in the field. A microscope or hand lens is recommended. When detecting an invasive species new to a waterbody, collecting the sample is required.

Decontamination Protocol



It is critical that all equipment that touches the water be clean, drained, and decontaminated before you move to the next waterbody. **The AIS Team moves to more lakes than almost any other user so you are one of the highest risks for the spread of AIS!** Especially if you go to waterbodies that have small bodied organisms like water fleas or mussels, **decontaminating is a must.** The specific

equipment that needs to be decontaminated includes any equipment which touches the water including but not limited to: ropes all jars and containers, boats, paddles, sonar, cooler, anchors, shoes, etc. Pick off any visible plant/animal material (snails like to hide!). When going to multiple waterbodies on a given day, it is required to bring decontamination equipment with you (note* bring extra Decon towels).

Basic Decontamination Procedures

- Use equipment from the training center or visit nearby [Decontamination Stations](#)
- High temperature and pressure decontamination is best to before and after an early detection survey
- An alcohol/water or bleach solution should be used
- Hot water kills AIS, while rinsing, flushing or high pressure washing removes them

Additional General Decontamination Information

The information provided in this section has been acquired from the [Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species](#) (Bureau of Reclamation 2012). If aquatic equipment has been left in the water for less than a day, key actions to prevent the spread of all AIS are:

- Inspect and clean off any aquatic plants, animals, and mud from all equipment before leaving water access
- Drain motor, bilge, Livewell, and other water containing devices
- Dispose of unwanted bait, worms, and fish parts in the trash. When keeping live bait, drain bait container and replace with spring or dechlorinated tap water.
- Never dump live fish or other organisms from one water body into another

The intent of these actions is to clean off any visible large-bodied organisms attached to or in watercraft or recreational equipment. Draining can also remove small organisms such as zebra mussel veliger's, however, additional steps are needed to remove small-bodied organisms from other parts of the equipment. Those can be easily rinsed off or die out of water in a short period of time. Added precautions that improve treatment effectiveness are to:

- Spray/rinse recreational equipment with high pressure hot water to clean off mud and kill aquatic invasive species,
- Flush motor according to owner's manual, AND/OR
- Dry everything for at least five days before reuse or wipe with a towel before reuse.

Notes: Young mussels can survive in standing water for 24 days at 50°F, 8.5 days at 59°F, or 4.5 days at 86°F. It is recommended that even a simple hull rinsing with a garden hose and running water through the live well system can be effective. Rinsing of recreational equipment is an effective way to clean off species not visible to the naked eye. If aquatic recreational equipment has been left in the water for more than a day, the following decontamination methods are recommended:

- Spray/rinse hull and other external areas or recreational equipment with high pressure (2,500 psi) hot water (140°F for 10 sec).
- Rinse/flush motors with hot water (120°F) for 2 minutes.
- Rinse/flush interior compartments with hot water (120°F)

Water Chestnut (WC) Removals SOP



Water chestnut removals (*aka*: treatments) are conducted each year at priority locations by the CR-PRISM. Removal locations are determined using the Water Chestnut Prioritization document (Appendix A). All partner and public requests for water chestnut removals are considered. Water chestnut removals are typically justified by three separate factors: Ecological Significance, Public Outreach/Economic Value, Emergency Access. Apply for a General Permit or Joint Application Permit 3 months prior to activity or soon as possible.

WC Removal Equipment Needed

1. Documents needed for volunteers
2. Tablet/phone to collect survey data
3. First Aid Kit
4. Sunscreen
5. Appropriate Clothing (*sun resistant clothing, hat, good shoes*)
6. Life Preservers for each member of staff, and volunteers as necessary.
7. Terrestrial long metal rakes (*for volunteers without boats to remove water chestnut from shoreline*)
8. Black contractor bags (*for collection in watercrafts, usually emptied out at disposal location*)
9. Watercrafts (*extra for volunteers if needed*)
10. Paddles (*Make sure paddles connect correctly, and that there is the same amount as watercrafts*)
11. Decontamination equipment (*refer to Decontamination section of this document*)
 - Towels, bleach solution spray or other
12. Extra water and lunch
13. Vehicle
 - Filled gas tank
 - Truck if transporting biomass

Duties to be Assigned on the Day

- Who is the lead person for the water chestnut pull?
- Who is second lead?
- Who is loading the vehicles?
- Who will map the treatment area polygon through iMMA? (usually the lead)
- Volunteer greeter/paperwork
- Who is providing the overview before going out, to volunteers? (usually the lead)
- Second Lead will help in making sure volunteers are staying on task and in the right location. Second lead will also be assisting with safety throughout the pull.
- Who will be transporting filled bags to vehicle? (rotate between team members!)
- Who is counting the total number of bags and estimated weights?

Water Chestnut Removal Timeline:

1. The day before, make an announcement via **email to the volunteer list** reminding them of the event, with the flyer attached, in the email body text list supplies they should bring and what to expect (*can also do this in the registration automatic email*). Indicate if you will need to go with the rain date instead.
2. If working with partners or volunteers, plan to arrive at the removal location at least 45 minutes prior to the start time
3. **Load up** the Truck/Subaru
 - a. The Subaru can transport the Hornbeck boats. The truck can transport the larger plastic kayaks
 - b. Make sure that all supplies listed under equipment are packed up
 - c. Write down mileage

4. One you arrive at location, **unload all supplies** including medical kit, prep volunteer documents
5. Prior to volunteers arriving, make your way out onto the water and **map out the estimated treatment area** using IMMA. This can also be done post-volunteer arrival but not ideal
 - a. Take a 'BEFORE' photograph
 - b. Have the other person with you greet and hand paperwork to volunteers to sign, while you are out mapping
6. Take Photos throughout the event!
7. After you are done, gather group of volunteers and give a **brief overview** of water chestnut identification. Go over safety procedures, estimated time being out, what time lunch will be, where restrooms are, who the point of contact is, how to collect WC, what will be happening with the biomass, reasoning for the pull
8. Explain the 'Plan of Attack'
 - a. Are you focusing on satellite populations around a larger monoculture?
 - b. Are you focusing on one large area?
 - c. Show volunteers where they need to start, and where to continue next
9. Get out on the water!
 - a. Aid boaters getting into their watercraft
 - b. Have either yourself or another staff member help to lead volunteers to the right areas throughout the pull
 - c. Make sure every boater has a contactor bag to collect WC
10. As volunteers fill their contractor bags with biomass, one-two **designated team members** should be transporting filled bags to the vehicle
 - a. Dewater the bags before moving! Poke a hole in the bottom of the bag and let drain
11. It usually works out that when it is time to take lunch, bag transporters bring the first round of **biomass to disposal location**. Doing this during lunch means that no bags will be waiting for you when you arrive back
 - a. Reuse the bags as many times as possible
12. When nearing the very end of the pull, **map the treatment area** and take 'AFTER' photos
13. When is it time to **wrap up**:
 - a. Call volunteers in, assist from their watercrafts and collect all borrowed materials
 - b. Make decontamination procedures part of the pull
 - i. If possible, provide towels and spray
 - c. Bag transporters make a final trip to the disposal station
14. Head back to office, unload all materials and file volunteer paperwork
 - a. Write down end mileage in vehicle

Safety Procedures for WC Removals

Multiple aspects of a water chestnut removal creates safety concerns. The following are items both the lead and all staff members should be conscious of throughout a removal effort with or without volunteers.

- Waves and tippy boats
- Slippery launch due to water/rocks/nutlets
- Safety vests are required throughout the pull
- Buddy system if working with a younger group
- Points of contact for volunteers to ask questions when out on water
- Assistance from all staff in ensuring that volunteers are being safe and pulling in the correct location
- Assisting volunteers getting into their watercrafts
- Note the number of volunteers, make sure the same amount have exited the water during lunch and at the end of the day
- Sharp zebra mussel safety & nutlet safety

Disposal

Disposal of water chestnut should be organized roughly one month prior to the removal. In addition to general PRISM information, points of contact for disposal should be provided with an estimated biomass amount and drop off time frame. Refer to internal documents with disposal contact information.

A Call for Volunteers

Historically, volunteers for AIS have only participated for WC removal efforts. WC events with volunteer participation are geared towards community engagement. **Schedule a rain date.** Ideally, a call for volunteers occurs at least one month prior to the event. A follow up announcement is made two weeks prior to the event. If conducting works on partner property, volunteers must sign any required forms from the Partner. When working on the day with volunteers, it helps to indicate who the lead people are that they can direct questions to. Have a discussion with your team member on what the goals of the project are, and how they can help to guide volunteers who are not pulling in the correct location, or are not practicing safety measures. The following documents are brought to events for each volunteer to sign.

Must Sign

- **First time Volunteers:** Acknowledgement of Risk, Waiver & Release – Adult (*file these papers in office for seven years, no minors in volunteer engagement*)
- **Return Volunteers:** Volunteer application, code of conduct form, pass a background check, complete the CCE sexual harassment training

Optional

- Photo and Image Release
- Capital Region PRISM Volunteer Sign-up Sheet

Other

- Record number of participants and other information from the CCE of Saratoga County Group Programming Report Form CR-PRISM
- Volunteer engagement should be limited to 3 hours or less or two sessions of 2.5 hours with a lunch break

Partner & Volunteer Reporting

- **Was this an event with partners?**
 - **Yes:** Tracker- Add to Master Partner list. If new partner add to SharePoint Tracker.
- **Was this an event with the public/volunteers?**
 - **Yes:** Tracker- Add new volunteers to New Volunteers list & fill out a Cornell reporting form
- **Was the group trained on how to use iMap Invasives?**
 - **Yes:**
 - Tracker- iMap Trainings
 - Upload to iMap [here](#)

The AIS Coordinator is responsible for supervising the CR-PRISM seasonal staff, other agency staff and volunteers. **This includes safety briefings prior to the workday and ensuring all safety protocols are being followed while on site.** If seasonal staff, other agency staff or volunteers are not following required protocol, they should be asked to leave the worksite. The AIS Coordinator cannot discipline seasonal staff, other agency staff or volunteers but is required to share information with the PRISM Coordinator and Cornell Cooperative Extension Human Resources staff.



Photos

A photo is worth a thousand words! While not required for every single observation, they are encouraged. At a minimum you must take a photo of each new invasive species that you see each day. This will ensure that all first identifications for a waterbody will be documented.

It is important to take a quality photo of any new AIS occurrence documented on a lake. A good photo should:

- Clearly show the key identification features of the organism
- Have a ruler or common item like a coin for scale
- Have a solid background and even light
- These photos will be uploaded directly into reporting applications (IMMA or SAS_Pro). You can take multiple photos. It is good to include both an up-close photo and a general area photo. Examples:

Sample Collection

Plants

Not every plant species observed needs to have a specimen collected. We collect specimens to confirm identifications and for teaching purposes. Make sure you try to include a specimen that has key identification characteristics, like flowers, fruits, or other key id features. If you observe any of the following species or are uncertain about any species we ask that you collect a specimen.

- Also collect a specimen for verification if you are **recording the first known occurrence** of an AIS on a waterbody. **First occurrences need to be verified by photo as well as specimen voucher**

If you observe any of these species:

1. Collect 1-2 specimens per species as you survey a lake. If possible, select samples with key identification features like flowers, fruits, or other reproductive features
2. Take photo of the specimens with an item for scale
3. Place specimens in a plastic Ziplock bag with a damp piece of paper or paper towel
4. Using a sharpie on the outside of the bag (or pencil on a piece of paper in the inside of the bag) the following:
 - Species Name
 - Waterbody Name
 - General Lat / Long if large lake
 - Date and time (time is useful for matching with sonar log to get exact location)
 - Your Name
5. Leave bags in a cooler and transport back to office

Invertebrates

For invertebrate aquatic invasive species, we need to preserve a specimen for identification, teaching, and research purposes. If you observe species, please:

1. Collect 2-3 specimens per species as you survey a lake. If possible, make sure these are specimens that have tissue and not only a shell
2. Take photo of the specimens with an item for scale
3. Mark the species in Survey Application and make a note in the comment section that a species was collected
4. Place specimens in a jar and cover with 70% ethanol
5. Using a pencil on a piece of paper, label the jar with the paper inside containing:
 - a. Species Name
 - b. Waterbody Name
 - c. General Lat / Long if large lake
 - d. Date
 - e. Your Name
6. Transport jars back to office

High Priority Aquatic Invasive Species List

The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) created this list to identify the highest priority invasive species for monitoring, detection and response efforts within the Capital Region PRISM boundaries. This list will be shared with the Partnership to incorporate into their education and outreach, monitoring, detection, and response efforts.

These species were selected by the CR-PRISM staff through the revision of the [CR-PRISM Tier List](#), ecological threat rankings and species regulatory status. In addition, event horizon scanning techniques were used including reviewing tier rankings on neighboring PRISM tier lists, and observing proximity of species to the CR-PRISM region for each species.

Tier 2 High Priority Invasive Species- species with few known populations in the Capital Region PRISM

Common Name	Scientific Name	Growth Type	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Brazilian elodea	<i>Egeria densa</i>	Submerged	H	Insignificant Negative	Prohibited
Chinese mitten crab	<i>Eriocheir sinensis</i>	Animal	M	Insignificant Negative	Prohibited
European frogbit	<i>Hydrocharis morsuranae</i>	Floating	VH	Insignificant Negative	Prohibited
Sea Lamprey	<i>Petromyzon marinus</i>	Animal	M	Significant Negative	Prohibited
Spiny waterflea	<i>Bythotrephes longimanus</i>	Animal	VH	High Negative	Prohibited
Starry stonewort	<i>Nitellopsis obtusa</i>	Submerged	VH	High Negative	x
Variable watermilfoil	<i>Myriophyllum heterophyllum</i>	Submerged	VH	Equal Outcome	Prohibited

Tier 1 High Priority Invasive Species- species not yet detected in the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Fanwort	<i>Cabomba caroliniana</i>	Submerged	VH	Insignificant Negative	Prohibited
Fishhook waterflea	<i>Cercopagis pengoi</i>	Animal	VH	Significant Negative	Prohibited
Freshwater Jellyfish	<i>Craspedacusta sowerbyi</i>	Animal	Moderate	Equal Outcome	x
Parrot feather watermilfoil	<i>Myriophyllum aquaticum</i>	Emergent	H	Not Assessed	Prohibited
Hydrilla	<i>Hydrilla verticillata</i>	Submerged	VH	Insignificant Negative	Prohibited
Northern snakehead	<i>Channa argus</i>	Animal	H	Significant Negative	Prohibited
Waterwheel plant	<i>Aldrovanda vesiculosa</i>	Submerged	Unknown	Insignificant Positive	x

Appendix A:

Supporting Documents

All documents listed are accessible in the AIS Standard Operating Procedure folder in the CR-PRISM DRIVE.

1. Capital Region PRISM Water Chestnut Prioritization

The prioritization criteria for manual removal treatment efforts of water chestnut. These criteria help to guide the CR-PRISM's efforts to treatments with the greatest impact.

2. High Priority Aquatic Invasive Species List

This document lists the highest priority aquatic invasive species of the CR-PRISM. This list is comprised of Tier 1 and Tier 2 species.

3. Aquatic Site Pre-Assessment Document

This document details AIS survey expectation and duties. Provide this document to staff conducting AIS surveys.

4. Aquatic Site Pre-Assessment Checklist

Staff are asked to complete this checklist prior to leaving for an AIS survey. A copy of this checklist is expected to be provided to an additional staff member remaining at the office.

5. Capital Region PRISM Survey Permission Form

For sites requiring permissions, request this form to be completed.

6. Capital Region PRISM AIS Survey Report form

This form is to be completed for all Aquatic Surveys conducted by CR-PRISM staff. Once completed, this form should be uploaded to the [CR-PRISM's Reports webpage](#).

7. Capital Region PRISM AIS Treatment Permission Form

This form should be signed prior to treatment of water chestnut

8. Capital Region PRISM Treatment/Response Report Form

Complete this form after conducting an Aquatic Invasive Species removal.

9. [New York State Sun Safety Protocol](#)

All outdoor employees of CR-PRISM will receive sun safety training during their program orientation.

10. Cornell Accident and Injury Report Form

Any and all accidents and/or injuries should be reported using this form. Fill this form out as soon as possible prior to the end of the work day.

11. IMMA Quality Assurance Procedure

Steps are provided to ensure quality assurance for the uploading of data using IMMA.

12. NYNHP Rare Species Reporting Form

Complete these when the detection of a rare/endangered species occurs. This form is confidential once completed.

13. [CR-PRISM Framework of Response](#)

The AIS Program uses a framework of response to prioritize sites. The framework considers: the presence of rare, threatened, endangered species and species of special concern, ecological connectivity, threat and tier of invasive species, with occasional consideration of socially and culturally significant sites based on accessibility.

14. Volunteer Forms

Acknowledgement of Risk, Waiver & Release, Volunteer Application, Volunteer Code of Conduct Form, Volunteer Background Screen Authorization, Volunteer MVR Check Authorization, Complete the CCE Sexual Harassment Training, Photo and Image Release, Capital Region PRISM Volunteer Sign-up Sheet

Appendix B: Additional Resources

Rare and Endangered Species Information

- <https://www.nynhp.org/> (NYNHP Main Webpage: Scroll Down)
- <https://www.dec.ny.gov/animals/7494.html> (Endangered Species List for NYSDEC)
- <https://guides.nynhp.org/definitions/#:~:text=Endangered%2C%20Threatened%2C%20and%20Special%20Concern,listed%20in%20regulation%206NYCRR%20182.5.&text=any%20species%20which%20meet%20one,or%20extinction%20in%20New%20York.> (NYNHP Conservation Status Definitions)
- <https://guides.nynhp.org/> (NYNHP Online Conservation Guides)
- <https://govt.westlaw.com/nycrr/Document/I21efe775c22211ddb7c8fb397c5bd26b?viewType=FullText&originContext=documenttoc&transitionType=CategoryPageItem&contextData=%28sc.Default%29> (State Protected Plant List)

Rake Toss Resources:

- <https://nysfola.org/wp-content/uploads/2018/12/Rake-Toss-NYSFOLA2010.pdf> (NYSFOLA)
- https://www.dec.ny.gov/docs/water_pdf/cslapratoss.pdf (DEC Rake Toss Protocols)

Mapping Resources:

- <https://gisservices.dec.ny.gov/gis/erm/> (Environmental Resource Mapper)
- <https://www.nypad.org/Download> (NYPAD NY Protected Areas Database)
- <https://spatial.vhb.com/SaratogaMapView/> (Saratoga County Parcel Viewer)
- <https://www.capitalregionprism.org/ny-invasive-species-prioritization-map.html> (NY Invasive Species Prioritization Map)

Species Information Helpful Links:

- <https://www.invasivespeciesinfo.gov/species-profiles-list> (Invasive Species Profiles)
- <http://cfb.unh.edu/cfbkey/html/references.htm> (Zooplankton ID Guide)

Other:

- <https://www.neapms.org/> (Northeast Aquatic Plant Management Society Webpage)
- https://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedanimals.pdf (NYS Prohibited and Regulated Invasive Animals 2014)
- https://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf (NYS Prohibited and Regulated Invasive Plants)
- <https://www.nynhp.org/invasives/species-tiers-table/> (Statewide Tier List)
- https://www.capitalregionprism.org/uploads/8/1/4/0/81407728/crp_tier_list_combined_ais_and_tis_2021.pdf (CR-PRISM Tier List)

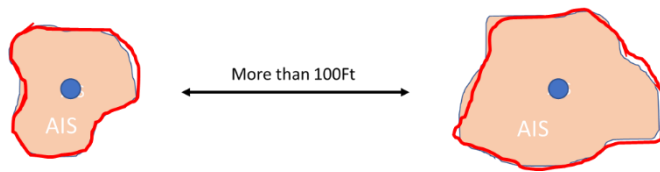
Appendix C:

IMMA Data Collection Helpful Hints

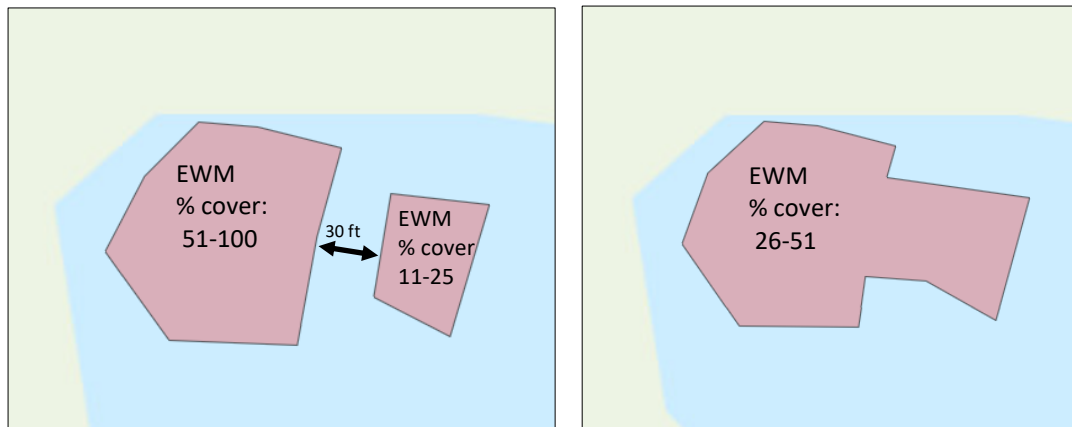
IMMA AIS Survey of Invasive Aquatic Plant Beds:

Splitting vs. Lumping

AIS infestations are not always contiguous. Often, there are visible breaks between patches of plants scattered across a larger portion of the waterbody. Should these sites be recorded with one presence record or multiple? It depends. If the patches are located more than 100 feet apart and you are confident they are not connected, record the site as two infestations (two presence records). However, if sites are closer than 100ft, consider using one presence record. A larger polygon that spans the visible plants and the gap between is acceptable, but indicate a lower percent cover in the attribute table. An exception to this is when it is easier to collect beds separately, you believe there is a clear difference in percent cover between two adjacent beds, or if beds are collected separately before realizing that they are close to one another. See examples on following page.



*Patches well separated and distinct. Area between can be surveyed and no plants are visible or detected via rake toss. **Record as two infestations (presence records).***



Patches are less than 100 feet apart or there is potential that plants are out of view and connect the two patches. **Record one infestation (presence polygon) that connects the patches.**

Appendix B: Terrestrial Invasive Species Standard Operating Procedures

Capital Region Partnership for Regional Invasive Species Management

Terrestrial Invasive Species Monitor, Detect, and Response Standard Operating Procedures

2023-2027



**INVASIVE SPECIES
MANAGEMENT**
CAPITAL REGION

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Definitions and Acronyms:

Invasive Species Prevention Zone (ISPZ): An ISPZ is a natural area usually greater than 500 acres which is dominated by native species and contains very limited intrusions from invasive species. An ISPZ is also an area highly susceptible to the introduction of invasive threats from multiple vectors. The presence of significant habitats, rare, threatened, or endangered species found within the designated area merits an additional layer of protection to preserve the existing ecology. The ISPZ will allow land managers to maximize their limited resources by focusing on areas of high ecological value. To learn more about ISPZs, visit the [CR-PRISM ISPZ webpage](#).

Priority Conservation Area (PCA): Natural areas that have high ecological significance, greater possibility of invasion, and/or are aesthetically appealing to provide a methodology for monitoring and surveying within the Capital Region PRISM. Areas were selected by ecological significance score, protection status and presence of rare, threatened or endangered species, in order to protect unique and rare ecosystems and habitats.

Framework for Response: the purpose is to provide resource managers with a tool that can be utilized for a logical approach when responding to newly identified invasive species infestations. The framework is also designed to help resource managers prioritize their activities while considering all aspects of management known and possibly unknown.

Integrated Pest Management (IPM): a process used to manage invasive species infestations. The goal of IPM is to maximize effective control and to minimize negative environmental, economic and social impacts. IPM is an adaptive ecosystem-based approach that focuses on multiple control options targeting invasive species to prevent, eradicate, contain, or suppress populations. IPM integrates best management practices across a broad spectrum while using a range of techniques.

Best Management Practices (BMPs): Best Management Practices (BMPs) describe the proper treatment techniques as well as timing for invasive species management. Checking prior response action records is one of the easiest and most important steps to ensure your efforts are successful. The phenology of each species is different and is impacted by growing degree-days, weather, and climate.

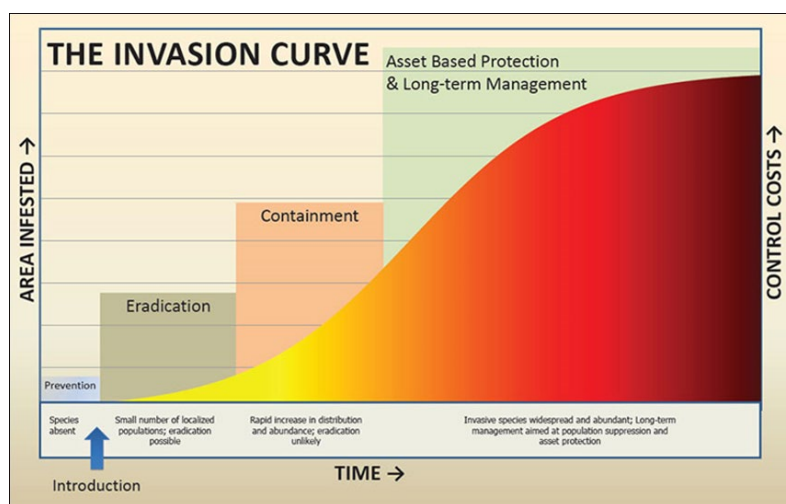
Personal Protective Equipment (PPE): equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses

Introduction

The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) is a collaborative organization created to address the threat of invasive species. The CR-PRISM operates across eleven counties and is funded by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation (NYS DEC). The CR-PRISM is comprised of a core staff of four: a Lead Coordinator, Terrestrial Invasive Species Coordinator, Education & Outreach Coordinator, and an Aquatic Invasive Species Program Manager. The CR-PRISM is hosted by the Cornell Cooperative Extension (CCE) of Saratoga County and collaborates with cooperating organizations, partners, and volunteers to reduce the spread and impact of invasive species. CR-PRISM deploys a coordinated and strategic approach for invasive species prevention, monitoring, and management in terrestrial and aquatic ecosystems on public and private lands and waters.

Partnership is addressed through participation in workgroups, connecting with new groups in the CR-PRISM region, and working with statewide partners to address invasive species issues. The TIS Program addresses prevention by identifying vectors of spread, working with partners to address those vectors and utilizing event horizon scanning to assist in planning. Detection and monitoring services are deployed with the Terrestrial Invasive Species Team on predetermined public and private lands and forests. Additionally, the TIS Program conducts response efforts for high threat species in low abundance alongside other prioritizations. The TIS Team provides education and outreach through trainings for partners and the community on prevention, detection and monitoring and response methods.

The CR-PRISM Terrestrial Invasive Species (TIS) Program is deployed to address the goals outlined in the [2023-2027 Capital Region PRISM Five-Year Strategic Plan](#). The CR-PRISM TIS Program work actions are selected and prioritized using the [CR-PRISM Framework of Response](#). The Terrestrial Invasive Species (TIS) Team is a critical part of the CR-PRISM program for both public and private lands and forests. To slow and mitigate the harmful effects of invasive species, it is critical to deploy a trained group of professionals to provide detection, monitoring and response actions to limit the harm of these non-native species. Identifying invasive species (IS) early allows for more effective response with a higher likelihood of eradicating or limiting the negative impacts of the invasive species. The Invasion Curve, below, demonstrates the need for early detection, showing that the longer an invasive species is present the higher the control costs and the more area is infested.



The New York State Invasive Species Comprehensive Management Plan (ISCMP) of 2018 is a supporting document that the CR-PRISM uses to address the threats posed by invasive species. The ISCMP is built on eight focal

initiatives. Several of these initiatives such as prevention, detection, and management are incorporated into the decision-making process and operating procedures for the CR-PRISM TIS Program. Similarly, the elements of these focal initiatives can be found in the CR-PRISM Five Year Strategic Plan from 2023-2027.

“Prevention is a hallmark of an effective IS management plan, and remains a core strategy undertaken by New York’s collaborative network of partners. Yet despite best efforts, all invasions will not be averted. Thus, advancements in preparation are needed to limit the extent of negative impacts from new invasions. Though investment in prevention measures at all scales is the first line of defense, even the most robust prevention efforts will not be 100% effective. For this reason, early detection (and rapid response of IS infestations is essential”

Purpose

The standard operating procedures contained in this document outline the framework and methods for conducting detection, monitoring, and response strategies in the CR-PRISM TIS Program. The TIS Program consists of the Terrestrial Invasive Species Coordinator and 3 seasonal Invasive Species Technicians. All required steps that need to be taken prior to accessing properties are outlined including safety precautions, prioritizing projects and locations, field season scheduling, permissions, permits, and pre-site assessments.

Occasionally, the TIS Coordinator is responsible for supervising seasonal staff, other agency staff and volunteers which requires forms and clear communication with participants. Additionally, monitoring and detection methods and data collection applications are outlined in this document.

Different response actions, restoration considerations, and follow-up monitoring should be addressed in every management plan. Disposal of invasive plant material and decontamination of equipment protocol are a very important component of any invasive species project and conclude these standard operating procedures.

Program Goals

The goals of the TIS Program are outlined within the goals from the [2023-2027 CR-PRISM Strategic Plan](#). The goals outlined below cover the main goals of the TIS Program but do not fully encompass all the work of the program.

Detect and Monitor Goals: *Detect and monitor harmful invasives species approaching and affecting the Capital Region.*

Objective 3.1 Make effective use of limited resources by monitoring priority species and locations.

Priority Actions

- *Reevaluate natural areas for monitoring by updating and using prioritization models such as CR-PRISM Priority Waterbodies (PWB), Priority Conservation Areas (PCA), and other statewide resources*
- *Monitor priority pathways and highly probable areas for harmful invasive species*
- *Monitor for species by tier classification*
- *Explore and adopt new technologies for early detections over large areas and time such as eDNA, remote sensing and photo documentation, when appropriate*

Objective 3.2: Engage partners and the community in detecting and monitoring high-priority invasive species.

Priority Actions

- *Identify prime audiences with the capacity to monitor high-priority species and locations*
- *Train and support partners, community scientists, and subcontractors to conduct surveys and document findings using CR-PRISM templates*

Objective 3.3: Recruit and train volunteers to collect data on invasive species using iMapInvasives database.

Priority Actions

- *Recruit and train new and existing volunteer networks and volunteers of PRISM partners*
- *Continue, expand, and develop volunteer network programs that use iMapInvasives, such as spotted lanternfly grids and hemlock hunters*
- *Train partners to provide iMapInvasives trainings*

Respond Goals: *Mitigate ecological and economic impacts of priority invasive species using an integrated pest management approach.*

Objective 4.1: Make effective use of limited resources by prioritizing responses to invasive species infestations.

Priority Actions

- *Use the framework of response/Integrated Pest Management approach to identify, delineate, and select management actions for high-priority species including post treatment actions, restoration, and when appropriate, research*
- *Deploy a response team that can quickly and effectively manage high-priority infestations*
- *Monitor known treatment sites to evaluate management effectiveness*
- *Coordinate access to private and public lands and waters for response actions*

Objective 4.2: Consult with partners to share information and resources to effectively respond to priority invasive species.

Priority Actions

- *Assist partners to develop programs for long-term invasive species management using the CR-PRISM's framework of response and iMapInvasives*
- *Engage PRISM partners to build rapid response capacity throughout the PRISM region*
- *Host management workshops*
- *Enhance and share best management practices and guidelines*
- *Facilitate equipment sharing among partners*

Objective 4.3: Restore sites following invasive species management and control efforts as needed.

Priority Actions

- *Evaluate and conduct restoration actions in areas vulnerable to climate shifts*
- *Provide guidance for restoration practices as requested*

Objective 4.4: Conduct and support research.

Priority Actions

- *Assist statewide partners and supporting agencies with research as requested, as time permits*

Safety

Safety is the number one priority when in the field! Data collection, monitoring, detection and response efforts are secondary. The TIS Team will be expected to perform tasks of a physical nature in various environmental conditions. The locations the TIS Team will be visiting can be remote, which can make it difficult to contact emergency services. This makes it paramount that the TIS Team prepare ahead of and execute the following actions prior to conducting field work. The TIS Coordinator holds the lead responsibility to train and reinforce safety measures for seasonal staff and volunteers on a regular basis. Seasonal staff, partners and employees have the responsibility to practice all safety protocols. Be sure to review the Site Pre-Assessment Checklist (Appendix D) prior to going into the field.

Prior to going into the Field:

- Have at least two emergency contacts on file.
- Ensure first aid and PPE are stocked and in working condition prior to leaving for a work site. First aid should be readily available in the field.
- Have information and cell numbers for Environmental Conservation Officers and the nearest hospital or urgent care center, in case of a worst-case scenario.
- Check weather conditions when planning out the day, weather is unpredictable and can change. Schedule a backup date for inclement weather.
- Use maps to get an understanding of the general area where the TIS Team will be working. Download offline maps whenever possible to provide GPS location while in the field.
- Be aware of injurious plants and know how to identify them. For more information, refer to the [NYS DEC Harmful Plant webpage](#).
- Treat field pants with permethrin to protect against ticks (CR-PRISM will supply this).
- If working in a flood plain area, be aware of the tide schedule for that location.
- Check the vehicle the TIS Team will be taking to ensure it is functioning properly (tire pressure, engine running well, gassed up, etc.).
- Let CR-PRISM staff members know where the TIS Team will be for the day as well as GPS locations for where the TIS Team will be parking. It is also good practice to let staff know when the TIS Team is expected to be back.

What to Wear into the Field:

- Wear appropriate clothing for the weather, wear layers. Breathable nylon, polyester blends and fabrics are best.
- Wear closed-toed shoes or steel-toed shoes, if available. **Absolutely no open-toed shoes allowed!**
- Wear long pants, they provide protection not only from ticks and other biting insects but will also provide a layer of protection from injurious plants and injury. For more information ask your supervisor or refer to the [NYS Integrated Pest Management website](#).
- Wear gaiters and bring bug spray (CR-PRISM will provide these) to ward off ticks and other biting insects.
- Bring a backpack to carry gear, food, water and safety equipment

Things to Bring into the Field:

- **EXTRA WATER and FOOD!**
- The first aid kit should be with the TIS Team at all times.
- The safety bin should be in the vehicle the TIS Team is taking at all times.
- All roadside safety equipment should be available in the CR-PRISM vehicle at all times. The safety light should be mounted to the truck.
- A charged cell phone, for communication between the TIS Team in the field and the CR-PRISM staff. It is also in case of emergency to contact the authorities.
 - Be aware that while in the field the TIS Team will not always have coverage.
- Sunscreen (CR-PRISM will provide this) to protect skin on sunny days.
- On cold weather days, bring hand/toe warmers (CR-PRISM will provide these).
- If using power tools or conducting giant hogweed work bring provided PPE for these activities.

In the Field:

- Check that all permissions and waivers are signed and filled out, if applicable, before entering private or public lands for the designated activity. Have a copy available in the field.

- If possible, check-in with CR-PRISM staff after arriving on-site. Some work locations will not have cell service, all information should be shared with CR-PRISM staff prior to leaving for the day.
- Place sign on dashboard stating that the vehicle is conducting invasive species work under direction of the Department of Environmental Conservation.
- Upon arrival at the worksite for the day, the TIS Team should review potential hazards for the day, and conduct a site safety pre-assessment (especially for removal sites), prior to starting work. The TIS Coordinator should alert all staff/volunteers of hazards on site and review other safety information for the day, through a safety briefing.
 - Notify all staff/volunteers on site of hazards and flag hazards with flagging tape.
- Log in and out of trail registers, if available.
- Check weather conditions throughout the day, if possible.
 - In the event of a storm, the TIS Team should seek shelter, and if the storm is not letting up the TIS Team should leave the site.
- On hot days, staff should take extra precautions such as applying sunscreen, bringing extra water and taking breaks in the shade or in air conditioning if possible. See Appendix A for more information.
- Keep coworkers and others in eyeshot or earshot
- Pay attention to surroundings, when walking/working and wildlife that may be nearby.
 - Be aware of varied terrain and all hazards on site
 - Be aware of wind gusts and leave the site if determined unsafe due to high winds
 - Maintain a safe distance of coworkers when operating manual or mechanical tools, others on site need to maintain a safe distance from those using tools.
 - Be aware of wildlife and keep a wide berth between them and staff.
- On steep slopes, keep space between individuals. In case someone falls, someone can assist the injured person
- When lifting heavy equipment, bend at the knees instead of putting strain on the back. If needed, ask someone to help assist.
- When using a pick mattock or long handled grubber, do not lift it above your head. Let the tool do the work.
 - Wear goggles and a hard hat to protect from flying debris. **Glasses do not count as goggles!**
- When conducting work along a roadside, wear the provided brightly colored neon safety vest and put out the road cones ahead of where the TIS Team will be working to notify drivers there is work being conducted ahead.
- When dealing with the public, always be calm and courteous. Use de-escalating language to calm situations if conflict arises. If needed, get in the CR-PRISM vehicle, leave the site and call your supervisor and/or the police when the TIS Team is safe.

Prior to Leaving Worksite/End of the day:

- Perform a tick check prior to leaving work site
- Let CR-PRISM staff know the TIS Team is leaving the work site/when the TIS Team returns to the office
- Change out of field clothing/take a shower after returning home

*For giant hogweed safety information, please refer to [DEC Giant Hogweed Safety Protocol](#) as there are more precautions needed when conducting giant hogweed removals.

**If an accident/injury occurs, an accident/injury report form must be filled out within 24 hours of the incident and shared with the CR-PRISM Coordinator and the Human Resources staff. See Appendix B for Accident/Injury Form.

SAFETY IS THE NUMBER ONE PRIORITY WHEN IN THE FIELD, EVERYTHING ELSE IS SECONDARY!!!

Parcel Prioritization

Each year, the TIS Program uses a framework of response to prioritize sites. The framework considers: the presence of rare, threatened, endangered species and species of special concern, ecological connectivity, threat and tier of invasive species, with occasional consideration of socially and culturally significant sites based on accessibility. Following prioritization of sites, the TIS Team conducts prevention, detection, monitoring, response and restoration actions. On a limited basis, the TIS Team uses environmental DNA (eDNA) for high threat species at a low density, guided by the needs of the NYS DEC Invasive Species Coordinate Section. Refer to the [CR-PRISM Framework of Response](#) for a full explanation of how work is prioritized. Priority Conservation Zones are designated using the CR-PRISM Prioritization Framework, these include Invasive Species Prevention Zones and Priority Conservation Areas. See below for descriptions of these areas.

Invasive Species Prevention Zone (ISPZ): An ISPZ is a natural area usually greater than 500 acres which is dominated by native species and contains very limited intrusions from invasive species. An ISPZ is also an area highly susceptible to the introduction of invasive threats from multiple vectors. The presence of significant habitats, rare, threatened, or endangered species found within the designated area merits an additional layer of protection to preserve the existing ecology. The ISPZ will allow land managers to maximize their limited resources by focusing on areas of high ecological value. To learn more about ISPZs, visit the [CR-PRISM ISPZ webpage](#).

Priority Conservation Area (PCA): Natural areas that have high ecological significance, greater possibility of invasion, and/or are aesthetically appealing to provide a methodology for monitoring and surveying within the Capital Region PRISM. Areas were selected by ecological significance score, protection status and presence of rare, threatened or endangered species, in order to protect unique and rare ecosystems and habitats.

The TIS Team is considered the first line of defense to prevent the establishment and spread of TIS. The CR-PRISM strives to ensure detection, monitoring and response efforts are as thorough and effective as possible using advanced data collection tools and staying up to date on current research.

Field Season Scheduling

The TIS Coordinator is responsible for creating a schedule for the TIS Team for the summer as well as scheduling detection surveys throughout the winter season for forest pests. The schedule should be drafted prior to the field season and approved by the PRISM Coordinator and the Conservation Committee. The NYS DEC Invasive Species Coordinate Section is included in the process through the development of the CR-PRISM Annual Workplan. Projects should include a combination of detection, monitoring and response actions. Detection and monitoring actions should include PCA surveys, Tier 1 and Tier 2 reports, highly probable area surveys, partner survey requests, etc. Response actions should include giant hogweed removals, Tier 2 removals, highly probable area removals, post-response monitoring sites, removals in high priority sites, partner requests, etc. The TIS Team occasionally assists with tabling and/or training partner staff. Keep in mind flexibility for inclement weather and unexpected obstacles when scheduling. A calendar should be maintained with updated information throughout the field season.

Annual revision of the [CR-PRISM Tier List](#), [High Priority Invasive Species List](#), post-response monitoring sites and known locations of Tier 2 species should be completed to assist in prioritizing projects for the year. The process for this includes reviewing the [NYS Statewide Tier List](#), running iMapInvasives reports as well as confirming points uploaded to iMapInvasives. Tier Lists and the High Priority Invasive Species List are shared with the partnership annually as new species emerge.

New partner and public requests for TIS detection and monitoring actions should be brought to the CR-PRISM Team for review, prior to commitment.

Prior to Accessing Properties

The CR-PRISM does not own property, therefore prior to accessing any property for prevention, monitoring, detection or response work actions the following actions must be completed. Allow for full transparency with the groups impacted by the invasion and open communication with the property owners. Permission needs to be obtained from the property owners, additionally permits may be required. It is very important to ensure rare, threatened, endangered species or species of special concern will not be impacted by any work actions on the property. The Site Pre-Assessment Checklist is provided to make sure all necessary precautions are taken prior to entering a site.

1. Identify groups that will be impacted by the terrestrial invasive species
2. Establish communication with these groups and include the messages below
 - a. Being a “host community” to an invasion is a burden
 - b. The risks from the invasion of the invasive species/forest pest
 - c. The available response actions and best management practices
 - d. The considerations to be used in decision-making
 - e. The process forward

Permissions must be obtained from the landowner prior to accessing the property for detection, monitoring, and response work. Written permission is preferred using the CR-PRISM Permission Form (see Appendix C). [Tax identification maps](#) can be used to determine affected landowners. All affected landowners must be contacted prior to accessing their property. Liability waivers and request for insurance agreements, if applicable, need to be approved by the host insurance provider.

Permits may need to be obtained prior to access and/or response actions, depending on the location. It is the responsibility of the agency accessing the property to obtain the proper permits. Identify all state, federal, and local regulatory requirements. Consult with DEC to determine if an environmental assessment or environmental impact statement is required. Please see below for permits that may be required prior to accessing property.

1. [DEC Statewide Offices Contact Information](#)
 - a. For questions contact your Regional Permit Administrator
2. [New York’s State Environmental Quality Review Act \(SEQR\) and Environmental Impact Statements](#)
3. For Work on State Parks Lands- [Office of Parks, Recreation and Historic Preservation \(OPRHP\) Scientific Research Application Permit](#)
4. For Work on NYS DEC Lands- [General Permit for Management of Invasive Species](#)
 - a. Types of [General Permits](#)
5. [NYS DEC Temporary Revocable Permit](#)

Rare, threatened and endangered (RTE) species locations should be checked prior to accessing properties to ensure they will not be disturbed during survey or response efforts. RTE species are protected by New York State or by the United States Federal government. The CR-PRISM focuses efforts in areas with RTE species to ensure these species are protected and native biodiversity is maintained.

