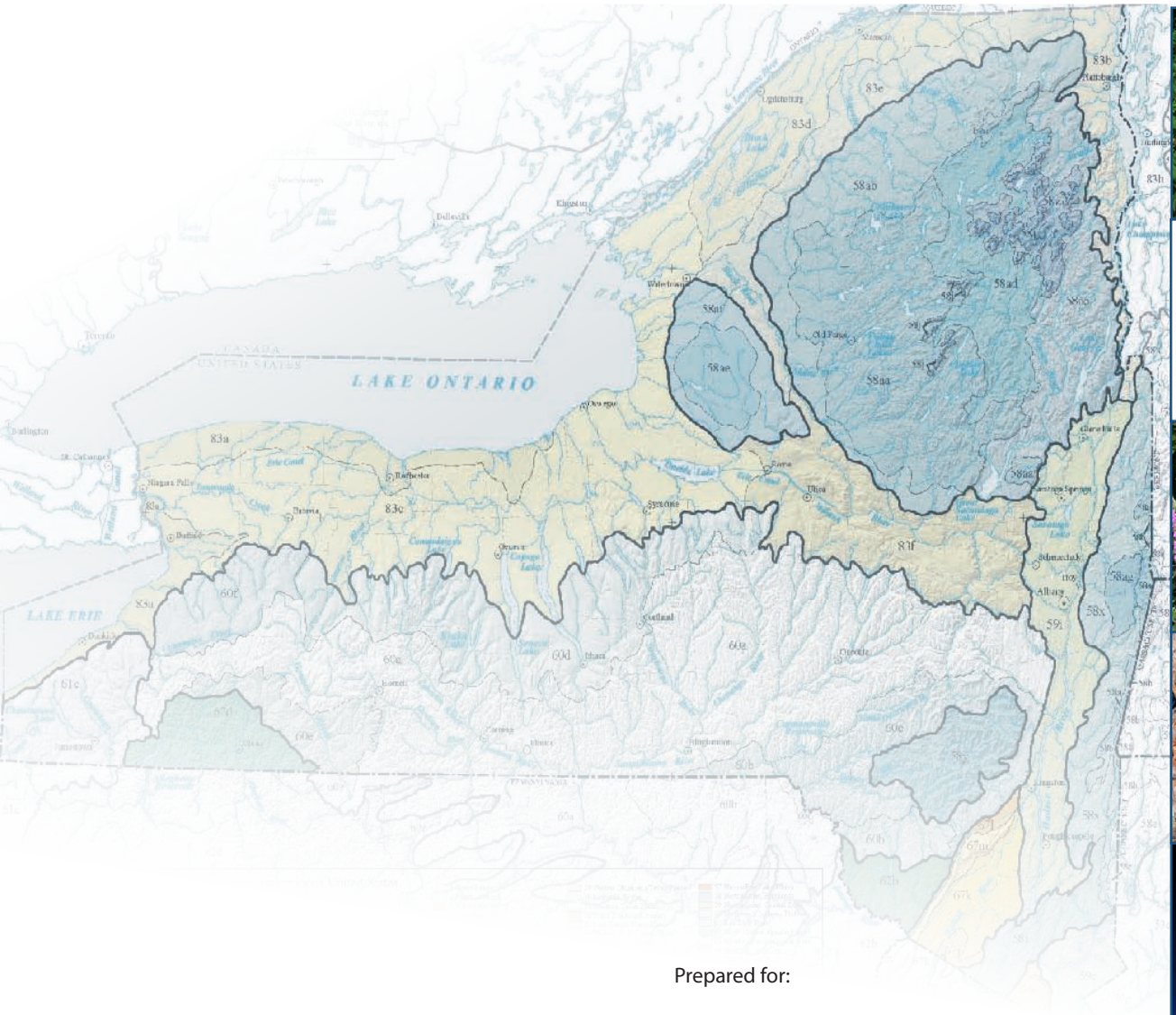
New York State Invasive Species Management Strategy

August 2011



Prepared for:

NEW YORK STATE INVASIVE SPECIES COUNCIL
NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS
and
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Prepared by:

ecology and environment, inc.
Global Environmental Specialists

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List of Abbreviations and Acronyms

Advisory Committee	New York Invasive Species Advisory Committee
AIS	aquatic invasive species
ALB	Asian longhorned beetle
AM	adaptive management
ANS	aquatic nuisance species
ANSTF	Aquatic Nuisance Species Task Force
APHIS	(USDA) Animal and Plant Health Inspection Service
APIPP	Adirondack Park Invasive Plant Program
ARRA	American Recovery and Reinvestment Act
BCIP	Biological Control of Invasive Native and Non-Native Plants
BLM	(United States) Bureau of Land Management
BMP	Best Management Practices
BRI	New York State Biodiversity Research Institute
Council	New York Invasive Species Council
DOI	(United States) Department of the Interior
E & E	Ecology and Environment, Inc.
EAB	emerald ash borer
EBM	ecosystem-based management
EDRR	early detection/rapid response
EEA Inc.	Energy & Environmental Analysts, Inc.
EPA	(United States) Environmental Protection Agency
EPF	Environmental Protection Fund
FSA	Farm Service Agency
FY	fiscal year
GIS	geographic information system
GLRI	Great Lakes Restoration Initiative
HACCP	Hazard Analysis-Critical Control Point

List of Abbreviations and Acronyms (cont.)

