

WNY PRISM

Partnering to Protect Western
New York from Invasive Species



STRATEGIC PLAN 2019-2024

Prepared by:

Andrea Locke

WNY PRISM Coordinator

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Strategic Plan Update – June 2022

As part of the 2022 Annual Work Plan development, WNY PRISM Staff and Steering Committee Members identified the need to update the WNY PRISM 5-Year Strategic Plan 2019 – 2023. This need was identified due to several factors, both internal and external, that resulted in altered capacity and new programmatic priorities. In addition, it was determined that extending the Strategic Plan through 2024 would ensure the first year of a potential new contract for administration of the WNY PRISM would have uninterrupted structure while a new 5-year strategic plan is developed. Despite some outdated information updates were restricted to the Goals and Strategies Section with changes primarily impacting Outputs.

The updated WNY PRISM Strategic Plan 2019 – 2024 was finalized and approved by the WNY PRISM Steering Committee on June 16, 2022.

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1. Introduction

Western New York Partnership for Regional Invasive Species Management (WNY PRISM) works to address invasive species priorities using a coordinated partnership network for which we provide leadership, information and opportunities for collaboration. Our goal is to improve, restore and protect local aquatic and terrestrial resources by improving the effectiveness of invasive species management efforts and increasing awareness of invasive species issues throughout our eight-county region. Invasive species pose a significant threat to the environment, economy and human health. By fostering regional collaboration, the impact of invasive species will be minimized, and the natural resources and beauty of western New York will be preserved.

Based on the scope of work provided by the New York State Department of Environmental Conservation, WNY PRISM has been tasked with the coordination of regional invasive species management activities. This involves collaboration with partners and stakeholders from the WNY PRISM region as well as those from across the state, within the Great Lakes Basin, and beyond. Collaborative efforts focus on shared information and resources, prioritized needs, strategic management and targeted outreach. These collaborations allow WNY PRISM to serve as a strong advocate for the region by highlighting both the success stories and the challenges in invasive species management. The WNY PRISM 5-Year Strategic Plan 2019 – 2023 (Strategic Plan) provides the structure by which these activities will be implemented.

The Strategic Plan puts forth an ambitious program designed to provide the framework by which the invasive species management needs of the western New York region may be met. However, WNY PRISM recognizes that the full scope of the invasive species threat is beyond that which even the most robust partnership can address and therefore, considerable effort has been made to prioritize needs and actions. The result is a plan that, while highly ambitious, is also realistic regarding current capacity.

WNY PRISM has developed six goals along with associated objectives, strategies, outputs and outcomes. The six goals have been organized in association with previously established WNY PRISM core functions: Partner/Network Coordination, Information Management, Education and Outreach, Prevention, Early Detection and Rapid Response, and Management and Habitat Restoration. Program elements are not exclusive to WNY PRISM staff; multiple strategies depend upon a strong partner network to achieve success and WNY PRISM is looking forward to working with the growing partner network to implement this Strategic Plan.

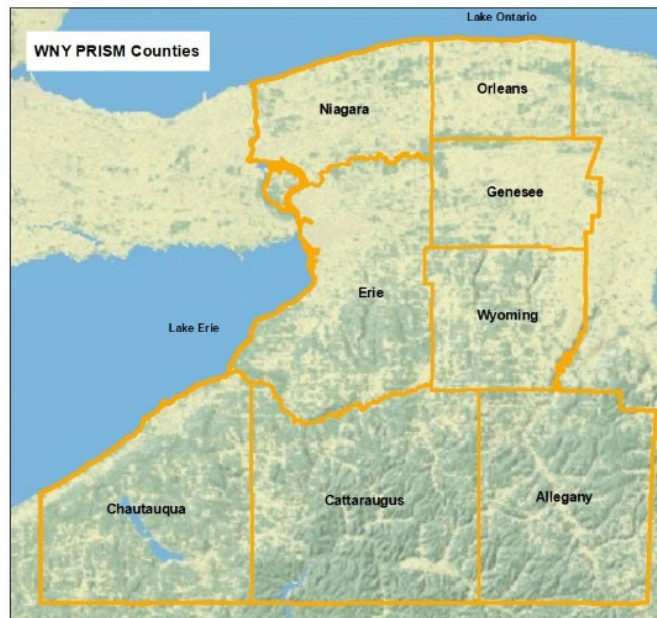


Figure 1: WNY PRISM Region - the eight western-most counties in New York State.

The Strategic Plan was developed in collaboration with the WNY PRISM Steering Committee and partners and was prepared by the WNY PRISM Coordinator. WNY PRISM would like to thank all partners who helped with the development and review of this Strategic Plan. We would also like to thank our many partners who have worked with WNY PRISM over the past six years to achieve mutual goals and to help strengthen the partnership at the core of our combined success.

2. New York State Invasive Species Program

Invasive species are defined by Environmental Conservation Law (9-1703(1)) as non-native species that can cause harm to the environment, economy, or to human health. They are a form of biological pollution that comes from all around the world and the rate of invasion is increasing due to increasing international trade. A wide variety of species negatively impact many sectors of our world; our ecosystems, including all natural systems and managed forests; our food supply, including agricultural products and harvested wildlife, fish, and shellfish; our built environments, including landscaping, infrastructure, industry, gardens and pets; our economy, recreation, and human health.

Responding to this growing problem, NYS passed legislation in 2003 that created the New York Invasive Species Task Force (ISTF). The ISTF 2005 final report (<http://www.dec.ny.gov/animals/69899.html>) led to a 2008 statute, known as Title 17 of ECL Article 9, which established the New York Invasive Species Council and Invasive Species Advisory Committee. The Council is co-led by New York State Departments of Environmental Conservation (DEC) and Agriculture and Markets (DAM). Among the Council's numerous statutory responsibilities is the requirement, at 9-1705.5(g), to: "support(ing) within available funds and encourage(ing) Partnerships for Regional Invasive Species Management [PRISMs] in their efforts to address invasive species through coordination, recruitment, and training of volunteers, education, early detection, rapid response, eradication, research, and planning".