- General information on species locations and permitting can be found on the [New York State Environmental Resource Mapper](#).
- The New York Natural Heritage Program (NYNHP) maintains a [rare plants list](#) and [rare animals list](#) for species in New York State. The NYS DEC maintains a [State Protected Plant List](#) and a [list of Endangered, Threatened and Special Concern Fish and Wildlife Species of New York State](#). The definitions of endangered, threatened and rare plants and [animals](#) within New York State can be found on the [NYNHP Conservation Status Definitions webpage](#).

- The NYNHP also maintains [conservation guides](#) of native plants and animals as well as communities that provide more information about specific species and habitat types.
- The CR-PRISM full-time staff has access to GIS layers with rare plant and animal species information as well as significant natural community data. These layers and the locations of these species and significant natural communities are confidential and are not to be shared with seasonal staff, partners or the general public.
- If RTE species are detected they should be reported to the NYNHP by using their [Rare Species Reporting Form](#).

Site Pre-Assessments should be completed prior to response and restoration efforts to ensure all steps have been taken to prepare for the field. Please refer to the Site Pre-Assessment Checklist (See Appendix D) for more information.

Supervision of Seasonal Staff, Other Agency Staff and Volunteers

The TIS Coordinator is responsible for supervising the CR-PRISM seasonal staff, other agency staff and volunteers. This includes safety briefings prior to the workday and ensuring all safety protocols are being followed while on site. If seasonal staff, other agency staff or volunteers are not following required protocol, they should be asked to leave the worksite. The TIS Coordinator cannot discipline seasonal staff, other agency staff or volunteers but is required to share information with the PRISM Coordinator and Cornell Cooperative Extension Human Resources staff.

Volunteer Work

When working with volunteers, indicate who the lead people are that they can direct questions to. The TIS Coordinator should have a discussion with CR-PRISM staff who will be present, prior to the event, to discuss what the goals of the project are, how they can help to guide volunteers to follow all safety protocols and engage them in the correct approaches for the project. If running an event with volunteers, ensure they stay within eyeshot to prevent people getting lost or injured. **Schedule a rain date.** Ideally, a call for volunteers occurs at least one month prior to the event. A follow up announcement is made two weeks prior to the event.

Volunteers may also be doing survey work on their own or following a training and it is important to ensure safety protocols are being followed. Volunteers will likely have questions so it is very important to try to address any questions that arise to the entire group.

The following documents are brought to events for each volunteer to sign and must be completed prior to any work being completed.

** If the volunteer is completing work on any partner property, they have to fill out any and all forms required by partners.

Required Forms:

- Forms required by partner agencies (if working on partner property)
- Liability waivers required by state and local agencies
- **First Time Volunteers:** Acknowledgement of Risk, Waiver & Release – Adult (file these papers in office for seven years, no minors in volunteer engagement)
- **Return Volunteers:**
 - Volunteer Application
 - Code of Conduct Form
 - Pass a background check

- Complete the CCE Sexual Harassment Training

Optional Forms:

- Photo and Image Release
- Capital Region PRISM Volunteer Sign-up Sheet

CR-PRISM Staff Forms:

- Cornell Event Reporting Form

Prevent

Prevention is the leading management strategy and most cost-effective measure when addressing invasive species. The CR-PRISM TIS Team incorporates prevention measures into everyday practices to minimize the introduction and spread of harmful invasive species into new areas. Decontamination following monitoring, detection and response efforts is a large aspect of prevention. Other actions of prevention include: implementing targeted prevention education for priority pathways of invasive species spread, collaboratively addressing invasive species prevention with partners and anticipating new introductions and reassessing current species of concern through event horizon scanning. These objectives are met through CR-PRISM staff and partner efforts.

Detect & Monitor

The following section below outlines the basic types of detection and monitoring protocols that are conducted by the CR-PRISM. Survey methods are defined and general frequency of surveys for priority locations to provide guidance to make the most effective use of limited resources. Quality reporting is essential to effective detection, monitoring and response efforts therefore mapping and data collection applications are described in detail as well as different record types for the variety of work efforts the CR-PRISM staff and partners complete. The data collected is shared with partners and detailed reports are posted to the CR-PRISM webpage. It is also extremely important to conduct follow-up monitoring and if needed begin response efforts.

Defining Surveys:

Trailside Surveys: These are visual surveys conducted along trails and surveyors largely do not leave trails unless there is something suspicious off-trail. These are typically conducted as a preliminary search in PCAs/secondary sites to establish a general idea of the invasives present/distribution of invasives within the property.

Highly Probable Area Surveys: These surveys are typically focused on areas where invasives are most likely to be introduced and/or established, especially areas with a lot of human movement or disturbance. These surveys allow a large parcel of land/forest to be surveyed in a more efficient and time effective manner. Surveyors visually check these areas for any invasives/forest pests that have not yet established in the rest of the parcel of land and prioritize these species for response efforts. It is important to check these areas on a regular basis.

- **How to identify a Highly Probable Area:**

1. Areas with a lot of human movement. Common invasives can typically be found in areas such as: campgrounds, parking lots, trailheads, skid roads, etc. Newly introduced species are typically found in areas where international trade/travel occurs more frequently.
2. Areas where there is a lot of human disturbance from various activities. Areas to focus on include: construction sites, mow lines, rights-of-ways, roads/highways, gravel/brush piles.
3. Area is known to have a lot of animal movement. For example, hemlock woolly adelgid is more likely to show up in hemlock stands near waterbodies and stream crossings due to the higher likelihood of birds traveling along these avenues.

Transect Surveys: A transect is a straight line that cuts through a natural landscape so that standardized observations and measurements can be made. These types of surveys are best used when conducting surveys with a large group of people. They are very effective for forest pest surveys when working with partner agencies and large areas of land need to be assessed.

Hangar Surveys: Hangar surveys are conducted for efficiency to cover a large portion of a geographic area with timed segments for detection and monitoring purposes.

Plots/Quadrats: Plots and quadrats provide extremely detailed information about the presence of native, non-native and invasive plants in a given area. They are beneficial for pre and post response data to show the benefits of managing invasive species.

Frequency of Surveys:

1. Invasive Species Prevention Zones have a low number of invasive species and typically have high ecological value. They are the highest priority for surveys, and should be monitored more frequently, especially following new detections. It is advised CR-PRISM staff rotate which grids are surveyed to ensure the entire landscape is being monitored.
2. Priority Conservation Areas (PCAs) have high ecological significance, greater possibility of invasion, and/or are aesthetically appealing. Areas were selected by ecological significance score, protection status and presence of rare, threatened or endangered species, in order to protect unique and rare ecosystems and habitats. These areas are surveyed on a rotational basis, based on rankings using the [CR-PRISM Framework of Response](#).
3. Secondary sites are surveyed dependent on partner requests, ecological connectivity, social and cultural meaning, and PRISM staff capacity.

Mapping Applications:

The mapping applications below are useful as a guide for ensuring detection and response teams stay within property boundaries and have a little more information about trail systems within the properties. CCE employees are eligible for an ArcGIS account through Cornell University. Register for a license with the University to access the organizational account.

- [Avenza Maps](#)- a mobile map app that allows the user to download maps for offline use on a smartphone or tablet. The device's built-in GPS can be used to track location on any map. Requires importing existing PDF maps into Avenza Maps. Limit to only 3 active maps unless the user has a paid subscription.
- [NYS Parks Explorer](#)- a mobile map app that allows the user to download maps for offline use on a smartphone or tablet. The device's built-in GPS can be used to track location on any map. Only NYS Park Maps are available on this app but it shows trails and property lines.
- [OnX Hunt](#)- a mobile map app that allows the user to download maps for offline use on a smartphone or tablet. The device's built-in GPS can be used to track location on any map. This app shows trails and property lines whenever available.

Data Collection

The CR-PRISM uses the New York State Invasive Species Database tools for collecting invasive species distribution information. These tools are products developed by the New York Natural Heritage Program through the iMapInvasives program. The CR-PRISM also encourages and trains partners and volunteers in the use of the data collection tools available to iMap users. The use of these tools is a contractual obligation, secondary applications are also used to assist in data collection. As online databases and applications are developed and improved these products may change over time.

Record and Geometry Types:

- Record Types
 - **Searched Area**- the entirety of the area where detection surveys were conducted. Automatically generated for all other types of records.
 - **Detect Record**- presence record, shows the presence of specific invasives
 - **Non-Detect Record**- the surveyors looked for a specific species but did not find it
 - **Treatment Record**- an individual or a population of invasive species were managed
- Geometry Types
 - **Points**- Used when reporting only detect and non-detects. Can be reported through iMapInvasives Mobile App, Survey123, and Field Maps.
 - **Polylines**- Used when reporting only detect and non-detects. These can be input through Field Maps (detect only), Survey123 (detect and non-detect) and iMapInvasives Online (detect and non-detect).
 - **Polygons**- Can be used for searched area, detect, non-detect and treatment records. These can be input through Field Maps, Survey123 and iMapInvasives Online.

Why Non-detect records are just as important as presence records:

1. A species is not detected during a follow-up survey
2. An area that is likely to have a specific invasive species or forest pest is being surveyed and the invasive species or pest is not found (such as hemlock woolly adelgid)
3. It is a record of which locations have been surveyed and which have not
4. Non-detect records can be used to track the speed at which invasive species are spreading and determine potential vectors of spread

Data to Collect:

Depending on the purpose of the work action, data to be collected will vary. See below for the most important data to collect for different detection and monitor work.

All surveys:

- Site Name
- Species detected/not detected
- Note time searched (especially for non-detection points/polygons)
- Take a high-quality photo for identification and another for a sitewide photo
- Percent Cover Class (what percent of the area is infested)
- Distribution (how dense is the infested area)

Forest Pest Monitoring/Detection Survey:

- Natural Community Type
- Live Crown Ratio
- Crown Density
- Native Vegetation Distribution
- Other stressors on trees

Response Efforts:

- Treatment Start and End Date
- Lead Contact
- Management Method used

Data Collection Applications:

The data collection applications below are the main tools that are used by the TIS Team for data collection. Please review the [Advanced Data Collection Tools Table](#) for the functionality of each of these tools. The [iMapInvasives Help Resources Library](#) is a great tool that has step-by-step guidelines on how to use each of the tools and different functionalities available from iMapInvasives. Upload any data collected at the end of the field day. The data from these surveys are uploaded into ArcGIS Online and then transferred to iMapInvasives Online.

- **[iMapInvasives Online](#)**- The online interface supports the collection of all data types (searched area, presence, not-detected, treatment), and geometry types (point, line polygon) in a map-centric graphical user interface, accessible via internet.
- **iMapInvasives Mobile**- This tool offers the fastest, simplest method for collecting invasive species presence and not-detected point data in the field, without connectivity. This is the most popular data collection tool for citizen scientists and volunteers and is also quite popular with natural resource professionals. Go to the App Store or Google Play Store to download this application.
- **Field Maps/iMap Mobile Advanced (IMMA)**- This tool is used primarily by CR-PRISM staff to record complex presence, not-detected, and treatment data as points, lines and polygons in a map-centric interface in the field. It includes post-treatment monitoring fields as well. This tool requires GIS experience. Data is reviewed by users within ArcGIS Online and cross-walked to iMapInvasives periodically. Go to the App Store or Google Play Store to download this application.
- **Survey123**- This data collection tool provides access to all the data types (searched area, presence, not-detected, treatment), geography types (point, line, polygon), and fields available in the online interface, but in a Survey123 form that can be used out in the field, without internet connection. Go to the App Store or Google Play Store to download this application.

Surveys that should be downloaded within Survey123:

- **iMap3- Forest Pest Data Collection:** The CR-PRISM utilizes this survey for biocontrol assessment surveys and other high priority stands. It collects information on site characteristics, tree health and density of the forest pests.
- **Giant Hogweed Control 042922:** This survey is where Giant Hogweed post-treatment monitoring and treatment data is recorded and is shared with DEC.
- **EDIT_Giant Hogweed Control 042922:** This survey allows submitted surveys from the Giant Hogweed Control 042922 Survey to be edited.
- **Biocontrol Monitoring Form- Initial Release:** This survey is used to record the details following release of *Hypena opulenta*, such as life stage released, number released and other information.
- **Hemlock Treatment Monitoring:** This survey is used to record tree health data for hemlocks that have been treated for hemlock woolly adelgid.
- **[ArcGIS Online](#)**- This is an online service where data collected from Field Maps and Survey123 will be uploaded prior to being uploaded to iMapInvasives Online. Access to this program is through the CCE of Saratoga County.
 - **Giant Hogweed Partners:** This group contains all data collected through the Giant Hogweed Control 042922 Survey in Survey123.
 - **iMap3 Forest Pest Data Collection Tool:** This group contains all data collected through the iMap3- Forest Pest Data Collection Survey in Survey123.
 - **iMapInvasives Advanced- iMMA (Only):** This group is the most used for the Terrestrial Invasive Species Coordinator. This is where all data from Field Maps/iMMA is uploaded and must receive a quality assurance and quality control check before it is uploaded to iMapInvasives.
 - **PRISM Share:** This is a group that is still in development, but the idea is to have PRISMs share where they are surveying for hemlock woolly adelgid to identify gaps with no surveys.

- **SLF Grid Squares - PRISM suggestions:** This group allows the PRISMs to select priority grids for the general public to survey and monitor. These grids are highlighted on iMapInvasives for their spotted lanternfly and tree of heaven mapping challenge.

****Always upload data points when connected to Wi-Fi to reduce the amount of data that is lost due to bad service. ****

To obtain access to the iMap3 Forest Pest Data Collection Tool, iMapInvasives Advanced-iMMA (Only), and SLF Grid Squares-PRISM Suggestions groups, contact the iMapInvasives team. For access to the Giant Hogweed Partners group, contact the NYS DEC Giant Hogweed Team. To access the PRISM Share group, contact the NYS DEC Forest Health team.

The user of these applications will need to edit and mark data collected as ready to upload to iMapInvasives. For instructions how to mark data as ready to upload, for more information on Quality Assurance and Quality Control (QAQC), please see Appendix F.

1. Select the record the user would like to upload
2. Click edit at the bottom of the record
3. Scroll to the bottom of the field codes
4. Find the field code box that says "Ready to Upload to iMap3" select "Yes"
5. The iMapInvasives Team will upload it when they transfer data from ArcGIS Online to iMapInvasives
6. If the user needs data sooner, contact iMapInvasives and he will fast-track the data transfer for that data

PRISM Recordkeeping

In order to have effective monitoring, detection and response efforts high quality recordkeeping is essential. It also allows for better tracking of project progress overtime which is necessary to apply adaptive management techniques.

1. Upload all polygons, points and polylines onto ArcGIS Online/iMapInvasives Online
2. Depending on the work completed, fill out a TIS Survey Report (for surveys), TIS Treatment Report (for initial response), or an Invasive Species Comprehensive Management Plan (for follow-up monitoring and response actions)
 - Save reports in the Survey, Treatment & Management Report Folder on the R-drive
 - Upload onto the Report Page within the CR-PRISM website once complete
 - Log-in information for website can be found in the Forms folder, Passwords Excel Sheet
3. Fill out the CR-PRISM SharePoint Tracker: Detect & Monitor & Response Tab

**** Location data of rare, threatened, endangered (RTE) species and species of special concern present are confidential but should be recorded for CR-PRISM records. Confirmation of RTE species present and new reports of these species should be shared with the New York Natural Heritage Program.**

Depending on the event there may be more reporting needed in the tracker.

- Events with partners, should add partner information to the Partner list
- Events with the public/volunteers, should add to the new volunteers list and fill out a Cornell reporting form (see Appendix G)
- Events with iMapInvasives training, fill out required forms and submit to the iMapInvasives Certified Trainers Network [here](#).
 - Follow-up training details form
 - Training Evaluation Survey

Follow-up Monitoring

Following survey and response efforts, follow-up monitoring should occur. Post-survey monitoring ensures continued assessment of sites and response actions will be initiated for newly introduced species. Use [Integrated Pest Management](#) to determine next steps following monitoring.

Priority Conservation Zones, highly probable areas and vulnerable sites with rare, threatened or endangered species or species of special concern should be prioritized for monitoring actions. This will allow for continued protection of areas designated as high priority sites and early detection of new invasive species introductions or expansion of existing infestations. The CR-PRISM highly encourages follow-up monitoring and tracking findings through the use of an [invasive species comprehensive management plan](#).

Response

Consider Constraints and Limitations:

Consider using a framework of response and decision-making tools to select and prioritize response actions. Following use of the CR-PRISM Standard Operating Procedures, if it is still unclear whether a response project should be initiated consider using the [Invasive Plant Management Decision Tool \(IPMDAT\)](#). This tool requires the agency considering response to assess all possible constraints and limitations associated with the project and make a more informed decision regarding proposed actions. The intent of the tool is to address unknown and known variables.

Defining Types of Response Actions:

Many factors need to be considered to determine if it would be beneficial to initiate response actions. Use A Framework of Response in conjunction with [Integrated Pest Management](#) to determine next steps following detection.

Framework for Response- the purpose is to provide resource managers with a tool that can be utilized for a logical approach when responding to newly identified invasive species infestations. The framework is also designed to help resource managers prioritize their activities while considering all aspects of management known and possibly unknown.

Integrated pest management (IPM)- a process used to manage invasive species infestations. The goal of IPM is to maximize effective control and to minimize negative environmental, economic and social impacts. IPM is an adaptive ecosystem-based approach that focuses on multiple control options targeting invasive species to prevent, eradicate, contain, or suppress populations. IPM integrates best management practices across a broad spectrum while using a range of techniques.

Methods of Response:

Education and Outreach- Informing affected audiences and the community of the threat of the invasive species present or approaching a region. Educating the community of these threats can lead to prevention, monitoring and detection or response actions being taken by community members.

Prevention- Proactive measures used to keep invasive species/forest pests out of an area (ie. installation of boot brush stations at trailheads). This is the most cost-effective measure when addressing invasive species.

Cultural- Using alternative methods to remove invasive species/forest pests from a region (ie. prescribed burns to control southern pine beetle or water manipulation to control phragmites)

Mechanical and Manual- Removing invasive species/forest pests via mechanical or manual means (ie. digging out a giant hogweed). CR-PRISM staff apply up-to-date research method to determine best management practices for

species. In addition, partner experiences and the biology of the invasive species are considered to assist in determining the best strategies.

Chemical- Using a chemical treatment of registered pesticide to kill an invasive species/forest pest. Chemical response actions should be used in a limited fashion. The justifications for chemical use need to be high with a good return on the benefit vs. the cost to doing nothing. (ie. Applying imidacloprid/dinotefuran to a hemlock tree as a basal bark spray to kill hemlock woolly adelgid)

It is advised that the Terrestrial Invasive Species Coordinator and TIS Team have at least a basic understanding of pesticides and application techniques. The TIS Coordinator is encouraged to take the 30 Hour Pesticide Core class to obtain a Pesticide Technician License. The CR-PRISM will provide funds for the class and the examination. For more information on chemical applications and pesticide safety, review the [Cornell IPM Guidelines](#).

Biocontrol- The control of an invasive species/forest pest by the introduction of a natural enemy or predator. This can also include diseases, both natural and man-made used to target an invasive pest. (Ex: Introducing *Galerucella* beetles to feed on purple loosestrife).

- CR-PRISM works with various partners, property owners (parks and preserves) and researchers, to assess properties for biocontrol releases, conduct releases and conduct post-release monitoring activities.
- Researchers typically have protocols in place that the CR-PRISM follows to ensure that the site pre-assessment, release process and data collection is effective, efficient and consistent.

Understanding the biology of the invasive species/forest pest to be managed is a great start to deciding what method of response should be used. For more information on the method and mode of response for different species refer to the [Adirondack Park Invasive Plant Program's \(APIPP\) Invasive Species Best Management Practices Guide](#) or reach out to the CR-PRISM staff.

Disposal:

Sometimes it is required that removed material be disposed of off-site. It is critical that all material is properly contained (usually in a trash bag) prior to removal off-site. Material moved off-site should be disposed of in a waste receptacle to prevent further spread.

Adaptive Management and Post-Response Monitoring

Following survey and response efforts, follow-up monitoring should occur with adaptive management as needed. Post-response monitoring is used to determine if management actions were effective and allows for an assessment of the response approach, in some cases, this may result in termination of active response measures. For projects that are not terminated, adaptive management should be applied to improve response outcomes. Use [Integrated Pest Management](#) to determine next steps following monitoring.

Areas monitored should be previously treated areas and highly probable areas. This will allow for continued protection of areas designated as high priority sites and early detection of new invasive species introductions or expansion of existing infestations. The CR-PRISM highly encourages follow-up monitoring and tracking findings through the use of an [invasive species comprehensive management plan](#).

Restoration

Following response actions, restoration activities should be conducted when appropriate, to ensure ecosystem resiliency and preservation of native biodiversity on the local level. The goal of restoration is to restore disturbed areas back to their natural ecological function by encouraging the recovery of native species to prevent the re-establishment of invasive species. Restoration activities can include reseeding, planting and propagating [native plants](#). [Climate change impacts](#) should also be considered when creating a restoration plan for a site. The CR-PRISM encourages an ecosystem approach to restoration projects.

Plant and seed sources should be from plants already on site, when possible or obtained from certified weed free locations. Seeds and plants selected for restoration should be assessed based on ecological functionality with the ability to serve multiple purposes for various species, including food, shelter and reproduction. CR-PRISM staff encourage restoring sites to ensure support of native plants, pollinators, wildlife, and ecosystem resiliency. A site restoration plan should be developed to determine goals and outline steps to achieve the goal.

Decontamination Basics

It is critical that all equipment that was on site be cleaned and decontaminated before moving off-site. The TIS Team moves to more lands and forests than almost any other user so the TIS Team is one of the highest risks for the spread of TIS! Especially if visiting sites with high threat species with viable propagules, **decontaminating is a must**. The specific equipment that needs to be decontaminated includes any equipment on site including but not limited to: grubbers, shovels, rakes, any tools used on site, shoes, clothing, etc. If available, high temperature and high-pressure power washing of equipment is the best management practice for decontamination. Brush off any visible plant/animal material and soil (seeds and rhizomes like to hide!). Brushes, water and soap should be used to ensure soil, rhizomes and seeds are unable to travel with the TIS Team. When visiting sites with forest pathogens, equipment (including shoes) should be sprayed with a bleach solution to ensure pathogens are not being transported offsite.



**STOP INVASIVE SPECIES
IN YOUR TRACKS.**

PlayCleanGo.org



Appendices

Appendix A: Sun Safety Information

SUN SAFETY

What Outdoor-based Employees Should Know



SUN SAFETY IS IMPORTANT

Safety hazards such as falls, power equipment, tick bites, and poisonous plants represent just a few of the threats to health that outdoor employees may commonly encounter. Supervisory personnel review, plan, and implement numerous protection measures related to maintenance/construction work, field activities, and other outdoor tasks to safeguard all staff. Yet sun safety is often overlooked, despite the sun's dominant presence in the sky.

This oversight persists despite the fact that **skin cancer is the most common form of cancer in the United States** and is predominantly caused by exposure to ultraviolet (UV) radiation. Each year there are more new cases of skin cancer than the grand total of new cancers of the prostate, breast, lung, and colon! In addition to skin cancer, exposure to sunlight can cause sunburn and early aging (wrinkles, sun spots, and blotching of the skin), cataracts, and a weakened immune system.

Sunburns and tanning hurt the skin and serve as outward signs of internal skin damage. Health experts place UV rays in the same group as other cancer-causing agents like asbestos, arsenic, and tobacco smoke.

SKIN CANCER RATES ARE RISING

The number of people who get skin cancer has greatly increased during the past 30 years for these reasons:

- Modern clothing exposes more skin
- Diminishing ozone, high in the sky, that partially protects the earth's surface from receiving UV rays
- Tanning is falsely viewed as healthy
- General aging of the population. Many people have moved to sunnier states

THREE MAJOR FORMS OF SKIN CANCER

There are actually more than 200 types of cancer that may appear in the skin. The three *major* forms of skin cancer are basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma – the deadliest form. Skin cancer can develop anywhere on the body but most often appears on surfaces receiving the greatest amount of sunlight. BCC and SCC often take the form of a pale, wax-like, pearly bump or a red, scaly, sharply outlined patch. The patches may crust over, discharge pus, and sometimes bleed.

If not treated early, SCC may spread to other parts of the body. Less than one percent of people with SCC or BCC actually die from skin cancer. For many individuals, these two skin cancers cause some disfigurement based on the amount of damaged skin the physician must remove. Fortunately, skin cancer can be easily cured, in most cases, if the disease is treated in its early stages.

Malignant melanoma is the most dangerous type of skin cancer. It often arises from or near a mole. An individual should see their doctor (especially a dermatologist) if a mole or growth appears that has one or more of these features:

- If divided in half, the two resulting parts would have different shapes
- It has jagged edges
- It has two or more colors (which may be mixed together)
- It is wider than a standard pencil eraser

Melanoma often appears on parts of the body not regularly exposed to sunlight. While light-skinned people have a greater risk of getting melanoma, this disease is increasing among people of color. Melanoma often results in death if it moves into internal organs such as the lungs, liver, or brain.

PERSONAL RISK FACTORS

While any individual can get skin cancer – regardless of skin color – light-skinned people are at highest risk. Individuals are more likely to develop skin cancer if they have one or more of these characteristics:

- Fair skin
- Blue or green eyes
- Light-colored skin
- Freckles
- A tendency to burn than tan
- A history of severe sun burns
- Have many moles (over 50)
- A personal or family history of skin cancer
- Outdoor worker

TIMING & ENVIRONMENTAL SUN SAFETY ISSUES

UV radiation is more intense under certain time frames or conditions:

- From 10 a.m. to 2 p.m.
- When there is lack of thick cloud cover
- From mid-spring through mid-fall (also during winter in higher elevations)
- At higher altitudes
- Reflective surfaces like snow, water and glass can direct additional UV rays toward people.

AVOID HEAT ILLNESS

In addition to UV rays, the sun emits heat that can create hot environments. Exposure to hot environments can cause heat illness such as heat cramps, heat exhaustion or even heat stroke which is considered a medical emergency that may result in death. Employees should stay hydrated and seek shade or air conditioning during breaks. If you are not feeling well, notify your supervisor or a co-worker.



SKIN CANCER PREVENTION

The recommended practices for preventing skin cancer are:

- Liberally apply sunscreen to exposed skin 15 minutes before going outdoors. The sunscreen should have a sun protection factor (SPF) of 15 or above and should provide UVA and UVB protection. Depending on outdoor conditions, sunscreen should be reapplied every two hours.
- Use lip balm with a SPF of 15 or higher.
- Wearing sunglasses with UVA and UVB protection will help keep your eyes protected. Prescription glasses can have a UV-protective coating applied to the lens.
- Wear a wide-brimmed hat (at least 4-inch brim) that produces a shadow which covers the eyes, nose, face, ears, and neck.
- Wear tightly woven, loose-fitting clothing that covers as much of the body as possible, weather permitting
- Stay under shade (trees, physical structures), when possible.
- Reduce sun exposure from 10 a.m. to 2 p.m. when UV rays are strongest. (This is especially important from mid-spring through mid-fall.)
- Avoid tanning salons, booths, and sunlamps.

On a personal level, employees should use a hand mirror to perform a self-skin examination every one to three months to check moles and other possible signs of skin cancer as previously described. See a dermatologist if you suspect any problems. Visit www.skincancer.org to view pictures of skin cancer. Also, check out the website's "self-examination" section.

SKIN CANCER TREATMENT

Eighty to ninety percent of skin cancers are treated with surgery. Other solutions include radiation therapy, electrodesiccation (tissue destruction by heat), cryosurgery (tissue destruction by freezing), laser therapy, and drug therapy.

References: Center for Disease Control Cancer – [Basic Information about Skin Cancer](#)
Center for Disease Control and Prevention. Division of Cancer Prevention and Control. [Cancer - Skin Cancer](#)

New York State Department of Public Health Signs and Symptoms for Heat Illness and Heat Stroke

Heat-related illnesses occur when the body is unable to cool itself. The most common heat-related illnesses are heat stroke (sun stroke), heat exhaustion, heat cramps and heat rash. Here are the symptoms and first-aid responses.

Illness	Symptoms	What to Do
Heat stroke THIS IS AN EMERGENCY - ACT FAST!	<ul style="list-style-type: none"> • Hot, dry, red skin • Rapid pulse • High body temperature $\geq 105^{\circ}$ • Loss of alertness • Confusion • Unconsciousness or coma • Rapid and shallow breathing 	<ul style="list-style-type: none"> • Call 911 immediately. • Cool the person quickly. • Bring to a cool place and use a cool bath or sponges, fans and AC. OR • Wrap ice packs in cloth and place on neck, wrists, ankles and armpits. OR • Remove clothing and wrap the person in cool, wet sheets.
Heat exhaustion	<ul style="list-style-type: none"> • Heavy sweating • Fainting • Vomiting • Cold, pale, clammy skin • Dizziness • Headache • Nausea • Weakness 	<ul style="list-style-type: none"> • Heat exhaustion can quickly lead to heat stroke so if symptoms worsen or don't improve get medical help. • Move the person to a cool place. • Loosen clothes and apply cool, wet cloths to the neck, face and arms. • Have the person sip water slowly. Provide half a glass of water every 15 minutes up to about 1 quart. Stop giving water if vomiting occurs.
Heat cramps	<ul style="list-style-type: none"> • Muscle cramps in the abdominal area or extremities • Heavy sweating • Mild nausea 	<ul style="list-style-type: none"> • Move the person to a cool place. • Apply firm pressure to the cramping muscle. • Gently stretch the cramped muscle and hold it for 20 seconds followed by gentle massage. • Have the person drink some cool water.
Heat rash	<ul style="list-style-type: none"> • Skin irritation that looks like a red cluster of pimples or small blisters 	<ul style="list-style-type: none"> • Move the person to a cool place. • Keep the affected area dry. • Have the person use talcum powder to increase comfort.

What can I do during a heat wave?

- Use air conditioning to cool down or go to an air-conditioned building.
- If you don't have air conditioning in your home, open windows and shades on the shady side and close them on the sunny side to try to cool it down.
- Drink plenty of fluids but avoid alcohol, caffeine and sugary drinks.
- Beat the heat with cool showers and baths.
- Take regular breaks from physical activity.
- Avoid strenuous activity during the hottest part of the day (between 11 a.m. and 4 p.m.).
- Wear loose, lightweight, light-colored clothing to help keep cool.
- Stay out of the sun as much as possible.
- Wear sunscreen and a ventilated hat (e.g., straw or mesh) when in the sun, even if it is cloudy.

Who is most at risk from the heat?

- Older adults
- Young children
- People who are overweight/obese
- People who do not perspire normally
- People with some chronic medical conditions such as history of dehydration, heart problems and respiratory or lung problems
- People who work outdoors or in hot settings
- People who take certain medications that cause sensitivity to the sun or interfere with the body's ability to sweat and stay cool. Some medicines that affect the body's cooling system include antihistamines, antidepressants, over-the-counter sleeping pills, anti-diarrhea pills, beta blockers, anti-Parkinson's drugs and psychiatric drugs. Do not stop taking medication unless instructed to do so by your doctor.

Appendix B: Accident and Injury Form

Cornell Cooperative Extension Association Accident/Injury/Illness Report

To be completed by Employee and Supervisor or delegate within 24 hours of occurrence or as soon as situation is stabilized.

Submit completed report to The Wood Office:

Fax immediately: 607-266-9663

Email: erin@thewoodoffice.com;

karen@thewoodoffice.com

Mail copy to: The Wood Office, PO Box 4798, Ithaca, NY 14852

Section A: To be completed by the Association	
Association Name	
Name of Injured	
Supervisor or Program Leader Name	
Date of Incident	
Today's Date	
Association Address	
City, Zip	
Safety Contact Name	
Safety Contact Phone	
Section B: To be completed by Injured Individual (Employee, Volunteer or Participant)	
Name	
Address	
Phone Number	
Role/Title of Injured – <i>check all that apply</i>	<input type="checkbox"/> Employee Volunteer <input type="checkbox"/> Enrolled 4-H Participant <input type="checkbox"/> Enrolled 4-H Club Leader <input type="checkbox"/> Program Participant <input type="checkbox"/> General Public <input type="checkbox"/> Other _____
Date & Time of Accident/Injury/Illness	
Detailed Location of Accident/Injury/Illness	
Please describe what happened, in your own words, including indication of any equipment, vehicles or other materials involved	



Section B (continued): To be completed by Injured Individual (Employee, Volunteer or Participant)	
Name and Contact Information of those who witnessed the Accident/ Injury/ Illness?	
Describe any emergency treatment administered at the scene of the Accident/ Injury/ Illness	
Describe any medical treatment following the Accident/Injury/ Illness	

Section C: To be completed by Association and Employee, Volunteer or Participant together	
What caused the Accident/Injury/ Illness? Why do you think this?	

SIGNATURE

Signature of Injured Individual

Date:

SIGNATURE

Signature of Supervisor

Date:



Appendix C: CR-PRISM Permission Form

MEMORANDUM

TO: Whom it may concern
FROM: Sam Schultz; Terrestrial Invasive Species Coordinator
DATE: Month date, year
SUBJECT: Survey/Response Site for Invasive Species

We are asking for your permission to establish a 2023-2027 survey/response site on your property. The Capital Region PRISM selected your site and would complete survey/response activities on your site up until 2027, depending on CR-PRISM annual assessment for continuation of survey/response efforts.

This survey is a cooperative effort with the New York State Department of Environmental Conservation.

Our goal is to detect the emergence of an invasive terrestrial pests. You will be contacted prior to us accessing your property and if we have a positive detection. If you require any additional information, feel free to contact me at (518) 321-0189 or ss986@cornell.edu. We look forward to working with you.

Pests being surveyed for at this site: [Scientific Name – Common Name](#)



Sam Schultz
TERRESTRIAL INVASIVE
SPECIES COORDINATOR

518-885-8995 ext. 2211
ss986@cornell.edu
50 West High Street
Ballston Spa, NY 12020
capitalregionprism.org

**INVASIVE SPECIES
MANAGEMENT**
CAPITAL REGION

Cornell Cooperative Extension
Saratoga County

I hereby grant permission for the access by the Capital Region PRISM for survey/response efforts on my property.

Name:	Contact Information (Phone/Email):
Signature:	
Address:	

Appendix D: Capital Region PRISM TIS Site Pre-Assessment Checklist



General Review Before You Go in The Field

1. Review prior survey, response actions and/or invasive species comprehensive management plan reports.
2. Visit [iMapInvasives Public Map](#) and zoom in on the area that you are planning on surveying.
 - a. Note the species, number, and relative TIS in the area you are working in
3. Look at the satellite base map so you know what type of landscape you will be working in.
4. Identify all trailheads for access and emergency purposes.
5. Check for Rare, Threatened or Endangered Species (*additional information below*)

Look over the area that will be surveyed in the field beforehand. This will provide some background information on the area and provide an overview of known existing terrestrial invasive species and forest pest populations.

The TIS Team conducts surveys for both terrestrial invasive plants and forest pests. The TIS Team primarily conducts only mechanical/manual removals but may assist partners with other methods of response and consultation.

The TIS Team uses the following methods for surveys:

- Trailside Surveys
- Highly Probable Area Surveys
- Transect Surveys
- Hangar Surveys
- Points/Plots/Quadrats



Prioritization

1. What/where is the parcel you will be conducting work?
2. Share name of parcel, coordinates, and expected survey time with all CR-PRISM staff.
 - a. Be aware of no cell phone service areas and send information ahead of time.
3. Record field work information in the CR-PRISM SharePoint Tracker

The CR-PRISM uses a framework of response and integrated pest management strategies when controlling invasive species. Response actions are aligned to the NYNHP [tiered approach](#), this hierarchy allows professionals to focus on critical species and prioritize actions. The CR-PRISM modifies this system to fit our region and specific needs. Record all TIS detected using the [CR-PRISM survey report form](#).

- [NYNHP Statewide Tier List](#)
- [CR-PRISM Tier List](#)

To prioritize parcels for detection surveys and response efforts, the PRISM uses a Priority Conservation Areas (PCA) Model based on ecological significance and risk of spread. The model was created to help prioritize parcel surveys and response efforts where the greatest attention is needed with limited resources. In general, parcels with no or limited invasive species introductions, that are ecologically significant, and with public access should

receive the greatest attention for detection and response efforts. Parcels, depending on their level of invasion can be surveyed annually or on a rotational basis.

The lands and forests are prioritized using a variety of factors including the presence of rare, threatened, endangered species and species of special concern, ecological connectivity, threat and tier of invasive species, and accessibility of sites. On a limited basis, the Terrestrial Invasive Species Team uses environmental DNA (eDNA) for high threat species at a low density, guided by the needs of the New York Department of Environmental Conservation (NYS DEC). Refer to the [CR-PRISM Framework of Response](#) for a full explanation of how we prioritize our work.

Frequency of Surveys:

1. Invasive Species Prevention Zones are the highest priority for surveys, review prior survey forms and locations for previous monitoring and detection efforts
2. PCAs are surveyed on a rotational basis, review prior survey forms and locations for previous monitoring and detection efforts
3. Secondary sites are surveyed dependent on partner requests, ecological connectivity, social and cultural implications and PRISM staff availability

Response actions are entered and updated annually into a site management plan. Annual reviews of detections to be elevated for response will be considered based on invasive species threat and location. Use of the Invasive Plant Management Decision Analysis Tool should be considered for an analysis of new sites and species under consideration. Sites under active management should be reviewed for continued response. Response efforts are completed as new species are detected and scheduled annually based on phenology.



Check for Rare, Threatened or Endangered Species (RTE)

1. Are any RTE species present?
 - a. Will this affect your ability to survey/manage in that area?
 - b. Record any RTE species into internal and confidential CR-PRISM database.
 - c. Be aware that RTE information is confidential.
 - d. Record and/or list native species present to observe potential changes overtime and potential restoration sources.

Prior to conducting the survey, check to see if any rare, threatened or endangered species are reported. This could affect what species you're surveying for, and your ability to access the property.

** Location data of RTE species and species of special concern present are confidential but should be recorded for CR-PRISM records. Confirmation of RTE species present and new reports of these species should be shared with the New York Natural Heritage Program through a [Rare Species Reporting Form](#).

To determine the qualification of species, refer to the resources below:

- [NYNHP Conservation Status Definitions](#)
- [NYNHP Rare Plant Lists](#)
- [NYNHP Rare Animal Lists](#)
- [State Protected Plant List](#)
- [List of Endangered, Threatened and Special Concern Fish & Wildlife Species of New York State](#)
- [NYNHP Conservation Guides](#)



High Priority Terrestrial Invasive Species

1. High Priority Invasive Species (HPIS) should be marked for every survey.
2. Mark which additional species you will be surveying for in your data collection tool prior to leaving.
3. Consider recording high tiered species for response efforts, especially in areas with RTE species or species of concern present.

Below is a list of high priority TIS, with common name, scientific name, growth form, threat rankings, and tier classification for the CR-PRISM.

Tier 2 High Priority Invasive Species- species with few known populations in the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Mile-a-minute	<i>Persicaria perfoliata</i>	Vine	VH	Significant negative	Prohibited
Japanese angelica tree	<i>Aralia elata</i>	Tree	VH	Equal outcome	Prohibited
Leafy spurge	<i>Euphorbia virgata</i>	Forb	H	Not assessed	Prohibited
Small carpetgrass	<i>Arthraxon hispidus</i>	Grass	H	Not assessed	Prohibited
Amur corktree	<i>Phellodendron amurense</i>	Tree	H	Not assessed	Prohibited
Giant hogweed	<i>Heracleum mantegazzianum</i>	Forb	H	Not assessed	Prohibited
Cup-plant	<i>Silphium perfoliatum var perfoliatum</i>	Forb	H	Not assessed	Prohibited
Japanese snowball	<i>Viburnum plicatum</i>	Shrub	H	Insignificant negative	
Beautybush	<i>Kolwitzia amabilis</i>	Shrub	H	Equal outcome	
Japanese primrose	<i>Primula japonica</i>	Forb	H	Insignificant negative	

Tier 1 High Priority Invasive Species- species not yet detected in the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Kudzu	<i>Pueraria montana var lobata</i>	Vine	VH	Insignificant negative	Prohibited
Slender falsebrome	<i>Brachypodium sylvaticum ssp. sylvaticum</i>	Grass	VH	Insignificant negative	Prohibited
Sycamore maple	<i>Acer pseudoplatanus</i>	Tree	H	Not assessed	Prohibited
Perennial pepperweed	<i>Lepidium latifolium</i>	Forb	H	Not assessed	Prohibited
Asian bushclover	<i>Lespedeza cuneata</i>	Shrub	H	Not assessed	Prohibited
Japanese virgin's bower, sweet autumn clematis	<i>Clematis terniflora</i>	Vine	H	Not assessed	Regulated
Sapphireberry	<i>Symplocos paniculata</i>	Shrub	H	Equal outcome	
Oriental redbtip	<i>Photinia villosa</i>	Vine	H	Insignificant positive	
Scotch broom	<i>Cytisus scoparius</i>	Shrub	H	Low negative	
Plume poppy	<i>Macleaya cordata</i>	Forb	H	Equal outcome	

Permissions

1. Have permissions been acquired?
 - a. Have printed or electronic copy available.
2. Have all required permits been obtained?
 - a. Have printed or electronic copy available.
3. Are certificates of insurance in place, when required?
 - a. Have printed or electronic copy available

Sites for detect, monitoring, response, restoration and adaptive management should be selected in quarter one of the calendar year. All permitting and agreements need to be in place before the start of the season.

Permissions must be obtained from the landowner prior to accessing the property for survey and response work. Written permission is required using the CR-PRISM Permission Form (Appendix C). Online county tax identification maps can be used to determine landowners. Public lands will require permissions from state, county and local municipalities. All affected landowners must be contacted prior to accessing their property.

Permits may need to be obtained prior to access and/or response actions, depending on the location. The lead agency accessing the property is responsible for obtaining the proper permits. Identify all state, federal, and local regulatory requirements. Consult with DEC to determine if an environmental assessment or environmental impact statement is required based on a SEQR review. Please see below for permits that may be required prior to accessing property.

1. [New York's State Environmental Quality Review Act \(SEQR\) and Environmental Impact Statements](#)
2. For Work on State Parks Lands- [Office of Parks, Recreation and Historic Preservation \(OPRHP\) Scientific Research Application Permit](#)
3. For Work on NYS DEC Lands- [NYS DEC General Permit for Management of Invasive Species](#)
4. [NYS DEC Temporary Revocable Permit](#)

Survey Type

The type of survey conducted is dependent of the goal of the survey. Indicate what type of survey was conducted in the TIS Survey Report.