New York State Invasive Species Program

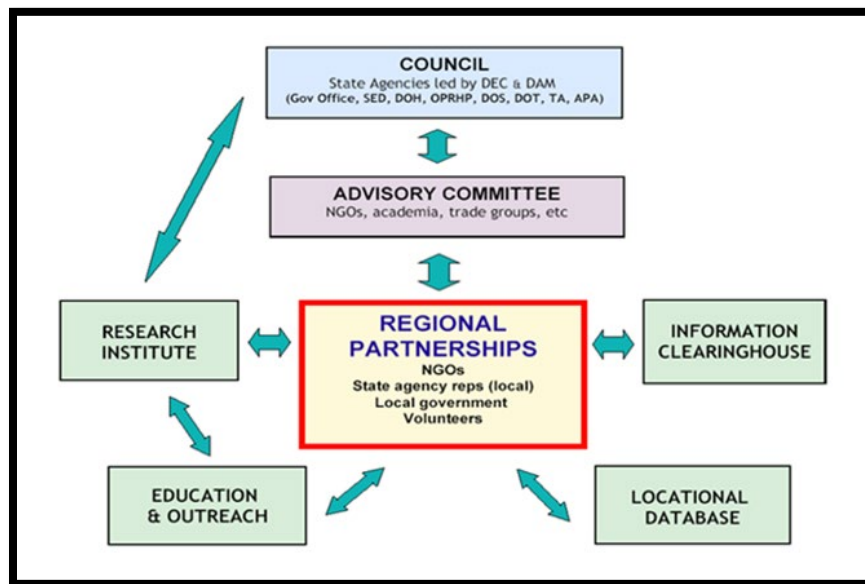


Figure 2: NYS Invasive Species Program - program components.

The New York State Invasive Species Program (ISP) is comprised of state agencies and committees, and programs funded wholly or in part by various mechanisms within New York State. WNY PRISM works closely with ISP partners and refers to them as WNY PRISM affiliates. Affiliates include the Invasive Species Council (ISC), Invasive Species Advisory Committee (ISAC), Regional Partnerships (PRISMs), iMapInvasives, New York Invasive Species Research Institute (NYISRI) and the New York State Department of Environmental Conservation – Invasive Species Coordination Section (ISCS).

3. WNY PRISM

Regional Description

The WNY PRISM region encompasses the eight western-most counties in New York State (Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming) and is the only PRISM region to include two of the Great Lakes: Lakes Erie and Ontario. Shared borders include those with Pennsylvania and Ontario, Canada, and a regional border with Finger Lakes PRISM.

Home to some of New York State’s most impressive natural features including Niagara Falls, the Niagara River Gorge, Letchworth State Park, and Zoar Valley, western New York boasts a diverse landscape and, along with the Finger Lakes Region, the highest total endemic species richness in the state (Ricketts, T.H., et al, 1999). Western New York is home to many rare species and natural communities. The Niagara River Corridor, a globally significant Important Bird Area and home to one of the world’s most impressive concentrations of gulls with 19 species recorded, was recently designated by the United States as a Wetland of International Importance under the Ramsar Convention. Rare species found in WNY include the federally endangered *Sistrurus catenatus* (eastern massasauga rattlesnake), federally threatened *Solidago houghtonii* (Houghton’s goldenrod), state endangered *Regina septemvittata* (queen snake), and state threatened *Agastache nepetoides* (yellow giant hyssop).

Western New York is home to a beautiful and unique ecological landscape that includes four Level III Ecoregions (Northern Allegheny Plateau, North Central Appalachians, Erie Drift Plain, and Eastern Great Lakes Lowlands) and seven Level IV Ecoregions. Ecoregions identify areas of similar geology, physical geography, vegetation, wildlife, climate, soils, and hydrology, and offer a unique way to represent the ecosystems and ecosystem function found within different regions (Bryce, S.A., et al., 2010). Habitats and natural features found within WNY PRISM include northern hardwood and conifer forests, beech-maple forests, coastal plains, wetland communities including bogs and fens, significant riverine systems and glacial landforms such as moraines and kettle ponds.

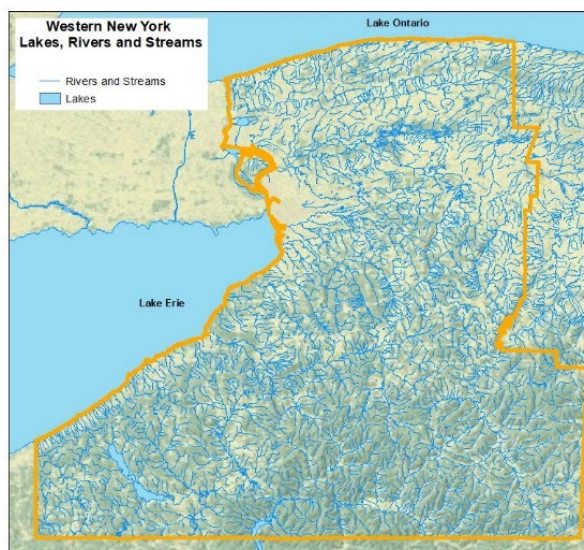


Figure 3: WNY PRISM rivers and tributaries.



Figure 4: WNY PRISM Subwatersheds.

Four major watersheds (Lake Erie-Niagara River, Lake Ontario and Minor Tributaries, Genesee River, and Allegheny River) are found within the region and WNY PRISM is part of both the Great Lakes and Mississippi River Basins. Subwatersheds include Buffalo-Eighteenmile Creek, Upper Allegheny, Conewango, Oak Orchard-Twelve-mile, and the Upper and Lower Genesee.

WNY PRISM’s eight-county region is home to over 1.5 million people and 6,440 square miles. The region contains cultural and urban centers such as Buffalo, Jamestown, Lockport and Niagara Falls. Buffalo, the second most populated city in New York State, was first settled in the mid-1700s as a trading post. During the War of 1812, Buffalo served as the American military headquarters on

the Niagara Frontier and the completion of the Erie Canal in 1825 brought both a boom in population and the economy. Upon its incorporation as a city in 1832, the population was near 10,000. Over the next 150 years, Buffalo and the surrounding area became an economic center focused on manufacturing, shipping and hydropower. The long history of human interaction with the landscape has had a direct influence on invasive species presence, distribution and negative impacts felt across the region. More recently, economic interests have diversified to include medical supplies, pharmaceuticals and wood products, alongside a thriving agricultural market.

Land dedicated to agricultural production includes 1.38 million acres divided among 6,315 farms with a median farm size of 75 acres (U.S. Agricultural Census, 2017). The highest volume agricultural products produced in western New York are corn, wheat, oats, soybeans, hay, orchards (including grapes/wine) and cattle. According to a 2007 U.S. Department of Agriculture Report, three western New York counties (Chautauqua, Genesee and Wyoming) ranked among the top 10 in agricultural sales for New York State, with Chautauqua County ranked as the top grape producer.

County	Population	Square Miles	Metropolitan Areas
Allegany	48,946	1029.31	None
Cattaraugus	80,317	1308.35	Olean
Chautauqua	134,905	1060.23	Jamestown-Dunkirk-Fredonia
Erie	919,040	1042.69	Buffalo-Cheektowaga
Genesee	60,079	492.94	Batavia
Niagara	216,469	522.36	Niagara Falls-Lewiston-Lockport
Orleans	42,883	391.26	None
Wyoming	42,155	592.75	None

Figure 5: WNY PRISM County Population Data (U.S. Census Bureau, 2010).

County	Total Agricultural Acres	Number of Farms	Median Farm Size
Allegany	161,173	789	103
Cattaraugus	166,240	956	95
Chautauqua	223,634	1228	85
Erie	143,081	940	48
Genesee	176,943	485	80
Niagara	140,259	690	49
Orleans	129,573	498	56
Wyoming	234,861	729	80

Figure 6: WNY PRISM County Farm Data, U.S. Agricultural Census 2017 (U.S. Department of Agriculture, 2019).

Additional economic drivers for the region include tourism, recreation and education. In 2017, visitors to western New York spent 3 billion dollars. Total State Parks attendance in 2018 was 14.8 million, including over 9.5 million visitors to Niagara Falls, and over 350,000 hunting and fishing licenses were sold for the 2016-2017 season. The region also boasts 24 four-year, and community colleges and universities.

History

Based upon the twelve recommendations of the 2005 NYS Invasive Species Task Force, eight Partnerships for Regional Invasive Species Management were created to help prevent or minimize the harm caused by invasive species on New York’s environment, economy and the health and well-being of the State’s residents. PRISMs invasive species management functions include coordination of partner efforts, training community volunteers, delivering education and outreach, establishment of early detection monitoring networks, implementing eradication and control efforts, and administration of regional watercraft inspection programs.



Figure 7: New York State PRISM Network.

WNY PRISM was established in 2014 after New York State released a request for proposals to administer the program. The contract was awarded to the Research Foundation for SUNY Buffalo State in April 2013, with the final approval obtained in November of that year. The WNY PRISM Office was established within the Great Lakes Center and WNY PRISM began operations with the hiring of a dedicated WNY PRISM Coordinator. The initial 5-year contract provided support for the WNY PRISM office through December 2018. To ensure uninterrupted service, NYS released a new request for proposals to administer WNY PRISM for

the next five years (2019 – 2023) in early 2018. Once again, the Research Foundation for SUNY Buffalo State and the Great Lakes Center were selected.

The Great Lakes Center (GLC) is an institute of researchers and educators at SUNY Buffalo State dedicated to investigating the ecology of the Great Lakes and their tributaries. The GLC's mission is to improve the quality of the environment by providing the best possible science to decision-makers concerned with the health and sustainability of resources. The GLC is committed to the improvement of human-environment interactions in the Great Lakes ecosystem and, as such, makes an ideal home for WNY PRISM.

Strategic Planning

With a new WNY PRISM contract in place, efforts began to develop a new 5-year Strategic Plan. The Strategic Planning Process began in spring 2019 and consisted of multiple in-person planning sessions involving the WNY PRISM Steering Committee, subsequent discussions and item review over email. Once goals and objectives were updated and approved, open sessions were held to allow for partner feedback and to assist with development of strategies. Over the course of 2 days in early September, 37 representatives from partner organizations took part in four planning sessions focused on established WNY PRISM goals. To gain even greater partner participation, a survey was distributed through the WNY PRISM Listserv. The resulting updated goals, objectives and strategies were reviewed during the November Steering Committee Meeting. After a final revision, they received approval from the Steering Committee.

Mission

The WNY PRISM Mission is to proactively identify, evaluate, and address invasive species priorities in western New York using a coordinated partnership of local professionals, organizations and community members to improve, restore and protect local aquatic and terrestrial resources.

Vision

The vision of WNY PRISM is to foster regional collaboration and coordination wherein the threat of invasive species will be minimized, and the natural resources and beauty of western New York will be preserved. This is accomplished through use of an established partner network and communication structure, increased regional understanding of invasive species issues, priorities and management, improved habitat restoration efforts, and through secured funding to sustain WNY PRISM into the future.

Guiding Principles

Partnership – The regional and expansive scope of WNY PRISM requires the effective use of partnerships. WNY PRISM partners with government agencies, non-profit organizations, private sector business, universities, and citizens, and encourages involvement from all stakeholders. Success depends upon the creation and implementation of additive programs, those that bring together the strengths of all partners and avoid redundancy.

Communication – Effective communication and information sharing is essential for successful invasive species management and WNY PRISM works to ensure an open communication structure that meets the

high demands of the partnership. By providing many avenues for information and resource sharing, WNY PRISM provides for increased regional management capacity.

Education and Outreach – Enhancement of partner and public understanding of invasive species issues and management will lead to increased opportunities for meaningful shifts in how we interact with the environment and provide for more timely sharing of data. The transition from knowledge to action (use of behavior change strategies) will better provide for effective and ecologically significant stewardship within the region.

Invasive Species Management – Built upon a shared understanding and conservation ethic, WNY PRISM recognizes that effective invasive species management must include not only the prevention, early detection, assessment, rapid response, and removal of invasive species, but also the restoration of healthy, resilient ecosystems that include diverse communities and provide for ecosystem function. The use of established Best Management Practices is supported alongside adaptive management approaches and new innovations.

Efficacy – The ability to measure success is an essential component for an adaptive program. The continued evaluation and re-evaluation of outcomes, along with programmatic flexibility to modify strategies, will allow WNY PRISM and partners to achieve greater success.

Sustainability – WNY PRISM recognizes operational and ecological sustainability as essential components of all programs and activities. To achieve overall programmatic success, WNY PRISM needs to identify multiple funding streams and ensure staff have the resources and time available to maintain and expand efforts. Projects will need to provide for healthy, functional and resilient ecosystems, and produce sustainable results that require minimal continued input.

Operational Structure

WNY PRISM's operational structure is comprised of staff, a Steering Committee, Working Groups and affiliates. Additional information about WNY PRISM's operational structure can be found in our Operational Guidelines, available on our website (<https://www.wnyprism.org/reports-and-workplans/>).

Staff

WNY PRISM staff consists of a part-time Director, full-time Coordinator, Program Managers and seasonal technicians. Three full-time Program Managers (Terrestrial, Aquatic and Education, and Outreach) are fully funded through the WNY PRISM contract, while additional positions may be funded through other sources, such as the Great Lakes Slender False Brome Working Group Program Manager currently funded through a Great Lakes Restoration Initiative grant.