- **Trailside Surveys:** Conducted as a preliminary search in PCAs/secondary sites.
- **Highly Probable Area Surveys:** Efficient surveys for large parcels of land/forest.
- **Transect Surveys:** Conducted during forest health surveys with a large group of people.
- **Hangar Surveys:** Conducted for efficient forest health surveys for large parcels of land/forest.
- **Plots/Quadrats:** Conducted on a limited basis for pre- and post-response surveys

Data Collection

1. Are base maps downloaded to the data collection device?
2. Is data collection tool fully charged (tablet/phone)?
3. What data collection application is being used?
 - a. **iMapInvasives Mobile:** Used primarily when conducting forest health surveys and volunteer surveys.
 - b. **Field Maps/iMMA:** Used primarily for terrestrial plant surveys and response efforts. On a limited basis, it is also used for forest health surveys when one individual is surveying.
 - c. **Survey123:** Used for biocontrol assessment surveys and data entry at giant hogweed response sites.

- i. **iMap3 Forest Pest Data Collection:** Used for biocontrol assessment surveys and other high priority forest stands for more detailed data collection.
- ii. **Giant Hogweed Control:** Used for data collection/entry at giant hogweed response sites.

Refer to the TIS SOPs for use of survey/response data collection applications.



Survey Equipment Checklist

1. First Aid Kit/Safety Bin
2. Charged cell phone
3. Vehicle GPS
4. Weather appropriate clothing/close-toed shoes
5. Layers
6. Bug spray
7. Gaiters
8. Sunscreen
9. Enough Water/Food
10. Roadside safety equipment (high visibility vest, roadside cones and vehicle safety light)
11. Decontamination/Exposure Equipment
 - a. Boot brushes
 - b. Five gallons of water
 - c. Liquid soap
12. Identification Guides
13. Tablet/Phone to collect survey data
14. Print/download trail/property maps
15. Download Maps on IMMA (when using IMMA for surveying)



Additional Response Equipment

1. Gloves/Eye protection
2. Tools required for the day (shovels, pick mattocks/grubbers, hard hat, loppers, rakes/Tyvek)
3. Power tools if needed and safety equipment (chaps, hard hats, ear protection, safety goggles)



Disposal Protocol

Sometimes it is required that removed material be disposed of off-site. It is critical that all material is properly contained prior to removal off-site. Material moved off-site should be secured and disposed of in a waste receptacle to prevent further spread. Materials should be disposed of in a sanitary landfill or composted on site or in place.

If working with giant hogweed or other injurious plants, dispose of in a contractor bag and securely tape a notice of biological hazard to the outside of the bag (Warning, this bag contains a plant that causes severe burns. DO NOT OPEN!).

Decontamination Protocol

It is critical that all equipment be cleaned and decontaminated before and after leaving a site. Follow all decontamination procedures for each and every work site. The TIS Team travels to more lands and waters on a frequent basis in which unintentional invasive species can be introduced. The potential to transport high threat invasive species by the PRISM is elevated by the nature of work actions completed. **Decontaminating is a requirement from one work site to the next and includes tools and equipment, footwear and clothing.** The specific equipment that needs to be decontaminated includes any equipment on site including but not limited to: grubbers, shovels, rakes, any tools used on site, shoes, clothing, etc.

High pressure and temperature power washing is recommended when possible. Brush off any visible plant/animal material and soil (seeds and rhizomes like to hide!). Brushes, water and soap should be used to ensure soil, rhizomes and seeds are unable to travel with the program. When visiting sites with forest pathogens, equipment (including shoes) should be sprayed with a bleach solution to ensure pathogens are not being transported offsite. Partners and volunteers should be briefed on decontamination procedures. Vehicles should also be decontaminated, please refer to the [Ontario Clean Equipment Protocol for Industry](#) for more information.

Decontamination Basics:

- Boot brushes Always
- High temperature and pressure power washing
- Water and soap (if working with hogweed or other skin irritants)
- 10% bleach solution (if working in areas with forest pathogens)

TIS Site Pre-Survey Assessment Checklist

This checklist is intended to be filled prior to leaving office for TIS surveys. Please share this checklist with team members, and keep a record for yourself during survey.

<input type="checkbox"/>	Property Name:		
<input type="checkbox"/>	Date of Survey:		
<input type="checkbox"/>	Project Leader:		
<input type="checkbox"/>	Team Members:		
<input type="checkbox"/>	County:		
<input type="checkbox"/>	Address:		
<input type="checkbox"/>	Parking lot Coordinates:		
<input type="checkbox"/>	Property Acreage:	<input type="checkbox"/>	Landscape Type:
<input type="checkbox"/>	Field Work Type:	<input type="checkbox"/>	Estimated Field Time:
<input type="checkbox"/>	Property Owner Contact:		
<input type="checkbox"/>	Permissions Acquired?		
	<ul style="list-style-type: none"> • Name of Contact: • Print or have electronic copy available during field work 		
Safety Checklist			
<input type="checkbox"/>	Weather Forecast Checked?		
	<ul style="list-style-type: none"> • Will previous days weather affect site conditions? • Always be aware of surroundings during survey, including cloud cover and wind speed. 		
<input type="checkbox"/>	Is the CR-PRISM vehicle running smoothly?		
	<ul style="list-style-type: none"> • Are the tires well inflated? • Is the engine running smoothly? • Does the vehicle have enough gas for the trip to the worksite and back to the office? 		
Equipment Checklist			
<input type="checkbox"/>	First Aid Kit/Safety Bin	<input type="checkbox"/>	Bug spray
<input type="checkbox"/>	Charged Cell Phone	<input type="checkbox"/>	Sun Protectants
<input type="checkbox"/>	Vehicle GPS	<input type="checkbox"/>	Maps of Property
<input type="checkbox"/>	Gaiters	<input type="checkbox"/>	Roadside Safety Gear
<input type="checkbox"/>	Tablet/Phone for Data Collection	<input type="checkbox"/>	Identification Guides
		<input type="checkbox"/>	Layers/Closed-toed shoes
		<input type="checkbox"/>	Enough Water/Food
		<input type="checkbox"/>	Decontamination Equipment
		<input type="checkbox"/>	Ziplock Bags/Tupperware
		<input type="checkbox"/>	Ruler/Hand Lens

TIS Site Pre-Response Assessment Checklist

This checklist is intended to be filled prior to leaving office for TIS response efforts. Please share this checklist with team members, and keep a record for yourself during survey.

<input type="checkbox"/>	Property Name:		
<input type="checkbox"/>	Date of Removal:		
<input type="checkbox"/>	Project Leader:		
<input type="checkbox"/>	Team Members:		
<input type="checkbox"/>	County:		
<input type="checkbox"/>	Address:		
<input type="checkbox"/>	Parking lot Coordinates:		
<input type="checkbox"/>	Property Acreage:	<input type="checkbox"/>	Landscape Type:
<input type="checkbox"/>	Field Work Type:	<input type="checkbox"/>	Estimated Field Time:
<input type="checkbox"/>	Property Owner Contact:		
<input type="checkbox"/>	Permissions Acquired?		
<input type="checkbox"/>	<ul style="list-style-type: none"> • Name of Contact: • Print or have electronic copy available during field work 		
Safety Checklist			
<input type="checkbox"/>	Weather Forecast Checked?		
<input type="checkbox"/>	<ul style="list-style-type: none"> • Will previous days weather affect site conditions? • Always be aware of surroundings during survey, including cloud cover and wind speed. 		
<input type="checkbox"/>	Is the CR-PRISM vehicle running smoothly?		
<input type="checkbox"/>	<ul style="list-style-type: none"> • Are the tires well inflated? • Is the engine running smoothly? • Does the vehicle have enough gas for the trip to the worksite and back to the office? 		
<input type="checkbox"/>	Are there hazards (wells/hazard trees/old foundations) at the worksite?		
<input type="checkbox"/>	<ul style="list-style-type: none"> • Be aware of where these are located to flag off the area and avoid it. 		
Equipment Checklist			
<input type="checkbox"/>	First Aid Kit/Safety Bin	<input type="checkbox"/>	Bug spray
<input type="checkbox"/>	Charged Cell Phone	<input type="checkbox"/>	Sun Protectants
<input type="checkbox"/>	Vehicle GPS	<input type="checkbox"/>	Maps of Property
<input type="checkbox"/>	Gaiters/ Tyvek	<input type="checkbox"/>	Roadside Safety Gear
<input type="checkbox"/>	Tablet/Phone for Data Collection	<input type="checkbox"/>	Identification Guides
<input type="checkbox"/>	Shovels/Grubbers/Pick Mattocks	<input type="checkbox"/>	Loppers/Rakes
<input type="checkbox"/>	Chaps/Hard Hats/Ear Protection	<input type="checkbox"/>	Brush cutters/Chainsaw
<input type="checkbox"/>		<input type="checkbox"/>	Layers/Closed-toed shoes
<input type="checkbox"/>		<input type="checkbox"/>	Enough Water/Food
<input type="checkbox"/>		<input type="checkbox"/>	Decontamination Equipment
<input type="checkbox"/>		<input type="checkbox"/>	Ziplock Bags/Tupperware
<input type="checkbox"/>		<input type="checkbox"/>	Ruler/Hand Lens
<input type="checkbox"/>		<input type="checkbox"/>	Gloves/Safety Goggles
<input type="checkbox"/>		<input type="checkbox"/>	Trash bags

Appendix E: Photo Documentation and Specimen Collection

Photos

A picture is worth a thousand words! Take a photo of every detection at a given site. For sites where an infestation is delineated with a polygon/line, photos should include a photo of the entire site, a close up of the invasive with identifying characteristics included, and if applicable, a photo showing the density of the invasives in a given area.

It is important to take a high-quality photo of any new TIS occurrence documented on a site. A good photo should:

- Clearly show the key identification features of the organism
- Have a ruler or common item like a coin for scale
- Have a solid background and even light

These photos will be uploaded directly into reporting applications. Examples:



Identification Field Guides/Applications:

There are many resources for identification of plants and insects. There are many field guides that are available through the PRISM and PRISM partners. Google is a great resource and state contacts are helpful for some more difficult to identify plants. In addition, the use of identification applications may be useful for in the field identification.

- [Plant Invaders of the Mid-Atlantic Natural Areas and Field Guide](#)- provides information on 92 aquatic and terrestrial invasive species threatening our region, guidance on control methods, discussion of the effects of climate change on invasive plants, explanations and maps of ecoregions and physiographic provinces, and suggestions for native plant alternatives.
- [Mistaken Identity](#)- Invasive plant species included in this publication are those that (1) are generally widespread throughout the Mid-Atlantic region, or are currently expanding their ranges, and (2) are known to invade undisturbed natural habitats.

*The identification applications below are useful as a guide for narrowing down potential species a plant or insect might be. Please keep in mind that these identifications are from community members and not confirmed by natural resource professionals.

- **Seek***- Seek allows curious naturalists of all ages to earn badges and participate in challenges to observe organisms with on-screen identification using computer vision for identifications based on data from iNaturalist.
- **iNaturalist***- iNaturalist is an online community that allows users to share observations to discuss, identify, and create research quality citizen science data for science and conservation.

Specimen Collection

Not every plant species observed needs to have a specimen collected. CR-PRISM collects specimen to confirm identifications and for teaching purposes. Make sure to include a specimen that has key identification characteristics, like flowers, fruits, or other key ID features if possible. Select vigorous, typical specimens. Avoid insect-damaged plants.

When to Collect a Voucher Specimen:

- Surveyor believes they have found a species not previously reported in the region, county or state
- A tier 1 or tier 2 species is found in a location where it has not been previously reported
- Any species that cannot be identified by the surveyor

How to Collect a Voucher Specimen:

1. Collect 1-2 specimens per species as the TIS Team surveys, duplicate specimens are encouraged if available. Avoid specimen with insect damage. If possible, select samples with key identification features like flowers, fruits, or other reproductive features.
 - **For trees/shrubs-** take a branch with as many key identification features as possible
 - **For herbaceous species-** try to pull the complete plant from the ground, including the roots
2. Take photo of the specimen with an item for scale
3. Place specimens in a plastic Ziplock bag or Tupperware container with a damp paper towel or place it in the plant pressing booklet.
4. Use the voucher specimen collection form (see below)
5. Leave bags/Tupperware containers in a cooler and transport back to office
6. Note collection of specimen(s) in data application
7. Confer with CR-PRISM Coordinator and if needed, reach out to appropriate state contacts
 - New York Natural Heritage Program Chief Botanist
 - Forest Health Diagnostic Lab
 - Other State Professionals, as identified

Benefits of more than one voucher specimen:

1. Insurance policy in case one specimen is lost or damaged
2. Duplicates can be sent off to an expert for identification
3. Allows for closer inspection of key features without damaging only specimen

Voucher Specimen Collection Form

Site Identification

Collector:		
Collection #:		
Date:		
State:	County:	Town:
GPS Coordinates:		
Location Description:		

Species Identification

Common Name/Scientific Name:
Habitat Description:
Description:
Life form:
Size/Height:
Leaf shape/Descr:
Flower Descr:
Root Descr:
Branch Descr:
Characteristics Not Collected:
Abundance:

Appendix F: Quality Assurance and Quality Control Procedure

Last Updated: 10 May 2022

iMMA QC Steps

1. *If using ArcGIS Pro, ensure the workspace spatial reference matches the iMMA layer's spatial reference*
2. Check all presence points, lines, polygons are contained within searched area
 - ⇒ If there are only a few records, a quick spot check should suffice. If there are many records, using the **Select By Location** tool in ArcGIS Pro may be of assistance.
3. Check that all Presence Points, Lines, and Polygons contain associated Present Species record(s)
4. Check all treatment polygons are contained within the Searched Area
 - ⇒ *Follow similar procedure as outlined in the note contained within step 2*
5. Check for any invalid geometries. Examples could include:
 - ⇒ polygons with segments that loop-back on themselves
 - ⇒ complex polygons with many more vertices than are necessary to represent the area
6. Check the **Organization ID** (contained in Searched Area) is correct
7. Check that the observer **Person ID** in Present Species records is valid/makes sense
 - ⇒ *(e.g. that there aren't users from a different state or organization)*
8. If Presence or Not Detected records have a tagged **Project ID**, ensure that the Project ID value is valid and is logical (e.g. associated with that organization)
9. Check for any related treatment records
 - ⇒ Ensure that the **Lead Contact** person ID and **Lead Contact Organization** fields are populated
 - ⇒ Ensure the treatment **beginDate** is *before* **endDate**
 - ⇒ Bonus: Ensure that the "Target Species" has either a corresponding (i.e. intersecting) Presence in iMMA or already exists in iMap
10. Once the record has been checked, set the **Ready for Upload to iMap** field to **Yes**.
 - ⇒ NYNHP will work to perform a final quick check for all records marked as Ready to Upload weekly – if you would like the record to be uploaded more promptly, please email: iMapInvasives@dec.ny.gov

Appendix G: Cornell Event Reporting Form

Cornell Cooperative Extension

Event Summary Form

This form should be used for all events to capture:

- Event details (single & multi-session*)
- Youth participants (should never be given individual Participant Data Form without parental consent)
- Volunteers
- Adult participants who choose not to complete all or a portion of the individual Participant Data Form
- All participants at events where it is unrealistic to hand out individual Participant Data Forms

Program: _____
(Your local program)

Event Name: _____

Start Date: _____ **End Date:** _____
MM/DD/YYYY MM/DD/YYYY

Event Type (choose ONE): Community Outreach Professional Development for Volunteers

Delivery Method (workshop, tour, roundtable etc.): _____

Event Duration (Hrs.):* _____ hours **# of Events:*** _____

*If you have a multi-session event where all adults, youth and volunteers are the, list the average session length in Event Duration and total # of events/sessions in # of Events, otherwise, use separate form for each session.

	Adult Participant	Youth Participant	Total Participants	Adult Volunteers	Youth Volunteers	Total Volunteers
Gender						
Male						
Female						
Chose not to disclose						
Ethnicity						
Hispanic/Latino						
Not Hispanic/Latino						
Chose not to disclose						
Race						
White						
Black						
Native American						
Asian						
Pacific Islander						
Other (self-selected as race other than above)						
Chose not to disclose						

**note that participants may choose more than one race. If that is the way they responded during registration, they numbers should be reported as 2 or more races; but 2 or more should not be an option in the registration form.

About demographic data collection: Information about race, gender and ethnicity is collected during program/event registration and participation to help us better understand what demographics are being reached by CCE programming, and if there are gaps in how our programs reach all people throughout the community. While we are required to gather information about our participation reach, response from participants is optional. Please note that demographic responses will be kept confidential.

Appendix C: DEC Policy DLF-16-1 / Rapid Response for Invasive Species

DLF-16-1 / Rapid Response for Invasive Species: Framework for Response

New York State Department of Environmental Conservation

DEC Program Policy

**Issuing Authority: Division of Lands and Forest,
Invasive Species Coordination Section**

**Title: Rapid Response for Invasive Species:
Framework for Response**

Date Issued: December 2016

Latest Date Revised:

I. SUMMARY

The Rapid Response Framework for Invasive Species is designed to provide resource managers with a defined response system and list of procedures that can be initiated upon discovery of a new invasive species infestation. The goal of this policy is to promote timely decision-making and communication in the event of a new invasive species infestation while limiting authority conflicts and duplication of effort. This policy ensures that managers give adequate attention to all of the necessary components of an effective response including: coordination, communication, public outreach, planning, scientific analysis, information management, and compliance with legal and regulatory requirements, resources and logistics.

II. POLICY

The Rapid Response policy provides a coordinated framework that can be utilized to minimize the establishment and spread of new invasive species.

PURPOSE & BACKGROUND

The purpose of the policy is to provide resource managers with a procedure which can be utilized when responding to newly discovered invasive species infestations, applicable to all taxa, terrestrial or aquatic. The framework is intended to be general in the sense that it would apply to any situation at any scale, therefore “new” infestation could be new to New York State, or a region or watershed, etc. This policy is not just for government agency staff but for anyone who has responsibility for managing lands or other resources that can be harmed by invasive species. It cannot, and does not attempt to, provide answers or solutions to all of the issues associated with rapid responses. Rather, this document provides a framework to assist any manager in responding thoroughly, professionally and effectively to the many challenges that result from newly detected invasions.

Pursuant to the Environmental Conservation Law, the role of the New York Invasive Species Council is to “...prevent the introduction of invasive species; detect and respond rapidly to and control populations of invasive species in a cost-effective and environmentally sound manner;” (ECL 9-1705(5)(b)). An invasive species is defined as “...a species that is: a) nonnative to the ecosystem under consideration; and b) whose introduction causes or is likely to cause economic or environmental harm to human health.” (ECL§9-1703(10)) Implementing regulations list prohibited and regulated invasive species and describe the legal

basis for preventing the possession, transport, sale, purchase, and introduction thereof. (6 NYCRR 575). This policy fulfills the statutory mandate that a plan be enacted to rapidly respond to newly detected invasions of all taxa of invasive species, terrestrial or aquatic.

Early detection of new invasions is critical to any rapid response. The value of rapid response is realized only if populations are identified when they are small and manageable. To be most effective, a response to a new introduction should occur quickly. Note that the term “quickly” is subject to the biology and context of each individual invasion. In many cases, the initial stages of rapid response are measured in hours and days, not weeks or months. Conversely, a rapid response could continue for years when a species spreads slowly and can be effectively contained (e.g. hydrilla in Cayuga Lake).

This policy does not include detailed “response plans” for individual species that have not yet invaded because responses must be guided by case-specific facts. In other words, how a species invades – how many individuals, location, their distribution on the landscape, proximity to other known invasions, the time of year, nearby land use, and numerous other factors – determines what actions are possible and useful. Instead of pre-determined plans, the policy relies upon an established process to guide decision-making and response actions for species invasions anywhere in the state. Pre-planning efforts for future invasions are encouraged, but there is a limit to the level of response planning that is useful until an invasion actually occurs. For example, an understanding of possible actions (and real constraints) is very helpful in advance of an invasion. Similarly, establishing communication networks with potential partners and stakeholders can be useful.

The process ensures that managers give attention to all of the necessary components of an effective response: coordination, communication, public outreach, planning, science, information management, laws and regulations, resources and logistics. As an example, one of the first steps following verification of any invasion is to plan and implement a “delimitation” survey to determine the geographic extent of the invasion. Whereas a single or very limited invasion may lend itself to complete elimination of the invading population, invasions at numerous locations over a wide area may preclude eradication and allow only for a strategy of spread prevention. The wide range of possible conditions has a correspondingly wide range of possible response actions. The actions range from the removal of infested and potential hosts to outreach and regulatory efforts, such as quarantines and inspections that are intended to reduce or eliminate the movement of infested materials away from the invaded area. These decisions cannot be made until survey information is available.

The Department of Environmental Conservation’s experience with snakehead fish, chronic wasting disease (CWD), hydrilla, oak wilt, Asian longhorned beetle (ALB), and emerald ash borer (EAB) in New York State have been used to help develop and refine this framework.

III. RESPONSIBILITY

State and federal agencies, local governments, and non-governmental organizations (NGOs) are the primary entities that will be responsible for implementation of this policy. The Partnerships for Regional Invasive Species Management (PRISMs) are the primary local

coordinating bodies for invasive species management. There are eight partnerships statewide, funded in part by the NYSDEC through the Environmental Protection Fund.

IV. PROCEDURE

The Rapid Response Process consists of a series of steps which include:

Early Detection & Reporting - The most critical step in addressing a new invasive species is to know that it exists. The early detection of new invasions is key and frequently requires a network of well-trained volunteers and professionals who can carry out specimen collection for identification, field surveys, and reporting. Early detection typically falls into one of two categories: passive or deliberate. Passive detection can occur at any location by any person with training or knowledge of invasive species (i.e. public, master gardeners, outdoor recreationalists, etc.). Deliberate detections occur through planned surveillance by trained employees and volunteers in specific designated areas. Sites of ground disturbance, human altered habitats and areas of high human traffic are the most likely places for invasive species to be transported and become established.

The rapid response process begins as soon as a new invasion has been reported to an agency (e.g., state or federal resource agencies, public land managers), the iMap Invasives Database, or an organization (e.g., [Partnerships for Regional Invasive Species Management](#) (PRISMs), private land managers) whose mission includes responding to invasions. **See Appendix C for PRISM Fact Sheet.**

Verification - The rapid and accurate identification of a new invasive species is an important first step. Suspected sample(s) must be verified by a recognized expert or accredited laboratory before action can be taken. Samples should be vouchered to authenticate suspected sample(s) with physical evidence.

Notification - Relevant resource managers should be notified once the reported invasion has been verified. Notification of the news media and the public should not occur until the initial verification has been confirmed by a second source. The location and relevant observation information should also be submitted to the NYS Invasive Species Database, iMap Invasives.

Rapid Assessment - Once a new invasion has been verified, a rapid assessment needs to be completed to determine both the threat(s) posed by the invasion and the potential for an effective rapid response. The first step in a rapid assessment is delimiting the physical extent of the invasion. This is followed by an assessment of the resources (personnel, funds, equipment, supplies, etc.) needed to address the invasion and the establishment of a lead agency and possibly the Incident Command System (ICS). **See Appendix D for ICS Flow Chart.** The rapid assessment will ultimately determine whether responsible agencies or organizations should attempt spread prevention (containment), eradication, control, or no action.

Planning - Once a rapid response action has been determined, planning is needed to address roles and responsibilities, coordination, internal and external communications, marshalling resources, spread prevention, decision-making, and implementation. In most instances, a

written response plan should be prepared. Such plans can include information from management plans, recommended practices, site conservation plans, and standards and guidelines. **See Section V. Related References for examples.**

Rapid Response - Rapid response is an action or series of actions taken to quickly contain, and if possible, eradicate newly discovered invaders. Actions taken will depend on the scale of the infestation and the priority level of the species. For large scale detections, eradication may not be possible, so control, containment, and management are the only options.

Monitoring & Evaluation - A rapid response is not complete after a management action has been taken. Monitoring after a response is important to determine if management actions were effective. At a minimum, monitoring efforts should focus on treated areas, but should also include adjacent high risk areas when possible. Monitoring results can indicate the need for repeated or additional response actions. Finally, feedback on the efficacy of response actions and the effectiveness of the Rapid Response Plan will enhance long-term preparedness for response to other invasive species introductions.

Restoration - Once a response effort is complete, it may be necessary to restore disturbed areas to their natural ecological function, as determined by the resource manager. Restoration efforts would typically utilize native species whenever possible to help restore ecosystem resiliency and guard against future re-infestations. **See Appendix E for Site Restoration Guidance.**

See Appendix A for Rapid Response Procedure Summary Diagram and Appendix B for Rapid Response to Northern Snakehead: An Invasive Species Case Study.

How to Use this Document

This document is operational in nature; therefore, the activities outlined below focus on actions that would follow a confirmed introduction. The actions are arranged in the order they should be performed; however, some activities may or should be implemented simultaneously. Some of the tasks identified may already be ongoing, while others will need to be implemented quickly following review and approval. Not all items in this document will be relevant to all invasions. Nevertheless, managers should consider each item as they proceed to plan and implement responses to new invasions.

Successful implementation of this document requires resource managers who are willing to actively respond to the particular circumstances of a new infestation. Ideally, this guidance will prompt improvements in response timing, organizational development, permitting efficiencies, funding mechanisms, outreach strategies, and other tools that in turn will allow this document to evolve further over time.

VERIFICATION

***NOTE:** VERIFICATION AND NOTIFICATION CAN BE SIMULTANEOUS

Who The individual/organization who receives and accepts responsibility for handling the initial report in coordination with the state, tribal, provincial, and/or federal agency where the initial sighting occurs. Local PRISM coordinator should be contacted to aid in this process, see **Appendix C PRISM Fact Sheet**.

Why The objectives are to confirm the accuracy of the report, determine the condition (age, reproductive status, vigor, etc.) of the sample, and ensure the consistent and timely handling of reports.

How

1. Interview the reporter(s) to validate detection.
 - a. Record details of the location such as: County, Township, City/Village, name of water body, land unit area, landmarks, highway mile, and land ownership where the suspect invader was found. Get GPS coordinates if possible. This information can be entered into iMap Invasives online or via the smartphone app (select “Report an Invasives” at www.nyimainvasives.org).
 - b. Collect contact information from the reporter(s).
 - c. The reporter should secure a representative sample and/or take digital photographs, if possible (both are preferred). Arrange to have samples and/or photographs sent express mail service to the most accessible recognized expert. Report and photo can be sent via email to isinfo@dec.ny.gov or submitted to iMap Invasives for expert notification.
 - d. Document the date and time of sighting(s).
 - e. Secure an estimate of the number of the individuals found and the extent of the infestation.
 - f. Note other relevant conditions (access limitations, etc.)
2. Validate identification as soon as possible via examination of a physical sample.
 - a. Have the expert verify the validity of the evidence provided.
 - b. If the evidence provided is not sufficient for a conclusive ID, arrange for a site visit by at least one recognized expert (preferably a small team).
 - c. Prior to shipping samples, obtain guidelines from recognized experts (and use any existing protocols) regarding best collection techniques for a sample, desired quantity, where and how to deliver the sample, etc.

NOTIFICATION

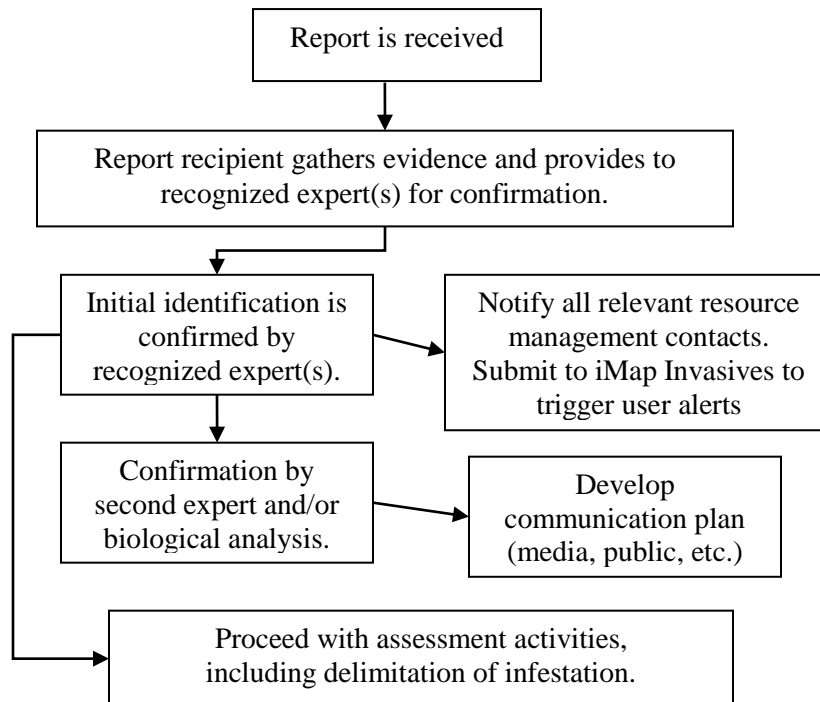
Who The individual/organization who accepts the responsibility to verify and confirm the accuracy of the initial report.

Why The objectives are to ensure that all parties that may affect a response decision are quickly engaged and to rapidly inform all other interested parties.

How

1. Within the first 24 hours, or as soon as practical after a physical sample is visually confirmed to be an invasive species by a recognized expert, notify all relevant natural resource managers in Table 1 below. Primary contacts are the regional PRISM coordinator, the NYSDEC Invasives Species Section, and a submission to the iMap Invasives Database. Note that for many organizations, only key contacts will be notified. Those primary contacts will then be responsible for further internal notification within their organization (i.e., a primary contact for a state agency would be responsible for contacting other key officials within their state agency).
2. Secure verification of notifications to confirm that all relevant contacts did, in fact, receive notification (e.g., Internet list server response confirmation requirement, phone list call-backs, etc.).
3. While proceeding with subsequent response activities described below, obtain a definitive confirmation of the invasive species via a second expert(s) and/or a biological analysis. Note that the general public/media notification (Table 2 below) should not occur until after the second confirmation is achieved.

The Notification Process



4. Contact initial observer to confirm invasive species identification.
5. Submit detection as an observation in iMap Invasives Database and develop Communication Plan. By entering into iMap, two levels of alerts are triggered; unconfirmed reports are emailed to state experts for verification, and after confirmation, all other user email alerts are sent.

The following tables are not comprehensive but provide an initial set of contacts. They presume the identified individuals will directly make further contacts within their organizations.

*****Contact only necessary agencies and organizations*****

Table 1.	PRIORITY 1 CONTACTS
(Notify within 24 hours of initial confirmation or as soon as practical)	
<p>Submit to iMap Invasives Database</p> <p>State Agencies</p> <p>NYS Department of Environmental Conservation Invasive Species Coordination Section- Central Office (518) 402-9405 New York Natural Heritage Program Division of Lands and Forests - Regional Office Division of Environmental Permits – Regional Office Division of Fish and Wildlife - Regional Office Division of Public Affairs and Education - Regional Office</p> <p>NYS Department of Agriculture and Markets NYS Office of Parks, Recreation and Historic Preservation NYS Department of Transportation NYS Canal Corporation NYS Thruway Authority</p> <p>Others</p> <p>Partnerships for Regional Invasive Species Management (PRISM) Any agencies and partners deemed appropriate from Table 2.</p>	

Table 2.	PRIORITY 2 CONTACTS
(Notify within 24 hours of second confirmation or as soon as practical)	
<p>State Agencies</p> <p>Adirondack Park Agency (APA) NYS Department of State (DOS) NYS Office of General Services Lake George park Commission</p> <p>Federal Agencies</p> <p>US Department of Agriculture (USDA) APHIS Forest Service - Northeastern Area Office Natural Resource Conservation Service</p>	

Table 2.

PRIORITY 2 CONTACTS

(Notify within 24 hours of **second** confirmation or as soon as practical)

National Oceanic and Atmospheric Administration (NOAA)
National Estuarine Research Reserve System (NOAA - NERRS)
National Marine Fisheries Service (NOAA - Fisheries Service)
National Marine Sanctuaries (NOAA – NMS)
National Sea Grant (NOAA – Sea Grant)

National Park Service (NPS)
US Army Corps of Engineers (COE)
US Coast Guard (USCG)
US Environmental Protection Agency (USEPA)
National Estuary Program (USEPA – NEP)
US Fish and Wildlife Service (USFWS)
US Geological Survey (USGS)

Local Government

NYC Department of Environmental Protection (DEP)
NYC Department of Parks and Recreation
Town Supervisor
Mayor
Other key elected officials

Non-Government Organizations (NGOs)

Adirondack Council
Adirondack Lake Alliance (ALA)
Adirondack Mountain Club (ADK)
American Museum of Natural History
Association of Landscape Architects
Audubon NY
Cary Institute of Ecosystem Studies
Catskill Center for Conservation and Development
Cornell Cooperative Extension
Cornell University, Department of Natural Resources
Darrin Freshwater Institute
Empire State Forest Products Association
Empire State Marine Trades Association
Lake Champlain Basin Program (LCBP)
Local Lake Associations
Native American Tribes
New York Arborists
NY Association of Conservation Districts
New York Botanical Garden
NY Farm Bureau
NY Forest Owners Association
NY Sea Grant
NYS Association of Towns
NYS Conservation Council

Table 2.

PRIORITY 2 CONTACTS

(Notify within 24 hours of **second** confirmation or as soon as practical)

NYS Federations of Lake Associations
NYS Flower Industries, Inc.
NYS Forest Owners Association
New York State Museum
NYS Nursery and Landscape Association
NYS Turfgrass Association
NYS Turf and Landscape Association
NYS Urban & Community Forestry Council
PRISM (Partnerships for Regional Invasive Species Management)
Protect the Adirondacks
SUNY College of Environmental Science and Forestry
The Nature Conservancy (TNC)
Wildlife Conservation Society
Wildlife Society (NYS Chapter)
Other key constituents

Media, if specified in Communication Plan

Local Newspapers
Local Television Stations
Local Radio Stations
Other local media outlets

RAPID ASSESSMENT

Step I – Defining Roles and Responsibilities

Who Lead Agency/Organization, as defined below.

Why The objective is to activate a predetermined response management system that expedites decision-making, information sharing, avoids duplication, and minimizes authority conflicts, while preserving flexibility for adaptive management.

How

1. The appropriate Lead Agency or organization with authority where the initial sighting(s) occurred convenes a meeting of all relevant managers and selects a Management Team and Lead Coordinator. At a minimum, this meeting should involve all organizations that have jurisdiction within the infestation area. The lead agency or organization is the one willing and able to take on the role (staff capacity, authority, funds, etc.) and is not necessarily the NYSDEC. The Management Team will assess the risk and analyze all potential management options. The Lead Coordinator will coordinate all management activities. Note that the Lead Coordinator will not be the primary decision-maker or have veto power regarding response strategies; he or she simply will serve as a primary point-of-contact for resolving coordination and logistical problems. Response actions within the boundary of lands, waters, or structures owned/administered by a particular individual, organization, or jurisdiction will be overseen by that owner/administrator unless they concede responsibility to another entity.

The Management Team will:

- a. Identify threat(s) to the State’s economic, ecological, and recreational resources. Suggested tools are the PRISM Ranking Form or the statewide assessment tool.
- b. Determine the extent of the infestation and pathways for potential spread.
- c. Identify constraints and limitations, including jurisdictional issues, legislative authority, funding, permitting, personnel training, access to private lands, gaps in knowledge, and ecological uncertainties.
- d. Determine if eradication/control/containment is possible and select the appropriate method(s) to be employed.

The Lead Coordinator will:

- a. Coordinate interagency “response team” notification operations.
- b. Facilitate creation of a response management system involving lead representatives of each local, tribal, state, provincial, and/or federal government that has legal authority over the response.

- c. Represent (i.e., be the spokesperson for) the Management Team.
 - d. Facilitate a collaborative decision-making process that considers cascading levels of authority within individual agencies.
 - e. Facilitate development of response priorities.
2. The above actions should take into account the roles, relationships, and inter-agency agreements among:
 - a. All affected states (e.g., Governor, state agencies, ANS Coordinator, etc.)
 - b. Federal agencies (e.g., USFWS, USDA, NOAA, USACOE, etc.)
 - c. Canada
 - d. Tribes
 - e. Local governments
 - f. Other interested parties, such as NGOs, universities, nurseries, marinas, etc.
 3. The local response team should draw upon technical experts from outside the region to help advise response operations when appropriate.

Step II – Delimiting Invasion

Who The appropriate lead agency with authority where the initial sighting(s) occurred, in partnership with federal, state and local governments as well as non-government organizations. Lead agency may depend on scale, location, and priority level of invasive species.

Why The objective is to rapidly provide information to guide subsequent management decisions, including survey design.

How

1. Determine the geographic extent of the infestation. The [Incident Command System \(ICS\)](#) may be used depending on the size of the area to be surveyed and the resources needed. ICS is a standardized organizational and operational structure for managing emergency responses, and integrating and coordinating multiple organizations and agencies. **See Section V. Related References and Appendix D ICS Flow Chart.** Survey efforts should follow existing regional or national protocols such as *Early Detection of Invasive Plants- Principals and Practices* developed by the U.S. Geological Survey.
2. Determine demography of infestation (e.g., age structure). As mentioned in Step 1 above, these efforts should follow existing regional or national protocols; several of which are

included in **Related References, Section V**. Where possible, surveys should assess maturity and reproduction condition of the infested site(s).

3. Identify and survey nearby facilities, habitats or resources (e.g., campgrounds, wetlands, beaches, etc.) that are especially vulnerable to invasion.
4. Identify any nearby facilities, habitats or resources (e.g., nearest known population, ports, terminals, boat launches, railheads, vendors, etc.) that could serve as a source or pathway of invasion.
5. Ensure that field surveys are completed and the results are reported to the Lead Agency using agreed upon methods. iMap Invasives can be used to report and share results of surveys.
6. Compile existing information on species through literature searches and correspondence with experts.
7. Incorporate the risk to the environment, human health, economy, etc.
8. Determine if financial resources are available for response activities, using expert opinion and the Invasive Plant Management Decision Analysis Tool (IPMDAT), a decision-making protocol.

Step III - Planning Internal and External Communications

Who Lead Coordinator

Why The objective is to develop a joint information center to ensure consistent and effective communication to resource managers and interested external stakeholders, including the media and public.

How

1. Notify and educate the affected landowners, and where appropriate, secure written permission to gain access to their properties for response activities.
2. Notify and educate potentially affected landowners and other users.
3. Develop a response management system as needed. The Incident Command System (ICS) may be used depending on the size and type of response needed.
4. Develop a public information strategy (consider a formal, written plan) including: press releases, information packets, and public meetings. Provide information to affected public as early as possible. Ideally, public outreach should begin before response decisions are made. Key messages should include: 1) being a “host community” to an

invasion is a burden; 2) the risks from the invasion; 3) the available response options; 4) the considerations to be used in decision-making; and 5) the process forward.

The public information/participation strategy should:

- a. Identify who the various interests are that may be affected based on the early identification of issues. Examples include:
 - Individuals or groups known to be affected;
 - People who may be affected and people who think they may be affected; and
 - People whose support is needed.
 - b. Establish and maintain two-way communication between management team and identified interests. State how staff will maintain on-going communication with identified interests using frequent telephone calls, email, work sessions and one-on-one meetings.
 - c. Draft press releases to announce significant events and progress.
 - d. Conduct a public scoping session/informational meeting to present the problem and identify issues.
 - e. Summarize information and comments gathered at public scoping and other meetings and write responses to the comments.
5. Develop and implement general public education and outreach. In situations where a variety of educational materials exist, ensure coordination and agreement on which materials will be used.

Step IV - Marshalling Resources

Who Lead Coordinator in partnership with all other involved organizations.

Why The objective is to provide sufficient resources (personnel, equipment, materials, contractors, funding) to initiate control actions and associated activities, including acquisition of required permits.

How

1. Develop estimates for staffing needs, facilities and equipment, and funding.
2. Identify potential sources for staffing, facilities, equipment, and funds.
3. Secure commitments for needed staff, facilities and equipment, and funds.
4. Ensure mechanism for dispersal of funds is in place, and when funds are needed, the flow of dollars occurs expeditiously.

Step V – Preventing Spread

Who Lead Coordinator and Management Team.

Why The objective is to minimize all vectors that might further spread the original infestation.

How

1. Identify dispersal vectors (including movement by humans, fish and wildlife, water traffic, water flow, and other physical processes) and pathways and evaluate associated risks.
2. Restrict dispersal pathways where feasible, including:
 - a. Quarantine infested areas as needed to prevent spread, such as the restricted zones implemented for Emerald Ash Borer using township boundaries (see **Section V. Related References**).
 - b. Assess the likely movement of infested vehicles, equipment, and materials to identify risk and inspection needs at other vulnerable areas.
 - c. Establish wash and inspection requirements on vehicles and equipment, if needed.
 - d. If feasible, determine and eliminate the likely source of inoculation (e.g., infested firewood) as warranted.
 - e. Ensure that invasive species “alert” signs are adequately deployed.
 - f. Begin outreach to alert the public of the risks of spreading the new infestation.
 - g. Develop and implement Hazard Analysis and Critical Control Point (HACCP) plans to ensure that response personnel do not further spread the original infestation. Work with Joint Information Center (see RAPID ASSESSMENT Step III – Planning Internal and External Communications) to design and implement educational outreach programs using print, electronic media and other avenues.
 - h. Install physical barriers, if needed.

PLANNING

Step I – Exploring Alternatives

Who Lead Coordinator and Management Team.

Why The objective is to evaluate all the available information and then decide which response action (eradication or containment/mitigation) and which management action (hand-pulling, dredging, herbicide, etc.) is appropriate.

How

9. Decide if eradication is possible based on rapid analysis of specific nature of invasion, including population dynamics and pathways of spread (i.e. Invasive Plant Management Decision Analysis Tool (IPMDAT), a decision-making protocol).

Consider the following:

- a. Risk to environment, human health, economy, etc.
- b. Anticipated cost of eradication effort and subsequent monitoring (relative to available funding).
- c. Available resources (personnel, equipment, etc.).
- d. Regional and local distribution – single vs. multiple, continuous vs. patchy, isolated vs. widespread.
- e. Landscape context – upstream vs. downstream, edge vs. interior, etc.
- f. Age of infestation.
- g. Neighbors' actions/inaction.
- h. Other available management or response plans.
- i. Pathways/source – identified, controlled, eliminated, etc.
- j. Species track record of eradication/control.
- k. Survey and assessment confidence.
- l. Habitat type(s).
- m. Life stage(s) present.
- n. Time of year in relation to reproduction, migration, etc.

- o. Land ownership – public vs. private, willing landowner vs. unwilling landowner.
 - p. Amount of water in the system to be treated. Consider the following:
 - 1) Potential for drawn down or flows reduced before treatment.
 - 2) Flow sources, including springs, and the potential to regulate that flow.
 - q. Land use patterns.
 - r. Presence of [state](#) or [federally](#) listed rare, threatened or endangered species.
 - s. Presence of [critical](#) or [significant](#) habitats.
 - t. Special status, including:
 - 1) Water use designation (e.g., [Primary & Principal Aquifers](#))
 - 2) Wild, Scenic or Recreational River designation
 - 3) Forest Preserve lands
 - 4) Adirondack or Catskill Park lands
 - 5) Wilderness
 - 6) Historic sites
 - 7) Cultural resources ([State Historic Preservation Office](#))
 - 8) Department of Defense or other restricted access areas
 - 9) Tribal lands
 - u. Other considerations.
2. Consider potential management actions.
- a. Terrestrial Systems
 - 1) Physical/Mechanical Activities
 - Hand-pulling
 - Trapping/Netting/Capturing
 - Burning/Prescribed Fire
 - Shooting/Depopulation
 - Flooding
 - Cutting/Chopping/Mowing
 - Burying
 - Excavating/Digging
 - Physical Barriers (creation & removal)
 - Cultivation
 - Grazing

2) Biological Activities (Biocontrols)

Insects
Mammals
Micro-organisms

3) Chemical Activities

Herbicides: Application method (granular, truck spray, hand spray, aircraft, soil drench, stem injection)
Pesticides

4) Regulatory Activities

Statute
Regulation
Policy
Quarantine

b. Aquatic Systems

1) Physical/Mechanical Activities

Hand-pulling
Suction Harvesting
Trapping/Netting/Capturing
Mechanical Harvesting (cutting/mowing)
Benthic Barriers (matting)
Hydroraking/Rotovating
Dredging
Draining/Drawdown
Surface Covers
Physical Barriers (creation & removal)

2) Biological Activities (Biocontrols)

Insects
Mammals
Fish
Micro-organisms

3) Chemical Activities

Herbicides: Contact, Systemic, Shading – chemical dyes
Pesticides

4) Regulatory Activities

Statute
Regulation
Policy
Quarantine

3. Assess potential impacts of management actions. Consider the following:
 - a. Air Quality
 - b. Soils
 - c. Cultural Resources
 - d. Water Resources
 - e. Fish and Wildlife including threatened, endangered and sensitive species
 - f. Human Health
 - g. Social Environment
 - h. Vegetation diversity including threatened, endangered and sensitive plant species.
 - i. Economic Conditions
 - j. Visual Resources and Recreation
 - k. Effectiveness of various treatment methods.

Step II – Develop a Plan

Who Lead Coordinator and Management Team.

Why The objective is to make a decision on which response action (eradication or containment/mitigation) and which management action (hand-pulling, dredging, herbicide, etc.) to undertake. A plan needs to be ready to implement when resources are ready.

How

1. Identify decision-makers and employ decision-making protocols (e.g. Invasive Plant Management Decision Analysis Tool [IPMDAT], **see Section V. Related References**). Propose a single course of action or offer alternatives to decision-makers. Brief in writing or in person as needed.
2. Develop a response plan. The response plan ensures that everyone is working in concert toward agreed upon goals. The plan should provide a coherent means of communicating the overall response objectives in the context of both operational and support activities. At the simplest level, the plan must have the following four elements:
 - a. What do we want to do?
 - b. Who is responsible for doing it?
 - c. How will funds be spent and resources allocated?
 - d. How do we communicate with each other?

Step III – Securing Permits

Who Lead Coordinator and Management Team.

Why The objective is to satisfy all statutory and regulatory requirements, including permits, licenses, certifications, etc.

How

1. Consider Commissioner Emergency Authorization (ECL §70-0116 of Uniform Procedures Act). A formal determination of emergency can facilitate numerous aspects of regulatory processes by waiving the procedural requirements in order to immediately respond to an emergency (see **Section V. Related References**).
2. Identify all State/Federal statutory and regulatory requirements, including any applicable emergency provisions. A partial list of State/Federal permits and regulatory reviews that may apply include:
 - a. Rivers and Harbors Act Section 10 permit from the US Army Corp. of Engineers for any work in, over, or under navigable waters of the United States.
 - b. Clean Water Act Section 404 permit from the US Army Corps of engineers for the discharge of dredged or fill material into waters of the United States.
 - c. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 18 authorizes the Environmental Protection Agency (EPA) to allow states to use a pesticide for an unregistered use in the United States for a limited time if EPA determines that emergency conditions exist. The uses are requested for a limited period of time (no longer than 1 year), to address the emergency situation only. If the need is immediate, a state agency may issue a crisis exemption that allows the unregistered use for 15 days. Under FIFRA, registrations and product labeling may restrict uses of pesticides. Each registration specifies the plants/sites on which it may be applied. Restricted-use pesticides are limited to use by pesticide applicators who are certified, or to people under supervision of a certified applicator.
 - d. Endangered Species Act Section 7 and consultations with the National Marine Fisheries Service (NMFS) for marine and anadromous species, or the U.S. Fish and Wildlife Service (FWS) for fresh-water and wildlife, for any “action” that may affect listed species or their designated habitat in the United States.
 - e. NYS Environmental Conservation Law (ECL) Article 15, Title 3, Aquatic Pesticide permit from DEC for the use of a pesticide to control an aquatic pest in New York State.
 - f. NYS Environmental Conservation Law (ECL) Article 15, Title 5, Protection of Waters permit from DEC for the disturbance of the bed or banks of a protected

stream or other watercourse; the construction, reconstruction or repair of dams or other impoundment structures; the construction, reconstruction or expansion of docking and mooring facilities; the excavation or placement of fill in navigable waters and their adjacent contiguous wetlands; and water quality certification for placing fill or undertaking activities resulting in a discharge to waters of the United States.

- g. NYS Environmental Conservation Law (ECL) Article 24 Freshwater Wetlands permit from DEC for any action in or within 100 feet of a mapped wetland in New York State. Within the Adirondacks, the Adirondack Park Agency (APA) has jurisdiction of all freshwater wetlands.
 - h. NYS Environmental Conservation law (ECL) Article 25 Tidal Wetlands permit from DEC for any action in or within 300 feet (150 feet within New York City) of a mapped tidal wetland in New York State.
 - i. NYS Executive Law Article 27 Freshwater Wetlands permit from the Adirondack Park Agency (APA) for any action in a wetland over one acre in size or any size wetland adjacent to open water within the Adirondack Park of New York State. The APA also administers the Adirondack Park Agency Act and, on private lands, the Wild, Scenic and Recreation Rivers Act.
 - j. NYS Environmental Conservation Law (ECL) Article 11 Liberation of Fish and Wildlife permit from DEC for the release of fish, wildlife, insects and other invertebrates in New York State.
 - k. NYS Environmental Conservation Law (ECL) Article 8 State Environmental Quality Review (SEQR) environmental impact assessment for projects or actions proposed by a state agency or unit of local government, and all discretionary approvals (permits) from NYS agency or unit of local government, in New York State. Emergency permits are a Type II action so are effectively exempt.
 - l. NYS Environmental Conservation Law (ECL) Article 19 Restricted Burning permit from DEC for burning of land clearing and/or demolition materials consisting of wood, trees, tree trimmings, leaves, or brush, generated by land clearing or demolition for the erection of any structure in New York State.
 - m. The Council on Environmental Quality (CEQ) pursuant to the National Environmental Policy Act (NEPA) Title 1 Section 102 requires federally funded projects to prepare detailed environmental assessments to evaluate impacts.
3. Identify all local regulatory requirements, including any applicable emergency provisions.
4. Identify any cooperative agreements with other agencies/organizations (e.g., MOUs, MOAs, AANRs, etc.).

5. Assign lead person from each regulatory agency to facilitate permit processing in a timely manner within their respective agency.
6. Consult with DEC to determine if an environmental assessment or environmental impact statement is required.
7. Determine timeframe necessary for meeting all regulatory requirements, noting that adjusting or adapting eradication or control methods may result in the need for new or amended permits.

RAPID RESPONSE

Who Lead Coordinator and Management Team.

Why The objective is to implement the response plan.

How

1. Lead Coordinator facilitates implementation of the response plan developed by the Management Team.
2. Continue public outreach efforts. Make sure the public is well informed on response activities and progress by providing information updates as needed.
3. Ensure compliance with emergency rules and regulations, quarantines, or wash and inspection requirements. Identify loop-holes and additional regulatory needs.
4. Agencies collaborate to coordinate and deploy field resources; implement ICS if needed **(See Appendix D ICS Flow Chart)**.
5. Management Team monitors eradication/control progress and the impacts of selected methods on the environment and other organisms.
6. Establish a schedule for frequent Management Team meetings to resolve operational issues that cross jurisdictional interests.
7. Adjust eradication/control methods based on new information. Selected methods may be adjusted to improve effectiveness and/or to reduce or minimize impacts.
8. Document efforts in iMap Invasives Database throughout response process for future reporting and evaluation of success. It can also be used to share management steps and pre- and post-treatment assessments.

MONITORING & EVALUATION

Who Lead Coordinator and Management Team.

Why The objective is to provide information and data on treatment success and ecosystem recovery.

How

1. Design a monitoring program to evaluate the status of the invasive species population and to determine if restoration targets are achieved. Monitoring activities should be carried out in coordination with other program field operations.
2. Select ecological indicators and term for monitoring as needed to assess the status and trends in environmental conditions (**see Appendix E Site Restoration Guidance**). Potential ecological indicators may include:
 - a. Forests
 - 1) The health of forest plants.
 - 2) Habitat quality for birds and deer.
 - 3) Woodland productivity for forest products.
 - 4) Vernal pool activity.
 - b. Streams
 - 1) The chemical characteristics of stream water that help determine how water can be used by plants and animals.
 - 2) The kind and number of living things, other than fish, in a stream.
 - 3) The kind, number, and edibility of fish present in the stream.
 - c. Landscapes
 - 1) The environment's ability to provide habitat for different kinds of wildlife, including game and rare species.
 - 2) The environment's ability to resist and recover from a variety of disturbances.
 - 3) The environment's ability to filter and maintain water quality, and to reduce flooding (i.e. wetland function, floodplain stability).
 - 4) The diversity and pattern of land cover types (forest, water, agriculture, etc.) and which land cover type is dominant.
3. Disseminate findings through an easily accessible database and list serve (e.g., iMap Invasives, PRISM network).
4. Conduct a follow-up evaluation of response organizations and other interest groups to identify opportunities for improving rapid response capacity. Disseminate "lessons learned" to other interested organizations.

5. Promptly analyze and revise the rapid response plan and associated documents/guidelines based on evaluation and long-term monitoring results, also known as “adaptive management”. More information can be found in the *Adaptive Management Applications Guide* developed by the Department of the Interior (see **Section V. Related References**).
6. Determine the need for long-term funding for the current management effort and seek funding as warranted.

RESTORATION

Who Management Team/Lead Coordinator.

Why The objective is to restore disturbed areas back to their natural ecological function by encouraging the recovery of native species to prevent re-establishment of invasive species.

How

1. Collaborate with partners to share existing restoration protocols, Best Management Practices (BMPs) and contract specifications relating to invasive species. Are natural recolonization/succession processes sufficient?
2. Develop a site restoration plan to restore damaged areas (e.g., roads, lawns, boat launches, staging areas, etc.) and ecosystem functions (**see Appendix E Site Restoration Guidance**).
3. Identify plant and animal species that should or should not be used within particular ecosystems.
4. Monitor restoration projects to track the control of invasive species and the re-establishment of native species. See Monitoring & Evaluation Step item (2).
5. Ensure that restoration projects “do not spread” or “do not establish” invasive species by using appropriate native species to the greatest extent possible.
6. Promote an ecosystem approach to restoration projects.

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Appendix A
Rapid Response Procedure Summary

RAPID RESPONSE PROCEDURE SUMMARY

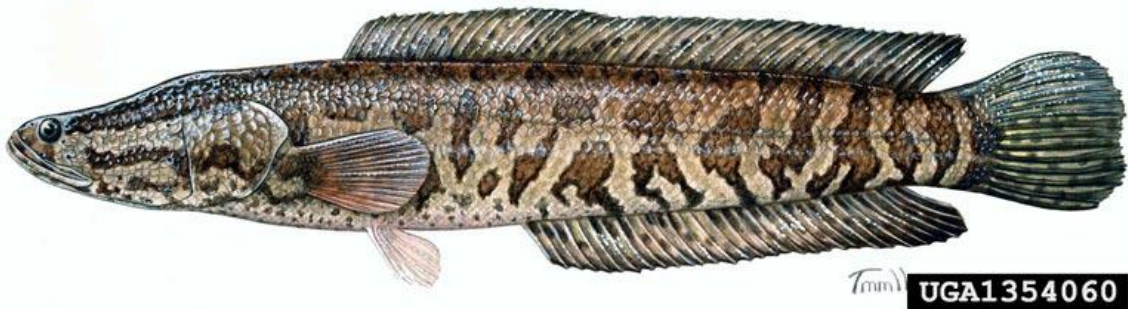
Early Detection	Passive/ deliberate detection, trained staff and volunteers, priority areas of disturbed ground/ frequent human traffic sites
Verification	Collect sample and document detection, accurate species ID by recognized expert
Notification	Notify Priority 1 Contacts, obtain definitive species ID, disseminate information (iMap)
Rapid Assessment	Determine lead agency and management team, survey extent of infestation, identify resource requirements and resources, prevent spread
Planning	Employ decision analysis tools, determine most effective response action and management action, develop response plan, secure permits if needed
Rapid Response	Implement response plan components, continue outreach, document process
Monitoring & Evaluation	Follow-up surveys, assess ecological indicators, revised plan as necessary
Restoration	Restore ecological function, promote recovery of native species to inhibit re-establishment of invasive species

Appendix B
Rapid Response to Northern Snakehead:
An Invasive Species Case Study

Rapid Response To Northern Snakehead

An Invasive Species Case Study

The Rapid Response framework ensures that managers give attention to all of the necessary components of an effective response: early detection and reporting, verification, notification, rapid assessment, planning, rapid response, monitoring and evaluation, and restoration. The 2008 response to Northern snakehead (*Channa argus*) in Orange County is an example of the successful use of this framework in addressing a high priority aquatic invasive species.



Snakehead are air breathing invasive freshwater fish that are native to parts of Asia and Africa.

Detect Invasive Species Early & Report

The early detection of new invasions is key to successful management and frequently requires a network of well-trained volunteers and professionals who can carry out field surveys, report findings, and when necessary, collect specimens for identification.

Case study. On May 29, 2008, DEC regional fisheries staff received a phone call and pictures indicating that a resident along Catlin Creek took two snakehead from an in-stream pond while fishing.

Verify the Report

Quick and accurate identification of a new invasive species detections by taxonomic experts is an important first step in the rapid response process.

Case study. On May 30, 2008, DEC fisheries staff collected the two suspect fish and confirmed identification as Northern snakehead.

Notify Managers and Stakeholders

Relevant resource managers and key stakeholders should be notified, using various communications tools such as individual letters and public meetings, once the reported invasion has been verified.

Case study. The Regional DEC fisheries manager, natural resource supervisor and Invasive Species Coordination Unit leaders were notified immediately following verification. Letters were

sent to residents in the areas around Ridgebury Lake and Catlin Creek to inform them of the response plan as it progressed:

- June 25 - announced a plan for DEC to use a fish toxicant to eradicate snakeheads from the watershed.
- July 8 - a public meeting was held to inform interested stakeholders of DEC's response plan.
- July 29 - provided feedback from questions and concerns.
- August 13 - provided an update on treatment.
- November 25 - announced a public discussion on fisheries management within Ridgebury Lake and Catlin Creek that residents and concerned citizens could attend and which was subsequently held on December 9.

Assess the Situation Rapidly

Once a new invasion has been verified, a rapid assessment needs to be completed to determine both the threats posed by the invasion and the potential for an effective rapid response.

Case study. DEC took lead agency status, working in collaboration with the local municipality. Seven days of sampling using electrofishing and a variety of nets yielded several Northern snakehead in one of the waterways surveyed on June 12, 2008, which led to the conclusion that a small breeding population was present. As noted above, a number of communications initiatives were planned. Funding options for the various response components were explored. In early June temporary fish barriers were put in place. Later in the month a permanent fish weir was installed at the Route 6 culvert to minimize fish movement downstream.

RAPID ASSESSMENT

- Step 1: Define Roles and Responsibilities
- Step 2: Delimit Invasion
- Step 3: Plan Internal and External Communications
- Step 4: Marshal Resources
- Step 5: Prevent Spread

Create a Plan

Once it is determined that a rapid response action is necessary, appropriate planning is needed. Key planning components include exploring alternatives, making decisions and securing permits.

Case study. Treatment alternatives include use of chemicals to eradicate Northern snakehead, contain the population by installing barriers, or no action. Between July 11 and July 31, CFT Legumine, a form of rotenone and the preferred pesticide for this response effort, was registered for use in NYS; holding tanks were constructed for fish collected from treatment areas; emergency approval was obtained to treat with rotenone at label concentrations of up to 5 ppm and a pesticides permit was issued to DEC; and dilute CFT Legumine was tested by Adirondack Environmental Services, Inc. to confirm there were no non-label chemicals of concern present in the product.

Respond Rapidly

Rapid response is an action or series of actions taken to quickly contain, and if possible, eradicate newly discovered invaders.

Case study. Treatment of Ridgebury Lake and Catlin Creek began August 5 and 6 after which DEC collected and disposed of dead fish from the treatment areas, including 227 snakehead. During 2009, two adult snakeheads were captured below a small pond within the area of Catlin Creek during routine monitoring. Follow-up treatment was conducted in Catlin Creek and adjoining wetlands on October 6, 2009 using Marshmaster vehicles, resulting in another 28 snakehead collected.

Monitor & Evaluate the Response

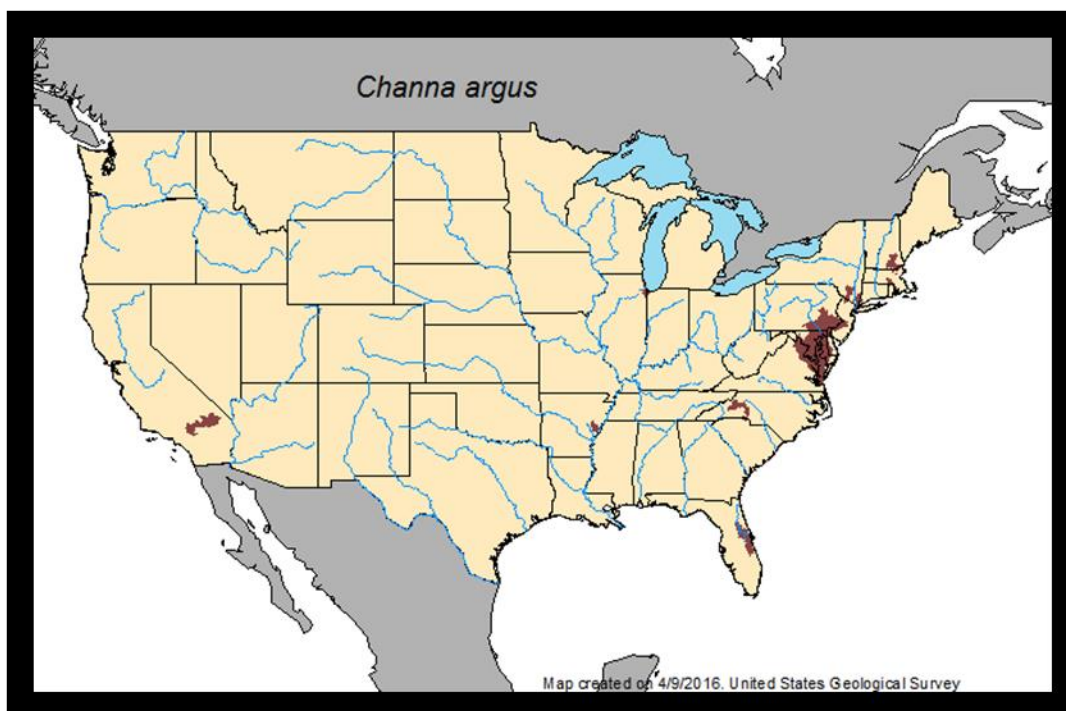
A rapid response is not complete after a management action has been taken. Monitoring after a response is important to determine if management actions were effective.

Case study. Several forms of monitoring were employed post treatment. Water quality monitoring documented the breakdown of the pesticide in Ridgebury Lake and Catlin Creek. DEC staff surveyed the treatment areas in both 2008 and 2009, using electrofishing to test the effectiveness of the response. In 2013 and 2014, 290 two liter water samples were collected from 12 New York sites and tested for the presence of Northern snakehead DNA. While two water samples tested positive from the Wallkill drainage, no detections of live Northern snakehead have been obtained using traditional sampling equipment.

Restore

Once a response effort is complete, it may be necessary to restore disturbed areas to their natural ecological function.

Case study. On September 3, 2008, DEC staff restocked Ridgebury Lake with the fish removed via electrofishing before treatment and stored in holding tanks, including largemouth bass and seven other species. During 2009, the DEC and the local municipality stocked largemouth bass, golden shiner, fathead minnow, bluegill, yellow perch, black crappie and crayfish. In addition, 175 sterile triploid grass carp were stocked in Ridgebury Lake in 2009 to control aquatic vegetation.



Appendix C
PRISM Fact Sheet

PARTNERSHIPS FOR REGIONAL INVASIVE SPECIES MANAGEMENT

New York State PRISMs

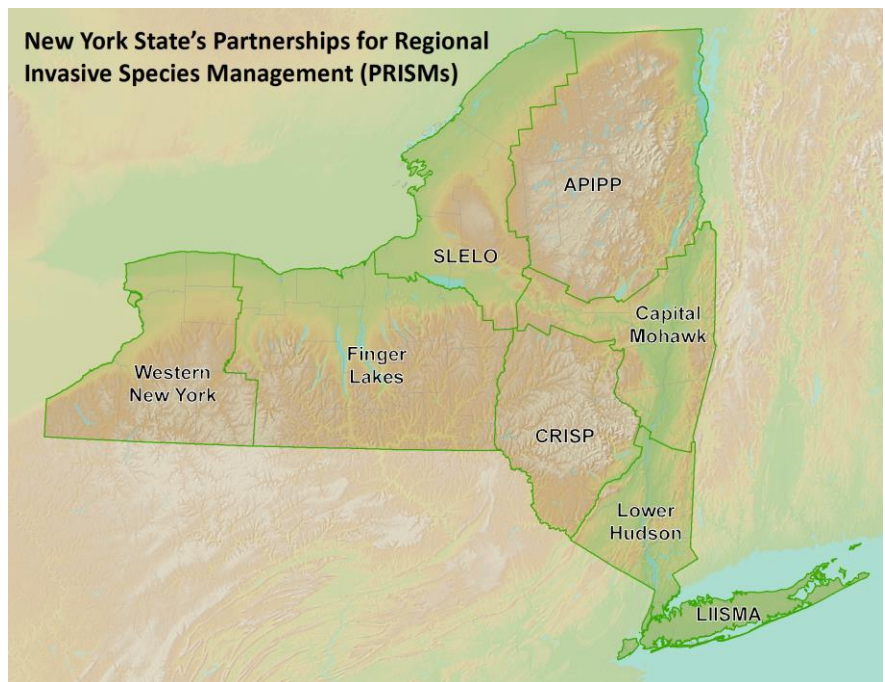
Invasive species are organisms that are not native to an area and harm human health, the economy, or the environment.

What are PRISMs?

Partnerships for Regional Invasive Species Management (PRISMs), comprising diverse stakeholder groups, were created to address threats posed by invasive species across New York State. PRISMs are key to New York's integrated approach to invasive species management. Partners include federal and state agencies, resource managers, non-governmental organizations, industry, recreationists, and interested citizens. The New York State Department of Environmental Conservation provides financial support, via the Environmental Protection Fund, to the host organizations that coordinate each of the eight PRISMs, resulting in statewide coverage.

What Do PRISMs Do?

- Plan regional invasive species management activities
- Implement invasive species prevention programs
- Conduct surveillance and mapping of invasive species infestations
- Detect new infestations early and respond rapidly
- Implement control projects
- Implement habitat restoration and monitoring
- Educate stakeholders on invasive species and their impacts
- Coordinate PRISM partners
- Recruit and train volunteers
- Support research through citizen science in collaboration with the Invasive Species Research Institute <http://www.nyisri.org/>
- Report observations to iMapInvasives <http://www.nyimapinvasives.org/>
- Act as regional communication hubs



If you are interested in helping NY “stop the invasion,” PRISMs are a great way to get involved by volunteering for monitoring, outreach, or management projects. All are welcome to participate in statewide PRISM monthly conference calls to receive updates, hear excellent presentations and learn about upcoming events. Contact a PRISM leader for more information, or visit WWW.NYIS.INFO

Regional PRISM Contacts			
PRISM	Host	Contact	Listserve & Websites
APIPP Adirondack Park Invasive Plant Program	The Nature Conservancy	Brendan Quirion 518-576-2082 bquirion@tnc.org	cce-apipp-l-request@cornell.edu http://adkinvasives.com/
Capital Mohawk	Cornell Cooperative Extension of Saratoga County	Laurel Gailor 518-885-8995 lrg6@cornell.edu	cce-capitalprism-l-request@cornell.edu http://ccesaratoga.org/environment/partnerships-for-regional-invasive-species-management-prisms
CRISP Catskill Regional Invasive Species Partnership	Catskill Center for Conservation and Development	John Thompson 845-586-2611 jthompson@catskillcenter.org	cce-crisp-l-request@cornell.edu http://catskillinvasives.com/
Finger Lakes	Hobart and William Smith Colleges	Hilary Mosher 315-781-4385 mosher@hws.edu	cce-flprism-l-request@cornell.edu http://fingerlakesinvasives.org/
LIISMA Long Island Invasive Species Management Area	Long Island Native Plant Initiative	Polly Weigand 631-560-9945 info@linpi.org	cce-liisma-l-request@cornell.edu http://www.liisma.org/
Lower Hudson	New York - New Jersey Trail Conference	Linda Rohleder 201-512-9348 lrohleder@nynjtc.org	cce-hudsonprism-l-request@cornell.edu http://lhprism.org/
SLELO Saint Lawrence and Eastern Lake Ontario	The Nature Conservancy	Rob Williams 315-387-3600 rwilliams@tnc.org	cce-slelo-l-request@cornell.edu http://www.sleloinvasives.org/
Western New York	Buffalo State	Andrea Locke 716-878-4708 lockeas@buffalostate.edu	cce-westernprism-l-request@cornell.edu http://www.wnyprism.org/

How Do I Join a PRISM?

For more information on PRISM meetings and activities and how you can become involved, visit the website of the PRISM in which you are interested, or contact the coordinator listed above for the PRISM.

To improve communication within and among PRISMs, e-mail listserves, managed by the Cornell Cooperative Extension Invasive Species Program, have been established for each of the eight PRISMs. To subscribe to a PRISM listserve, e-mail the appropriate listserve address in the table above. In the subject line, type the single word “join” (without the quotes). Leave the body of the message blank; do not include a signature block or any other text in the body of the e-mail.

CONTACT INFORMATION

Invasive Species Coordination Unit

Division of Lands and Forests

New York State Department of Environmental Conservation

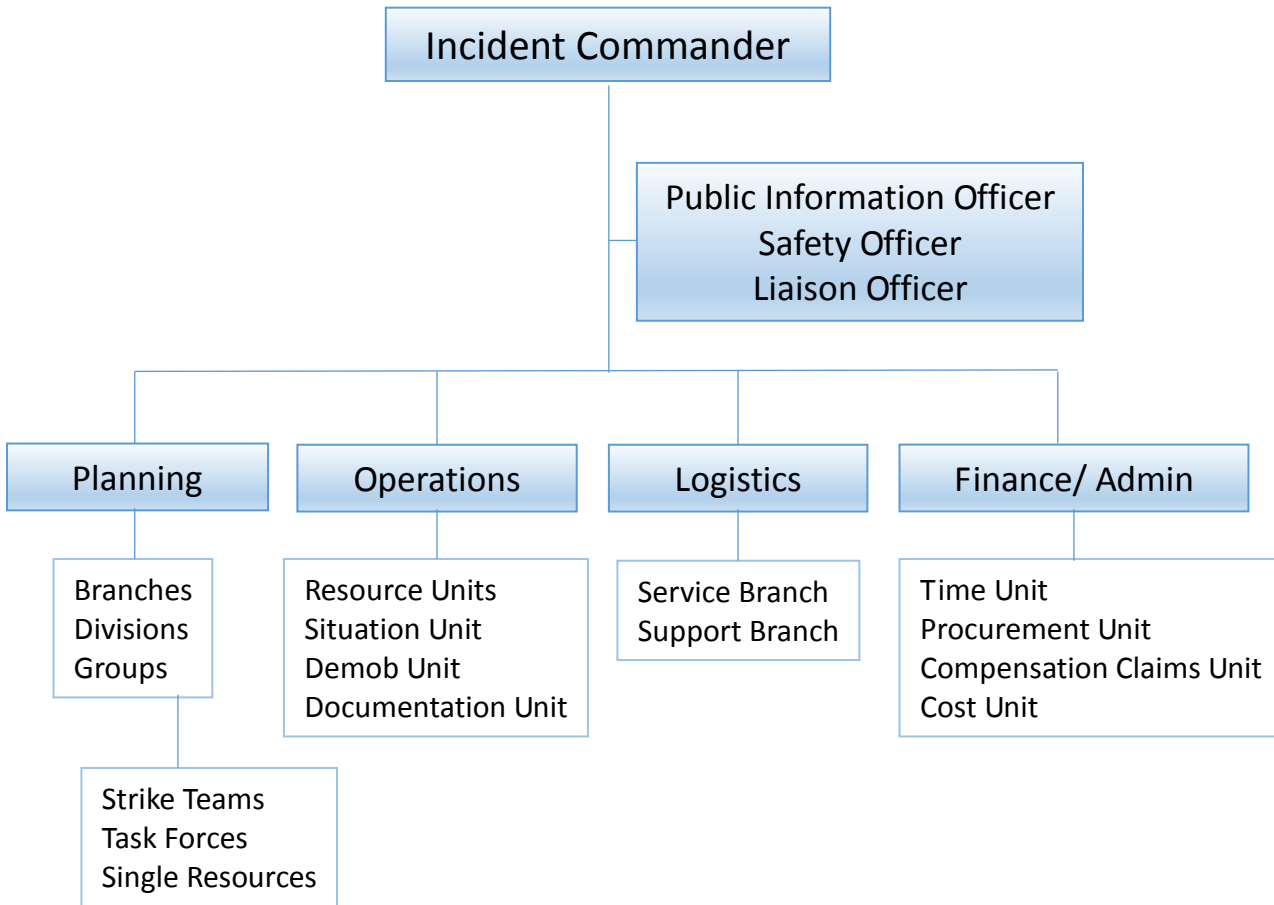
625 Broadway, Floor 5, Albany, New York 12233-4250

P: 518-402-9405 | F: 518-402-9028 | isinfo@dec.ny.gov

www.dec.ny.gov

Appendix D
Incident Command System Flow Chart

INCIDENT COMMAND SYSTEM



The Incident Command System (ICS) is a systematic tool used for the command, control, and coordination of emergency response. ICS is a set of personnel, policies, procedures, facilities and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities.



Appendix E
Site Restoration Guidance

RESTORATION

Preventing the introduction or spread of an invasive species is the most cost effective and environmentally responsible means by which to limit negative impacts caused by invasive species. Most invasive species are opportunistic and tend to populate areas that have been disturbed, including areas disturbed as the result of prior invasive species management. Once a response effort has been completed, it may be necessary to restore disturbed areas to their natural ecological character and function. Restoration efforts may incorporate natural succession or intentional restoration measures using species native to the particular ecosystem in question to help restore resilience and guard against re-infestations.

The New York State Invasive Species Advisory Committee (ISAC) has developed a Work Plan which includes the development of this short document on the topic of site restoration post treatment of invasive species, the essence of which is to encourage resource managers to close the loop between treatment and restoring sites to their native ecological characteristics and functions.



Who: Management Team/Lead Coordinator/Resource Manager assumes the lead role.

Why: The objective is to restore disturbed areas back to their natural ecological function by encouraging the recovery of native species to prevent re-establishment of invasive species.

How:

Collaborate with partners to share existing restoration protocols, Best Management Practices (BMPs) and expertise. Prior to any restoration efforts resulting from a rapid or strategic response, it is recommended that resource managers pool the collective expertise from partners familiar with the given site characteristics. Many questions may arise and if carefully evaluated prior to the onset of restoration, these questions can be vetted which should ultimately lead to successful restoration. Considerations for inclusive collaboration may include:

- If a partnership already exists utilize expertise from all individuals involved through on-line meetings, in-person meetings, presentations, etc. Collect thoughts and expertise from local partners. If a structured partnership does not exist, determine who may bring relevant expertise to the table and engage them.
- Partners that could be considered may include: government organizations, non-government organizations, academia, non-profits, PRISM's, private consultants, ecologists, biologists, soil scientists, botanists, property owners, etc.
- See additional resources at the end of this document.

Develop a site restoration plan to restore damaged areas and ecosystem functions. Ideally a site restoration plan should be considered prior to taking a rapid response action. However, some rapid response actions may begin as a small scale effort only to transform into a larger scale effort requiring restoration measures. A well thought out restoration plan will increase the success of the project along with establishing a higher resiliency towards the return of invasive species at the site being restored. Considerations for developing a site restoration plan may include:

- Set clear objectives and a clear vision for the site in question.
- Identify the ecosystem function that you are trying to enhance or maintain including mutualists and antagonists.
- Utilize appropriate expertise identified in Section 1 above.
- Develop a list of what naturally grows there (native species).
- If a terrestrial site, consider soil types, hydric soils versus dry soils.
- For aquatic and terrestrial sites, consider a seed bank assessment of native flora.
- Should the site be left to natural succession? Smaller infestations (example being spot treatment for individual plants) may respond appropriately to natural succession. Other larger sites (example being large patches or sites treated on an acreage scale) may require intentional restoration to expedite the process and to outcompete invasives that may try to reestablish themselves.
- Consider offsite or nearby invasives and evaluate their threat to restored sites (secondary infestations).
- Consider time scale, long term management costs and funding sources.

RESTORATION

Collaborate with Partners



Develop a Site Restoration Plan



Identify Appropriate Species for Restoration and Identify Sources



Implement Restoration Plan



Monitor Results

Check List

- Verify target invasive species
- All stakeholders informed
- Conduct rapid assessment
- Develop & implement a rapid response
- Develop a restoration plan and a budget.
- Identify funding source(s)
- Obtain permissions & permits
- Implement restoration measures
- Monitor results
- Share your experiences

Identify appropriate plant and animal species for restoration.

Before implementing site restoration, it is advisable to evaluate the native plant species naturally occurring at the site and to create a list. Once you have a basic inventory of surrounding species you will be in a better position to maintain the native composition of the site while also encouraging biodiversity.

Considerations for plant materials and species selection may include:

- Determine the availability of native plant materials and/or animal species either purchased or transplanted.
- If restoring with native animal species consider capturing, holding and reintroducing native species that were present prior to management activities.
- Utilize on-site native plant materials such as live stakes.
- Take advantage of the local “native” seed bank.
- Make decisions on whether to establish grasses, sedges, forbs, aquatic plants and or herbaceous plants and determine which species to re-establish.
- When planting with purchased seed such as grasses, it is important to purchase from a nursery that grows the seed within the region being restored and that the seed contains 0% weed seed. This may cost more, but it is an important step.
- Encourage biological diversity.
- Follow clean equipment protocols!
- Using “weed free” topsoil when topsoil is needed or relocated.
- Choose Certified “weed free” nursery stock that is adapted to the region you are working in.

Implement restoration measures.

- Review your restoration plan with collaborators and stakeholders.
- Make sure you obtain landowner permission to implement.
- Acquire any necessary local, state and/or federal permits including a license to liberate if utilizing biological controls.
- Follow clean equipment protocols when accessing the site.
- Follow BMP’s for the establishment of plant and animal resources.

Monitor restoration projects. Monitoring the site after a response is important to determine if management actions were effective and to determine the reestablishment of desired native flora/fauna as the result of restoration measures. Considerations for site monitoring may include:

- Pre-Treatment, concurrent and post-restoration monitoring should be considered. Most terrestrial monitoring techniques utilize a standard 1-meter grid approach whereby the species are identified and quantified to determine their abundance. In some cases, individual species are not identified but are placed into groupings such as grasses, forbs, sedges and herbaceous plant material.
- Animal monitoring typically involves population estimates.
- Revisit the overall goals for native reestablishment of your project to ensure your project is on track with your expectations.
- Consider a time scale, how long should you monitor and criteria to suspend monitoring.
- Evaluate progress towards goals and consider adapting the restoration plan as needed or as new information becomes available.

EXAMPLES

Salmon River Corridor Restoration

Japanese Knotweed

Primary partners: SLELO PRISM, The Nature Conservancy, NYS DEC, private landowners.



Connetquot River State Park Preserve Restoration

Southern Pine Beetle

Primary partners: NYS DEC, Dept. of Parks & Recreation, Americorps.



Ridgebury Lake & Catlin Creek Restoration

Northern Snakehead

Primary partners: NYS DEC



Salmon River Restoration

In 2012 populations of Japanese knotweed (*Fallopia japonica*) were confirmed along portions of the Salmon River corridor. After three consecutive herbicide treatments (foliar and stem injection) of Japanese knotweed a site restoration plan was implemented and monitored for two additional years. Restoration measures included:

- Seeding of sites was achieved by using a cyclone hand spreader and at times broadcasting the seed by hand only. A mix of annual ryegrass, perennial ryegrass and little bluestem (*Schizachyrium scoparium*) at a 3:2:1 ratio was used. The seeding rate was approximately twenty-five pounds per acre.
- Live staking which involves the insertion of live, vegetative cuttings using on-site, native plant materials into the ground in a manner that allows the cutting (stake) to take root and grow.
- Planting of Eastern White Pine (*Pinus strobus*) tree seedlings in strategic locations where treatment occurred.

Project Costs: Total project cost (4 years) \$71,600. Restoration cost \$2,400.

Lessons learned: Restoration was more successful in shaded areas verses full sunlight areas.

Connetquot River State Park Preserve Restoration

In 2014 the Southern Pine Beetle was confirmed in the Connetquot River State Park Preserve. After removal or inoculation of 8,000 trees, natural succession allowed for sunlight to reach the ground and seeds from the parent trees began sprouting new trees. In addition, volunteers assisted with the intentional planting of two year-old (seedling) pitch pine and white pine trees provided by DEC's Saratoga Tree Nursery. These trees helped to replace many that were lost by this forest pest.

- Natural succession allowed for native seed germination and regrowth.
- Intentional planting of pitch pine and white pine trees by volunteers and AmeriCorps - Student Conservation Association.

Project Costs: Included 25 volunteers and the purchase of seedlings at \$250.

Lessons learned: Early detection and responding rapidly was key to restoring this site.

Ridgebury Lake & Catlin Creek Restoration

After the confirmation of Northern Snakehead in Ridgebury Lake and Caitlin Creek in 2008 and after preparing a rapid response and restoration plan, chemicals were used to eradicate Northern Snakehead. Subsequently, Ridgebury Lake was restocked with the native fish removed via electrofishing prior to treatment and stored in holding tanks. Restocked species included largemouth bass, golden shiner, fathead minnow, bluegill, yellow perch, black crappie and crayfish.

Project Costs: Included the application of aquatic pesticides and the removal, storage and restocking of native fish and the purchase of 175 sterile grass carp.

Lessons learned: Removing, storing and restocking native species increased success.

RESOURCES

There is a multitude of resources available to assist you with rapid response efforts and subsequent ecological restoration efforts.

For more information about the New York State Rapid Response Program Policy, contact:

NYS Department of Environmental Conservation
Invasive Species Coordination Section
Central Office,
Albany NY
(518) 402-9405
isinfo@dec.ny.gov

Additional Resources by Subject:

Collaboration:

- NYSDEC - www.dec.ny.gov/animals/265.html
- NYISRI - www.nyisri.org
- iMap Invasives – www.nyimapinvasives.org
- NYSDOT - www.dot.ny.gov/divisions/engineering/design/landscape/trees/invasive-species
- NYS Agriculture & Markets - www.agriculture.ny.gov/PI/PIHome.html
- Western New York PRISM - www.wnyprism.org/
- St. Lawrence Eastern Lake Ontario PRISM - www.sleloinvasives.org
- Lower Hudson PRISM – www.lhprism.org
- Long Island PRISM – www.liisma.org
- Finger Lakes PRISM - <http://fingerlakesinvasives.org/>
- Catskill Region PRISM - <http://catskillinvasives.com/>
- Capitol Mohawk PRISM - www.capitalmohawkprism.org/
- Adirondack PRISM – www.adkinvasives.com/

Site Planning:

- Resiliency Concepts - http://oregonstate.edu/dept/eoarc/sites/default/files/824_using_resistance_resilience_2014.pdf
- <http://www.cal-ipc.org/ip/climateadaptation/IncorporatingClimateChangeResilience.pdf>
- Integrated Vegetation Management – <http://www.ivmpartners.org/>
- http://www.rowstewardship.org/resource_pdfs/ivm_framework.pdf
- Salmon River Knotweed Feasibility Study - <http://www.sleloinvasives.org/wp-content/uploads/2009/08/Salmon-River-Knotweed-Feasibility-PDF2.pdf>

Ecological Restoration:

- Forest restoration project example - <http://www.dec.ny.gov/press/106053.html>
- Salmon River Restoration Initiative - <http://www.sleloinvasives.org/wp-content/uploads/2015/10/FINAL-PROJECT-REPORT-2015-PDF1.pdf>
- NOAA – Habitat Restoration - <http://www.habitat.noaa.gov/restoration/>

Monitoring:

- Forest Inventory & Analysis - <http://www.fia.fs.fed.us/tools-data/>
- Measuring and Monitoring Plant Populations <http://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf>
- <http://digitalcommons.unl.edu/usblmpub/17/>
- Salmon River Restoration Final Report - <http://www.sleloinvasives.org/wp-content/uploads/2009/08/Salmon-River-Knotweed-Feasibility-PDF2.pdf>

Best Management Practices:

- Clean Equipment Protocol - http://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/Clean-Equipment-Protocol_June2016_D3_WEB-1.pdf
- Non-native Invasive Species Best Management Practices - http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5412628.pdf
- Best Management Practices for Preservation and Restoration of Soil - http://www.dnr.state.mn.us/water_access/bmp/soil_retention_bmp.html

Appendix D: Political Activities and Lobbying



Section	0100 – FINANCIAL LEADERSHIP IN EXTENSION ASSOCIATIONS	Code: 103
Subject	Political Activities and Lobbying	
Issued	10/1992	Revised: m\yyyy

I. GENERAL

Cooperative Extension associations, as exempt organizations under Section 501(c)(3) of the Internal Revenue Service Code, are strictly regulated regarding their participation in political campaigns and lobbying activities.

II. PROCEDURE

A. Political Campaigns

As tax-exempt organizations under 501(c)(3), Cooperative Extension associations may not participate or intervene in any political campaign on behalf of, or in opposition to, any candidate for public office. Loss of exempt status can occur if associations participate in this type of activity.