Seasonal staff include the annual hiring of WNY PRISM Invasive Species Management Assistants, Education and Outreach Assistant and Watercraft Inspection Stewards, as well as Survey Technicians and various Data Management Technicians as additional funding allows. Unpaid student interns are also used as interest, availability, experience and course requirements align.

Steering Committee

The WNY PRISM Steering Committee is comprised of a core group of individuals (13-15), including organizations, state and federal agencies, private sector businesses and other stakeholders, that represent the invasive species management needs of the WNY PRISM region.

The Steering Committee serves in an advisory capacity and assists with the development of goals and objectives and implementation of strategies identified in this Strategic Plan. Member organizations select individual representatives to serve on the Steering Committee.

Steering Committee Members (2019)

Buffalo Niagara Waterkeeper
Chautauqua Watershed Conservancy
Cornell Cooperative Extension – Erie County
Ecology & Environment, Inc.
New York Sea Grant
New York State Department of Environmental Conservation
New York State Department of Transportation
New York State Nursery and Landscape Association, Inc./Chestnut Ridge Nursery
New York State Office of Parks, Recreation and Historic Preservation
SUNY Buffalo State – Great Lakes Center
United States Army Corps of Engineers – Buffalo District
United States Department of Agriculture – Natural Resources Conservation Service
United States Fish and Wildlife Service – Lower Great Lakes Fish and Wildlife Conservation Office

Working Groups

WNY PRISM established Working Groups in 2014 to assist with development of regional priorities and addressing identified needs. The Aquatic, Terrestrial and Conservation Targets Working Groups meet as need is identified, while the Education and Outreach Working Group meets more regularly. Working groups are open to everyone and all those interested are encouraged to attend. Scheduled meetings are posted on the WNY PRISM events calendar (<https://www.wnyprism.org/calendar/>).

Affiliates

WNY PRISM affiliates include those organizations and agencies with whom WNY PRISM works in an official capacity such as those identified within the WNY PRISM contract or those otherwise part of the integrated New York State Invasive Species Program. WNY PRISM affiliates also include those entities involved in operational functions such as WNY PRISM host and sponsor organizations.

WNY PRISM Affiliates

SUNY Buffalo State – Great Lakes Center
The Research Foundation for SUNY Buffalo State
New York State Department of Environmental Conservation – Invasive Species Coordination Section
New York State Department of Agriculture and Markets
Invasive Species Advisory Committee
Invasive Species Council

iMapInvasives

New York Invasive Species Research Institute

New York Sea Grant – New York Invasive Species Clearinghouse

Partnerships for Regional Invasive Species Management

Adirondack Park Invasive Plant Program (APIPP)

Capital-Mohawk Partnership for Regional Invasive Species Management (Cap-Mo PRISM)

Catskill Regional Invasive Species Partnership (CRISP)

Finger Lakes Partnership for Regional Invasive Species Management (FL-PRISM)

Long Island Invasive Species Management Area (LIISMA)

Lower Hudson Partnership for Regional Invasive Species Management (LH PRISM)

St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management (SLELO)

Partners

WNY PRISM is a network of public and private entities that share a common interest in the protection of western New York from the harm caused by invasive species. Together we represent over 150 different federal, state, and local government agencies, non-profit organizations, universities, businesses, and individuals. WNY PRISM partners are defined in general terms as any entity that works collaboratively with WNY PRISM to address invasive species issues and assist with invasive species management efforts. This may involve information and resource sharing, education and outreach assistance, program development and implementation, or collaboration on other invasive species management efforts.

In addition to partners, WNY PRISM advocates for various other stakeholders. These entities may not be directly involved with WNY PRISM, but those whose interests and activities are clearly impacted by, or otherwise involve, invasive species.

4. Overview of the Threat

The New York State Invasive Species Task Force defines an invasive species as one 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. Invasive species pose considerable risk to New York State and western New York in particular. Western New York's unique position, both geographically and culturally has led to greater long-established species impacts, increased risk of new species establishment and high spread potential.

Western New York is highly impacted by human disturbance and development. The Buffalo-Niagara region has long been a population center, seeing significant modification to the natural landscape. From urban development to hydrologic manipulation, and creation of shipping canals and harbors, much of the landscape has been altered. In addition, the extensive systems of roads, utilities, rivers and tributaries has allowed for the increased, and too often unchecked, movement of invasive species. While there are areas with lower invasive species occurrence, there are no areas within the region completely free from invasive species pressure.

The WNY PRISM region has 221 confirmed invasive species, as reported to iMapInvasives (2019). Due to recognized information gaps within the database, the true number of invasive species present and

directly impacting western New York is difficult to quantify. Known invasive species range from the very common, such as *Phragmites australis* (common reed), *Reynoutria spp.* (Japanese, giant, and bohemian knotweeds) and locally common *Dreissena polymorpha* (zebra mussel), to early detection species such as *Adelges tsugae* (hemlock woolly adelgid), *Brachypodium sylvaticum* (slender false brome), and *Hydrilla verticillata* (*Hydrilla*). Data gaps regarding invasive species presence and distribution within the region become apparent with species that are likely more common than currently known. Species such as *Cynanchum louiseae* and *C. rossicum* (black and pale swallow-wort), *Celastrus orbiculatus* (oriental bittersweet), *Butomus umbellatus* (flowering rush), and *Hydrocharis morsus-ranae* (european frog-bit) continue to be under-reported.

Since the establishment of WNY PRISM, over 10,000 invasive species observations have been uploaded to iMapInvasives. Despite this impressive number, low reporting and awareness of invasive species reporting needs continues to be a threat. New invasive species are introduced or discovered each year. In 2019, *Nymphoides peltata* (yellow floating-heart) and *Cytisus scoparius* (scotch broom) were reported in WNY for the first time. Early detection of new species and new infestations is key to successful management and this represents an issue not easily solved without increased community engagement.

While western New York has significant invasive species issues, the region also has considerable resources with which to address them. Local and regional partners have established programs focused on invasive species data collection, management and education. Agencies including DEC, U.S. Fish and Wildlife Service and the United States Army Corps of Engineers - Buffalo District, have a strong presence in western New York, with efforts focused on water and nearshore resources. The collection of eDNA alongside traditional visual surveys and additional sampling methods provide species data for the Great Lakes, creeks and tributaries. The Tonawanda Creek/Erie Canal *Hydrilla* Demonstration Project shows how strong partnerships can tackle complex projects and, while capacity remains limited, invasive species removal and habitat restoration projects take place across the region.