Certain voter education activities are permitted for 501(c)(3) exempt organizations if the activities are conducted in a nonpartisan manner. If voter education programs are held, the association must refrain from making any editorial comments about the candidates or political parties and all political candidates must have equal representation. If an association is considering holding a voter education program, it is recommended that an attorney be consulted to ensure the content of the program is allowable.

B. Lobbying Activities

Attempts to influence legislation through lobbying are permitted if the lobbying activity is not a substantial part of the organization's activities. Legislation includes any action by Congress, any state legislature, local council, or similar governing body, or by the public in a referendum, initiative, constitutional amendment, or similar procedure. If lobbying activities constitute substantial activities for the organization, the association may lose its tax-exempt status as a 501(c)(3) organization. Again, consultation with the association's legal counsel is recommended before engaging in lobbying activities.

C. Lobbying Activities by Recipients of Federal Funds

Recipients of federal funds are not permitted to use those funds for lobbying Congress or any federal agency in connection with the award of a particular contract or grant. In addition, for each grant award in excess of \$100,000, the law requires recipients and their sub tier contractors and/or sub grantees to:

1. certify that they have neither used nor will use any appropriated funds for payment to lobbyists;
2. disclose the name, address, payment details, and purpose of any agreements with lobbyists whom recipients or their sub tier contractors or sub grantees will pay with profits or nonfederal funds on or after December 23, 1989; and file quarterly updates about the use of lobbyists if material changes occur in their use. Noncompliance can result in civil penalties.

A Certification Regarding Lobbying, see [Attachment I](#), must be completed at the time of submission of a grant application or before any grant in excess of \$100,000 is awarded.

Appendix E: Cornell Cooperative Extension Operating Guidelines

Cornell Cooperative Extension of Saratoga County Operational Guidelines and Governance – 2022

I. BOARD OF DIRECTORS

In general, the board of directors is responsible for establishing the organizational structure, enforcing the Constitution, securing resources to maintain program, and selecting, employing and evaluating the executive director.

Key Responsibility Areas

1. *Policy Administration:* Responsible for ensuring that the organization operates within its adopted Constitution. Establish policies and procedures for maintaining an effective cooperative extension association including program scope and priorities.
2. *Personnel:* Annually evaluate the executive director. Approves all personnel policies. Participates in recruitment and development of board and committee members.
3. *Financial Management:* Approves and monitors finances. Responsible for recommending and monitoring all expenditures dealing with the association and its operation.
4. *Program:* Maintains familiarity with programs and participate when appropriate. Participates in program planning, monitoring and evaluation.

(Adapted from SCRIBNER AND ASSOCIATES, Boards From Hell, 1996)

Traits of an Effective Board (according to Richard Chait of the Harvard Graduate School of Education) includes:

- Helping management decide what matters most to the long-term future of the organization.
- Providing opportunities for the chief executive to think aloud about issues important to the organization.
- Developing and implementing mechanisms to monitor organizations performance and progress.
- Pushing against the organization natural resistance to change by using new models and metaphors and asking different questions.
- Modeling the behavior the board would like to see incorporated into the culture of the organization, such as efficiency, creativity, diversity and accountability.

II. BOARD STANDING AND SPECIAL COMMITTEES

According to the Constitution the board will establish standing committees at the first organizational board meeting of the year. These standing committees are responsible to and shall act in the interest of the association, its enrollees and constituencies. The board president shall designate the chairperson.

- A. Melvin D. Wisley Memorial Scholarship Committee
 - Reviews scholarship applications and awards scholarship on an annual basis should applications be received.
 - The board president following the organizational meeting of the board appoints the members of this committee.

- B. Nominating Committee
 - A nominating committee is specifically called for in the Constitution to recruit and recommend a slate of candidates for all vacant or eligible elected positions.
 - The board president following the organizational meeting of the board appoints the members of this committee.
 - The committee shall consist of five people, a majority of whom are not current board members

- C. Executive Committee
 - Composed of the board president, vice-president, treasurer, secretary and association executive director.
 - May conduct business in the interim of the regularly scheduled board meetings.

- D. The Gordon King Development Fund Committee
 - Composed of local agricultural community members and representatives from Cornell Cooperative Extension of Saratoga County.
 - Reviews scholarship applications and awards funds on an as needed basis, should applications be received, to benefit the dairy industry in Saratoga County.

III. PROGRAM ADVISORY COMMITTEES

According to the Constitution the board will establish annually program advisory committees to serve in an advisory capacity to the executive directors and other staff, and may also recommend policies to the board for approval or revision. Program Committees shall meet on the average of five times per year. A quorum shall consist of a majority of the committee's total membership. Proposed advisory committees for 2022 are:

- A. 4-H/Family & Consumer Science and Agriculture
 - Adhere to policies and procedures of the Association and the Director of

Extension as set forth in the constitution, memoranda of agreement, and Board of Director's action.

- Advises and recommends program direction to staff and board.
- Seeks alignment between programs and organizational mission and vision.
- Establish program addressing priority issues and audience priorities consistent with needs of potential program participants.
- Recommends and advises staff regarding acquisition of resources to support program efforts.
- Evaluate program accomplishments, determine program impact and recommend future action.
- Present program recommendations to the Board of Directors.
- Implement program recommendations made by the Board of Directors.

IV. ADMINISTRATIVE LEADERSHIP TEAM

The leadership team is the administrative decision-making body within the paid staff of the organization. The team is made up of the executive director, issue leaders, finance manager and/or others at the discretion of the executive director. The leadership team meets at the discretion of the executive director, but at least monthly.

V. FULL STAFF MEETINGS

The full staff meeting serves as an informal “for your information” meeting that allows staff to share upcoming programs and recent successes. In addition, the full staff meetings provide an opportunity to report and discuss administrative decisions that affect all staff, and to engage in staff training. The full staff meetings are held at the discretion of the executive director, a minimum of six times per year.

VI. STANDING MOTIONS

In order to efficiently operate in the performance of business operations the following set of operational motions shall be voted on and approved at the first organizational meeting of the calendar year. Should a delay in the first meeting occur, all motions remain in effect until the next available quorum occurs.

1. Authorize the Association Treasurer to sign checks and transfer bank funds.
2. Authorize the Assistant Treasurer(s) to sign checks and the Issue Leaders to sign vouchers in the Executive Director's absence.
3. Authorize the Association Executive Director and Assistant Treasurer to transfer funds between association accounts in accordance with the approved association budget.
4. Designate the Assistant Treasurer as Eleanor Hackett and in her absence Wendy McConkey.

5. Authorize the following persons to sign checks for the Association: Assistant Treasurers Eleanor Hackett and Wendy McConkey.
6. Equal Opportunity Statement: Cornell Cooperative Extension Association of Saratoga County reaffirms and endorses the Affirmative Action and Diversity Plans of the Cornell Cooperative Extension system.
7. Cornell Cooperative Extension Association of Saratoga County will adhere to the required and recommended Personnel Policy Manual of Cornell Cooperative Extension as published by Cornell University unless revised or amended by separate Board action.
8. Credit Card Use: As per policy credit cards shall be for Association business only. Cards may not be used for personal business.
9. Appoint Wendy McConkey as Records Management Officer, and appoint William Schwerd as Freedom of Information Officer for Cornell Cooperative Extension of Saratoga County.
10. Program Committees established for the year:
 - Agriculture
 - 4-H/Family and Consumer Science
11. Operating Committees: Executive Committee, Nominating Committee, Melvin D. Wisley Memorial Scholarship Committee, and The Gordon King Dairy Development Fund Committee.
12. Memorandum of Agreement with Cornell - AGREEMENT BR
- 12a. Memorandum of Understanding with Saratoga County.
- 12b. Authorize the President of the Association's Board of Directors to sign the Memorandum of Agreement/Contract with Saratoga County and Cornell University.
13. Authorize Cornell Cooperative Extension of Saratoga County to hold local charge accounts for the purpose of conducting business.
14. Authorize County Extension Educators to utilize Association property in their homes and away from the office in accordance with established personnel policies.
15. The workplace is a drug-free environment.
16. To express to Saratoga County our wish to extend our current lease agreement through 2022.
17. Re-establish travel benefits/meals: hotel \$130, breakfast \$10, lunch \$12, dinner \$20.
18. Update mileage to be consistent with IRS and county guidelines. As of January 1, 2022 rate is \$0.585.
19. Authorize the finance office to create year 2022 in Acumatica software to fulfill our fiscal responsibilities. (Or the most current Cornell Financial Software)
20. Designate the *Saratogian* and *Daily Gazette* newspapers as our official newspapers for public notice.
21. Authorize the Association Executive Director to sign contracts, agreements, and grants in lieu of the Board President or Board Treasurer.

VII. PARLIAMENTARY AUTHORITY

The rules contained in the most current "Roberts Rules of Order" shall govern the association in all cases to which they are applicable and in which they are not inconsistent with the

Constitution or other special rules of the association. The Executive Director or the Board President, in the Executive Director's absence, shall be the interpreter of applicable parliamentary procedure.

VIII. OPERATIONAL GUIDELINES

These guidelines shall be filed with the association constitution. If any conflict occurs between the Constitution and/or applicable laws the constitution and/or law takes priority over the operational guidelines.

These guidelines adopted on the _____ day, of _____, 20



Capital Region PRISM

Partnership for Regional Invasive Species
Management

Invasive Species Best Management Guidelines



Cornell Cooperative Extension of Saratoga County



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Purpose

This invasive species best management guidebook contains a general outline of management for grasses, herbaceous plants and vines, clonal species, woody vines and shrubs, trees, terrestrial invasive animals, and aquatic invasive species. It outlines how the [Capital Region Partnership for Regional Invasive Species Management \(CR-PRISM\)](http://capitalregionprism.org) classifies, prioritizes, and manages invasive species. Each section includes a short description of different species with each growth form, Integrated Pest Management options and disposal methods. The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) focuses on manual and mechanical removals and **does not conduct chemical applications** on state land. This document has been adapted from the Adirondack Park Invasive Plant Program (APIPP) Invasive Species Best Management Practices document, updated April 2023.

Each invasive species infestation, as well as the geographic, ecological, and societal setting in which it establishes is unique and may require the use of different methods and tools to ensure that control measures are appropriate, effective, and permitted. Invasive species management activities should always follow the principles of [integrated pest management \(IPM\)](#) and the minimum tool approach to effectively address impacts, while minimizing risk of harm to non-target species, people, commodities, and the environment. Please note that the invasive species best management practices (BMPs) included in this document are continually adapted and improved upon over time through experience-based learning. The BMPs contained in this document will be reviewed and updated periodically to reflect the best available invasive species management information, control techniques, and technologies. If you have questions or comments regarding these BMPs, please contact the Capital Region Partnership for Regional Invasive Species Management.

Contact Information:

Cornell Cooperative Extension of Saratoga County
50 West High Street, Ballston Spa, NY 12020
(518)-885-8995; capitalregionprism@cornell.edu
www.capitalregionprism.org

Introduction

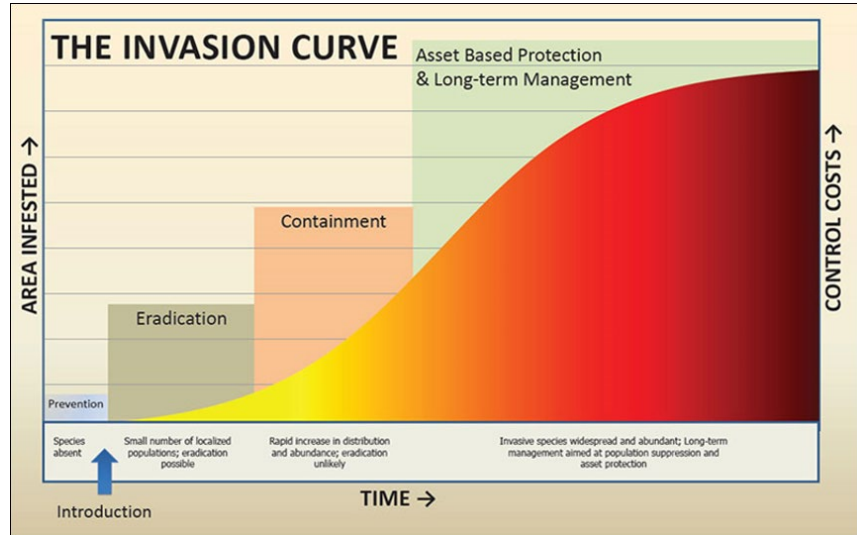
Invasive species, as defined by Presidential Executive Order 13112, are species that are non-native to an ecosystem under consideration whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health. The negative impacts invasive species have on natural and human systems are well documented. Once an invasive species becomes established, early detection and rapid response is critical to mitigating impacts and achieving successful eradication. As infestations increase in size and abundance, they become progressively more difficult and costly to manage and may never be completely eradicated (Figure 1). Some species have no effective control options.

The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) is hosted by the Cornell Cooperative Extension of Saratoga County, a not-for-profit semi-quasi government agency. The CR-PRISM is one of eight such entities in New York State and is financially supported through the New York State Department of Environmental Conservation (NYSDEC) via the Environmental Protection Fund. The Capital Region PRISM provides regional services across eleven counties in the greater New York State Capital Region. Counties served included Albany, Columbia, Montgomery, Rensselaer, Schenectady, Saratoga, Washington and portions of Fulton, Greene, Herkimer, and Warren. The CR-PRISM is staffed with a full time Terrestrial Invasive





Species Coordinator, Aquatic Invasive Species Program Manager, Education and Outreach Coordinator, and a Lead Coordinator. Our seasonal staff includes a Watercraft Steward Supervisor, Watercraft Stewards, and Invasive Species Technicians. The [CR-PRISM Operating Guidelines](#) outline Standard Operating Practices for the Aquatic Invasive Species Program and Terrestrial Invasive Species Program.



Pre-Project Planning

Before engaging in invasive species management, it is critical to develop a management plan, budget and establish project goals and objectives to ensure all desired outcomes are realistic, cost-effective, and measurable. The goals of the [Capital Region PRISM 5-Year Strategic Plan](#) outline the CR-PRISM's vision and mission, work flow is guided by an [Annual Work Plan](#). The CR-PRISM utilizes a [Framework of Response](#) to prioritize locations and evaluate potential invasive species projects.

The CR-PRISM recommends referring to and utilizing several resources and pre-project planning tools to ensure the highest success of projects. Some of these tools and resources include the [New York Natural Heritage Program \(NYNHP\) Tier List](#), [threat rankings](#), available BMPs, [New York Protected Area Database \(NYPAD\)](#), [NYS DEC Environmental Resource Mapper](#) and the AIS Pond and Lake Vulnerability Prioritization for New York. Failure to address all components of the framework prior to implementation can significantly increase the likelihood for project failure or result in management being undertaken with little to no ecological, economic, or societal benefit. CR-PRISM staff have extensive experience in invasive species detection, monitoring and response and can offer technical assistance or guidance.

Consult with DEC to determine if an environmental assessment or environmental impact statement is required. All permits and site assessments should be completed prior to work. It is very important to ensure rare, threatened, endangered (RTE) species or species of special concern will not be impacted by any work actions on the property. The Capital Region PRISM uses an elemental occurrence layer provided by the New York Natural Heritage Program (NYNHP) to view to consider known locations of RTE species or species of special concern. Any newly found RTE species will be reported to the NYNHP via the [Rare Species Reporting Form](#).





Project Implementation and Monitoring

Once a viable management project has been identified and all available BMPs have been considered, implement the management strategy most appropriate for your site and the invasive species infestation of concern. Annual follow-up management over multiple, consecutive years is often required to successfully reduce or eradicate infestations. Management sites should be revisited annually, at the appropriate time of growing season, for at least five years after initial management or until no invasive species have been documented at the site for at least three consecutive years.

Progress in meeting project goals can be evaluated by documenting reductions in invasive species abundance (extent, percent cover, density, number of plants, etc.) as well as reestablishment of native species over time. Invasive species mapping and monitoring systems such as [iMapInvasives](#) can assist you with documenting management activities and tracking progress over time. Large terrestrial infestations – usually greater than 2.47 acres (1 hectare) – may require sustained annual management and/or active restoration into perpetuity to maintain low invasive species abundance and promote the reestablishment of native species.

Collection and submission of invasive species data is a contract deliverable from the NYS DEC for the Capital Region PRISM. All data is submitted and uploaded to a shared statewide database. Most of this data is publicly available, however, some are confidential depending on the species detected at a specific site.


iMapInvasives

New York's Invasive Species Database


About NY iMapInvasives

iMapInvasives is New York State's on-line, all-taxa invasive species database and mapping tool. The comprehensive database can be used for:

- Documenting and sharing invasive species observation, survey, assessment and treatment data
- Collecting observations of invasive species in the field using a convenient mobile app
- The coordination of early detection and rapid response efforts through email alerts
- Data analysis and summaries in the web interface and GIS



For more information, visit: www.nyimapinvasives.org



iMapInvasives

iMapInvasives is managed by the New York Natural Heritage Program (NYNHP), which is a partnership between SUNY College of Environmental Science and Forestry and the NYS Department of Environmental Conservation, with funding from the New York State Environmental Protection Fund.



Permitting Requirements

Invasive species management activities may be subject to one or more permits from various state agencies and/or departments. It is the responsibility of the agency accessing the property to obtain the proper permits. Identify all state, federal, and local regulatory requirements. Consult with DEC to determine if an environmental assessment or environmental impact statement is required. The list below includes site conditions and/or special circumstances that may trigger permitting requirements from various regulatory agencies. Regional foresters, wildlife area managers and ENCON officers will be notified as needed.

Please note: This is not an exhaustive list. Additional permits may be required to implement your management project.

1. Management Activities under NYS DEC Jurisdiction

A permit from the NYS DEC may be required for:

- Management of invasive species on NYS DEC Administered Land
- Chemical control of invasive species emerging from standing water- such as Common Reed
- Chemical control of aquatic invasive species using pesticides applied to surface waters
- Management activities in or near wetlands

2. Management Activities under NYS DOT, County or Local Highway Department Jurisdiction

Management of invasive species within a road right-of-way may require a highway work permit. Contact your DOT regional office (Appendix B) or county/local highway superintendent for more information.

Examples of Permits that May be Required:

- 1) General Permit for Management of Invasive Species
[Article 15 Protection of Waters Program](#)
 - Types of [General Permits](#)
 - [General Permit for Management of Invasive Species](#)
- 2) Freshwater Wetlands Permitting
 - [ECL Article 24 Freshwater Wetlands](#)
 - [Fresh Water Wetlands Joint Application](#)
- 3) State Environmental Quality Review Act (SEQR)
[Article 8 Environmental Conservation Law](#)
 - [Short Environmental Assessment Form](#)
 - [Full Environmental Assessment Form Part 1](#)
 - [Full Environmental Assessment Form Part 2](#)
 - [Full Environmental Assessment Form Part 3](#)



Best Management Practices

The following best management practices (BMPs) are for invasive species that are already present in the Capital Region or present in New York State and approaching and have the highest likelihood of causing significant negative ecological, economic, or societal impacts. Additional BMPs will be developed, and incorporated overtime as new species arrive and/or additional information on impacts becomes available. For management advice on other species not referenced in this document please refer to other resources or contact the CR-PRISM.

*Please note that this is not a comprehensive list, examples of additional pests are included as appendices in this permit. Please see the [Plant Invaders of Mid-Atlantic Natural Areas: Field Guide](#) or the [New York Natural Heritage Program Statewide Tier List](#) for more information about these species and other species not mentioned in this document.

Terrestrial Invasive Plants

The following general infestation size thresholds are provided to inform the specific management activities most appropriate for each individual plant species. For the purposes of the following terrestrial invasive plant BMPs, four size thresholds will be referenced:

- 1) **Early Detection Infestation** – An early detection infestation is classified as being a discrete population under 0.1 acres (0.04 ha)
- 2) **Small Infestation** – A small infestation is classified as being a discrete population over 0.1 acres (0.04 ha) but under 1 acre (0.4 ha)
- 3) **Medium Infestation** – A medium infestation is classified as being a discrete population over 1 acre (0.4 ha) but under 2.47 acres (1 ha).
- 4) **Large infestation** – A large infestation is classified as being a discrete population over 2.47 acres (1 ha).

Note: When treating infestations larger than one acre, consider active restoration (seeding or planting) following management to facilitate the recovery of desirable, native vegetation.

Terrestrial Invasive Plant BMP's

Common Name	Scientific Name
Bush honeysuckles	<i>Lonicera spp.</i>
Common & glossy buckthorn	<i>Rhamnus cathartica</i>
Common reed grass	<i>Phragmites australis</i>
Garlic mustard	<i>Alliaria petiolata</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Glossy buckthorn	<i>Frangula alnus</i>
Indian cup plant	<i>Silphium perfoliatum</i>
Japanese & common barberry	<i>Berberis thunbergii</i> & <i>B. vulgaris</i>
Japanese angelica tree	<i>Aralia elata</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Japanese hops	<i>Humulus japonicus</i>
Japanese snowball	<i>Viburnum plicatum</i>
Japanese stiltgrass	<i>Microstegium vimineum</i>
Japanese tree lilac	<i>Syringa reticulata</i>
Knapweed spp. (brown & spotted)	<i>Centaurea stoebe</i> & <i>C. jacea</i>
Knotweed spp. (Japanese, giant, & Bohemian)	<i>Reynoutria japonica</i> , <i>R. sachalinensis</i> , and <i>R. x bohemica</i>
Lesser celandine	<i>Ficaria verna</i>
Mile-a-minute	<i>Persicaria perfoliata</i>
Multiflora & rugosa rose	<i>Rosa multiflora</i> & <i>R. rugosa</i>
Norway maple	<i>Acer platanoides</i>
Asiatic bittersweet	<i>Celastrus orbiculatus</i>
Porcelain berry	<i>Ampelopsis glandulosa</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Reed canary grass	<i>Phalaris arundinacea</i>
Russian & autumn olive	<i>Elaeagnus umbellata</i> & <i>E. angustifolia</i>
Scotch broom	<i>Cytisus scoparius</i>
Slender false brome	<i>Brachypodium sylvaticum</i>
Small carpetgrass	<i>Arthraxon hispidus</i>
Swallowwort spp. (black & pale)	<i>Vincetoxicum louiseae</i> & <i>V. rossicum</i>
Sweetclover spp. (white and yellow)	<i>Melilotus albus</i> & <i>M. officinalis</i>
Tree-of-heaven	<i>Ailanthus altissima</i>
Wild parsnip	<i>Pastinaca sativa</i>
Wineberry	<i>Rubus phoenicolasius</i>
Winged euonymus	<i>Euonymus alatus</i>
Yellow iris	<i>Iris pseudacorus</i>

GRASSES

Due to their similar biology and growth habits, most invasive grasses can be managed using comparable techniques. The following species can be managed using the general BMPs included in this section:

Grasses	
Japanese stiltgrass	<i>Microstegium vimineum</i>
Reed canary grass	<i>Phalaris arundinacea</i>
Slender false brome	<i>Brachypodium sylvaticum</i>
Small carpetgrass	<i>Arthraxon hispidus</i>



Japanese stiltgrass



Reed canary grass



Slender false brome



Small Carpetgrass

PLANT DESCRIPTIONS

JAPANESE STILTGRASS is an annual grass native to Asia. It prefers moist soil and can thrive in a variety of light conditions, including heavily shaded areas. Japanese stiltgrass readily invades forest understories, marshes, floodplains, wetlands, etc. where it forms dense carpets that displace native vegetation, interfere with forest regeneration, and alter soil chemistry. It grows one to three feet (0.3-1m) tall and has a small stem that resembles bamboo. The leaves are narrow and lance-shaped with a prominent silver strip that runs along the midrib on the upper surface. The inflorescence of Japanese stiltgrass is inconspicuous, appearing from late summer to early fall. It spreads primarily by human and wildlife dispersed seeds and infestations are often exacerbated in areas with high deer abundance.

REED CANARY GRASS is a tall, coarse, perennial grass native to parts of Europe, Asia, and North America. It commonly invades open canopy wetlands and riparian corridors but can also be found in drier sites. Reed canary grass can form dense infestations that displace native vegetation, degrade wildlife habitat, and alter wetland hydrology. Its leaves are tapered and grow up to 10 inches (25cm) long. The flowers are single and occur in dense clusters from May to August. New inflorescences range from green to purple and will transition to a light brown at maturity. The ligule of reed canary grass is transparent, distinguishing it from several native grass species. Spread occurs vegetatively via creeping rhizome and by seed; however, the establishment of seeds is assumed to be low.

SLENDER FALSE BROME is an annual bunch grass native to Eurasia. It is highly invasive in a wide range of habitats including wetlands, forests, and disturbed sites, where it often excludes native grasses and forbs. It is well adapted to a variety of light and soil conditions, allowing it to become the dominant species in the plant community. Mature plants reach 18+ inches (46cm) tall and have a distinctive drooping growth habit. The leaf blades are bright green and have fine hairs along the margins. The lower stem is also covered with fine white hairs. Roots have a prominent wintergreen aroma when crushed. It is primarily spread by human and wildlife dispersed seeds produced between June and September. Slender falsebrome infestations are often exacerbated in areas with high deer abundance.

SMALL CARPETGRASS is a quick growing annual grass native to Asia. It prefers well lit, moist areas and thrives in disturbed wetland and riparian areas. This quick growth coupled with its ability to reproduce quickly allows small carpetgrass to form monocultures, excluding native plants. It grows up to 18 inches (46 cm) in height. The leaves are bright green, often hairy along the edges, and clasp the stem. Flowers emerge in late summer and are characterized by a greenish to purple inflorescence with up to ten "fingers." Small carpetgrass can reproduce via prolific seed production as well as vegetatively via rooting at nodes.



Japanese stiltgrass infestation

Photo Credit: The Nature Conservancy

MANAGEMENT OPTIONS

1. Digging/Pulling

Effectiveness:

Non-mechanized digging or hand pulling is an effective method for containing, suppressing, or locally eradicating early detection infestations of invasive grasses. Mechanical management should be performed prior to seed set, typically before mid-summer.

Methods:

Slowly dig or pull each plant up by the base to ensure the entire root system is removed. Root fragments that are left behind may re-sprout into new plants. Disturbed soil should be tamped down firmly after removing plants. Soil disturbance can bring seeds to the surface and create a favorable environment for germination within the control site. Plants should be removed before seed set. Refer to the plant descriptions above for phenological information.

Disposal:

Bag all plant parts and remove from site. Solarize by placing bagged plant material in the sun for at least two-weeks and then dispose of in an approved landfill.

2. Cutting/Mowing

Effectiveness:

Cutting or mowing can be effective in containing or suppressing early detection to medium sized infestations of invasive grasses. Persistent mowing/cutting will prevent seed production/dispersal but is unlikely to result in local eradication as dormant seeds in the soil are unaffected by this technique.

Methods:

Cut or mow the invasive grass at ground level manually or with motorized equipment just before its flowering period, typically by mid-summer. Follow-up mowing/cutting may be required within a growing season and must be repeated annually. Do not mow or cut plants during seed set as this will aid in seed dispersal.

Disposal:

If possible, bag all cut plant parts and remove from site. Solarize by placing bagged plant material in the sun for at least two-weeks and dispose of in an approved landfill. Mowed or mulched material can be left to decompose on site.

3. Herbicide

Effectiveness:

Herbicide treatments can be effective in containing or locally eradicating early detection to medium-sized infestations and suppressing large infestations of invasive grasses. Invasive grasses can be effectively controlled by glyphosate-based herbicides.

Methods:

Apply glyphosate-based herbicide using one or more of the selective application techniques identified below. Treatments should be performed close to peak growth, but before seed production.

For herbicide treatments use any of the following application techniques:

- a) Wiper application - sponge tip applicator with wick or cloth glove applicator.
- b) Foliar spray application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, boom/broadcast sprayer and/or spot sprayer.

Disposal:

Plants should remain undisturbed for at least two weeks following treatment. No disposal is required.

HERBACEOUS PLANTS AND VINES

Due to their similar biology and growth habits, many invasive herbaceous plants can be managed using comparable techniques. The following species can be managed using the general BMPs included in this section:

Herbaceous Plants and Vines	
Garlic mustard	<i>Alliaria petiolata</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
Indian cup plant	<i>Silphium perfoliatum</i>
Japanese hops	<i>Humulus japonicus</i>
Knapweed spp.	<i>Centaurea stoebe</i> & <i>C. jacea</i>
Lesser celandine	<i>Ficaria verna</i>
Mile-a-minute	<i>Persicaria perfoliata</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Swallow-wort spp.	<i>Vincetoxicum louseae</i> & <i>V. rossicum</i>
Sweetclover spp.	<i>Melilotus albus</i> & <i>M. officinalis</i>
Wild parsnip	<i>Pastinaca sativa</i>



Garlic mustard



Giant hogweed



Indian cup plant



Japanese hops



Knapweed spp.



Lesser celandine



Mile-a-minute



Purple loosestrife



Swallow-wort spp.



Sweetclover spp.



Wild parsnip

PLANT DESCRIPTIONS

GARLIC MUSTARD is a European biennial herb that typically invades partially shaded forest understories and roadsides. It exudes an allelopathic compound from its root system that can suppress the growth of surrounding vegetation, negatively impact mycorrhizal fungi and reduce forest regeneration. Its seeds germinate in early spring and develop into a basal rosette of leaves during the first year. Leaves have a distinct onion/garlic aroma when crushed. Second-year flowering plants average three feet (1m) in height with white, cross-shaped flowers blooming between late April and June. Seeds mature and disperse in late July, are spread by both humans and wildlife, and may remain viable in the soil for up to seven years. Garlic mustard infestations are often exacerbated in areas with high deer abundance.

GIANT HOGWEED is a biennial or perennial herbaceous plant native to Eurasia that can exceed 15 feet (4.6m) in height. It can form dense stands and spreads quickly in disturbed areas such as abandoned fields and roadsides. The sap of giant hogweed is highly caustic – chemicals activated by sunlight may cause serious burns and blistering to exposed skin. In its first one to three years of growth, giant hogweed exists as an increasingly larger rosette. Its basal leaves are large and deeply divided, typically with three prominent lobes. Once mature, it produces a flowering stalk with several large, white umbels that can exceed two feet in diameter. Stems are characterized by coarse white hairs and purple/dark-red spots. Plants produce a large quantity of seeds that are easily dispersed by wind, water, and on equipment.

INDIAN CUP PLANT is a large perennial native to central North America that can reach eight feet (2.4m) in height. It can form dense stands that spread quickly in wetlands and along river corridors, excluding native species. Its stems are stout and uniquely square in cross section. The leaves are opposite and are joined to form a cup around the stem. The leaves are rough in texture and have finely serrated margins. Flowers are bright yellow, two to three inches (5-8cm) wide with 16-35 rays. Plants spread locally via rhizomes and can disperse longer distances via seeds carried by water and wind.

JAPANESE HOPS are herbaceous, annual twining vines native to temperate Asia that can reach lengths of up to 35 feet (10.6m). It prefers well-lit, moist areas and typically colonizes areas such as streambanks, floodplains, roadsides, and forest edges. Japanese hops grow rapidly and is capable of smothering native plants. It can form dense mats several feet deep, that block light to the plants underneath, preventing new plants from emerging. Additionally, it is able to twine around understory trees and shrub which can cause them to break or fall over. Leaves have five to seven palmately (like a hand) arranged lobes with toothed edges. Both leaves and stems have hooked hairs present. These hooked hairs on the stem can be used to distinguish this species from look-a-likes and are characterized as sharp and downward pointing. Japanese hops flowers in mid-to-late summer with short flower spikes. Flowers are green in color with five petals. Seeds can be dispersed by wind, water, wildlife, and vehicles.

KNAPWEED SPP. are bushy, tap rooted biennials native to Europe. They can form large, monotypic stands in disturbed upland habitats and are most often associated with roadsides, railbeds, utility lines, forest edges, hiking trails, and open fields. In agricultural settings, knapweed can reduce grazing opportunities and increase soil erosion. Plants are allelopathic, producing chemicals that suppress the growth of surrounding vegetation. First year plants exist as a small basal rosette of deeply divided leaves. Second year plants grow up to three feet (1m) in height with leaves alternately arranged on the stem. Mature plants will bloom from late June to August, producing numerous flower heads at the tips of terminal or ancillary stems. Flowers are generally pinkish-purple, but in rarer instances, can be white. Each flower is surrounded by green scale-like structures called bracts. Knapweeds spread through prolific seed production. Each mature plant can release over 1000 seeds that can remain dormant in the soil for up to 10 years. New rosettes may also develop from lateral roots.

LESSER CELANDINE is a short lived herbaceous perennial native to Eurasia. It can form a dense carpet of vegetation that excludes native ephemeral plants in open woods, floodplains and wet meadows. Plants senesce early in the spring, often exposing large patches of bare soil that are prone to erosion. Plants are comprised of a basal rosette of dark green, kidney shaped leaves. It flowers early in the spring, between late March and May, producing bright yellow flowers, each with 8-12 petals. Plants spread vegetatively via small underground bulbils and tuberous roots.

MILE-A-MINUTE is an herbaceous, annual climbing vine native to Asia. Once established, vines can grow up to six inches (15cm) per day. Large mats can quickly smother native vegetation and alter the quantity of light filtering through the forest canopy. In addition to its ecological impacts, mile-a-minute can disrupt recreational opportunities with its spine-covered stems. The delicate, branched stems have alternately arranged triangular leaves. Ocreae, or circular shaped leaves, can be found surrounding the stem near its nodes. Flowers are small and inconspicuous, but give rise to attractive metallic blue berries, which begin growing in July. Seeds can spread long distances via wildlife or water.

PURPLE LOOSESTRIFE is an herbaceous perennial native to Eurasia that can form large, monotypic stands that exclude native vegetation in open wetlands, drainage ditches, and along shorelines. Dense infestations can degrade waterfowl habitat, reduce furbearer populations, and negatively impact hay/forage fields. Plants average three feet (1m) in height and produce vigorous rootstock that serves as a storage organ for growth in spring and re-growth if the plant is damaged. Stems are square-shaped and produce leaves that are opposite, whorled, and lance-shaped with smooth edges. Plants produce several, vibrant magenta flower spikes between early July and September. A single mature plant can produce more than 2.5 million seeds per growing season, which are easily transported by water and human activities.

SWALLOW-WORT (BLACK & PALE) are herbaceous twining vines native to Europe that grow up to ten feet (3m). Vines typically twine and sprawl, shading out or smothering desirable vegetation. The foliage of swallow-wort is toxic to some wildlife and livestock. In forest understories, swallow-wort can impact forest regeneration. Both species have opposite, shiny leaves that are 2-4 inches (5-10cm) long. Black swallow-wort usually bears purple-black, star shaped flowers while pale swallow-wort usually bears light maroon, star shaped flowers. The flowers of black swallow-wort have petals that are about half as wide (at the base) as they are long, whereas the flowers of pale swallow-wort are much narrower at the base than their length. Both species produce long slender green seed pods around June, which bear numerous seeds that are dispersed by wind and wildlife. Seeds resemble common milkweed and are rounded and flattened with an attached tuft of silky hair.

SWEETCLOVER (WHITE AND YELLOW) are biennial invasive plants native to Europe that form large, monotypic stands in upland environments. Sweetclover prefers full sunlight and is most often associated with disturbed habitats such as roadsides, forest edges, and hiking trails. Dense infestations alter native seedling recruitment which can result in long term changes to plant communities and soil properties. First year plants do not bloom and exist as a small basal rosette of deeply divided leaves. Second year plants can reach six-feet (1.8m) in height with leaves alternately arranged on the stem. The small fragrant flowers appear in June through July and are located terminally on the branches. Flowers are creamy white or bright yellow depending on the species. Sweetclover spreads primarily by seed, which is persistent and can remain viable in the soil for up to 30 years. Plants can sprout from root fragments.

WILD PARSNIP is a biennial or perennial herbaceous plant native to Eurasia that can grow over five feet (1.5m) tall. It can form dense stands and spread quickly in disturbed areas such as abandoned fields and roadsides. The sap of wild parsnip is highly caustic – chemicals activated by sunlight may cause serious burns and blistering to exposed skin. It exists as a low, spindly rosette of leaves in the first year while the root develops. In the second year, it flowers on a tall stalk and then dies. Its leaves are pinnately compound with saw-toothed edges. Branching stems bear umbels of small yellow flowers from mid-June to early August. It spreads primarily by seeds, which are dispersed by wind, water, and on equipment.

MANAGEMENT OPTIONS

1. Digging/Pulling

Effectiveness:

Non-mechanized digging or hand pulling is an effective method for containing, suppressing, or locally eradicating early detection infestations of invasive herbaceous plants. Mechanical control is most effective when performed before seed/fruit production.

Methods:

Dig or pull up each plant by the base to ensure the entire root system is removed. Disturbed soil should be tamped down firmly after removing plants. Soil disturbance can bring existing invasive plant seeds to the surface, creating a favorable environment for germination. Plants should be removed around peak flower, but before seed set. Refer to the plant descriptions above for phenological information.

Disposal:

Bag and remove all plant parts from site. Solarize by placing bagged plant material in the sun for at least two-weeks and then dispose of in an approved landfill. Do not compost invasive plant material.

2. Cutting/Mowing

Effectiveness:

Cutting or mowing can be effective in containing or suppressing early detection to large-sized infestations of invasive herbaceous plants. Mowing or cutting must be repeated annually to reduce an infestation to desired levels as dormant seeds in the soil are unaffected by this technique.

Methods:

Cut or mow invasive herbaceous plants at ground level either manually or with motorized equipment just before their flowering period, typically by mid-summer. Follow-up mowing/cutting may be required within a growing season. Do not mow or cut plants when in seed set as this will aid in seed dispersal. In addition, do not use a weed-whacker or brush cutter to mow giant hogweed or wild parsnip. Mechanized cutting equipment can splatter the plants toxic sap leading to injury. Instead, use a sharp spade to cut the taproot or each plant approximately 6-10 inches (15-25cm) below the soil surface. If plants return, repeat the root cutting procedure.

Disposal:

If possible, bag all cut plant parts and remove from site. Solarize by placing bagged plant material in the sun for at least two-weeks and then dispose of in an approved landfill. Mowed or mulched plant material can be left to decompose on-site.

3. Herbicide

Effectiveness:

Herbicide treatments can be effective in containing or locally eradicating early detection to medium-sized infestations and suppressing large infestations of invasive herbaceous plants. Invasive herbaceous plants can be effectively controlled by glyphosate, triclopyr, or imazapyr based herbicides. Glyphosate and triclopyr will not affect subsequent plant emergence; however; the use of imazapyr may inhibit regrowth for several months or years.

Methods:

Apply glyphosate, triclopyr, or imazapyr formulations using the selective application techniques identified below. Herbicide applications should be performed close to peak flower, but before seed set. The rosettes of biennial species may be treated later in the season following senescence of native species. Consult the herbicide product label for recommended dilution rates and to ensure the target species, desired application technique, and habitat type (upland vs. wetland) are listed and approved.

For herbicide treatments use any of the following application techniques:

- a) Wiper application - sponge tip applicator with wick or cloth glove applicator. This technique is most often used with glyphosate-based herbicides.
- b) Foliar spray application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, boom/broadcast sprayer and/or spot sprayer. This technique can be used with most herbicide active ingredients.
- c) Stem injection application (hollow stemmed species) - stem injection tool with a short, stout needle. This technique is most often used with glyphosate-based products.

Disposal:

Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required.

4. Biocontrol (NOTE: biocontrols are only used to control purple loosestrife at this time; biocontrols are available for mile-a-minute but infestations in the region are too small to warrant use in the region; biocontrols are under evaluation for swallow-wort)

Effectiveness:

Biocontrol releases of *Galerucella californiensis* and *G. pusilla* can be effective in suppressing medium- to large-sized infestations of purple loosestrife. Release sites should have healthy, mature loosestrife plants and assurance from the landowner(s) that no insecticide spraying will occur. Biocontrol is most effective in areas that are not permanently flooded and have at least one acre of purple loosestrife of medium to high density.

Methods:

Beetles may be purchased from commercial suppliers or collected from historic release sites and moved to new areas. The number of beetles released per site depends on the infestation size, resources available, and seasonal timing. When releasing *Galerucella* in the spring, as few as 200 adults can be sufficient to establish a population. When collecting or releasing a summer generation, a minimum release of 2,000 insects is recommended.

Galerucella should be released as soon as they are collected or received. It is not necessary to wait for clear weather but avoid heavy rain events. Selecting periods of cool weather (morning or early evening) can increase the survival and establishment of the insects. If possible, avoid open water and release *Galerucella* near the shore or on dry land. It is not necessary to disperse the insects at multiple locations within an infestation, as insects will spread naturally on their own.

Disposal:

Plants should remain undisturbed following the release of biocontrol agents. No disposal is required.



APIPP staff releasing *Galerucella* beetles to control purple loosestrife.

Photo Credit: The Nature Conservancy

CLONAL PLANTS

The following species are characterized by extensive rhizome systems and the ability to spread clonally via root and/or stem fragmentation, which presents unique management challenges. The following species can be managed using the general BMPs included in this section:

Clonal Plants	
Common reed grass	<i>Phragmites australis</i>
Knotweed species	<i>Reynoutria japonica</i> , <i>R. sachalinensis</i> , and <i>R. x bohemica</i>
Yellow iris	<i>Iris pseudacorus</i>



Common reed grass



Knotweed spp.



Yellow iris

PLANT DESCRIPTIONS

COMMON REED is a perennial grass native to Europe that can grow over 14 feet (4.3m) in height. It is capable of vigorous vegetative reproduction and often forms dense, monospecific stands that exclude native plants. Established infestations can negatively impact the structure and hydrology of wetlands soils and degrade wildlife habitat. Purple-hued seed heads develop between July and September, turning light brown at maturity. It is believed that most seeds produced in the Capital region are non-viable and most spread occurs through the unintentional human-mediated movement of rhizome material. *NOTE: A native lineage of Phragmites is present in New York State. Please consult a professional for identification guidance before beginning management.*

KNOTWEED SPECIES are herbaceous perennial shrubs native to Eastern Asia that can exceed ten feet (3m) in height. They spread rapidly to form large, dense thickets that exclude native vegetation near water sources, in low-lying areas, waste areas, and utility rights-of-way. Dense infestations along riparian corridors can increase erosion and impede recreational opportunities. Knotweeds can tolerate a variety of adverse conditions including full shade, high temperatures, high salinity, and drought. There are multiple species of invasive knotweed, including Japanese, giant and bohemian. All are closely related in biology and appearance and can be managed using comparable techniques. Knotweed species have broad, heart-shaped leaves that are pointed at the tip and alternately arranged on the stem. Their stems are green and hollow with prominent raised ridges/nodes, giving the plant a bamboo like appearance. Large clusters of small white flowers appear on the branches in August and September. Knotweed spreads via seed and by vegetative expansion through stout, aggressive rhizomes.