5. Pathways of Invasion

The events that have led to the current state of invasive species issues felt throughout western New York are many. Individual species have unique characteristics that facilitate their arrival and establishment in our region, however commonalities do exist between species. These commonalities are described as pathways of invasion. Pathways of invasion include both human-aided and natural pathways, however most species introductions can be attributed to human behaviors. Human-aided pathways include all forms of human movement, and disturbance and influence on the natural landscape. It is important to recognize that human-aided does not imply intention of release or to do harm. While species have been introduced intentionally, many more were simply a side-effect of human behavior. WNY PRISM has identified four primary human-aided pathways of invasion, including commerce, infrastructure, living industries and recreation that must be addressed to alleviate the pressure of new introductions and spread. This involves the wise use of regulations and behavior change strategies education focused on the adoption of spread prevention habits among the public.

Commerce (shipping and trade) – Commerce is defined as the interchange of goods or commodities and involves transportation within, into and out of a region. Invasive species may be transported into WNY via shipping pallets and containers, through ballast water, on quarried stone or within packing material.

Infrastructure – Both the construction and maintenance of roads and utility corridors is a primary vector for the transportation of terrestrial invasive species. Construction and mowing equipment can spread seeds and other plant material by deflection and the transportation of contaminated equipment from one location to another. Many of our terrestrial plant species benefit from a competitive advantage over native plants in disturbed areas and therefore construction provides an opening for new invasive species establishment.

Living Industries – Many invasive species introductions can be attributed to their inclusion within nursery, landscaping and aquarium industries. Ornamental plants are a common source of invasive species and aquarium plants and animals have too often found themselves released into a free-living state. The introduction of invasive pests may also occur in the movement of plants and plant materials, such as within the soil and packing materials, or being transported on infested trees. Few agricultural commodities are themselves invasive, however agricultural practices have also led to further introduction of invasive species.

Recreation – Recreation is a broad category and includes such activities as hunting and fishing, hiking, camping, using ATVs and boating. Seeds and plant material from invasive species can stow away on gear used in recreational activities, including boots and pets. These seeds can be transported great distances before falling off in a new location. Recreational boating and fishing are important pathways for the movement of aquatic invasive species and the movement of firewood is a primary vector for forest pests.

While WNY PRISM does recognize human-aided pathways as the primary means by which invasive species are introduced, we must also recognize natural vectors of spread. Once species reach a certain threshold or population level within the landscape they can use natural means of dispersal to great effect. Such vectors are plentiful and difficult to manage. Species may spread via birds, other animals and wind, or through waterways and natural processes such as flooding and erosion. Natural pathways must be addressed through an understanding of source populations, spread potential and selection of appropriate invasive species removal and habitat restoration strategies.

6. Prioritization

The New York Invasive Species Research Institute and iMapInvasives, in collaboration with PRISMs and the ISP, developed an invasive species management prioritization ranking system. The system categorizes individual species based on threat, population level and potential for successful management. WNY PRISM has adopted this system to prioritize individual species within the region and replaces previous aquatic and terrestrial management priority lists. Higher priority is placed on those species with the greatest potential for prevention of establishment and control. This often reflects where a species falls along the Invasion Curve (Figure 8).

WNY PRISM is in the process of ranking species. A current list of rankings, along with the New York State Invasive Species Tier Ranking Chart, can be found on our priority invasive species page (<https://www.wnyprism.org/priority-invasives/>), as well as within individual species profiles available on the WNY PRISM Website.

New York State Invasive Species Tiers

Tier 1: Early Detection/Prevention – species is not yet present within the region.

Tier 2: Early Detection/Eradication – species occurs in very low abundance with limited distribution, species may feasibly be eradicated.

Tier 3: Containment – species presence and distribution is likely too great for eradication to be feasible, but efforts to contain isolated populations and to prevent spread may be successful.

Tier 4: Local Control – species is common and widespread. Management should focus on asset-based protection and localized strategic efforts.

Tier 5: Monitor – species presence and distribution is unknown, species impacts are unknown, or effective removal options are not available. Efforts should focus on surveys and research.

Priority lists for early detection and watchlist species have been maintained as partners determined they would provide additional benefit to the region for purposes of clarity and outreach. Approaching Region/Watchlist species are selected and reviewed by WNY PRISM Working Groups and the WNY PRISM Steering Committee. If a watchlist species were to be discovered within WNY PRISM, it is automatically moved to the early detection list. If a new species were to be discovered within WNY PRISM that was not previously identified on the watchlist, the species is reviewed for inclusion on the early detection list by WNY PRISM Working Groups and Steering Committee. If a species is not selected as a listed priority, it will still be given a Tier 2 ranking and be considered an early detection species for WNY PRISM.

Early Detection Species Priorities

- | | |
|-----------------------------------|------------------------|
| 1. <i>Aralia elata</i> | Japanese Angelica Tree |
| 2. <i>Brachypodium sylvaticum</i> | Slender False Brome |
| 3. <i>Eichhornia crassipes</i> | Water Hyacinth |
| 4. <i>Microstegium vimineum</i> | Japanese Stiltgrass |
| 5. <i>Persicaria perfoliata</i> | Mile-a-Minute |
| 6. <i>Pistia stratiotes</i> | Water Lettuce |
| 7. <i>Nymphoides peltata</i> | Yellow-Floating Heart |
| 8. <i>Cytisus scoparius</i> | Scotch Broom |

Approaching Region/Watchlist Priorities

- | | |
|---|-------------------------|
| 1. <i>Aldrovanda vesiculosa</i> | Waterwheel |
| 2. <i>Ampelopsis brevipedunculata</i> | Porcelain Berry |
| 3. <i>Anoplophora glabripennis</i> | Asian Longhorned Beetle |
| 4. <i>Channa argus</i> | Northern Snakehead |
| 5. <i>Hypophthalmichthys molitrix</i> , <i>H. nobilis</i> | Silver and Bighead Carp |
| 6. <i>Impatiens glandulifera</i> | Himalayan Balsam |
| 7. <i>Lycorma delicatula</i> | Spotted Lanternfly |
| 8. <i>Oplismenus undulatifolius</i> | Wavyleaf Basket Grass |

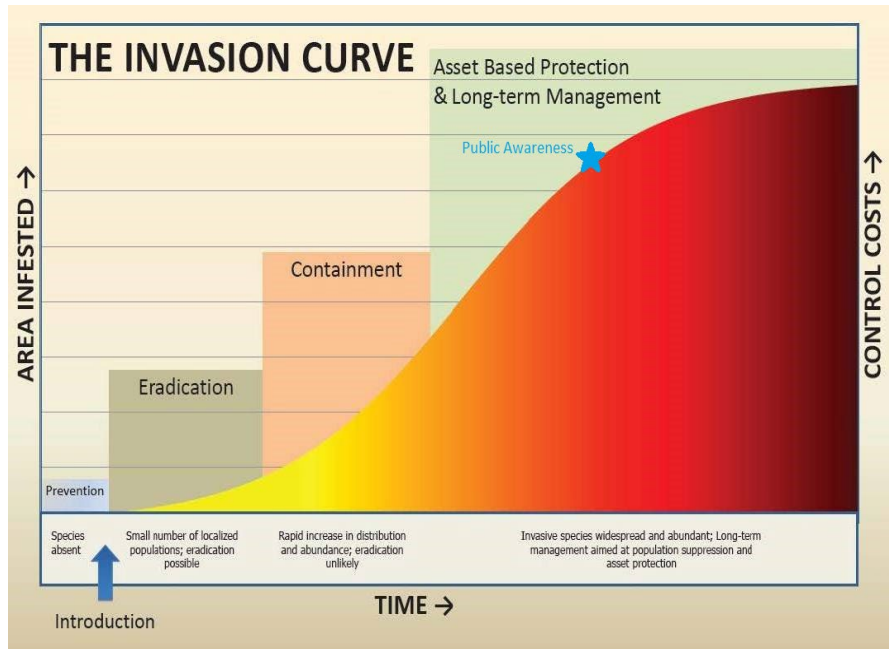


Figure 8: Invasion Curve.

7. Goals, Objectives, and Strategies

The WNY PRISM Steering Committee and partners worked to identify goals, objectives, and related strategies in 2019 to inform a new 5-year WNY PRISM Strategic Plan (2019-2023). Multiple open opportunities were provided for partners to contribute, alongside Steering Committee planning sessions. Six goals were identified: Partner/Network Coordination, Information Management, Education and Outreach, Prevention, Early Detection and Rapid Response, and Management and Habitat Restoration. Goals and Objectives are not prioritized, however strategies for each goal are prioritized and listed from highest (1) to lowest priority.

Partner-Network Coordination

GOAL:

Effectively coordinate the WNY PRISM partner network and strengthen relationships to the benefit of all those impacted by invasive species and those involved with invasive species management.

OBJECTIVES:

- A. Provide effective communication structure for the sharing of information and resources.
- B. Ensure WNY PRISM maintains ability to successfully implement the strategic plan and address established priorities.
- C. Support priority projects and collaborative efforts through facilitation and increased involvement of new and established partners.
- D. Increase awareness of and promote WNY PRISM services and achievements among partners and the general public.
- E. Build regional capacity for invasive species management efforts and priority projects.
- F. Work with New York State Invasive Species Program partners, and broader Great Lakes and eastern United States programs on shared priorities.

STRATEGIES:

- 1. Clarify roles and responsibilities for WNY PRISM and partners, and provide consistent use of language and definitions throughout all communication.
- 2. Provide improved opportunities for feedback and networking; promote partner meetings, use of listserv, discussion forums, data sharing and additional networking events.
- 3. Maintain and clearly communicate WNY PRISM priorities, available resources and criteria for receiving different types of WNY PRISM assistance, and develop a process for updating priorities.
- 4. Maintain close communication with New York State Invasive Species Program partners on shared priorities; identify and pursue opportunities for meaningful collaborations.
- 5. Improve functionality of www.wnyprism.org to allow for improved communication, data sharing and promotion of regional invasive species projects; ensure accessibility of information.
- 6. Identify and recruit partners based on priority and project needs; enlist partners to assist with recruitment.
- 7. Provide resources, training, review, letters of support and additional assistance for development of grant proposals and collaborative projects.
- 8. Develop metrics to measure the success of invasive species programming and management efforts; encourage use among partners.
- 9. Complete all grant and contract deliverables and reporting requirements in accordance with associated timelines; seek additional funding as needed to address identified priorities and other functional needs not addressed through primary contract.
- 10. Provide WNY PRISM staff with opportunities for professional development and additional learning opportunities to support growth in expertise and capacity.

11. Use Working Groups (e.g. Terrestrial, Aquatic, Conservation Targets, Education and Outreach) to assist with further priority setting, program development and collaborative project implementation.
12. Support capacity building within partner organizations to allow for an increased number of invasive species management activities leading to long-term success and sustainability.
13. Develop improved WNY PRISM outreach and marketing materials to increase recognition and increase awareness of available resources, invasive species priorities and regional efforts.
14. Promote collaborative projects and highlight success stories through multiple outlets, including social media, online resources, news media and newsletters.
15. Participate in regional collaboratives (e.g. Great Lakes *Phragmites* Collaborative, Great Lakes *Hydrilla* Collaborative, Great Lakes Action Agenda) to ensure WNY PRISM remains up to date on current efforts, to encourage additional collaborations, and to allow for improved communication and information sharing.

OUTPUTS:

1. Updated Operational Guidelines (1)
2. *Launch Redesigned* WNY PRISM Website (1)
3. WNY PRISM Information/Introductory Packets (30)
4. WNY PRISM Brochure (1)
5. Letters of Support (as identified)
6. Working Groups (3)
7. Grant Development Resources/Toolkit (1)
8. *Redesign WNY PRISM Logo* (1)
9. *Produce Annual Core Program (WISP, EDRR, CAP, Community Science) Reports* (4)

OUTCOMES:

1. Improved regional communication and increased sharing of resources.
2. Increased recognition of WNY PRISM programs and accomplishments.
3. Increased regional capacity for management activities.
4. Increased number of collaborative projects.

Information Management

GOAL:

Establish WNY PRISM as the leading resource for invasive species management information and strategic planning. Ensure information is current, accurate, regionally appropriate and easy to access, and provide opportunities for improved data collection and partner collaboration.

OBJECTIVES:

- A. Maintain clearly defined regional invasive species and conservation target priorities.
- B. Identify means of improving information sharing and dissemination and implement changes across multiple platforms.
- C. Encourage use of effective data collection, management and monitoring strategies based on demonstrated Best Management Practices and lessons learned; provide training and professional development opportunities for the region.
- D. Identify research and information needs to improve effective invasive species management efforts and collaborate with the New York Invasive Species Research Institute to address them.
- E. Support and promote use of iMapInvasives as the primary database for invasive species management information and species presence and distribution data sharing.