YELLOW IRIS is a robust, clumping perennial native to Europe, Asia and parts of Africa. It can form dense monotypic stands that replace and crowd out native plants. It's dense network of rhizomes can alter soil properties and damage or clog underground water/sewer pipes. At maturity, plants can reach five feet (1.5m) with stiff, sword-like leaves. Bright yellow, three petaled flowers are present from mid-June to early July. It can be distinguished from its native lookalike (blue flag iris) by its rhizomes. The interior of yellow iris rhizomes are orange to pink, while the interior of native iris rhizomes are white. Yellow iris spreads via water dispersed seed, and fragmentation and/or expansion of its extensive rhizome system.

MANAGEMENT OPTIONS

1. Digging/Pulling

Effectiveness:

Non-mechanized digging or pulling can be effective in containing, suppressing, or locally eradicating early detection infestations of clonal species.

Methods:

Dig or pull up the entire plant including all roots and runners using a digging tool. Extreme care must be taken to remove the entire root system, as new plants can sprout from residual fragments. Small plants may be hand-pulled depending on soil conditions and root development. Disturbed soil should be tamped down firmly after removing plants.

Disposal:

Bag and remove all plant parts from site. Solarize by placing bagged plant material in the sun for at least two-weeks and then dispose of in an approved landfill. Do not compost invasive plant material.

2. Herbicide

Effectiveness:

Herbicide treatments can be effective in containing, or locally eradicating early detection to medium-sized infestations and suppressing large infestations of clonal species. Apply glyphosate, triclopyr, imazapyr, and/or imazamox based herbicides using the selective application techniques described below. Glyphosate will not affect subsequent plant emergence; however, the use of imazapyr or imazamox may inhibit regrowth for several months or years.

Methods:

Apply glyphosate, triclopyr, imazapyr, and/or imazamox formulations using the selective application techniques identified below. Herbicide applications should be performed near peak growth, typically in August or September. Consult the herbicide product label for recommended dilution rates and to ensure the target species, desired application technique, and habitat type (upland vs. wetland) are listed and approved.

For herbicide treatments use any of the following application techniques:

- a) Foliar spray application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, boom/broadcast sprayer and/or spot sprayer. This technique can be used with most herbicide active ingredients.
- b) Clip and drip or stem injection application:
 - For *common reed grass* - cut the stem near the base and fill its hollow cavity with 2-5ml of glyphosate-based herbicide. Most herbicide product labels recommend a 50% v/v solution.
 - For *knotweed spp.* - using a specialized stem injection system, deliver 2-5ml of undiluted glyphosate-based herbicide directly into the plants hollow stem. Injections are typically made between the 2nd and 3rd node from the soil surface.
 - For *yellow iris* - cut a flowering stalk and inject the plants fleshy pith with 0.5-1ml of undiluted glyphosate-based herbicide.

Disposal:

Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required.

3. Excavation (mechanized)

Effectiveness:

Excavation can be effective in suppressing, containing, or locally eradicating early detection to small-sized infestations of clonal species. Associated costs and disturbance can be limiting factors for this control method.

Methods:

Excavate plants below depth of rhizome - typically at least four feet (1.2 m) - including a buffer area of at least five feet (1.5m) around visible plants to account for underground roots and rhizomes.

Note: Excavation within 100 feet (30m) of a waterbody can cause erosion and/or bank destabilization and may be subject to regulation. Contact the Capital Region PRISM or NYSDEC (Appendix B) before proceeding.

Disposal:

Contaminated soil and plant material should be buried at least five feet (1.5m) deep in a disposal pit. The disposal site should be monitored annually for at least five years to ensure no new plants emerge.

Excavated material may also be spread on a contained, impervious surface to dry out for at least two years. Spread the material in an even, thin layer – approximately 1 foot (30cm) thick – to facilitate even heating. If necessary, treat emerging plants with herbicide.



Knotweed spp. (*Reynoutria* spp.) in flower.

Photo Credit: The Nature Conservancy (Zachary Simek)

WOODY VINES AND SHRUBS

Due to their similar biology and growth habit, many invasive woody vines and shrubs can be managed using comparable techniques. The following species can be managed using the general BMPs included in this section:

Woody Vines and Shrubs	
Bush honeysuckles	<i>Lonicera spp.</i>
Common and glossy buckthorn	<i>Rhamnus cathartica & Frangula alnus</i>
Japanese and common barberry	<i>Berberis thunbergii & B. vulgaris</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Japanese snowball	<i>Viburnum plicatum</i>
Multiflora and rugosa rose	<i>Rosa multiflora & Rosa rugosa</i>
Asiatic bittersweet	<i>Celastrus orbiculatus</i>
Porcelain berry	<i>Ampelopsis glandulosa</i>
Russian and autumn olive	<i>Elaeagnus umbellate & E. angustifolia</i>
Scotch broom	<i>Cytisus scoparius</i>
Wineberry	<i>Rubus phoenicolasius</i>
Winged euonymus	<i>Euonymus alatus</i>



Bush honeysuckle spp.



Buckthorn spp.



Barberry spp.



Japanese honeysuckle



Japanese snowball



Rose spp.



Oriental bittersweet



Porcelain berry



Olive spp.



Scotch broom



Winged euonymus



Wineberry

PLANT DESCRIPTIONS

BUSH HONEYSUCKLES (Morrow's, Bell's, Amur, and Tatarian) are multi-stemmed, deciduous shrubs native to Asia that grow up to 25 feet (7.6m) in height. They can form dense stands, even in shaded conditions, that exclude native plant species. Areas invaded by bush honeysuckles are known to have higher populations of ticks and greater incidences of tick related illness. Bush honeysuckles have simple leaves with smooth margins that are arranged alternately on the stem. Their flowers bloom in spring, typically around May, and are white, pink, or yellow. The fruits of bush honeysuckle are red, orange, or rarely yellow fleshy berries. Exotic honeysuckles can be distinguished from native varieties by their hollow stems. All species are spread by bird and animal dispersed seed.

COMMON BUCKTHORN is a deciduous shrub native to most of Europe and western Asia that can reach heights of 25 feet (7.6m). It can be found along forest edges, understories, and rights-of-way where it outcompetes native vegetation. Changes to the plant community composition result in altered litter decomposition and soil nutrient cycling. The main stem of common buckthorn can grow up to 10 inches (25cm) in diameter but is more commonly 1-3 inches (2.5-7cm). Leaves are dark-green and oval with toothed margins and 3-5 pairs of distinct arching veins. It can be distinguished from other buckthorns by its sharp, thorn tipped branches. Small, round, black berries ripen in the fall and are readily consumed by birds and other wildlife – serving as the primary spread mechanism.

GLOSSY BUCKTHORN is a deciduous shrub native to Eurasia that can reach 10-25 feet in height (3-7.6m). It grows in a wide variety of sites, including disturbed and nutrient poor habitats such as rights-of-way, forest edge, and wetlands. It is particularly invasive in wetlands where it outcompetes native vegetation and alters community composition through allelopathy. Bark is gray or brown with conspicuous white lenticels. Leaves are dark green with a shiny upper surface and 8-9 pairs of distinct arching veins. Pale yellow flowers grow from the leaf axils, turning to dark red or purple berries. Seeds are spread by birds and moving water, where they can remain buoyant for up to two weeks.

JAPANESE AND COMMON BARBERRY are spiny deciduous shrubs that can exceed ten feet (3m) in height. Japanese barberry is native to east Asia, while common barberry occupies central and southern Europe and west Asia. Their dense, thorny habit can exclude native species and impede recreational activities. Areas invaded by barberry are known to have higher populations of ticks and greater incidences of tick related illness. Leaves of Japanese barberry are small and oval with smooth margins, while common barberry has toothed margins. Japanese barberry has two common color morphs, a dark-green and deep-purple variety, while common barberry is typically only green. Japanese barberry has a single spine at each node where the leaves meet the stem, while common barberry has three spines. Flowers are very small, white to yellow in color, and bloom in April or May. Fruits are small, oval, bright-red berries less than 0.5 inches (1cm) long. The inner roots and stem of barberry are vibrant yellow in color. Both species are spread readily by bird dispersed seed. Barberry infestations are often exacerbated in areas with high deer abundance.

JAPANESE HONEYSUCKLE is a perennial trailing or climbing woody vine native to east Asia. It is most common at disturbed, open sites such as forest edges and rights-of-way. Its dense growth habit excludes native species, while its climbing stems can smother or topple host plants. The foliage and fruit of Japanese honeysuckle provide little value for native wildlife. Leaves are oval and approximately 2-4 inches (5-10cm) long. Fragrant white flowers are produced in late April through July. Fruits are small black berries that are produced September through November. Seeds are spread primarily by birds and other wildlife.

JAPANESE SNOWBALL is a perennial shrub native to temperate Asia that can reach heights of 15 feet (4.5m). It can grow in full sun to partial shade and can be found invading both disturbed habitats such as roadsides, and natural areas such as riparian areas, forest edges and interiors, and shrublands. Dense thickets crowd and shade out native vegetation and can also increase sedimentation rates along waterways. Leaves are simple, opposite, and oval shaped with serrated edges. There are distinct veins on the top of the leaves that run from the midrib to the edge. Leaves turn a deep reddish-purple color in the fall. Flowers occur as white clusters in mid-spring with small fruits ripening from red to black as summer progresses. Japanese snowball is utilized as an ornamental species and can escape cultivation via bird and animal dispersed seeds.

MULTIFLORA AND RUGOSA ROSE are thorny, perennial shrubs native to east Asia that can grow up to 15 feet (4.6m). Their dense, thorny habit can exclude native species and impede recreational activities. Stems are long, flexible, green or reddish in color, and covered with numerous stiff, recurved thorns. Leaves are alternate and compound. Multiflora rose often has 5-11 one-inch (2.5cm) leaflets, while rugosa rose has 7-9 (rarely 5). The leaf margins are toothed for both species. Invasive rose species bloom in late spring or early summer, producing numerous clusters of showy white or pink flowers. The flowers are small - 1 inch (2.5cm) wide - with five petals. In summer, flowers develop into small, hard red fruits approximately 1/4 inch (<1cm) in size. Both species spread through bird dispersed seed.

ASIATIC BITTERSWEET is a rapidly spreading deciduous vine native to Asia. It twines around and drapes itself over other trees and shrubs in successional fields and along forest edges, often completely covering the supporting vegetation. Its characteristically bright orange roots can alter soil pH and nutrient levels, affecting plant community composition. Stems are round, light to dark brown, usually with noticeable lenticels. Leaves are round, glossy on the upper surface, and alternately arranged. Small greenish flowers occur in clusters in the leaf axils. Fruits are green to yellow berries that begin developing around July and transition to red-orange in late summer. This species may be distinguished from the native American bittersweet (*Celastrus scandens*) by the location of its fruit. Asiatic bittersweet has small clusters in the leaf axils while *C. scandens* has clusters only at its branch tips. It can be spread long distances via bird dispersed seeds.

PORCELAIN BERRY is a woody, perennial climbing vine native to Asia. It occurs in open, edge habitats where mature vines can reach 20 feet (6m) into the canopy, blocking light and smothering native plants below. Heavy infestations can suppress the regeneration of native tree seedlings and degrade wildlife habitat. Leaves are alternate and dark green with 3-5 lobes. Flowers are small, greenish white, and appear from May through August. Vines begin to produce bright blue or purple, speckled berries in late-summer. Berries are readily spread long distances by birds.

RUSSIAN AND AUTUMN OLIVE are deciduous shrubs native to parts of Asia and Russia, that can reach 20 to 35 feet (6-10m) in height. They prefer disturbed sites such as forest edges or rights-of-way, where they form dense stands that exclude native plants. Both species have nitrogen fixing capabilities that provide a large advantage over native species. The leaves of autumn olive are oval and alternately arranged on the stem, with a green upper surface and silver underside. The leaves of Russian olive are more elongate, resembling a willow, and are silver on both sides. Twigs of both species are gray and often armed with sharp thorns. Flowers have four petals, are fragrant, white to yellow, and appear in late spring. The fruit of both species is a small, round berry. Autumn olive berries are typically red, while Russian olive berries are yellow-orange. Both species prefer disturbed sites, where they establish and spread via animal dispersed seed.

SCOTCH BROOM is a perennial shrub native to Europe that grows up to 10 feet (3m). It can fix nitrogen, allowing it to become established in poor sites where it may form dense thickets that decrease the richness and diversity of native plants. Established infestations can alter soil properties. Leaves are small, alternate, and compound with three leaflets. Stems are a prominent green and five-sided. Shrubs bloom early in the season from late May to June, producing small bright-yellow flowers along the length of the stem. Flowers give rise to fuzzy, flat seed pods that can be up to 1.5 inches (4cm) long. When seed pods are ripe, they split and eject seeds up to 20 feet (6m) where they may remain viable for up to 60 years in the soil.

WINEBERRY is a perennial shrub in the rose family native to parts of east Asia. It prefers moist soil and full to partial sunlight, and can readily invade forest edges, fields, forest understories, and wetland edges. Dense infestations exclude native vegetation and can impact recreational use. Leaves are light-green on top and white below, alternate, and compound with three heart-shaped leaflets. Branches are long, arching, and covered with reddish-purple spines. Small greenish-white flowers appear in late spring to early summer, giving rise to edible red raspberry-like fruits in mid-summer. Plants can spread long distances via animal and bird dispersed seed, but also locally through vegetative expansion.

WINGED EUONYMUS also known as burning bush is a deciduous shrub native to central and east Asia that can grow up to 20 feet (6m) tall and wide. Shrubs are adaptable to a variety of soil and light conditions, and can be found in forested wetlands, forest understories, riparian corridors, and rights-of-way. Dense stands exclude native species and can increase the populations of ticks, leading to greater incidences of tick related illness. Leaves are simple, opposite, and 1-3 inches (2.5-8cm) long with smooth edges. Green during the summer, foliage transitions to a vibrant red in the fall. Stems are green to brown in color with four prominent corky wings. Plants bloom in May or early June, producing small green flowers. Fruits mature in later summer as small, oval, bright red berries that are spread by birds.



Scotch broom (*Cytisus scoparius*) in flower.

Photo Credit: Eric Coombs, Oregon Department of Agriculture, Bugwood.org

MANAGEMENT OPTIONS

1. Digging/Pulling

Effectiveness:

Non-mechanized digging or pulling can be effective in containing, suppressing, or locally eradicating early detection infestations of invasive woody plants. Mechanical control is most effective when performed before seed/fruit production.

Methods:

Dig or pull up each stem by the base to ensure the entire root system is removed. Use a digging or leverage tool such as The Uprooter, Weed Wrench, or Honeysuckle Popper for larger individuals. Disturbed soil should be tamped down firmly after removing plants. Soil disturbance can bring existing invasive plant seeds to the surface, creating a favorable environment for germination. Plants should be removed around peak flower, but before seed set. Refer to the plant descriptions above for phenological information.

Disposal:

Woody debris can be mulched/chipped and left on-site or burned if allowed under local laws and regulations. Non-fruit bearing plants can be propped against or suspended from nearby tree trunks/branches with their roots exposed to decompose. They can also be arranged into brush piles for wildlife habitat.

2. Cutting/Mowing

Effectiveness:

Cutting or mowing/mulching can be effective in containing or suppressing early detection to large-sized infestations of invasive woody plants. Mowing or cutting/mulching must be repeated annually to reduce an infestation to desired levels as dormant seeds in the soil are unaffected by this technique. Do not mow or cut plants when in seed set as this will aid in seed dispersal.

Methods:

Cut or mow/mulch invasive woody vines and shrubs at ground level either manually or with motorized equipment just before seed production, typically by mid-summer. Follow-up mowing/cutting may be required within a growing season and must be repeated annually.

Some shrubs respond positively to cutting and may release numerous root suckers; follow up treatment with herbicide may be necessary to minimize regrowth.

Disposal:

Woody debris can be mulched/chipped and left on-site or burned if allowed under local laws and regulations.

3. Herbicide

Effectiveness:

Herbicide treatments can be effective in containing or locally eradicating early detection to medium-sized infestations and suppressing large infestations of invasive woody plants. Invasive woody plants can be effectively controlled by glyphosate, triclopyr, or imazapyr based herbicides. Glyphosate and triclopyr will not affect subsequent plant emergence; however; the use of imazapyr may inhibit regrowth for several months or years. Consult the herbicide product label for recommended dilution rates and to ensure the target species and desired application technique are listed and approved.

Methods:

Apply glyphosate, triclopyr, or imazapyr formulations using the selective application techniques identified below. Foliar applications should be performed close to peak flower, but before seed set. Cut stump and basal bark applications can be performed in the spring or fall for some species; consult the herbicide

product label for more information.

For herbicide treatments use any of the following application techniques:

- a) Foliar spray application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, boom/broadcast sprayer and/or spot sprayer. This technique can be used with most herbicide active ingredients.
- b) Cut stump application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, wash bottle, eye dropper, or paintbrush. This technique is primarily used with glyphosate or triclopyr based herbicides.
- c) Basal bark application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, or paintbrush. This technique is most often used with triclopyr based herbicides.
- d) Hack and squirt - machete or ax with commercial grade spray bottle. This technique is most often used with glyphosate or imazapyr based herbicide.

Disposal:

Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required.



A forest understory invaded by Japanese barberry (*Berberis thunbergii*).

Photo Credit: The Nature Conservancy (Zachary Simek)

TREES

Due to their similar biology and growth habit, many invasive trees can be managed using comparable techniques. The following species can be managed using the general BMPs included in this section:

Trees	
Japanese angelica tree	<i>Aralia elata</i>
Japanese tree lilac	<i>Syringa reticulata</i>
Norway maple	<i>Acer platanoides</i>
Tree-of-heaven	<i>Ailanthus altissima</i>



Japanese angelica tree



Japanese tree lilac



Norway maple



Tree of heaven

PLANT DESCRIPTIONS

JAPANESE ANGELICA TREE is a fast-growing deciduous tree native to Asia and eastern Russia. It can be found in forests, edge habitats, fields, and rights-of-way where it may form large thickets that displace native plant species and wildlife. Its thorny stem makes it of little value as forage for wildlife. Mature individuals can reach 40 feet (12m) or more under optimal conditions. Leaves are very large – up to four feet long – and compound with up to 80 oval leaflets. Clusters of white flowers appear in late summer, ripening to purplish-black round berries. This species is readily spread by bird dispersed seed.

JAPANESE TREE LILAC is a large shrub or small tree native to Asia that can reach 30 ft (10m) in height. It can tolerate a range of site conditions, and as a popular ornamental, is frequently found in yards or urban areas. It can escape cultivation and invade natural areas such riparian corridors and floodplains where it excludes native trees and shades out native plants in the understory. Oppositely arranged leaves are ovate and dark green with a rounded base. The reddish-brown bark of young trees is smooth with many horizontal lenticles (slits). Large bunches of small, fragrant white flowers bloom in early summer. These flowers ripen to green seed pods that turn brown in later summer and persist into the winter months. Spread occurs through dispersal of wind dispersed seeds and may occur via dispersal by water.

NORWAY MAPLE is a large, deciduous tree native to Europe and Asia than can exceed 65 feet (20m) in height. It produces numerous seeds that can grow in dense shade, outcompeting native understory tree species and impacting native forest regeneration. It can be distinguished from native maples by its leaves and petioles that ooze white, milky sap when cut or damaged. Leaves are dark green, with five to seven lobes. The bark is smooth and gray-brown, becoming more furrowed as the tree matures. Fruit are double-winged samaras arranged nearly 180 degrees from each other. Spread occurs locally through wind dispersed seed.

TREE-OF-HEAVEN is a fast-growing deciduous tree native to Asia that can exceed 80 feet (24m) in height. Each tree can release over 100,000 seeds and sprouts prolifically, lending to rapid population expansion. Tree of heaven excludes native vegetation, can increase maintenance requirements along rights-of-way, and is a primary host for the invasive spotted lanternfly (*Lycorma delicatula*). Leaves are compound with 10-41 smooth edged leaflets. Leaves have a rancid aroma when crushed, reminiscent of cat urine or burnt peanut butter. The fruit is a single winged samara, which forms in late summer from clusters of small yellow flowers. Spread occurs by both seeds and aggressive vegetative root sprouts.



Japanese tree lilac (*Syringa reticulata*) in flower.

Photo Credit: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

1. Digging/Pulling

Effectiveness:

Frequent non-mechanized digging or pulling can be effective in containing, suppressing, or locally eradicating early detection infestations of invasive trees ≤ 3 " DBH. Well rooted, mature individuals cannot be effectively removed by this technique.

Methods:

Dig or pull each individual sapling from the soil, taking care to remove the entire root system. Mechanical management should be performed prior to fruit production in late summer. Use a digging or leverage tool such as The Uprooter, Weed Wrench, or Honeysuckle Popper for larger stems. Some species of invasive trees (ex: tree-of-heaven) may produce numerous root suckers in response to mechanical control; use herbicide to minimize re-sprouting. Disturbed soil should be tamped down firmly after removing plants. Soil disturbance can bring seeds to the surface and create a favorable environment for germination within the control site.

Disposal:

Woody debris can be mulched/chipped and left on-site or burned if allowed under local laws and regulations. Non-fruit bearing plants can be propped against or suspended from nearby tree trunks/branches with their roots up to decompose. They can also be arranged into brush piles for wildlife habitat.

2. Cutting

Effectiveness:

Cutting can be effective in containing or suppressing early detection to large-sized infestations of invasive woody trees. Cutting can be used to remove large stems to minimize or eliminate further seed production.

Methods:

Cut invasive woody trees either manually or with motorized equipment. Some invasive trees (ex: tree of heaven) respond positively to cutting and may release numerous root suckers; apply herbicide immediately to the stump after cutting to minimize re-sprouting.

Disposal:

Woody debris can be mulched/chipped and left on-site or burned if allowed under local laws and regulations.

2. Herbicide

Effectiveness:

Herbicide treatments can be effective in containing or locally eradicating early detection to medium-sized infestations and suppressing large infestations of invasive trees. Invasive trees can be effectively controlled by glyphosate, triclopyr, or imazapyr based herbicides. Glyphosate and triclopyr will not affect subsequent plant emergence; however, the use of imazapyr may inhibit regrowth for several months or years. Consult the herbicide product label for recommended dilution rates and to ensure the target species, desired application technique, and habitat type (upland vs. wetland) are listed and approved.

Methods:

Apply glyphosate, triclopyr, or imazapyr formulations using the selective application techniques identified below. Foliar applications should only be used for low-growing stems. Cut stump and basal bark applications can be performed in the spring or fall for some species; consult the herbicide product label for more information. Avoid use of imazapyr in the root zone of desirable tree species.

For herbicide treatments use any of the following application techniques:

- a) Foliar spray application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, boom/broadcast sprayer and/or spot sprayer. This technique is primarily used on small, low-growing stems and can be used with most herbicide active ingredients.
- b) Cut stump application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, wash bottle, eye dropper, or paintbrush. This technique is primarily used on large, tall stems and with glyphosate or triclopyr based herbicides. Cut stump applications are not recommended for tree-of-heaven as it responds with prolific resprouting.
- c) Basal bark application - commercial-grade spray bottle with adjustable nozzle, backpack sprayer with adjustable nozzle, or paintbrush. This technique is most often used on large, tall stems with triclopyr based herbicides.
- d) Hack and squirt - machete or ax with commercial grade spray bottle. This technique is most often used on large, tall stems with glyphosate or imazapyr based herbicide.

Disposal:

Plants should remain undisturbed for at least two weeks following herbicide application. No disposal is required.



Tree-of-heaven (*Ailanthus altissima*)

Photo Credit: www.treehelp.com

Terrestrial Invasive Animals

The following general infestation size thresholds are provided to inform the specific management activities most appropriate for each individual animal species. For the purposes of the following terrestrial invasive animal BMPs two size thresholds will be referenced:

- 1) **Early Detection Infestation** – An early detection infestation is classified as a discrete population under 10 acres (4ha).
- 2) **Established Infestation** – An established infestation is classified as being a discrete population that exceeds 10 acres (4ha).

Terrestrial Invasive Animal BMP's

Common Name	Scientific Name
Emerald ash borer	<i>Agrilus planipennis</i>
Hemlock woolly adelgid	<i>Adelges tsugae</i>

- Effective management strategies are not available for beech leaf disease or jumping worms
- If you suspect oak wilt, please contact NYSDEC at 1-866-640-0652 or foresthealth@dec.ny.gov for more information
- There is no universal solution for spotted lanternfly, please contact CR-PRISM to discuss your unique situation



Emerald ash borer



Hemlock woolly adelgid

HEMLOCK WOOLLY ADELGID

(*Adelges tsugae*)

PEST DESCRIPTION

Hemlock woolly adelgid (HWA) is an aphid-like insect native to Asia, Japan, and the Pacific Northwest that feeds on eastern hemlock. It is spread through wind, by movement of birds and wildlife, as well as planting of infested nursery stock. HWA feeds on hemlock twigs, producing a woolly bundle near the base of hemlock needles to protect itself and its eggs. HWA reproduces asexually in the US and produces two generations per year, allowing for rapid population growth. While this pest is impacted by cold winters, its high reproductive rate assures rapid reestablishment after cold weather events. Heavy infestations of HWA will usually result in tree mortality in 10-30 years.

MANAGEMENT OPTIONS

1. Pesticides

Effectiveness:

Systemic insecticides can be effective in suppressing, containing, or locally eradicating early detection-sized infestations. Treatment of individual infested trees, as well as a buffer area of un-infested hemlocks around the infestation, is appropriate for early detection infestations. Response time is critical; immediate treatment before the next dispersal period will greatly increase the potential for local eradication of HWA from the site and prevent continued spread. Imidacloprid and dinotefuran based insecticides can be effective in controlling HWA. Imidacloprid moves slowly through the tree, sometimes taking up to a year to reach the canopy. Older trees that may have compromised vascular systems or crown decline from adelgids may not be able to translocate imidacloprid into the crown quickly enough to survive. However, treatments with imidacloprid have been found to be effective for up to seven-years following a single application. Dinotefuran translocates into the tree canopy much more rapidly than imidacloprid (usually within two to three weeks) and can provide control of HWA during the same application season.

Methods:

Systemic insecticides should be applied in spring or fall when the soils are moist, and trees are actively growing. The spring treatment window opens when soils thaw, while fall treatments can begin in late-September and close usually around the end of October or early November when soils begin to freeze. Use imidacloprid and/or dinotefuran only by one or more of the following means:

- a) **Basal bark spray:** provides effective and efficient control of woolly adelgids, with minimal off-target effects. Numerous imidacloprid products are labeled for application via basal bark spray, while only two dinotefuran products are currently approved in New York State. A tank mix of the two pesticides is frequently used to provide both immediate and long-term control. The basal bark spray technique uses a low-pressure handheld or backpack sprayer to apply pesticide product to the basal portion (~bottom 4 ft.) of each tree's trunk. Applications should be made just to the point of saturation and run-off. Basal bark spray can be used near waterways since only a limited amount of product meets the ground.
- b) **Trunk injection:** is a higher-cost application method with the least off-target effects. Tools that inject imidacloprid into the tree after drilling a small diameter hole into the xylem have demonstrated effectiveness. Although injection is a time-consuming application technique, it is useful near water because the imidacloprid is contained within the tree. A marking pen or tape should be used to ensure trees are not injected more than once.

2. Biological control

Effectiveness:

Biological control using releases of *Laricobius nigrinus*, and *Leucotaraxis spp.* can be effective in suppressing established HWA infestations, and is the only viable long-term control method. Only release biocontrol agents in areas that have sufficient adelgid populations to support establishment of predators. Once an HWA infestation is well established, and preliminary biological control agents released, pesticide treatments can be supplemented to preserve high-priority hemlock trees/populations and minimize HWA spread near the perimeter of the infestation. Priorities for hemlock conservation will vary by site, but should include trees that provide slope stabilization, maintain high-quality watersheds, display individual magnificence/strong genetic traits, provide cultural value, and/or habitat for rare, threatened or endangered species.

Methods:

The release of HWA biocontrol agents in New York State requires special permitting and approvals. Please contact CR-PRISM for more information.

EMERALD ASH BORER

(*Agrilus planipennis*)

PEST DESCRIPTION

Emerald ash borer (EAB) is an Asian wood-boring beetle that feeds on ash trees (*Fraxinus spp*). Adults are approximately ½ inch (1.2cm) long with a metallic green body and copper segments beneath their wings. EAB is spread long distances through infested firewood or wood packaging material, but is also an efficient self-disperser, capable of traveling up to seven miles in a single flight. Larvae feed on the inner bark of ash trees, disrupting the tree's ability to translocate nutrients. Trees infested with EAB may have a thinning crown, bark splits, heavy bark loss from woodpecker feeding, and/or D-shaped exit holes.

MANAGEMENT OPTIONS

1. Pesticides

Effectiveness:

Systemic insecticides can be effective in suppressing, containing, or locally eradicating early detection-sized infestations. They are the most effective control method for treating individual trees infested by EAB. Treatment of individual infested trees, as well as a buffer area of un-infested ash trees, is appropriate for early detection infestations. For highly valuable street/ornamental trees, prophylactic treatment can be conducted on uninfested ash trees within 10-15 miles of a known EAB infestation.

Emamectin benzoate-based insecticides can be effective in controlling EAB for up to two-years when applied as a trunk injection. Trunk injections are absorbed and distributed throughout the tree relatively quickly (1-4 weeks) and are most effective when applied while the tree is actively transpiring.

Treatments:

Emamectin benzoate should be applied when soils are moist and trees are actively growing. Optimal timing of trunk injections occurs after trees have leafed out in spring but before EAB eggs have hatched, or generally between mid-May and mid-June. Best results are usually obtained by injecting trees in the morning when soil is moist but not saturated.

2. Biological control

Effectiveness:

Biological control using *Oobius agrili*, *Tetrastichus planipennis*, and/or *Spathius agrili* can be effective in suppressing established infestations of EAB. Only use biocontrols in areas that have sufficient EAB populations to support establishment of predators. Once an EAB infestation is well established and preliminary biological control agents released, pesticide treatments can be supplemented to preserve high-priority ash trees/populations and slow emerald ash borer spread near the perimeter of the infestation. Priorities for ash conservation will vary by site, but should include trees that provide slope stabilization, maintain high-quality watersheds, display individual magnificence/strong genetic traits, provide cultural value, and/or habitat for rare, threatened or endangered species.

Methods:

The release of EAB biocontrol in New York State requires special permitting and approvals. Please contact CR-PRISM for more information.

Aquatic Invasive Species

The following general infestation size thresholds are provided to inform the specific management activities most appropriate for each individual species. For the purposes of the following aquatic invasive species BMPs, four size thresholds will be referenced:

- 1) **Early Detection Infestation** –An early detection infestation is classified as a discrete population under 0.5 acres (0.2ha) within a single waterbody.
- 2) **Small Infestation** –A small infestation is classified as a discrete population over 0.5 acres (0.2ha) but under 1 acre (0.4ha) within a single waterbody.
- 3) **Medium Infestation** –A medium infestation is classified as a discrete population over 1 acre (0.4ha) but under 3 acres (1.2ha) within a single waterbody.
- 4) **Large Infestation** –A large infestation is classified as a population over 3 acres (1.2ha) within a single waterbody.

Aquatic Invasive Species BMP's	
Common Name	Scientific Name
Asian clam	<i>Corbicula fluminea</i>
Curly-leaf pondweed	<i>Potamogeton crispus</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European frog-bit	<i>Hydrocharis morsus-ranae</i>
Fanwort	<i>Cabomba caroliniana</i>
Hydrilla	<i>Hydrilla verticillata</i>
Quagga mussels	<i>Dreissena rostriformis bugensis</i>
Variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
Water chestnut	<i>Trapa natans</i>
Zebra mussels	<i>Dreissena polymorpha</i>



Asian Clam



Curly-leaf pondweed



Eurasian watermilfoil



European frog-bit



Fanwort



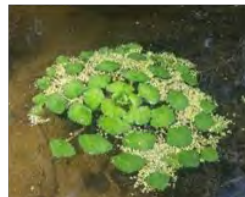
Hydrilla



Quagga mussels



Variable-leaf milfoil



Water chestnut



Zebra mussels

ORGANISM DESCRIPTIONS

ASIAN CLAM is a freshwater bivalve mollusk native to Asia. It is hardy and can survive in many aquatic habitats, but prefers warmer, shallower areas near shore. At high densities this species can displace highly vulnerable native mollusks, reduce biodiversity, alter food chains, cause algae blooms, and clog industrial and commercial water systems. The outside of the shell is yellow-green to brown with elevated, concentric rings. Adults are usually less than 1.5 inches (3.8cm) in length. It is fast growing and can self-fertilize, allowing it to spread quickly. A single adult can produce up to 100,000 juveniles per year. It is believed that tiny juvenile clams (less than 0.01 inches or 0.2mm in size) are typically carried to new locations mixed in with sediments (i.e. sediment left on a boat anchor) or attached to vegetation.

CURLY-LEAF PONDWEED is a submerged perennial native to Europe, Africa and Australia. It is tolerant of low light and low water temperature and invades a wide range of water depths. This plant starts growing under the ice in late winter, which gives it a competitive advantage over native plants in the spring. It then dies off in early to mid-summer. In the Capital Region die back generally occurs within 3 weeks of recreational boaters accessing waterbodies and surveillance activities for the presence of AIS begins. Large scale die offs may cause nutrient loading and a critical loss of oxygen in the water column. Leaves are reddish-green and oblong with finely toothed, wavy edges. It reproduces and spreads through winter buds, called turions, which resemble small, pinecones and more locally through root expansion.

EURASIAN WATERMILFOIL is a submerged perennial native to Europe and Asia. It grows in a wide variety of water depths, sediment types and hydrological conditions. Dense infestations form mats at the surface of the water that degrade habitat and reduce recreational access. The plant's feathery leaves are usually in sets of four, whorled around the stem. Each leaf is finely divided, and the leaf tips are flat. Tiny pink flowers may occur on an emergent spike during late summer. The primary spread mechanism for Eurasian watermilfoil is fragmentation of the stem, which can spread the species to new areas within a waterbody. It also spreads locally through stolon expansion.

EUROPEAN FROG-BIT is a free-floating annual native to Europe and northern Asia. It grows in slow moving waters in bays, ponds, open marshes, ditches and along protected edges of lakes and rivers. This plant has rapid vegetative spread and forms dense mats which can limit light penetration and inhibit recreational use. The leaves are leathery and heart-shaped with dark purple undersides. Three-petaled, white flowers with yellow centers bloom in the summer. It produces winter turions that sink to the sediment and begin growing in the spring. This plant also spreads locally by producing stolons which develop juvenile plants.

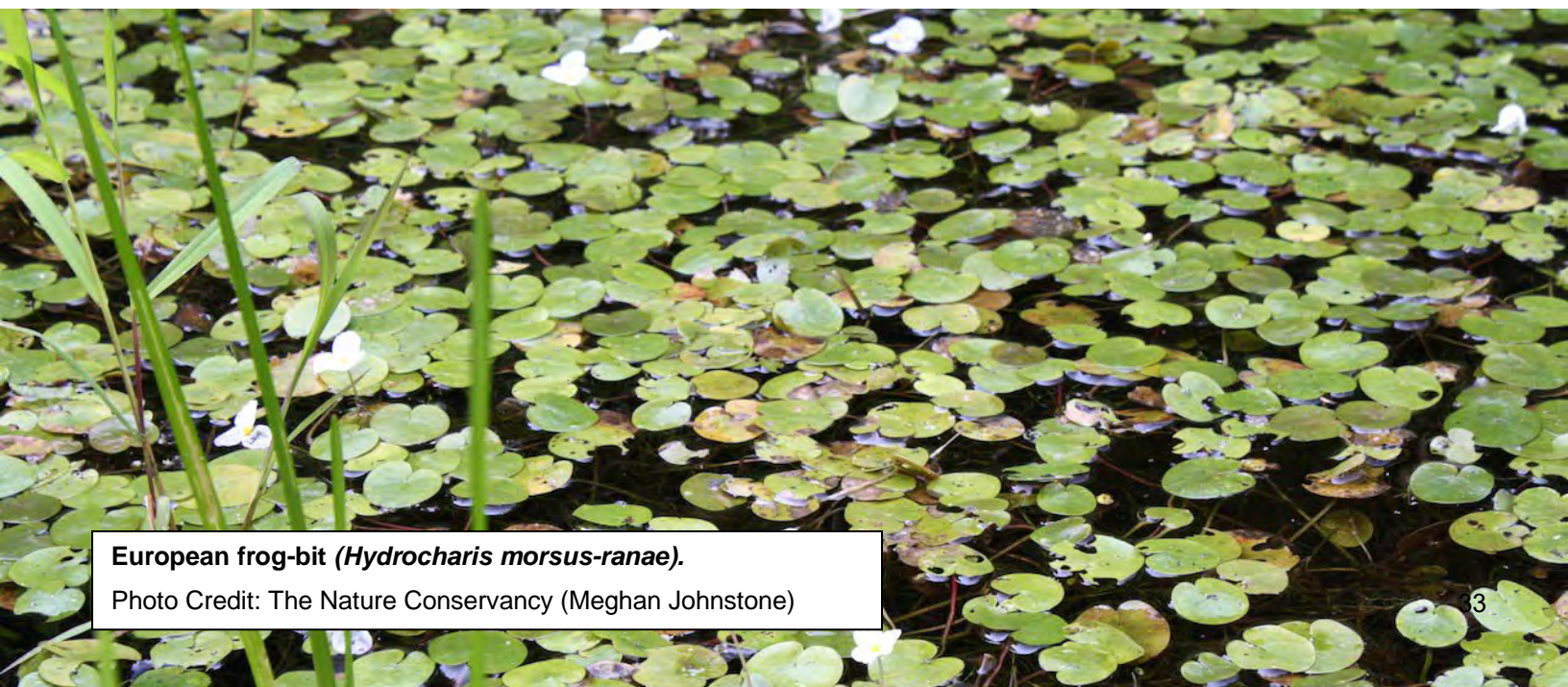
FANWORT is a submerged perennial native to the southeastern United States and parts of South America. It typically grows in 3-10 feet (1-3m) of water and prefers acidic lakes, ponds and quiet streams. At high densities it forms extremely dense stands, clogging water flow and impairing recreational activities. The opposite leaves are fan-like and are attached to the stem on petioles. Small white flowers bloom in late summer. Reproduction and local spread can occur through short rhizomes and seeds. In late summer the plant becomes fragile and breaks apart very easily, facilitating long distance spread within a waterbody.

HYDRILLA is a submerged perennial native to Asia. It is tolerant of a wide range of hydrological conditions. It has low light requirements and thrives in both high and low-nutrient waters. Growing up to an inch a day, this plant produces very dense mats of vegetation that shade out native vegetation and interfere with fish spawning sites. The mats also disrupt water flow, decrease dissolved oxygen in the water, and interfere with recreational use. Leaves are visibly toothed and arranged in whorls of more than four. It reproduces by seeds, tubers, plant fragments, and turions. Fragments of the roots or stems are easily spread long distances and grow into new plants with waterfowl ingestion of tubers and turions.

QUAGGA & ZEBRA MUSSELS are small, fingernail-sized freshwater mollusks native to eastern Europe. Zebra mussels inhabit water depths up to 50 feet (15m) while quagga mussels can be found up 90 feet (27m) deep. Using byssal threads, they attach to most hard surfaces, though they have been found to colonize sand, silt and other softer substrates. They also attach to the shells of native mollusks, industrial intake pipes, and recreational structures and equipment such as docks, boats and trailers. As filter feeders, they remove particles from the water, affecting the clarity, content and ultimately the food chain of aquatic ecosystems. The shells of zebra mussels are D- shaped, range in size from 1/8 to 2 inches (3- 50mm) in length and are mostly white or cream-colored with jagged brown or black stripes. Quagga mussel shells tend to be slightly larger, with the hinge side more rounded, and are slightly thinner and lighter in color than zebra mussels. Quagga and zebra mussels release large numbers of offspring (up to one million per season per female) which are free-swimming in the water column for up to 30 days. They are dispersed by water currents to new locations and then settle to the bottom and attach to any hard surfaces or vegetation.

VARIABLE-LEAF MILFOIL is a submerged perennial native to the southeastern and midwestern United States, as well as Ontario and Quebec Canada. It grows in a variety of depths, sediment types and hydrological conditions, but prefers shallow bays and coves. Dense infestations form mats that degrade habitat and reduce recreational access. The feathery leaves are arranged in whorls of 4-6 on the stem, but some leaves can also be alternating. Dense leaf arrangement gives this plant a bottle brush appearance under water. Stems are thick and reddish-brown. In mid to late summer, blade-like serrated leaves with small reddish-pink flowers form an erect spike that emerges from the water. The primary spread mechanism for variable-leaf watermilfoil is fragmentation of the stem, which can spread the species to new areas within a waterbody. It also spreads locally through stolon expansion.

WATER CHESTNUT is a floating annual native to Europe and Asia. It grows in quiet, high nutrient waters with soft substrate and prefers neutral to alkaline acidity. This plant is fast-growing and creates large, impenetrable mats that alter water quality and clarity, shade out native plants, and inhibit recreational use. Each plant produces a floating rosette(s) comprised of glossy, triangular, toothed leaves. Floating leaf stalks have visible bladders. Four-petaled white flowers bloom in July. Distinctive nutlets with four sharp spines mature in late summer. The nutlets or rosettes can float long distances on currents or may be spread by clinging to wildlife, plants or watercraft/equipment.



European frog-bit (*Hydrocharis morsus-ranae*).

Photo Credit: The Nature Conservancy (Meghan Johnstone)

HAND HARVESTING & DIVER ASSISTED SUCTION HARVESTING (DASH)

Hand harvesting involves the removal of aquatic invasive plants from the benthos or surface by scuba divers. Plants and their associated root mass are carefully removed and placed in a fine mesh bag for disposal. DASH utilizes a suction hose system to transport plant material to the surface in place of mesh bags. Both methods require topwater support staff to monitor and collect floating plant fragments.

Effectiveness:

Hand harvesting and/or DASH can be effective for locally eradicating early detection to small-sized infestations as well as containing or suppressing medium- to large-sized infestations of Eurasian watermilfoil, variable-leaf watermilfoil, parrot-feather, fanwort, curly-leaf pondweed, Brazilian elodea, hydrilla, water chestnut, European frog-bit, and yellow floating heart. Hand harvesting can also be used to reduce user impacts for very small infestations of Asian clams, quagga mussels, and zebra mussels. DASH should not be used to manage Asian clams, quagga mussels or zebra mussels as small organisms cannot be collected effectively and will be discharged back into the waterbody. It is important to consider the biology of the species when scheduling harvesting. Harvesting should be conducted prior to the production of offspring, seeds, nutlets, tubers and/or turions which typically form in late summer.