STRATEGIES:

1. Rank invasive species using established NYS Tier Ranking system and provide support for partner understanding of how rankings will be applied to WNY PRISM's work.
2. Develop and implement internal protocols for data quality assurance.
3. Encourage partners to assist with the dissemination of information and tracking outreach efforts (i.e. report on listserv numbers and items forwarded).
4. Survey partners for interests and information needs, prioritize efforts based on survey results.
5. Assess and select new methods of visualizing data, collaborate with iMapInvasives to make use of new mapping technologies.
6. Hold annual invasive species identification workshop.
7. Ensure consistent data is collected across the region, provide data collection protocols and identify improved methods to encourage partner data submission.
8. Develop a regional invasive species management and restoration project database to assist with the development of Best Management Practices and adaptive management.
9. Collaborate with partners on workshops to share resources and reach a greater number of people; provide continuing education credits.
10. Coordinate with New York Invasive Species Research Institute to identify research needs and provide information on additional topics of interest as requested.
11. Support and promote the use of iMapInvasives; provide at least one training each year and additional trainings as requested and as capacity allows.

12. Provide WNY PRISM invasive species survey data to iMapInvasives and confirm data within one calendar year of submission (confirm early detection observations within one week of submission).

OUTPUTS:

1. Partner Survey (1)
2. Data Collection Protocols (as identified)
3. Data Collection/Protocol Workshop (3)
4. Identification Workshop (5)
5. iMapInvasives Training (5)
6. Tier Rankings (1)
7. Project Database (1)
8. Updated iMapInvasives Instructional Resources (3)

OUTCOMES:

1. Increased accessibility of regional information.
2. Improved regional capacity for species identification and data collection.
3. Increased data submission and analysis leading to improved management success.
4. Increased understanding of regional species priorities.

Education and Outreach

GOAL:

Increase public and partner awareness, understanding, and participation in meaningful and effective invasive species management activities.

OBJECTIVES:

- A. Provide educational programming that is science-based and encourages improved management actions through use of behavior change strategies.
- B. Provide resources and programming to address invasive species management training needs.
- C. Ensure availability of education and outreach materials to meet prioritized regional needs.
- D. Provide for community engagement and learning opportunities through outreach, use of social media and volunteerism.
- E. Maintain the WNY PRISM website as an effective outreach tool and information portal.
- F. Develop Community Science based programs to assist with data collection for early detection and project monitoring, and maintenance of removal efforts.
- G. Collaborate with statewide partners on unified education and outreach efforts, and integrate WNY PRISM educational programming with partner programming to ensure consistent invasive species messaging across the state and region.
- H. Develop measures of success, encourage partners to use and collect necessary data and documentation to demonstrate effectiveness of educational programming.

STRATEGIES:

1. Assess website content; identify information needs, expand and/or streamline content as needed and ensure information, including links, are up to date and functional.
2. Assess website for accessibility and ease of use, reorganize menu items as issues and opportunities for improvement are identified.
3. Increase use of pre/post surveys and testimonials to demonstrate effectiveness of workshops; provide template for partners.
4. Develop 6-month schedules for website blog posts/news items, social media posts.
5. Provide assistance to partners for promotion of events and identifying volunteers; maintain WNY PRISM events calendar.
6. Work with partners to develop a stronger regional volunteer corps; encourage resource sharing and improved communication and integrate into Working Group.
7. Identify and assess community science programs; select programs as the basis for the development of WNY PRISM programs to focus on identified priorities (e.g. long-term project monitoring, early detection).
8. Develop programs (i.e. Pledge to Protect) and messaging that include commitments for specific actions such as Clean, Drain, Dry or removal of invasive species from home landscaping; integrate messaging into outreach efforts.

9. Encourage partners to make increased use of WNY PRISM materials, ensure materials are easily located and periodically remind partners of availability as new materials are released.
10. Assess previous workshops, presentations and outreach events to assist with identifying patterns of effectiveness; transfer lessons to future planning and selection.
11. Continue participation in statewide education and outreach efforts including ad hoc working groups and special initiatives to ensure consistent messaging; continue to lead WNY PRISM Invasive Species Awareness Week efforts.
12. Identify priority user groups, such as field crews, preserve managers and educators, and develop presentation/training resources that are openly available for use as needed by partners.
13. Increase use of 'train the trainer' model; provide annual training for Master Gardeners ahead of planting and gardening season.

OUTPUTS:

1. Website (1)
2. Workshop/Training survey (1)
3. Blog posts/news items (2-3 per month)
4. Education and Outreach Working Group (Quarterly Meetings)
5. Resources/Materials (as identified)
6. Invasive Species Awareness Week (5)
7. Annual Master Gardener Training (4)
8. *Community Science Trail Program (1)*
9. *Hemlock Woolly Adelgid Community Science Program (1)*
10. *Pledge to Protect Program (1)*

OUTCOMES:

1. Increased effectiveness of outreach programming.
2. Increased regional awareness of invasive species issues.
3. Increased regional participation in invasive species management activities, both independently and through established programming.

Prevention

GOAL:

Prevent the introduction of invasive species to the WNY PRISM region, limit the spread of invasive species within the region and limit the movement of invasive species established in WNY PRISM to other regions.

OBJECTIVES:

- A. Maintain communication with partners on emerging issues and ensure key stakeholders are informed on species and issues relevant to their work.
- B. Support and implement spread prevention efforts that focus on the identification and disruption of primary pathways of invasion associated with invasive species priorities.
- C. Develop protocols and resources that encourage adoption of spread prevention Best Management Practices and habits within the public and private sectors.
- D. Maintain regional watchlist for approaching region species priorities and increase regional awareness and understanding of potential and emerging threats.
- E. Expand upon the use of new technologies and methods to assist with the identification of priority sites and species targets for prevention efforts and associated surveys and monitoring.
- F. Successfully coordinate the WNY PRISM Watercraft Inspection Program.

STRATEGIES:

1. Hold an annual stakeholder meeting/conference call to provide updates on emerging issues and to provide resources for training seasonal staff on annually updated priorities.
2. Maintain current approaching region (watchlist) species priorities through communication with partners, track movement for species of concern, assess habitat suitability and assess potential range shifts due to climate change.
3. Include associated pathways of invasion and primary vectors of spread within invasive species profiles, and add profiles for emerging species as identified.
4. Coordinate the WNY PRISM Watercraft Inspection Program; recruit, hire and train WNY PRISM Boat Stewards and provide opportunity for partners to take part in the training.
5. Assess Watercraft Inspection Program annually, prioritize launches, discuss opportunities for program improvement with DEC and implement approved changes.
6. Coordinate Watercraft Inspection Program data collection with iMapInvasives, including use of WISPA and additional data management and visualization programs.
7. Develop a resource/document that identifies Best Management Practices for the disruption of common pathways of invasion.
8. Continue WNY PRISM Boot Brush Station program and provide signs and materials to partners.
9. Expand use of habitat suitability modeling.
10. Identify and/or develop spread prevention focused outreach materials and programs based on pathways of invasion that are appropriate for multiple, divergent user groups, including municipalities.

11. Develop language regarding spread prevention protocols (i.e. cleaning equipment, clean fill, native seed) for use in contracts to better ensure contractor understanding and compliance.
12. Support use and further development of eDNA as a tool for detection of new species and spread prevention efforts.
13. Provide watercraft inspection outreach materials for partners, ensure consistent Clean, Drain, Dry messaging.

OUTPUTS:

1. Annual Stakeholder Meeting (4)
2. Approaching Region Species Priority List (1)
3. Pathways of invasion Best Management Practices guide (1)
4. Boot Brush Stations (25)
5. Spread prevention language for contractors/contracts (1)
6. Watercraft Inspection Stewardship Program (1)

OUTCOMES:

1. Improved regional awareness and understanding of pathways of invasion.
2. Improved regional awareness and understanding of approaching issues.
3. Increased use of spread prevention activities (i.e. Clean, Drain, Dry and PlayCleanGo).
4. Improved communication throughout partnership.

Early Detection and Rapid Response

GOAL:

Develop an effective early detection program and associated protocols that provide for reporting, assessment and response efforts.

OBJECTIVES:

- A. Coordinate early detection reporting, surveys, mapping, site assessments and communication among partners; encourage use of standardized protocols.
- B. Develop a framework for regional response to new invasive species and infestations.
- C. Maintain early detection and approaching region (watchlist) priority species lists.
- D. Maintain early detection site monitoring list and conduct site monitoring based on established protocols and in collaboration with identified partners.
- E. Ensure availability of species information and Best Management Practices for early detection priority species.
- F. Assist with early detection management and response efforts; provide technical assistance and project implementation assistance as appropriate and as capacity allows.

STRATEGIES:

1. Develop internal communication and data management strategy for WNY PRISM including information to be communicated and a timeline for notifications.
2. Update early detection and approaching region priority lists as new information becomes available.
3. Develop general flow chart and timeline to assist with initial communication and response steps based on common scenarios and to serve as structure for individual species and/or sites.
4. Develop effective communication strategies that encourage partner engagement and increase awareness of priority species and WNY PRISM resources.
5. Establish and facilitate species-specific working groups to include appropriate stakeholders and experts.
6. Encourage improved data collection through standardization of data collection protocols for early detection reporting, site assessment and site monitoring; provide instructional materials, forms, and training, and identify responsible parties for continued site monitoring.
7. Develop Best Management Practices fact sheets and/or technical guides, as needed, for early detection and approaching region priorities.
8. Work with partners to identify and/or test Best Management Practices for species and methods that may lead to improved success for management efforts.
9. Clearly define WNY PRISM's support capacity and project prioritization as it relates to on-the-ground response efforts, technical assistance, and education and outreach.

OUTPUTS:

1. Site Assessment Protocol (1)
2. Site Monitoring Protocol (1)
3. Early Detection & Rapid Response Workshop (1)
4. Early Detection Priority List (1)
5. Best Management Practices (as identified)
6. Working Groups (as identified)
7. List of early detection species contacts (1)
8. Internal communication and data protocol (1)
9. *Early Detection Program Database (1)*
10. *Early Detection/Assessment/Response Strategic Plan (1)*

OUTCOMES:

1. Improved communication on early detection species and issues.
2. Increased understanding of management for early detection species.
3. Improved data collection and sharing.
4. Increased number of collaborations.

Management and Habitat Restoration

GOAL:

Assist with management planning and project implementation focused on long-term, sustainable projects that provide resilience against future invasions, and provide improved ecosystem function and services. Supported efforts will be based on WNY PRISM identified priorities through primarily technical assistance and training, with project implementation assistance when capacity allows.

OBJECTIVES:

- A. Provide partners with management plan development assistance and training.
- B. Provide Best Management Practices for invasive species removal, site management and restoration, including guidance for improving resiliency against the reestablishment of invasive species.
- C. Provide opportunities for professional development, including opportunities for information sharing, sharing knowledge and expertise, and discussions of lessons learned.
- D. Coordinate Crew Assistance Program based on clearly defined criteria for project selection and prioritization.
- E. Implement projects to help determine effectiveness of new tools, technology and methods of invasive species control as opportunity and need arise.
- F. Assist with invasive species removal efforts in accordance with set priorities and habitat restoration efforts through support for development and improved availability of native plant materials.
- G. Establish pre-treatment data collection and post-treatment monitoring protocols to allow for improved analysis of management efficacy and further development of Best Management Practices for successful projects.

STRATEGIES:

1. Encourage the development of management plans that are realistic and sustainable; plans should include proper management practices selection, appropriate timelines, restoration, data collection and monitoring, and inclusion of long-term management.
2. Provide management planning assistance and plan review; hold biennial management planning workshop.
3. Hold management symposium focused on adaptive management and lessons learned.
4. Develop easy to use protocols for pre-treatment, treatment and post-treatment/restoration/monitoring data collection; make available and encourage partner use.
5. Encourage partners to use demonstrated Best Management Practices and to seek Best Management Practices information prior to initiating work; identify methods.
6. Develop resource that identifies common errors made during the planning phase of management and habitat restoration projects; checklist.
7. Review priorities and criteria for WNY PRISM Crew Assistance Program annually and ensure clear understanding among partners; select projects based on established criteria.

8. Develop Best Management Practices fact sheets and technical guides to meet species and management needs as identified; update as new information becomes available.
9. Develop restoration guidelines for native species, identify species/mixes that fill specific needs such as increased resiliency against future invasions and use as cover crops; Best Management Practices.
10. Provide an opportunity for partners to work with the WNY PRISM Crew to gain first-hand experience with removal methods and species.
11. Aid with development of 2(ee) special registrations.

OUTPUTS:

1. Management Planning Workshop (2)
2. Management Plan/common errors Checklist (1)
3. Crew Assistance Program (1)
4. Best Management Practices (8)
5. Technical Guides (3)
6. Adaptive Management/Lessons Learned Symposium (1)
7. Data Collection and Monitoring Protocols (3)
8. Native Plant Guidelines/BMP (1)

OUTCOMES:

1. Improved management planning and project implementation.
2. Increased availability of management practices and instructional resources.
3. Improved ability to implement adaptive management through data sharing.
4. Increased number of successful management and habitat restoration projects.

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