Methods:

Gently hand-pull all plants from the sediment by the roots. Plants should be pulled slowly to minimize fragmentation. Special attention should be given to ensure that the root ball, if present, is removed and that all plant fragments which may be produced during the harvesting operation are collected. For floating plants, harvesting can be conducted from a boat or by wading in the shallows. For submerged plants, trained SCUBA divers should be deployed. If using DASH, hand-pull each plant and then use the suction hose to transport it to the surface. The suction nozzle should never be used to directly remove vegetation from bottom sediments. If possible, return to the project area multiple times each growing season to remove plants that were missed or emerged from the seed bank. Aquatic invasive mollusks can be hand-collected by snorkelers or SCUBA divers. Quagga and zebra mussels attach to surfaces using byssal threads which can easily be dislodged using a scraping tool such as a paint scraper, screwdriver, chisel or dull knife. Particular care must be taken when collecting zebra and quagga mussels as sharp shells can produce cuts which may be prone to infection. Collect all dislodged invasive mollusks and do not allow them to fall to the bottom of the lake.

Disposal:

Bag all biomass and remove from the management site. Aquatic invasive mollusks should be killed by freezing them for at least 24 hours or allowing them to dry in the sun for at least a week before disposal in an approved landfill. Aquatic plants can be composted in an upland location or disposed of in an approved landfill. If transporting harvested material offsite is not feasible due to volume and/or distance, harvested plant materials may be scattered on adjacent upland areas at least 50 horizontal feet from the shoreline and in a manner that will not eliminate or impede growth of native vegetation. For state lands, all biomass material should be removed from the area and properly disposed of off-site.

BENTHIC BARRIERS

Benthic barriers or mats are made of plastic, fiberglass, nylon, or other materials and are placed over submerged aquatic invasive plant beds to block sunlight (preventing photosynthesis and plant growth) or over aquatic invasive mollusk populations to suffocate them (reducing/eliminating available dissolved oxygen).

Effectiveness:

Benthic barriers can be effective in suppressing, containing or locally eradicating early detection to medium-sized infestations of Eurasian watermilfoil, variable-leaf watermilfoil, and curly-leaf pondweed, though large scale deployment of benthic barriers can quickly become cost prohibitive. The use of benthic barriers to control zebra mussels, quagga mussels, or Asian clams is limited to controlling infestations in select areas of concern (i.e. public beaches, marinas, etc.); it is not an effective method for managing large areas of infestation. Heavy plant growth can impede installation of barriers; making barrier installation during low growth periods (usually in early spring after ice-out) the preferred option. Benthic barriers are unselective and will impact all species of flora and fauna under the matted area. Benthic barriers that get dislodged by wave or propeller action have caused impairments to the boating public. All benthic barriers should eventually be removed and the treatment area managed using other techniques to maintain low levels of AIS.

Methods:

For shallow infestations, barriers can be installed by wading. For deeper infestations, barriers should be installed by trained SCUBA divers. Overlap each barrier by four to six inches to prevent vegetation from escaping through seams. Larger overlaps may be necessary to deplete oxygen levels for invasive mollusk control. Barriers should be securely fastened to the benthos with stakes or anchors. Barriers must be designed to allow venting of gases which are generated beneath the barrier.

Disposal:

Benthic barriers will kill the target invasive species onsite. Offsite disposal of invasive species material is not required.



Benthic barriers are deployed to control aquatic invasive species.

Photo Credit: Jason Whalen (Flickr)

MECHANICAL HARVESTING

Mechanical harvesting utilizes a specialized watercraft to cut and collect floating or submerged aquatic invasive plant material from a waterbody. Plants are collected and conveyed onto the harvester for disposal on land.

Effectiveness:

Mechanical harvesting can be effective in suppressing large-sized infestations of Eurasian watermilfoil, variable-leaf watermilfoil, hydrilla, European frog-bit, and water chestnut. Mechanical harvesting is generally unselective, as all vegetation within the path of the harvester will be cut and removed. Additionally, fragmentation of aquatic invasive plant material resulting from harvesting operations can facilitate the spread of species that auto-fragment. This technique is most commonly used to suppress large, dense infestations and remove plant biomass to reduce lake user impacts and must be repeated annually and in some cases multiple times annually.

Methods:

Navigate the mechanical harvester through large floating or submerged, near-surface aquatic invasive plant infestations to cut and collect all accessible plant material. Multiple harvests may be required each season to maintain open navigation channels, suppress infestations to desired levels, or reduce lake user impacts. When managing aquatic invasive plants, harvesting should be completed before plants produce seed or vegetative propagules. Reference the organism descriptions above for species specific phenology information.

Disposal:

Collect all harvested plant material onboard and remove from the management site. Aquatic plant material can be composted in an upland location or disposed of in an approved landfill. Cover all harvested material for transport.



A mechanical harvester removes aquatic invasive plants from Sodus Bay.

Photo Credit: New York Sea Grant (Mary Austerman)

CHEMICAL MANAGEMENT

Chemical management includes the application of pesticides, including herbicides, to the water to reduce invasive plant and animal populations. Chemical management needs to be specific to the target species, waterbody conditions, and time of application. As such, it should be part of an integrated pest management plan that is coordinated with local experts and agencies. In New York, this management technique almost always requires permitting.

Effectiveness:

Chemical management can be effective in suppressing or containing large-sized infestations of aquatic invasive species. Chemical management for aquatic invasive species management has a long history of use across the United States, but this technique has been used infrequently in the Adirondacks. Chemical management using herbicides has been used for plant species like curly-leaf pondweed, hydrilla, Eurasian watermilfoil, European frog-bit, variable-leaf milfoil, water chestnut and others. Chemical management has also been used for control of quagga and zebra mussels using oxidizing agents, anti-fouling agents, and biopesticides. Typically, the goal of chemical management is to reduce the invasive species population over a set area to a level that allows for cost-effective, long-term management of the species. Most of the time, chemical management does not result in complete eradication.

Methods:

Chemical management requires working with a licensed professional to apply the pesticide in accordance with a product's label. There are many different types of pesticides and each has its own specifications and requirements. The two major classes of pesticides are contact and systemic. Contact pesticides damage or kill organisms they are designed for when they come in physical contact with the organism (for example, Aquathol K). Systemic pesticides are taken up internally by the organism that they are designed for and kill the organism (for example, ProcellaCor). The pesticides are usually applied directly to the water, in a set location, at a specific time to ensure that they are most effective and have the lowest amount of non-target impacts. The licensed professional will know the correct time to conduct chemical treatment and will ensure that registered pesticides are applied in accordance with the label and the manufacturer's recommendations.

Disposal:

Chemical management will kill the target species onsite. Since the target species dies, this generally makes offsite disposal of the invasive species unnecessary or impractical (for example, when treating Eurasian watermilfoil with pesticides, the plant will breakdown and decompose). In some cases, however, removal of the invasive species may be necessary and should be part of the management plan (for example, when treating zebra mussels in pipes, removing the remains could be part of the management plan).

Appendix A: Permit Inquiry Contact Information

1) Department of Environmental Conservation

a. Region 4 Regional Permit Administrator

518-357-2069 – serves Albany, Columbia, Greene, Montgomery, Rensselaer & Schenectady counties

b. Region 5 Regional Permit Administrator

(518) 623-1282 – serves Fulton, Saratoga, Warren, and Washington counties

c. Region 6 Permit Administrator

(315) 785-2245 – serves Herkimer and Oneida Counties

2) New York State Department of Transportation

- a. (518) 765-2841 – Albany County
- b. (845) 431-5750 – Columbia County
- c. (518) 853-3441 – Fulton County
- d. (518) 622-9312 – Greene County
- e. (315) 866-1123 – Herkimer County
- f. (518) 853-3441 – Montgomery County
- g. (518) 286-2300 – Rensselaer County
- h. (518) 584-3790 – Saratoga County
- i. (518) 393-0863 – Schenectady County
- j. (518) 623-3511 – Warren County
- k. (518) 747-4724 – Washington County

3) County/Local Highway Departments

- a. Contact your county or local highway superintendent for more information.

Appendix B: Additional Invasive Species

Grasses:

- **Chinese silvergrass** (*Miscanthus sinensis*)
 - Chinese silvergrass is identifiable from the silvery mid-vein that runs along the length of the grass and its large feathery seed heads. It escapes from ornamental plantings and can form large clumps along disturbed areas, displacing native vegetation. The grass is also extremely flammable and increases fire risks of invaded areas. It grows in clumps and can be grown in a wide variety of soils and sun exposures. This is a tall grass, growing to three to seven feet tall when uncut. It slowly expands via the rhizomes that form the clump-like structure beneath the plant. The leaves often tilt down in a fountain-like formation.

Herbaceous Plants and Vines:

- **Hardy kiwi** (*Actinidia arguta*)
 - Hardy kiwi is a liana, a woody vine that roots in the soil. It has small white flowers in the months of June and July with alternate, simple leaves that have small teeth. Hardy kiwi lianas can cause weakened trees to fall from the weight of the overgrowth of vines or by pulling down trees attached to the liana when one weak tree succumbs to the weight of ice freezing onto the tree and/or the vines. The leaves have red petioles, the stalk area where the leaves join the stem. The fruits resemble miniature, skinless Kiwis. The bark of hardy kiwi is grey and begins to peel off as the vine matures, making it often mistaken for wild grape, though the bark has a different color. Vines have a hollow center.
- **Chocolate vine** (*Akebia quinata*)
 - Chocolate vine, also known as five-leaf akebia, has five leaflets that are small, simple, and rounded. Once established, chocolate vine competes with forest trees both for sunlight in the crown and for water and nutrients from the soil. The fruit are larger purple seed pods with white pulp and black seeds. As the vine matures, it becomes woody and can grow quickly, reported as growing 40 feet in a single season. Tolerates a range of climates and soil types.
- **Japanese primrose** (*Primula japonica*)
 - This flower grows up to 18 inches tall and has many different cultivars for garden use. It often forms dense, monospecific stands that exclude native plants. Leaves are large and serrated, with a dark green color which grow in a similar formation to leafy greens such as lettuce. It is a hardy plant, reported to have been grown successfully as far north as Juneau, Alaska.
- **Five- leaf aralia** (*Eleutherococcus pentaphyllus*)
 - This shrub has small green-white flowers that grow in umbels that appear in umbels in the spring. This plant will naturalize in woodland settings and can displace desirable native plant species. The species is dioecious, which means it needs male and female plants present to reproduce. When pollinated, it grows small black berries. The thorns appear beneath the stem nodes present at the base of the leaf's petiole. Those leaves are palmate compound and sometimes variegated, while its stems smell like gin when broken. Average height for the shrub is seven to ten feet tall when fully grown and at that height it is known to reproduce by suckering.

- **Blue Cattail, Hybrid Cattail** (*Typha x glauca*)
 - The blue cattail has erect, linear and flat-leaf blades are 0.3-0.8” wide, and generally longer than the parents. Invades freshwater marshes, wet meadows, fens, roadsides, ditches, shallow ponds, stream, and lakeshores. It plays an important role as a source of food and shelter for some marsh-dwelling animals, but large mono-specific stands of invasive cattails spread vegetatively, displacing other plants providing food and cover and excluding some less common species. About 15 leaves emerge per shoot. The top of the leaf sheath has thin, ear-shaped lobes at the junction with the blade that usually disintegrates in the summer. Plants reproduce vegetatively by means of starchy underground rhizomes which form large colonies.
- **Japanese Virgin’s Bower** (*Clematis terniflora*)
 - Japanese virgin’s bower is a vine, native to Japan and China. Its prolific nature and aggressive growth make it a problem in natural areas, where it can smother mature trees and displace native vegetation. Leaves are opposite and compound, with three to five heart-shaped leaflets 2-3½” long; the surfaces are dark green and shiny, paler on the undersides. It climbs using tendril-like petioles to cling to support. Flowers are about 1” across, white, four-petaled, and held in clusters of 3-15; the plant blooms in late summer to fall. Seeds are small and brown, with showy, silvery-grey, feathery, curving seedheads.
- **Leafy Spurge** (*Euphorbia virgata*)
 - This perennial is most often present in meadow and pasture habitats and has a vigorous root system. It is toxic to humans and cattle alike and was introduced from Europe in contaminated seed. The alternate name of this plant refers to the milky sap that is present in the stem and the leaves. It grows around three feet tall and has small lanceolate leaves that have a slightly wavy margin. The stems of this plant are smooth. It is a serious invader of prairie habitats in places like North Dakota. The seeds of this plant are propelled explosively up to 15 feet from the parent plant.

Clonal Plants:

- **Mugwort** (*Artemisia vulgaris var vulgaris*)
 - An herbaceous perennial native to northeastern Asia, Mugwort grows two to five feet in height, has gray-green leaves, and a non-descript, inconspicuous flower blooming in late summer. Mugwort spreads aggressively via an extensive rhizome system and can form large stands that displace native species. It is considered a problematic weed of nurseries, orchards, sports fields, forest edges, and roadsides. All parts of the plant are aromatic when crushed. Leaves are alternately arranged, simple, though lobed, and dark green on the upper surface and soft gray below. The leaves closest to the base differ in shape from those further up the stem and are elliptic and lobed almost to the midrib.

Woody Vines and Shrubs:

- **Shrubby bushclover** (*Lespedeza bicolor*)
 - Shrubby bushclover, when fully grown, has a thin-stemmed shrubby look with twigs and branches that cascade downward. Dense shrub lespedeza stands prevent forest regeneration and can restrict land access. It grows up to ten feet tall with trifoliate leaves with almost circular leaflets. The leaves are alternate, and the lower surface of

the leaf is lighter than the top. It thrives in meadow habitat and strongly colonizes after burning.

- **Japanese maple** (*Acer palmatum*)
 - With a wide variety of cultivars, this plant can have a wide variety of leaf shapes, though these are typically palmately lobed with an odd number of acutely pointed lobes. Japanese maple may reseed near forests and replace native plants. The fruit, like other species of maple, is a pair of winged samaras (helicopter-like seeds that disperse by wind) It is noted that this tree has genetic variation that can be easily seen even in a single generation. Many seedlings display traits that the parent tree does not show. In our forests, seedlings from red ornamental trees often show up as small, innocuous green seedlings.
- **Black jetbead** (*Rhodotypos scandens*)
 - Black Jetbead is named for its dark, hard fruits that grow in fours. A multi-stemmed deciduous shrub, jetbead is shade tolerant and capable of invading forested areas, quickly displacing the native shrub layer. These dense, homogenous stands can inhibit germination and establishment of other species in both the herbaceous and canopy layers. It forms large colonies, and the leaves are opposite and simple with double-serrated margins, growing two to four inches long. This is one of the first shrubs to leaf out in spring. The fruits of this plant mature from green to red to eventually shiny and black.
- **Wisteria** (*Wisteria spp.*)
 - The species can be identified as Chinese or Japanese through the growth pattern, Chinese Wisteria will climb clockwise, and Japanese Wisteria will climb counterclockwise. Both species of Wisteria are woody vines with extremely showy flowers with pinnately compound, wavy-looking leaves. Dense foliage can smother, girdle, and outcompete other vegetation, even killing sizeable trees. The resulting canopy gaps are excellent colonization sites for new invasive species. These species have vast underground root networks that require extreme management to completely remove. The fruit of this plant are flattened, velvety bean pods that grow about two to four inches long and crack in the late summer to disperse seeds. This plant prefers direct sunlight but can tolerate shade.
- **Japanese Honeysuckle** (*Lonicera japonica*)
 - Japanese honeysuckle is a member of the Honeysuckle family (Caprifoliaceae). It is a perennial, woody vine that can grow to be 30 feet long. Japanese honeysuckle is an aggressive, woody vine that can cover understory shrubs and ascend into the canopy—although this is more commonly seen further south. As a ground cover, this species is capable of smothering seedling trees and other herbaceous plants, preventing germination and displacing native vegetation. The homogenous understory Japanese honeysuckle forms can drastically alter forest bird communities. Japanese honeysuckle is most easily identified in early summer when fragrant clusters of gold to yellow to creamy white trumpets bloom. These flowers are generally borne in pairs along the leaf axils. Leaves are alternately arranged, highly variable in shape, dark green and generally glossy on the surface. Leaf margins vary from coarsely serrate to deeply lobed and serrate. Japanese honeysuckle's fruit is a small dark purple to black berry.

- **Siebold's Viburnum** (*Viburnum sieboldii*)
 - Siebold's Viburnum is larger when mature than other viburnum species and can grow up to 20 feet tall. A large, quick growing, shade tolerant shrub with a high reproductive potential, the species is capable of changing both the composition and density of the shrub layer in habitats it invades by out competing other vegetation. Fruit of this plant goes through a maturation color change from pink to red to black and grow on red stems. The opposite leaves are simple with some toothing on the edges and have an elliptic shape. Typically, this plant does not change color in the fall. The bark is gray and blocky in plates that shows some resemblance to alligator skin.
- **Kudzu** (*Pueraria montana*)
 - Kudzu is an herbaceous to semi-woody, climbing or trailing, nonnative, deciduous, perennial vine, or liana (a vine that is rooted in ground-level soil and uses trees and other vertical supports (telephone poles, buildings, etc.) to climb to the forest canopy to get access to light. Once established, kudzu lianas compete with forest trees both for sunlight in the crown and for water and nutrients from the soil. The vines may directly damage colonized trees by strangulation. These physical traits of a kudzu liana significantly impact the ability of native trees to grow and reproduce, increasing the early mortality of native trees, and preventing the establishment of new trees or shrubs in the dim light below the colonized canopy. Kudzu lianas can cause weakened trees to fall from the weight of the overgrowth of vines or by pulling down trees attached to the liana when one weak tree succumbs to the weight of ice freezing onto the tree and/or the vines.
 - Kudzu produces long, hairy vines from a central root crown. Kudzu has dark-green, hairy, alternate, compound leaves, 2 – 8 inches (5 – 20 cm) in length with three oval- to heart-shaped leaflets 3 – 4 inches (8 – 10 cm) long at the end; these leaves may be slightly or entirely lobed. Stems are also hairy. Vines can grow up to 30 to 100 feet (9 – 30.5 meters) per year. The vines have 0.8 – 1-inch (2 – 2.5 cm) flowers on 4 – 8-inch (10 – 20 cm) axillary racemes (short, equal length stalks along a main stem forming clusters of flowers with the oldest flowers toward the base with the newest end of the stalk terminating in one or more undeveloped buds). Vertical kudzu vines in full sunlight produce flowers in late summer; horizontal vines seldom produce flowers. The flowers are typically red, purple, or magenta with a strong, grape-like aroma; pink or white flowers occur occasionally.

Trees:

- **Amur Corktree** (*Phellodendron amurense*)
 - Growing to 35-45 feet tall, this tree has opposite, compound leaves which smell like turpentine when you crush them. Suppresses regeneration of native tree species and displaces native shrub and herbaceous layers. Research shows decreases in acorn and hickory nut production as well as overall tree populations where Amur cork tree is present. Leaflets are elliptical and 2.5-4.5 inches long. The bark is thick and corky (hence the name) and is bright yellow when you cut into it. This tree can quickly invade disturbed forest areas. They prefer full sun and rich soils. The leaves turn a yellowish bronze in the fall.

- **Golden-rain tree (*Koelreuteria paniculata*)**
 - Golden-rain tree grows 30 to 40 feet tall forming an irregular globe shape or vase shaped. Leaves are alternate, feather-compound (sometimes the larger, middle leaflets are themselves compound), to 18 inches long; each leaf has 7–17 leaflets that are irregularly lobed and deeply toothed; emerging leaves are bronze, pinkish, or purplish; autumn leaves are dull yellow. Bark is light grayish brown, becoming ridged and furrowed. The tree bears large panicles of bright yellow flowers when few other trees bloom. The seed pods look like brown Chinese lanterns and are held on the tree well into the fall.
- **Castor Aralia (*Kalopanax septemlobus*)**
 - Castor Aralia is a large flowering tree (40-60 ft) native to eastern Asia. It forms dense stands, and the broad leaves shade out the understory. It is dispersed by birds eating the fruit. It is tolerant to moderate shade and a range of soil pH. This plant has thorns along the younger stems. The older bark is dark grey and furrowed. Small white flowers and black fruits. The leaves are alternate, simple, and palmate with 5-7 lobes and thorny undersides.
- **Linden Arrow-wood (*Viburnum dilatatum*)**
 - Linden arrow-wood is a large shrub in the *Viburnum* genus, native to Japan and China. A large, quick growing, shade tolerant shrub with a high reproductive potential, the species is capable of changing the composition and density of the shrub layer in habitats it invades by out-competing other vegetation. Prized for its adaptability in many garden settings, its fall-ripening fruits are beloved by birds. Leaves are broad, conspicuously ribbed, oval in shape, and quite large— approximately 5 inches long. Leaves are arranged opposite one another, are simple, and have coarsely toothed leaf margins. Large clusters of creamy white flowers emerge in May and June. Clusters are large— 5 inches across.

Aquatic Invasive Species:

- **Hardy water lily (*Nymphaea 'Fabiola'*)**
 - *Nymphaea 'Fabiola'* (Hardy Water Lily) is a species of floating aquatic plant with rhizomatous roots anchoring to the substrate below. This plant prefers still to slow moving waters in depths between 6-48in. Flowers range in color from light pink to a darker red. Large floating leaves have shown to have a reddish underside and can over-shade areas when growth occurs quickly. Dense growth on the water's surface traps heat which could lead to algae blooms, stagnation, the shading of native plant species, and inhibit recreational boaters. A hardy water lily that escaped cultivation has shown through photo documentation to outcompete and/or hybridize with native waterlily populations. Hardy waterlilies can survive cold winter temperatures if the rhizome does not freeze. Hardy waterlily is primarily distributed through the aquatic plant trade but can also be transported by watercrafts.

Appendix C: High Priority Invasive Species Lists

- **Terrestrial High Priority Invasive Species List**
- **High Priority Forest Pest List**
- **Aquatic High Priority Invasive Species List**
- **High Priority Agricultural Invasive Species List**



2023 Terrestrial High Priority Invasive Species List

For more information including resources for identification, visit www.capitalregionprism.org

To report these species, visit www.nyimainvasives.org

Purpose: The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) created this list of species to identify invasive species which are the highest priority invasive species for monitoring, detection and response efforts within the Capital Region. This list also fulfills Objective 2.4: *Anticipate new introductions and reassess current species of concern through event horizon scanning* within “Goal 2: Prevent” in the [CR-PRISM 2023-2027 Five-Year Strategic Plan](#). All the species contained on this list are high or very high threat and many are prohibited within the state of New York by the NYS Department of Environmental Conservation. This list will be shared with the Partnership to incorporate into their education and outreach, monitoring, detection, and response efforts.

These species were selected by the CR-PRISM staff through reviewing the CR-PRISM Tier List, ecological threat rankings and regulatory status of each of these species. In addition, event horizon scanning techniques were used including reviewing tier rankings on neighboring PRISM tier lists, the [NYNHP Statewide Tier List](#) and observing proximity of species to the CR-PRISM region for each species were taken into consideration.

Tier 2 High Priority Invasive Species- species with few known populations in the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Mile-a-minute	<i>Persicaria perfoliata</i>	Vine	VH	Significant negative	Prohibited
Japanese angelica tree	<i>Aralia elata</i>	Tree	VH	Equal outcome	Prohibited
Leafy spurge	<i>Euphorbia virgata</i>	Forb	H	Not assessed	Prohibited
Small carpetgrass	<i>Arthraxon hispidus</i>	Grass	H	Not assessed	Prohibited
Amur corktree	<i>Phellodendron amurense</i>	Tree	H	Not assessed	Prohibited
Giant hogweed	<i>Heracleum mantegazzianum</i>	Forb	H	Not assessed	Prohibited
Cup-plant	<i>Silphium perfoliatum var perfoliatum</i>	Forb	H	Not assessed	Prohibited
Japanese snowball	<i>Viburnum plicatum</i>	Shrub	H	Insignificant negative	
Beautybush	<i>Kolwitzia amabilis</i>	Shrub	H	Equal outcome	
Japanese primrose	<i>Primula japonica</i>	Forb	H	Insignificant negative	



Tier 1 High Priority Invasive Species- species not yet detected in the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Kudzu	<i>Pueraria montana var lobata</i>	Vine	VH	Insignificant negative	Prohibited
Slender falsebrome	<i>Brachypodium sylvaticum ssp. sylvaticum</i>	Grass	VH	Insignificant negative	Prohibited
Sycamore maple	<i>Acer pseudoplatanus</i>	Tree	H	Not assessed	Prohibited
Perennial pepperweed	<i>Lepidium latifolium</i>	Forb	H	Not assessed	Prohibited
Asian bushclover	<i>Lespedeza cuneata</i>	Shrub	H	Not assessed	Prohibited
Japanese virgin's bower, sweet autumn clematis	<i>Clematis terniflora</i>	Vine	H	Not assessed	Regulated
Sapphireberry	<i>Symplocos paniculata</i>	Shrub	H	Equal outcome	
Oriental redbtip	<i>Photinia villosa</i>	Vine	H	Insignificant positive	
Scotch broom	<i>Cytisus scoparius</i>	Shrub	H	Low negative	
Plume poppy	<i>Macleaya cordata</i>	Forb	H	Equal outcome	

Definitions:

Invasive Species

A species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purpose of 6 NYCRR Part 575, the harm must significantly outweigh any benefits.

Prohibited Species

Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species.

Regulated Species

Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate, and transport.

Horizon Scanning

A process for identifying and assessing potential risks posed by non-native species that may be introduced and become established.

High Priority Invasive Species (HPIS)

A Tier 1 or 2 invasive species which poses a high or very high threat that are of particular concern with significant impacts to our ecosystems, economy, agricultural systems, and human health.

Species of Concern (SOC)

Species that have unknown consequences and impacts to our environment, economy, agricultural systems, and human health. These species have shown evidence of invasive tendencies that could pose moderate to very high threats. These species can be approaching the region or found locally.





2023 High Priority Forest Pest List

For more information including resources for identification, visit www.capitalregionprism.org

To report these species, visit www.nyimainvasives.org

Purpose: The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) created this list of species to identify invasive species which are the highest priority invasive species for monitoring, detection and response efforts within the Capital Region. This list also fulfills Objective 2.4: *Anticipate new introductions and reassess current species of concern through event horizon scanning* within “Goal 2: Prevent” in the [CR-PRISM 2023-2027 Five-Year Strategic Plan](#). All the species contained on this list are high or very high threat and many are prohibited within the state of New York by the NYS Department of Environmental Conservation. This list will be shared with the Partnership to incorporate into their education and outreach, monitoring, detection, and response efforts.

These species were selected by the CR-PRISM staff through reviewing the CR-PRISM Tier List, ecological threat rankings and regulatory status of each of these species. In addition, event horizon scanning techniques were used including reviewing tier rankings on neighboring PRISM tier lists, the [NYNHP Statewide Tier List](#) and observing proximity of species to the CR-PRISM region for each species were taken into consideration.

Early Detection High Priority Species- species that have not been detected in the Capital Region PRISM or have few known infestations within the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status	CR-PRISM Tier
Hemlock woolly adelgid	<i>Adelges tsugae</i>	Insect	H	Very High Negative	Prohibited	2 (Northern portion of PRISM)
Asian longhorned beetle	<i>Anoplophora glabripennis</i>	Insect	H	Very High Negative	Prohibited	1a
Sirex woodwasp	<i>Sirex noctilio</i>	Insect	H	Significant Negative	Prohibited	M
Japanese pine sawyer beetle	<i>Monochamus alternatus</i>	Insect	H	Significant Negative	Prohibited	Untiered
Southern pine beetle	<i>Dendroctonus frontalis</i>	Insect	H	Significant Negative		2
Oak wilt	<i>Bretziella fagacearum</i>	Fungus	H	High Negative		2
Beech leaf disease	<i>Litylenchus crenatae mccannii</i>	Unknown	NA	Not assessed		1a
Laurel wilt	<i>Raffaelea lauricola</i>	Fungus	NA	Not assessed		Untiered





Pests Prioritized for Biocontrol Control and Resistance- species established in the Capital Region PRISM but have active research being conducted for biocontrol or resistance

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status	CR-PRISM Tier
<i>Agrilus planipennis</i>	Emerald ash borer	Insect	VH	Very High Negative	Prohibited	4
<i>Adelges tsugae</i>	Hemlock woolly adelgid	Insect	H	Very High Negative	Prohibited	4

Definitions:

Invasive Species

A species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purpose of 6 NYCRR Part 575, the harm must significantly outweigh any benefits.

Prohibited Species

Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species.

Regulated Species

Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate, and transport.

Horizon Scanning

A process for identifying and assessing potential risks posed by non-native species that may be introduced and become established.

High Priority Invasive Species (HPIS)

A Tier 1 or 2 invasive species which poses a high or very high threat that are of particular concern with significant impacts to our ecosystems, economy, agricultural systems, and human health.

Species of Concern (SOC)

Species that have unknown consequences and impacts to our environment, economy, agricultural systems, and human health. These species have shown evidence of invasive tendencies that could pose moderate to very high threats. These species can be approaching the region or found locally.





Capital Region PRISM 2023 Aquatic High Priority Invasive Species List

For more information including resources for identification, visit www.capitalregionprism.org

To report an invasive species, visit www.nyimainvasives.org

Purpose: The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) created this list to identify the highest priority invasive species for monitoring, detection and response efforts within the Capital Region PRISM boundaries. This list fulfills Objective 2.4: *Anticipate new introductions and reassess current species of concern through event horizon scanning* within “Goal 2: Prevent” in the [CR-PRISM 2023-2027 Five-Year Strategic Plan](#). All species that comprise this list are high or very high threat and many are prohibited within the state of New York by the NYS Department of Environmental Conservation. This list will be shared with the Partnership to incorporate into their education and outreach, monitoring, detection, and response efforts.

These species were selected by the CR-PRISM staff through the revision of the CR-PRISM Tier List, ecological threat rankings and species regulatory status. In addition, event horizon scanning techniques were used including reviewing tier rankings on neighboring PRISM tier lists, the [NYNHP Statewide Tier List](#), and observing proximity of species to the CR-PRISM region for each species.

Tier 2 High Priority Invasive Species- species with few known populations in the Capital Region PRISM

Common Name	Scientific Name	Growth Type	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Brazilian elodea	<i>Egeria densa</i>	Submerged	H	Insignificant Negative	Prohibited
Chinese mitten crab	<i>Eriocheir sinensis</i>	Animal	M	Insignificant Negative	Prohibited
European frogbit	<i>Hydrocharis morsus-ranae</i>	Floating	VH	Insignificant Negative	Prohibited
Sea Lamprey	<i>Petromyzon marinus</i>	Animal	M	Significant Negative	Prohibited
Spiny waterflea	<i>Bythotrephes longimanus</i>	Animal	VH	High Negative	Prohibited
Starry stonewort	<i>Nitellopsis obtusa</i>	Submerged	VH	High Negative	x
Variable watermilfoil	<i>Myriophyllum heterophyllum</i>	Submerged	VH	Equal Outcome	Prohibited



Tier 1 High Priority Invasive Species- species not yet detected in the Capital Region PRISM

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status
Fanwort	<i>Cabomba caroliniana</i>	Submerged	VH	Insignificant Negative	Prohibited
Fishhook waterflea	<i>Cercopagis pengoi</i>	Animal	VH	Significant Negative	Prohibited
Freshwater Jellyfish	<i>Craspedacusta sowerbyi</i>	Animal	Moderate	Equal Outcome	x
Parrot feather watermilfoil	<i>Myriophyllum aquaticum</i>	Emergent	H	Not Assessed	Prohibited
Hydrilla	<i>Hydrilla verticillata</i>	Submerged	VH	Insignificant Negative	Prohibited
Northern snakehead	<i>Channa argus</i>	Animal	H	Significant Negative	Prohibited
Waterwheel plant	<i>Aldrovanda vesiculosa</i>	Submerged	Unknown	Insignificant Positive	x

Definitions:

Invasive Species

A species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purpose of 6 NYCRR Part 575, the harm must significantly outweigh any benefits.

Prohibited Species

Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species.

Regulated Species

Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate, and transport.

Horizon Scanning

A process for identifying and assessing potential risks posed by non-native species that may be introduced and become established.

High Priority Invasive Species (HPIS)

A Tier 1 or 2 invasive species which poses a high or very high threat that are of particular concern with significant impacts to our ecosystems, economy, agricultural systems, and human health.

Species of Concern (SOC)

Species that have unknown consequences and impacts to our environment, economy, agricultural systems, and human health. These species have shown evidence of invasive tendencies that could pose moderate to very high threats. These species can be approaching the region or found locally.





2023 High Priority Agricultural Invasive Species List

For more information including resources for identification, visit www.capitalregionprism.org

To report these species, visit www.nyimainvasives.org

Purpose: The Capital Region Partnership for Regional Invasive Species Management (CR-PRISM) created this list of species to identify invasive species which are the highest priority invasive species for monitoring, detection and response efforts within the Capital Region. This list also fulfills Objective 2.4: *Anticipate new introductions and reassess current species of concern through event horizon scanning* within “Goal 2: Prevent” in the [CR-PRISM 2023-2027 Five-Year Strategic Plan](#). This list will be shared with the Partnership to incorporate into their education and outreach, monitoring, detection, and response efforts.

These species were selected by reviewing the [NYNHP Statewide Tier List](#) and asking experts and partners what species they have found to be a high priority or high threat to the Capital Region.

Species Not Yet Detected in New York:

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status	CR-PRISM Tier
Sudden Oak Death	<i>Phytophthora ramorum</i>	Fungus	M	High Negative	Prohibited	Untiered
Africanized honeybee	<i>Apis mellifera scutellata</i> <i>x A. m. ligustica, A.m. iberiensis</i>	Insect	NA	Not Assessed	Prohibited	Untiered
Oak Ambrosia Beetle	<i>Platypus quercivorus</i>	Insect	NA	Not Assessed		Untiered
Oak Processionary Moth	<i>Thaumetopoea processionea</i>	Insect	NA	Not Assessed		Untiered
Old World Bollworm	<i>Helicoverpa armigera</i>	Insect	NA	Not Assessed		Untiered
Pine Beauty Moth	<i>Panolis flammea</i>	Insect	NA	Not Assessed		Untiered
Boxwood Blight	<i>Calonectria pseudonaviculata</i>	Fungus	NA	Not Assessed		Untiered
Groundnut Bud Necrosis	<i>Tospovirus Groundnut bud necrosis virus</i>	Virus	NA	Not Assessed		Untiered
Japanese Wax Scale	<i>Ceroplastes japonicus</i>	Insect	NA	Not Assessed		Untiered
Late Blight	<i>Phytophthora infestans</i>	Fungus	NA	Not Assessed		Untiered
Southern Bacterial Wilt	<i>Ralstonia solanacearum</i>	Bacteria	NA	Not Assessed		Untiered





Species Detected in New York or the Capital Region:

Common Name	Scientific Name	Growth Form	Ecological Threat	Socio-economic Threat	Part 575 Regulatory Status	CR-PRISM Tier
Jumping worm	<i>Amyntas spp.</i>	Insect	M	Insignificant Negative	Prohibited	4
Spongy moth	<i>Lymantria dispar</i>	Insect	H	Very High Negative	Prohibited	4
Spotted lanternfly	<i>Lycorma delicatula</i>	Insect	H	Negative		2
Box tree moth	<i>Cydalima perspectalis</i>	Insect	NA	Not Assessed		2
Elm Zigzag Fly	<i>Aproceros leucopoda</i>	Insect	NA	Not Assessed		Untiered
Waterhemp	<i>Amaranthus tuberculatus</i>	Plant	NA	Not Assessed		Untiered
Palmer amaranth	<i>Amaranthus palmeri</i>	Plant	NA	Not Assessed		Untiered

Definitions:

Invasive Species

A species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purpose of 6 NYCRR Part 575, the harm must significantly outweigh any benefits.

Prohibited Species

Prohibited invasive species cannot be knowingly possessed with the intent to sell, import, purchase, transport or introduce. In addition, no person shall sell, import, purchase, transport, introduce or propagate prohibited invasive species.

Regulated Species

Regulated invasive species, on the other hand, are species which cannot be knowingly introduced into a free-living state or introduced by a means that one should have known would lead to such an introduction, although such species shall be legal to possess, sell, buy, propagate, and transport.

Horizon Scanning

A process for identifying and assessing potential risks posed by non-native species that may be introduced and become established.

High Priority Invasive Species (HPIS)

A Tier 1 or 2 invasive species which poses a high or very high threat that are of particular concern with significant impacts to our ecosystems, economy, agricultural systems, and human health.

Species of Concern (SOC)

Species that have unknown consequences and impacts to our environment, economy, agricultural systems, and human health. These species have shown evidence of invasive tendencies that could pose moderate to very high threats. These species can be approaching the region or found locally.



Proposed Management Actions and Management Maps

Invasive species that are encroaching on rare, threatened, endangered and/or species of special concern, as well as Tier 3 and 4 species that are in low densities or have a small number of populations within NYS DEC property will be considered for potential management actions with notification to the necessary NYS DEC staff prior to the initiation of work.

Species Scientific Name	DEC REGION	STATE LAND UNIT	COUNTY	TOWN	LATITUDE	LONGITUDE	Method of Management	ACRES AT MOST RECENT SURVEY	YEAR OF MOST RECENT SURVEY	2023 PRIORITY FOR TREATMENT
<i>Persicaria perfoliata</i>	4	Five Rivers Environmental Education Center	Albany	Delmar	42.61155	-73.89429	Pulling	0.05	2022	Yes

Five Rivers

Environmental Education Center



Interpretive Trails

Nature's Accessible Backyard Trail (0.2 mile)

A paved path showcases backyard wildlife habitat projects such as a wildlife garden, a water garden, bird feeding areas, and wildlife viewing stations. Wheelchair and stroller accessible.

Beaver Tree Trail (0.5 mile)

Circling Beaver Pond, this trail features scenic overlooks and close approaches to the pond, with an excellent opportunity to enjoy turtles, ducks and other aquatic wildlife; includes a 100-foot walkway over the water. Moderate ups and downs and some stairs over a woodchip base.

Woodlot Trail (0.2 mile) This wheelchair accessible trail through

Old Field Trail (0.6 mile)

Explore the ecology of abandoned fields on this trail that features many shrub and tree species, an old orchard and shaded ponds. A gentle grade over grass and woodchip surfaces.

Vlomankill Trail (0.6 mile)

A picturesque trail traces the Vlomankill through a hemlock-shaded ravine. Towering trees, elevated views and exposed bedrock create a sense of the primeval. Some stairs and steep grades over woodchip surfaces.

Other Popular Trails

North Loop (2.3 miles)

Go the distance on this hiking/skiing trail through old fields to a deep forest of northern hardwoods. Impressive

Wild Turkey Trail (1.6 miles)

Traverse open fields to a wooded ravine of the Phillipinkill. Dense northern hardwoods harbor deer, turkey and grouse. Extend your hike by taking Foresman's Loop passing through forest and field habitats. Moderate ups and downs over grass and woodchips.

Fordham's Crossing

Fordham's Crossing is off the Vlomankill Trail.



LEGEND

- Bench
- Bridge
- Observation Blind
- Observation Site
- Other Building
- Parking Area
- Pavilion
- Restroom
- Picnic Tables
- Sundial
- Trailhead
- Visitor Center
- Wheelchair Accessible
- Administrative Road
- Local Road
- Railroad
- Education Center Property



Capital Region PRISM AIS Monitor Report

Lake Name, County

About This Priority Waterbody

Lake Name embodies X miles of shoreline and a depth ranging between X and X feet. Located in Town Name, the waterbody connects to X and X waterbodies.

The lake is regularly utilized for X activities. The shoreline is developed/natural descriptors. Public access to X Lake is provided in several locations. Descriptor of boat launch access (hand/cartop), who maintains the launch, where is launch located. Document for each launch location into waterbody. The bottom cover of the lake is primarily comprised of muck/sand/macrophytes. What type of fish inhabit this waterbody? Do any natural areas border the waterbody? Are there farms nearby that contribute to runoff into waterbody? If waterbody is private, state who provided access.



Species Previously Recorded at This PWB

Common Name	Scientific Name	Location (GPS)	Growth Type	Phenology	Abundance
Water chestnut	<i>Trapa natans</i>	Multiple locations	Floating	Fruit ripening	Sparse/Dense

Growth Type: Tree, Shrub, Vine, Ground Cover, Herbaceous, Riparian, Submerged, Floating, Emergent, Wetland, Pest, Animal

Phenology: Flowering, Leaf unfolding, fruit ripening, leaf color change, dormant, swarming, spawning, emergence (insects), migrating, in seed, senesce

Distribution/Abundance: Trace (single plant/clump), Sparse (scattered plants/clumps), Dense plants/clumps, linearly scattered, Monoculture

iMapInvasives Confirmed Aquatic Invasive Species Observations





Capital Region PRISM AIS Early Detection Survey

On **date** the Capital Region PRISM conducted an aquatic survey on **X** Lake located in **X** County. The survey focused on early detection of **Tier 1 and 2** aquatic invasive species. Upon completion of the surveys it was determined that **X** species are present in **X** Lake. **State where populations were found in waterbody, abundance level of the population.**

General Information	
Waterbody Name:	Date of Survey:
Survey Lead:	Time to Conduct Survey:
Team Members:	Address:
iMapInvasives User ID:	County:
Property Owner Contact:	Coordinates:
Date of Last Survey:	Waterbody Acreage:
Recommended Date of Next Survey:	Average Depth:
Has This Site Received Previous Management? <i>If so by who, when, what?</i>	

Survey Techniques

This survey was conducted using the following methods.

- Entire waterbody, top water (description)
- Top-side (visual) (description)
- Meandering rake toss (description)

New York State Invasive Species Prioritization Model

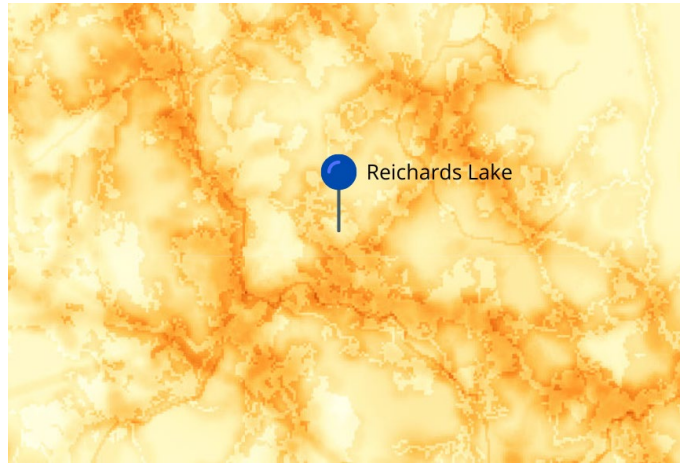
X Lake is located near an area with a **(options below)**

1. **high to very high** comprehensive score on the NYS Invasive Species Prioritization Model. Locations with high comprehensive scores have high ecological significance, a high risk of spread of invasives into the area, and high value according to their protected status. **X Lake is also connected to X Lake that has multiple aquatic invasive species infestations.** Early detection is important in these locations to ensure timely management of new infestations if detected.
2. **high** comprehensive score on the NYS Invasive Species Prioritization Model. Locations with high comprehensive scores have high ecological significance, a high risk of spread of invasives into the area, and high value according to their protected status. Early detection is important in these locations to ensure timely management of new infestations if detected.
3. **medium-high** comprehensive score on the NYS Invasive Species Prioritization Model. Locations with high comprehensive scores have high ecological significance, a high risk of spread of invasives into the area, and high value according to their protected status. Early detection is important in these locations to ensure timely management of new infestations if detected.



4. **low to medium** comprehensive score on the NYS Invasive Species Prioritization Model. Locations with lower comprehensive scores are less likely to have an ecological impact from aquatic invasive species.

[NYS Invasive Species Prioritization Model](#)



Aquatic Invasive Species Presence

Common Name	Scientific Name	Location (GPS)	Growth Type	Phenology	Abundance

Water chestnut

- New York Non-Native Animal Invasiveness Ranking – 82
- http://nyis.info/wp-content/uploads/2018/01/61a2d_Trapa-natans-NYS.pdf

Eurasian watermilfoil

- New York Non-Native Animal Invasiveness Ranking – 100
- http://nyis.info/wp-content/uploads/2018/01/5cdc8_Myriophyllum.spicatum.NYS_.pdf

Brittle naiad

- New York Non-Native Animal Invasiveness Ranking – 64.84
- http://nyis.info/wp-content/uploads/2018/01/2320f_Najas.minor_.NYS_.pdf



Native Species Presence

Common Name	Scientific Name	Estimated Abundance

Native Vegetation Distribution – Select

This is a qualitative assessment of the native plants that will be entered into the CR-PRISM Survey Report.

1. **Dominant** (Natives are the most common plants and widespread),
2. **Subdominant** (Natives are present, but invasive plants are more common and widespread),
3. **Absent** (There are no native plants either because there are no plants at all or just about all the plants are invasive)

Record any Rare/Endangered Species in CR-PRISM Tracker

Summary of Recommendations

Prevention

Prevention efforts are recommended to reduce the chance of new aquatic invasive species introductions into **X Lake**. The private access to the lake helps prevent unwanted species being introduced through reduction of visitors.

Ensuring clean, drain, dry practices are being followed when transporting watercraft from one waterbody to another is also recommended.

Identifying and reporting any suspected aquatic invasive species is encouraged to ensure early detection. Rental property owners can take steps to educate their renters on the threats of aquatic invasive species and how they can prevent the spread into the waterbody they are visiting.

Survey Photos



Capital Region PRISM Survey Report

Purpose:

The Invasive Species Survey Report will provide an overview and help guide invasive species treatments, baseline site composition, post-monitoring, and restoration at a specific site over time. A single survey report should not be written for an entire site, but a specific project. A site could have multiple reports. If there are multiple reports within a site, consult with the Capital Region PRISM about potentially preparing a more robust survey report.

To be submitted to Capital Region PRISM following the completion of partner, individual, or PRISM-led survey for review. This form can be found online as "FieldSurveyReportTemplate" at <https://www.capitalregionprism.org> or with a request. Please consult the Capital Region PRISM if there are any questions at (518)-885-8995. Please capture and collect data using [iMap Invasives](#). The online software platform and associated mobile application are free and open sourced.

Section 1: Survey Summary

This section provides an overview of the site, contact information, etc. Once complete, save your report and submit the form via email to a member of the Capital Region PRISM team. Feel free to include supporting documents in your submission.

To determine site value, we recommend using the iMap Invasives Prioritization Model which can be found on the [PRISM Prioritization webpage](#). The prioritization model will allow you to assess your site's ecological value based on a few factors. Evaluate the comprehensive score or the ecological score to determine if your site is a high priority site that will help us determine if the location and infestation falls into our priority objectives for future management. If it is not a high priority site, we still encourage you to complete invasive species surveying as the site may be culturally and socially of value to the public.

Section 2: Survey Result Summary

The survey summary section will contain the tables and maps generated from your survey efforts. The biological surveys will assist the Capital Region PRISM in our efforts to identify emerging species to be able to more effectively manage infestations and the spread of populations. Please fill out the provided table and insert screen shots of iMap Invasives maps.

Section 3: Summary of Recommendations

The recommendation section contains treatment calendars and post-season summaries. Most sites need to be revisited annually to document successes/failures, identify any changes needed, and update future treatment calendars.



Map: Develop a map of the survey area that has any iMap Invasives points and/or searched, polygons to delineate infestation extent. Multiple maps may be added for multiple species or locations. Different mapping formats are welcome but iMap Invasive delineations are preferred.

- Insert Survey Map(s):

Section 3: Summary of Recommendations

This section provides recommendations of any treatment methods, monitoring methods, and restoration efforts based on the survey.

Additional Notes: Describe any barriers or issues that arose before or during the survey. Issues arising before completing the survey could include: trouble contacting owner, extended time to obtain permission, trouble accessing the property, etc. Barriers arising during the survey could include: downed trees, trail is closed off, hazards on site, unforeseen injury, inclement weather, etc. Provide any advice that could limit barriers or issues in the future.

Treatment: Describe briefly any recommendations for future treatment methods, why they are recommended, and any alternatives to consider. Please use abundance and site-specific factors in your treatment recommendation. Optional: Attach or reference BMP guidance document. Consider state and local permitting requirements.

Post-Survey Monitoring: Briefly explain the monitoring procedure, when it will occur, and who will complete it. Consider the phenology of species when suggesting time-lines. If a control such as eradication, suppression, and exclusion is selected, will a management plan be drafted? If a plan is needed, please contact the CR-PRISM Office for a template of our Invasive Species Management Plan.



Capital Region PRISM Treatment Report

Site Information

Date:	Property Owner Name:
Site Name:	Property Owner Contact:
Site Address (if different):	Survey Leader Name:
County:	Survey Leader Contact and Title:
Latitude/Longitude:	Team Member Name(s):
Total Site Size:	Team Member Contact(s):

Project Information

*****Remember to obtain proper permissions before completing any treatment project.**

Is this the first year of treatment? If not, consider creating an invasive species management plan for your project.

Total # of Participants:

Time Spent on Removal (hours, minutes):

Is follow-up needed? What time of year and how often during the season?

Target Species:

Tier and Rank:

Treatment Method (be specific):

Disposal Method:

Area Infested acres/miles (if linear)	Area Treated acres/miles (if linear)	% Removed	Amount Removed (#bags, # mature, # seedlings)





Capital Region PRISM
Partnership for Regional
Invasive Species Management
www.capitalregionprism.org

Cornell Cooperative Extension Saratoga County
50 West High St.
Ballston Spa, NY 12020

Photos, Presence points, polygons and Treatment in iMap Invasives of the project:

Were treatments uploaded to the IS Tracker and iMap Invasives?

iMap Invasives User ID:

Presence ID #:

Treatment ID #:



**Department of
Environmental
Conservation**

The New York State Department of Environmental Conservation provides financial support to The Capital Region PRISM via the Environmental Protection Fund



Invasive Species Management Plan (ISMP):

A Framework for Control

Purpose:

The Invasive Species Management Plan (ISMP) template is a working document to help guide invasive species treatments after early identification and surveys have been conducted. The guide includes steps for post treatment monitoring and restoration over a five-year period. The ISMP template is designed to treat a specific infestation at a given location. Multiple ISMP can be deployed over a larger geography. In such a case a more comprehensive plan should be considered when prioritizing multiple treatments in a park or preserve like setting.

The framework built into this template helps to identify all the variables that are more likely to result in more successful treatments with lasting effects into the future. All management strategies should consider an [Integrated Pest Management \(IPM\) approach and a Framework of Response](#). Invasive species management plans should be independently reviewed by a project manager or a Capital Region PRISM Coordinator.

Section 1: Project Summary

The project summary provides an overview of the site with a description including contact information, location, current land use, species present, and other related parcel characteristics. The project description identifies the treatment target. Survey maps and reports are included in this segment, potential land managers/owners are identified with approval. Map(s) outlining the project site and infestation area are clearly marked. Elements from preexisting survey reports can be used to supplement this segment. All permits are secured and completed before commencement of treatment. [State Environmental Quality Review \(SEQR\)](#) checklist should be completed at this stage. SEQR requires the sponsoring or approving governmental body to identify and mitigate the significant environmental impacts of the activity it is proposing or permitting.

The project summary includes a step to determine if the proposed work is feasible and justifiable by completing an [Invasive Plant Management Decision Analysis Tool \(IPMDAT\)](#) simulation, when applicable. The Capital Region PRISM recommends using the tool to help determine if an invasive plant control project is likely to be successful and if it warrants an investment of their agency's resources. To justify spending resources on an invasive plant control project: The invasive species must cause serious environmental or economic harm or harm to human health.

In addition, work in a specific geography can be assessed to see if it falls into an area relevant for protection on the New York Invasive Species Prioritization Models. These models were created to highlight areas of the state that have high ecological significance, a high risk of spread of invasive(s) into the area and a high value according to their protected status. The models can be used to help guide and justify invasive species efforts. The map can be accessed on the [Capital Region PRISM Prioritization](#) page.

Finally, it is strongly encouraged to determine if conservation priority species or habitat are located in or near the geographic area where the proposed work will occur. The Capital Region PRISM suggests the use of the New York State Department of Environmental Conservation (NYSDEC) "[Environmental Resource Mapper](#)" to identify significant natural communities, and rare plants or animals. The NYSDEC has also developed a list of [threatened and endangered species](#) of New York State and a list of species with the [greatest conservation need](#) that should be referenced before starting treatment to ensure management will not cause any harm to these species.





Section 2: Implementation Summary

The implementation summary will provide guidance on treatment methods with best management practices, monitoring, and restoration strategies. After a 3-5-year period, a new assessment using the ISMP template may need to be conducted based on changing site conditions and parcel priorities.

Section 3: Project Implementation

The implementation segment contains treatment timelines and post season summaries. Always consider the phenology of the invasive target when deploying a treatment to be effective. A post season summary will be completed to document successes, failures, and needed adjustments to the management approach. Future treatment timelines will reflect such reassessment needs.

Saving Plans

Please submit your Invasive Species Management Plan to the Capital Region PRISM for review. ISMP will be saved in an online repository for historical purposes and future considerations. All survey and treatment data associated with the project should be reported in the [New York iMap Invasives](#) online data base. Please contact the PRISM for survey report forms.

Section 1: Project Summary

Project Name	
Location	
Latitude / Longitude	
Project Manager / Title	
Project Manager Contact	
Owner Name / Title	
Owner Contact	

Site Description: Provide existing conditions of the site, including species present, ecologic condition, current land use, stakeholders and or historical uses.

Project Description: Provide a clear and concise of the work to be conducted, conservation targets and desired future conditions.

Overall Project Size:

SEQR Form Complete? [Add as an Appendix]

Does the work proposed fall into a well-defined area of ecologic significance and risk as indicated on the NY Invasive Species Prioritization Models?

[Optional Step/Include in Map Section]





Invasive Plant Management Decision Analysis Tool ([IPMDAT](#)) Recommendations. [Optional Step/Include in Map Section]

Pesticide Use Proposed?

Aquatic Pesticide Permits: <https://www.dec.ny.gov/chemical/8530.html>

Pesticide Laws and Regulations: <https://www.dec.ny.gov/chemical/112881.html>

List Associated Master Plan if relevant to a larger project: [link file URL or attach as an Appendices]

Map: Develop a map of the project area showing the geography and extent of infestation. Partners are strongly encouraged to use [iMap Invasives](#) or to define survey and treatment areas using points and/or polygons.

Section 2: Implementation Summary

This section provides descriptions of any treatment methods, restoration, and monitoring efforts occurring over the course of the plan.

Treatment: Describe in detail treatment methods selected for the site and why they were chosen along with any alternatives considered. [Best management practice(s) should be outlined and sourced] State the estimate the number or abundance of species to be treated/removed and method of disposal. Describe the level of anticipated site disturbance and mitigation. If using a pesticide, provide the chemical name and application method.

Restoration: Briefly explain the revegetation efforts that will occur. If doing active restoration, make sure to attach a list of native plants to be used, seed mixes, and any preferred nurseries. Describe when native seeds will be collected on site. If a separate restoration plan was developed, reference it here. If not actively restoring, explain why. (ex. Allelopathy, native seed source in place, minimal disturbance).

Post-Monitoring: Explain the monitoring procedure, when it will occur and why, and who will complete it.





Treatment, Post-Treatment (Monitoring), and Restoration Calendar: Briefly outline when treatment, restoration efforts, and post treatment monitoring are anticipated to occur with a date range. When completed check the box next to the targeted date range with an initial.

	Year 1	Year 2	Year 3	Year 4	Year 5
Early Spring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Post treatment monitoring and restoration continues
Late Spring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Early Autumn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Late Autumn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes: Make notes as necessary and keep the documentation simple. Base work off of plant phenology for treatments and revegetation. Document why things did not work with recommended adjustments in the post season report.





Section 3: Project Implementation - Year 1

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level](#) and [threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested (acres)*	Species Abundance (%)	Target Goal (%)	Treatment Window (MM/DD/YY)	Treatment Method	Disposal Method

*If infestation is linear, use miles to measure "area infested"

Post Season Report

End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

Reminder: if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Year 1 Notes:





Section 3: Project Implementation - Year 2

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level](#) and [threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested (acres)*	Species Abundance (%)	Target Goal (%)	Treatment Window (MM/DD/YY)	Treatment Method	Disposal Method

*If infestation is linear, use miles to measure "area infested"

Post Season Report

End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

Reminder: if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Year 2 Notes:





Section 3: Project Implementation - Year 3

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level](#) and [threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested (acres)*	Species Abundance (%)	Target Goal (%)	Treatment Window (MM/DD/YY)	Treatment Method	Disposal Method

*If infestation is linear, use miles to measure "area infested"

Post Season Report

End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

Reminder: if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Year 3 Notes:





Section 3: Project Implementation - Year 4

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level](#) and [threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested (acres)*	Species Abundance (%)	Target Goal (%)	Treatment Window (MM/DD/YY)	Treatment Method	Disposal Method

*If infestation is linear, use miles to measure "area infested"

Post Season Report

End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

Reminder: if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Year 4 Notes:





Section 3: Project Implementation - Year 5

Treatment Schedule: Plan out when and how treatments will occur. Attach and reference separate spreadsheet if more space is needed for additional species. Include the [tier level](#) and [threat ranking](#) of each species.

Target Species Tier and Rank	Area Infested (acres)*	Species Abundance (%)	Target Goal (%)	Treatment Window (MM/DD/YY)	Treatment Method	Disposal Method

*If infestation is linear, use miles to measure "area infested"

Post Season Report

End-of-Year Summary:

Explain any successes, failures, or needed adjustments. Including restoration, missed treatments, not monitoring, etc.

Adjustments Needed:

Explain any changes to be made for future years and update treatment restoration and calendars.

Reminder: if the project changes drastically (i.e., switch from manual control to chemical control) it may require a new SEQR review.

Year 5 Notes:





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

12/13/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER P.W. Wood & Son, Inc. 2333 N Triphammer Road Suite 501 Ithaca NY 14850	CONTACT NAME: Karen J Supek PHONE (A/C, No, Ext): 607-266-3303 E-MAIL ADDRESS: ccecontracts@thewoodoffice.com	FAX (A/C, No): 607-266-9663
	INSURER(S) AFFORDING COVERAGE	
License#: PC614566 CORNCOO-39	INSURER A: Philadelphia Indemnity Ins Co	NAIC # 18058
INSURED Cornell Cooperative Extension Saratoga County 50 W High Street Ballston Spa NY 12020	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES

CERTIFICATE NUMBER: 1956579768

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER:	Y	Y	PHPK2413063	5/24/2022	5/24/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 20,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 3,000,000 PRODUCTS - COMP/OP AGG \$ 3,000,000 ABUSIVE CONDUCT OCC \$ 1,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			PHPK2413063	5/24/2022	5/24/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			PHUB814149	5/24/2022	5/24/2023	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input type="checkbox"/> Y/N <input checked="" type="checkbox"/> N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						<input type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
A	PROFESSIONAL LIABILITY			PHPK2413063	5/24/2022	5/24/2023	OCCURRENCE 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Capital Region PRISM-Contract Number C012558 for 2023-2027 5 year period. The State of New York, NYS Department of Environmental Conservation, its officers, agents and employees, Division of Lands and Forests, Invasive Species Coordination Unit, 625 Broadway, Albany, NY 12233-4253 is an additional insured on a primary and non-contributory basis if required by written contract, per endorsement number CG 20 26 04 13. 30 Day cancellation applicable. Waiver of Subrogation in favor of the Certificate Holder is applicable for this agreement.

CERTIFICATE HOLDER**CANCELLATION**

NYS Department of Environmental Conservation
 Division of Lands and Forests
 Invasive Species Coordination Unit
 625 Broadway
 Albany NY 12233-4253

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):

NYS Department of Environmental Conservation
(NYS DEC)
625 Broadway
Albany, NY 12233

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:

1. In the performance of your ongoing operations; or
2. In connection with your premises owned by or rented to you.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to Section III – Limits Of Insurance:

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.



Department of Environmental Conservation



If checked, see additional conditions attached.

Application and Permit to: 1) Possess With Intent to Sell, Import, Purchase, Transport, or Introduce a Prohibited Invasive Species for Research, Education, or Other Approved Activity; or 2) Introduce a Regulated Invasive Species into a Free-Living State in New York State

PART I: This Application and Permit is issued by statutory authority ECL 9-1709 and 6 NYCRR Part 575 in strict compliance with the conditions set forth herein and on the reverse side. (see reverse side for instructions and conditions)

LAST NAME: Williams	FIRST NAME: Kristopher	M.I.: B
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ORGANIZATION OR BUSINESS NAME:
Capital/Mohawk PRISM (hosted by CCE Saratoga County)

MAILING ADDRESS:
50 W High St

CITY: Ballston Spa	STATE: NY	ZIP CODE: 12020
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COUNTY OF PERMITTED ACTIVITY: All counties within Capital/Mohawk PRISM boundaries	TELEPHONE NUMBER: (518) 321-0189 E-MAIL: <u>kbw44@cornell.edu</u>
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SPECIES: Various aquatic and terrestrial species LIFE STAGE: all QUANTITY: 1 per/species.

OTHER PERMITS OBTAINED (federal and state):
n/a

REASON (research, education or other activity):
Education and outreach regarding invasive species at workshops, tabling events, and trainings. Training of seasonal staff, and voucher samples for herbariums.

DESCRIBE THE METHODS YOU WILL USE TO CONTAIN THE INVASIVE SPECIES (attach additional sheets as necessary):
All precautions will be taken based on individual species depending on the stage of life cycle and reproduction. Plant tissue samples will be laminated, seeds in containers, no live animals will be transported. All vouchers will be sealed.

DESCRIBE THE RELEASE LOCATION OR METHODS YOU WILL USE TO DISPOSE OF THE INVASIVE SPECIES:
Specimens will be sealed in plastic and disposed of in a landfill. Burning of specific species is also an option. Specific invasive species will be transported or not based on DEC guidelines.

I have read the instructions and conditions on the reverse side. I understand that I must adhere to ALL the conditions of the permit issued, and addendum if applicable, to possess a prohibited or introduce a regulated invasive species. Pursuant to ECL Section 3-0301(2)(q), false statements made on this application for authorization are punishable pursuant to Section 210.45 of the New York State Penal Law.

Digitally signed by Kristopher Williams
DN: cn=Kristopher Williams, o=CCE of Saratoga, ou=Capital Mohawk PRISM, email=kbw44@cornell.edu, c=US
Date: 2018.05.03.13:51:47 -0400

Signature of Applicant _____ Date 05 / 03 / 2018

PART II: This permit shall take effect on the date it is approved by the Department, and shall expire five years thereafter.

APPROVED BY: <u>Jeffrey A. Tidy</u> NYS DEC Representative	<u>Nat. Resources Supervisor</u> Title	<u>06 / 12 / 2018</u> <u>05 / 03 / 2018</u> Date
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PERMIT #: 04-2018-002 (Region-Year-Permit Number, e.g. 01-15-001) FEE: NONE

Instructions and Conditions for obtaining and utilizing an approved Permit to: 1) Possess With Intent to Sell, Import, Purchase, Transport, or Introduce a Prohibited Invasive Species for Research, Education, or Other Approved Activity; or 2) Introduce a Regulated Invasive Species into a Free-Living State in New York State, as required by section 9-1709 of the Environmental Conservation Law of New York State and Part 575 of New York Codes, Rules and Regulations.

INSTRUCTIONS

1. Print your name, organization, address, county, telephone number and e-mail address (if applicable).
2. List the invasive species to be possessed, life stage (e.g. seed, juvenile, adult) of the species and quantity of individual plants or animals.
3. List other federal and state permits obtained (e.g. USDA, APHIS or US FWS) for these species.
4. Describe the reason for requesting a permit to possess a prohibited invasive species or introduce a regulated invasive species into a free-living state.
5. Describe the methods you will use to prevent introduction into a free-living state or contain the invasive species.
6. Describe the release location, or the methods you will use to dispose of the listed invasive species upon completion of the permitted activity.
7. Sign and date the application.
8. After completing **PART I** of this permit, submit the original completed application to the appropriate regional office: Attention Natural Resource Supervisor. For a listing of the Department's regional offices please visit: www.dec.ny.gov/24.html

CONDITIONS

1. The permittee may designate agents to conduct activities authorized by this permit. Such designations must be in writing and the permittee must maintain an accurate list of the agents designated pursuant to this permit and such list must be on file with the Department. The permittee is responsible for all actions taken by designated agents under this permit.
2. The permittee and/or designated agents are authorized to possess or introduce only the invasive species listed on the permit.
3. The permittee and/or designated agents are authorized to possess no more than the number of invasive species listed on the permit.
4. The permittee and/or designated agents will contain and dispose of the possessed invasive species as described in the permit. The permittee shall allow Department personnel access to the containment or introduction site during business hours for collection of physical, chemical and biological data deemed necessary by the Department.
5. If the possession or introduction of the invasive species is to occur on public land, a written letter of permission must be obtained from the administering agency before such occurs.
6. A copy of the authorized permit must be carried with you during the disposal or release of the invasive species possessed pursuant to this permit. Your permit must be exhibited upon request. When the introduction is to occur on public land, the permission letter (#5) must also be carried.
7. This permit shall take effect on the date it is approved by the Department, and shall expire five years thereafter, or upon completion of the permitted activity, whichever occurs first. In no event will the permit authorize possession or introduction beyond five years from the date of Department approval, unless renewed or extended by the Department.
8. The permittee must submit a written request for renewal of this license to the Department, at least one month prior to the expiration date of this permit.
9. A copy of the authorized permit must be maintained by the permittee as part of their records.

Part 575 Invasive Species Permit 04-2018-002

SPECIAL TERMS & CONDITIONS

This permit is subject to the following Special Terms & Conditions. Failure of the Permittee to comply with any Terms and Conditions will void this permit.

1. This permit authorizes the collection and display of invasive species listed in the attached Capital Mohawk PRISM Invasive Species by State Ranking list and 2018 Edits to the Tier List provided. All seed, plant parts, plants, insects, diseased substrate or any other item listed in documents described above shall be properly stored and handled to prevent the spread of invasive species.
2. All samples no longer deemed necessary for education and outreach shall be disposed of in accordance with current, known disposal practices for the specific species to minimize the threat of spread.

CAPITAL MOHAWK PRISM ~ Invasive Species by State Ranking

Note: New terminology for species category descriptions (as of January 2017)

Tier 1 – Early Detection / Prevention

Not in yet PRISM, with anticipated high or very high impacts. Highest level of survey efforts. Should conduct delineation surveys and assign to appropriate Tier if detected.

Tier 1a: Species not in the PRISM, but in the buffer (surrounding PRISM)

Tier 1b: Species not in PRISM or the buffer, but in Eastern North America (with potential for establishment)

Tier 1c: Species far outside PRISM and buffer (not in east NA), but introduction pathway exists

Tier 2 - Eradication

High and very high impact species with low enough abundance to make eradication feasible within the PRISM. Highest level of response efforts. Need delineation surveys to determine full extent. (low end of invasion curve)

Tier 3 – Containment

High and very high impact species that are likely too widespread for eradication, but low enough abundance to think about regional containment. Target strategic management to slow the spread since many surrounding regions could be at risk if left unattended.

Tier 4 – Local Control

Well-established species with high and very high impacts. Eradication efforts not feasible; only localized management over time to contain, exclude, or suppress, if justified to meet local management goals. (suppression efforts)

*Subcategory: Not established outside of PRISM, manage to contain within PRISM.

Tier 5 - Research:

Species in or surrounding PRISM that need more research, mapping, and monitoring to understand invasiveness and impacts.

Aquatic Invasive Plant Species (Ranking updated 1.20.2017 per terminology update):

Tier 1:

1a: *Aldrovanda vesiculosa*, Waterwheel

Cabomba caroliniana, Carolina Fanwort

Hydrilla verticillata, Hydrilla

Myriophyllum aquaticum, Parrot feather

Nitellopsis obtusa, Starry stonewort

1b: n/a

1c: *Alternanthera philoxeroides*, Alligatorweed

Tier 2

Egeria densa, Brazilian elodea

Nymphoides peltata, Yellow Floating-heart

Tier 3

Hydrocharis morsus-ranae, European Frog-bit

Myriophyllum heterophyllum, Variable Leaf Watermilfoil

Tier 4

Myriophyllum spicatum, Eurasian Watermilfoil,

Potamogeton crispus, Curly Pondweed

Trapa natans, Water chestnut

Tier 5

Didymosphenia geminata, Didymo

Eichhornia crassipes, Water Hyacinth

Marsilea quadrifolia, European Water Fern

Pistia stratiotes, Water Lettuce

Aquatic Invasive Animal Species:

Tier 1:

1a: *Channa argus*, Northern Snakehead

Hemimysis anomala, Bloody Red Shrimp

Misgurnus anguillicaudatus, Oriental Weatherfish

Neogobius melanostomus, Round Goby

1b: *Hypophthalmichthys* sp., Asian Carp

Tinca tinca, Tench

Tier 2

Bythotrephes longimanus, Spiny Waterflea

Cipangopaludina chinensis, Chinese Mystery Snail

Cygnus olor, Mute Swan

Tier 3

Bithynia tentaculata, Mud Bithynia (snail)

Tier 4

Carassius auratus, Goldfish

Corbicula fluminea, Asian Clam

Dreissena sp. (*bugensis* & *polymorpha*), Quagga & Zebra Mussel

Eriocheir sinensis, Chinese Mitten Crab

Orconectes rusticus, Rusty Crayfish

Scardinius erythrophthalmus, Rudd

Trachemys scripta elegans, Red-eared Slider (turtle)

Tier 5

Alosa pseudoharengus, alewife (native to some drainages of NYS & ranked Medium)

Terrestrial Invasive Plant Species:

Tier 1:

- 1a:** *Actinidia arguta*, Hardy Kiwi, Taravine
Actinidia polygama, Silver Vine
Akebia quinata, Chocolate Vine
Aralia elata, Japanese Angelica Tree
Arum italicum, Italian Arum
Brachypodium sylvaticum, Slender False Brome
Corydalis incisa, Incised Fumewort
Cytisus scoparius, Scotch Broom
Dioscorea polystachya, Chinese Yam
Eragrostis curvula, Weeping Lovegrass
Euonymus fortunei, Wintercreeper
Lamium galeobdolon, Yellow Archangel
Lespedeza cuneata, Chinese Bushclover
Phellodendron amurense, Amur Corktree
Photinia villosa, Oriental Red-tip
Primula japonica, Japanese Primrose
Pueraria montana var. lobata, Kudzu
Salix cinerea, Gray Florists willow
Salvia glutinosa, Sticky Sage
Schoenoplectus mucronatus, Bog Bulrush (one historical record in CapMo)
Symplocos paniculata, Sapphireberry
Viburnum dilatatum, Linden Viburnum
Viburnum plicatum, Double-File Viburnum
Viburnum Sieboldii, Siebold's Viburnum

1b:

- Oplismenus hirtellus*, Wavyleaf Basketgrass
Perilla frutescens, Beefsteak Plant

Tier 2

- Acer palmatum*, Japanese Maple
Acer pseudoplatanus, Sycamore Maple
Aegopodium podagraria, Bishops Goutweed
Ampelopsis brevipedunculata, Porcelain Berry
Arthraxon hispidus, Small Carpetgrass
Clematis terniflora, Japanese Virgin's Bower
Eleutherococcus pentaphyllus, Five-leaf Aralia
Ficaria verna ssp. Lesser celandine
Hedera helix, English Ivy
Humulus japonicus, Japanese Hops

Impatiens glandulifera, Policeman's Helmet
Lonicera maackii, Amur Honeysuckle
Lysimachia vulgaris, Yellow Garden Loosestrife
Malus seboldii, Turingo Crabapple
Miscanthus sinensis, Chinese Silver Grass
Persicaria perfoliata, Mile-A-Minute Vine
Rhodotypos scandens, Black Jetbead
Rubus phoenicolasius, Wineberry
Salix atrocinerea, Rusty Willow
Silphium perfoliatum var. *perfoliatum*, Cup-plant
Syringa reticulata, Japanese Tree Lilac
Ulmus pumila, Siberian Elm
Viburnum lantana, Wayfaring Tree
Viburnum opulus, European Cranberry Viburnum
Wisteria spp., Wisteria (Chinese and Japanese)

Tier 3

Berberis vulgaris, European Barberry
Euphorbia esula, Leafy Spurge
Heracleum mantegazzianum, Giant Hogweed

Terrestrial Invasive Plant Species (cont.):

Tier 4

Acer platanoides, Norway Maple

Ailanthus altissima, Tree of heaven

Alliaria petiolata, Garlic Mustard

Alnus glutinosa, Black Alder

Anthriscus sylvestris, Wild Chervil

Artemisia vulgaris var. *vulgaris*, Mugwort

Berberis thunbergii, Japanese Barberry

Cardamine impatiens, Narrowleaf Bittercress

Celastrus orbiculatus, Asian Bittersweet

Centaurea stoebe spp. *Micranthos*, Spotted Knapweed

Cirsium arvense, Canada Thistle

Cirsium vulgare, Bull Thistle

Cynanchum louiseae, Black Swallow-wort

Cynanchum rossicum, Pale Swallow-wort

Dispsacus laciniatus, Cut-leaf Teasel

Elaeagnus umbellata, Autumn Olive

Euonymus alatus, Burning Bush

Euphorbia cyparissias, Cypress Spurge

Frangula alnus, Glossy Buckthorn

Iris pseudacorus, Water Flag Iris

Ligustrum obtusifolium, Border Privet

Lonicera japonica, Japanese Honeysuckle

Lonicera morronii, Morrow Honeysuckle

Lonicera tatarica, Tartarian Honeysuckle

Lonicera × *bella*, Showy pink honeysuckle

Lythrum salicaria, Purple Loosestrife

Microstegium vimineum, Japanese Stiltgrass

Morus alba, White Mulberry

Pastinaca sativa, Wild Parsnip

Phalaris arundinacea, Reed Canarygrass

Phragmites australis ssp. *Australis*, Common Reed

Reynoutria japonica var. *japonica*: *Fallopia japonica* var. *japonica*, Japanese Knotweed

Reynoutria × *bohemica*: *Fallopia* × *bohemica*, Bohemian Knotweed

Rhamnus cathartica, Common Buckthorn

Robinia pseudoacacia, Black Locust

Rosa multiflora, Multiflora Rose

Vinca Minor, Periwinkle

Tier 5:

Fallopia baldschuanica, China Fleece Vine

Carlina vulgaris, Carlina Thistle

Reynoutria sachalinensis: *Fallopia sachalinensis*, Giant Knotweed

Sorghum halepense, Johnsongrass

Terrestrial Invasive Animal Species:

Tier 1:

1a: *Anoplophora glabripennis*, Asian Longhorned Beetle

Dendroctonus frontalis, Southern Pine Beetle

Myrmica rubra, European fire Ant

1b: *Myocastor coypus*, Nutria

Sus scrofa, Eurasian Boar

Lymantria dispar asiatica, Asian Gypsy Moth (not in East NA, but could easily be introduced via ports)

Lycorma delicatula, Spotted Lanternfly

Tier 2:

n/a

Tier 3:

Amyntas agrestis, Crazy Snake Worm

Adelges tsugae, Hemlock Woolly Adelgid

Tier 4:

Agrilus planipennis, Emerald Ash Borer

Drosophila suzukii, Spotted Winged Drosophila

Fiorinia externa, Elongated Hemlock Scale

Halyomorpha halys, Brown Marmorated Stink Bug

Lymantria dispar, European Gypsy Moth

Pyrrhalta viburni, Viburnum Leaf Beetle

Sirex noctilio, European Woodwasp

Tier 5:

Adelges piceae, Balsam Woolly Adelgid

Forest Invasive Species:

Tier 1:

1a: *Anoplophora glabripennis*, Asian Longhorned Beetle

Dendroctonus frontalis, Southern Pine Beetle

Myrmica rubra, European fire Ant

1b: *Lycorma delicatula*, Spotted Lanternfly

Lymantria dispar asiatica, Asian Gypsy Moth (not in East NA, but could easily be introduced via ports)

Tier 2:

Ceratocystis fagacearum, Oak Wilt

Tier 3:

Adelges tsugae, Hemlock Woolly Adelgid

Tier 4:

Agrilus planipennis, Emerald Ash Borer

Fiorinia externa, Elongated Hemlock Scale

Lymantria dispar, European Gypsy Moth

Pyrrhalta viburni, Viburnum Leaf Beetle

Sirex noctilio, European Wood Wasp

Tier 5:

Adelges piceae, Balsam Woolly Adelgid

1) ED/RR

Cutleaf Blackberry- *Rubus laciniatus*

Chinese Air Potato- *Dioscorea alata*

2) In PRISM but not very prevalent-

February Daphne- *Daphne mezereum*

Move Southern Pine Beetle from Tier 1 to Tier 2

Move Giant Hogweed from Tier 3 to Tier 2

If no more Clematis terniflora is found during summer scouting, move to Tier 1.

Nepal Smartweed- *Polygonum nepalense*

3) Containment

Move Bishop's Goutweed from Tier 2 to Tier 3

4) Widespread

Cow Vetch- *Vicia cracca* ssp. *Cracca*

Dame's Rocket- *Hesperis matronalis*

5) Research Needed

Bigleaf Lupine

Unknown: Common St. John's Wort, Creeping Buttercup, Garden Valerian, True Forget-Me-Not, Amur Maple, Hairy Willow Herb, Jerusalem Artichoke, Ragged Robin, Star-of-Bethlehem

Not this year, but keep an eye on:

Elm-leaf Blackberry

From: [Samantha Schultz](#)
To: william.schongar@dec.ny.gov; Michael.clark@dec.ny.gov
Cc: [Kristopher Williams](#)
Subject: Temporary Revocable Permit
Date: Wednesday, May 3, 2023 2:18:02 PM
Attachments: [image001.png](#)
[2023 DEC trpapplication Capital Region PRISM.pdf](#)
[NYS DEC 2023-2027 CR-PRISM Letter of Request Region 4.doc](#)
[Capital Region PRISM Operational Guidelines 2023-2027 Combined.pdf](#)
[Capital Region PRISM Best Management Guidelines and High Priority Invasive Species Lists.pdf](#)
[Proposed Management Actions and Management Maps Region 4.pdf](#)
[CRP Terrestrial Invasive Species Survey Report Template.docx](#)
[CRP Aquatic Invasive Species Survey Report Template.docx](#)
[CRP Treatment Report Template.docx](#)
[CRP Invasive Species Management Plan Template.docx](#)
[Liability Cert NYS DEC #C012558.pdf](#)

Hello Bill and Mike,

My name is Sam Schultz, I am the Terrestrial Invasive Species Coordinator for the Capital Region Partnership for Regional Invasive Species Management (CR-PRISM). The Capital Region PRISM is hosted by the Cornell Cooperative Extension of Saratoga County and is administering a five-year contract (CN 012258) on behalf of the New York State Department of Environmental Conservation.

The Capital Region PRISM is seeking a Temporary Revocable Permit for NYS DEC Region 4 for the year of 2023. If insurance requirements are needed, we currently have one on file in the Central Office which is attached to this email. Is this Accord form acceptable? If not, we will work with our insurance provider to obtain the appropriate form.

Permit applications with similar language will be submitted to the NYS DEC contacts in Region 5 and 6.

If you have any additional questions, comments or requirements regarding this permit, please reach out to Kristopher Williams (cc'd here) or myself for additional information. We look forward to working with you.

Attached Documents:

- Please note the Letter of Request describing the Capital Region PRISM
- CR-PRISM Operational Guidelines for detailed information regarding our practices
- CR-PRISM Best Management Practices and High Priority Invasive Species Lists (Species list and description of some invasive species in the CR-PRISM and IPM methods of control)
- Proposed Management Actions and Management Maps (Actions and maps for known infestations proposed to be managed in 2023)
- Survey, Treatment and Management Reports are stored internally. In addition, all data collected is uploaded the statewide database, iMapInvasives.
- Certificate of Liability Insurance (For CN 012258)

Best,

Sam Schultz

Terrestrial Invasive Species Coordinator
Capital Region PRISM
Partnership for Regional Invasive Species Management



Cornell Cooperative Extension | Saratoga County

50 West High St. Ballston Spa, NY 12020

| www.capitalregionprism.org | ccesaratoga.org | ss986@cornell.edu | p 518-885-8995

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From: [Kristopher Williams](#)
To: [Sawyer, Patricia \(DEC\)](#)
Cc: [Samantha Schultz](#); [Farley, Paul M \(DEC\)](#)
Subject: RE: TRP 15175 2023 DEC TRP Application_Capital Region PRISM Package.pdf
Date: Friday, July 7, 2023 9:16:35 AM
Attachments: [image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)

Hello Paul,

Thank you for your work with the TRP for the Capital Region PRISM. We have received the document and will communicate with you regarding activities and the TRV permit.

Sincerely,
Kristopher Williams

Invasive Species Coordinator
Capital Region PRISM
Partnership for Regional Invasive Species Management



Cornell Cooperative Extension | Saratoga County

50 West High St. Ballston Spa, NY 12020 | www.capitalregionprism.org | ccesaratoga.org | kbw44@cornell.edu | c 518.321.0189

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From: Sawyer, Patricia (DEC) <Patricia.Sawyer@dec.ny.gov>
Sent: Thursday, July 6, 2023 2:10 PM
To: Samantha Schultz <ss986@cornell.edu>; Kristopher Williams <kbw44@cornell.edu>
Cc: Luisi, Anthony P (DEC) <Anthony.Luisi@dec.ny.gov>; Clark, Michael D (DEC) <michael.clark@dec.ny.gov>; Schongar, William E (DEC) <william.schongar@dec.ny.gov>; Layman, Brian S (DEC) <brian.layman@dec.ny.gov>; Hynes, Kevin (DEC) <kevin.hynes@dec.ny.gov>
Subject: TRP 15175 2023 DEC TRP Application_Capital Region PRISM Package.pdf

Attached is the Capital Region PRISM Package TRP for your records.
Paul Farley will be your DEC contact.

Trish Sawyer

Office Assistant I

Division of Lands & Forests

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233-4254

P: (518) 473-9518 | patricia.sawyer@dec.ny.gov

www.dec.ny.gov |  |  | 





TEMPORARY REVOCABLE PERMIT

SHORT-TERM PERMIT FOR INDIVIDUALS AND/OR GROUP EVENTS ON DEC-MANAGED PUBLIC LANDS AND CONSERVATION EASEMENTS

The NYS Department of Environmental Conservation grants permission to the Permittee to use the specified State lands for the described purposes in accordance with all the attached Terms & Conditions. TRPs will only remain valid if all necessary permits and/or insurance are obtained and kept current by the Permittee.

Permittee Name: **Organization:**

Street Address:

City: **State:** **Zip Code:**

Email: **Phone:**

State Land Unit Name(s):

Facility, Trail or Road Name(s):

Description of Use:

Maximum Attendees Permitted: Start Date: End Date:

Primary DEC Contact: Phone: DEC Office:

Application Fee:

Insurance Certificate:

Map:

REGIONAL REVIEW

TRP#

DATE ISSUED TO APPLICANT: TYPE:

RECOMMEND: SPECIAL TERMS & CONDITIONS:

REGIONAL MANAGER SIGNATURE:
Bill Schongar

Digitally signed by Bill Schongar
DN: cn=Bill Schongar, ou=NYSDEC, ou=Region 4
Forestry, email=williams.schongar@dec.ny.gov, c=US
Date: 2023.06.06 14:37:51 -04'00'

Michael Clark

Digitally signed by Michael Clark
DN: cn=Michael Clark, ou=Regional Wildlife Manager, ou=NYS
Department of Environmental Conservation,
email=michael.clark@dec.ny.gov, c=US
Date: 2023.06.06 15:46:53 -04'00'

DATE:

REGIONAL DIRECTOR SIGNATURE:

Anthony Luisi

Digitally signed by Anthony Luisi
DN: cn=Anthony Luisi, ou=NYSDEC, ou=Region 4,
email=anthony.luisi@dec.ny.gov, c=US
Date: 2023.06.23 15:29:49 -04'00'

DATE:


CENTRAL OFFICE REVIEW

*NON-ROUTINE & FOREST PRESERVE RESEARCH PERMITS ONLY

RECOMMEND: SIGNATURE: **Barbara J. Lucas** Digitally signed by Barbara J. Lucas
Date: 2023.07.18 09:56:50 -04'00' DATE:

STATE MUSEUM REVIEW

* IF APPLICABLE

RECOMMEND: SIGNATURE:  Digitally signed by Robert S. Feranec
Date: 2023.07.20 12:25:54 -04'00' DATE:

OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION REVIEW

* IF APPLICABLE

RECOMMEND: SIGNATURE: DATE:



TEMPORARY REVOCABLE PERMIT

STANDARD TERMS & CONDITIONS

1. Permittee hereby agrees to indemnify and save harmless the Department and the State of New York from and against all losses from claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against it by reason of the Permittee's use of the State land facilities which are the subject of this permit.
2. Permittee shall comply with all applicable Federal and State rules and regulations and shall obtain and keep current any additionally required Federal, State or local permits for the full duration of the permitted activity.
3. This permit shall at all times be subject to the approval of the Department and may be suspended or revoked at any time.
4. If public liability insurance is required by the Department, the Permittee must keep in force such insurance for the full duration of the permit.
5. Permittee shall notify the primary DEC contact person at least 48 hours prior to commencing permit use and upon completion of use.
6. Any activity authorized under this permit shall not interfere with normal administration of the area by the Department.
7. No trees or other vegetation shall be cut, disturbed or removed unless specifically authorized by the Department.
8. Permittee shall be responsible for any damages or disturbances that occur to natural resources, public facilities, boundaries or survey markers resulting from the permitted activity.
9. Permittee is responsible for removing all litter and debris from the State Land facility covered by this permit within 24 hours of completion of the authorized activity.
10. Upon completion of the activity, Permittee shall meet with the primary DEC contact person to inspect the area and to ensure that the Permittee has complied with all terms and conditions.

TRP #

Insert TRP Activity Type
SPECIAL TERMS & CONDITIONS

In addition to the aforementioned Standard Terms & Conditions, this permit is subject to the following Special Terms & Conditions. Failure of the Permittee to comply with any Terms and Conditions will void this permit.