HWA	hemlock woolly adelgid
ICS	Incident Command System
IJC	International Joint Commission
IPM	Integrated Pest Management
IS	invasive species
ISCM	invasive species control and management
LCBP	Lake Champlain Basin Program
LCB Plan	Lake Champlain Basin ANS Management Plan
LCSC	Lake Champlain Steering Committee
MOU	memorandum of understanding
NEANS	Northeast Regional Aquatic Nuisance Species Panel
NFWF	National Fish and Wildlife Foundation
NGO	non-governmental organization
NHP	Natural Heritage Program
NHT	Natural Heritage Trust
NIMS	National Incident Management Systems
NISC	National Invasive Species Council
NRCS	Natural Resources Conservation Service
NRM	natural resource management
NYISRI	New York Invasive Species Research Institute
NYS	New York State
NYSDAM	New York State Department of Agriculture and Markets
NYSDEC	New York State Department of Environmental Conservation
NYSDOT	New York State Department of Transportation
OFA	*Opportunities for Action*
OISC	Office of Invasive Species Coordination
OISSP	*Ontario Invasive Species Strategic Plan*
OPRHP	(New York State) Office of Parks, Recreation and Historic Preservation
PRISM	Partnership for Regional Invasive Species Management
RFP	Request for Proposals
S&PF	State and Private Forestry
SCA	Student Conservation Association

List of Abbreviations and Acronyms (cont.)

SDM	Structured Decision Making
SEQR	State Environmental Quality Review
Strategy	Comprehensive Statewide Strategy for the Management of Invasive Species in New York State
Task Force	New York State Invasive Species Task Force
TNC	The Nature Conservancy
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Glossary

Adaptive Management – A structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring.

Delphi Method – A surveying technique to arrive at a group position regarding an issue under investigation, consisting of a series of repeated interrogations, usually by means of questionnaires, of a group of individuals whose opinions or judgments are of interest. Following initial interrogation of each individual, each subsequent interrogation is accompanied by information regarding the preceding round of replies, usually presented anonymously.

Ecosystem-based Management – A comprehensive management approach that examines the entire ecosystem, with both humans and the environment, as opposed to isolating individual issues or resources.

Federal Executive Order 13112 – Regulation signed on February 3, 1999, to establish the National Invasive Species Council, outline their duties, and define "invasive" and "alien" species; adopted by the New York State (NYS) Invasive Species Task Force (Task Force) in 2005.

Invasive Species – Species that are nonnative to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

2010 IS Questionnaire – A list of questions administered to 60 governmental and non-governmental entities with a role in invasive species identification and management to assess current status of invasive species management and control in New York State for the purposes of devising the management strategy.

National Invasive Species Council (NISC) – group of 13 federal departments and agencies established by Executive Order 13112 to implement and carry out federal programs for coordinated IS control and prevention.

New York State Invasive Species Council (Council) – First Task Force recommendation completed. Nine-member committee co-chaired by the Commissioners of NYSDEC and New York State Department of Agriculture and Markets (NYSDAM) and consisting of members from nine key state agencies and authorities as well as up to 25 at-large members to provide information, advice, and guidance to the Council.

New York State Invasive Species Task Force (Task Force) – A group co-chaired by the commissioners of NYSDEC and NYSDAM and consisting of members from 14 other key state agen-

cies, authorities, and organizations. Signed into Legislature by the governor in 2003 to address the growing problem of invasive species in New York.

Office of Invasive Species Coordination (OISC) – Division within the New York State Department of Environmental Conservation (NYSDEC) created in 2007 to provide information and collaboration for IS management and all other IS matters around the state and among neighboring states and regions.

Partnership for Regional Invasive Species Management (PRISM) – Group of resource managers, nongovernmental organizations, industry, resource users, citizens and other agencies and stakeholders organized regionally to prevent or minimize the harm caused by invasive species in New York's environment, as recommended by the New York Invasive Species Task Force.

Project Team – A group of professionals from Ecology and Environment, Inc. (E & E) and EEA Inc. contracted by NYSDAM to provide an invasive species management strategy to aid NYS in ultimately creating a statewide management plan for invasive species.

2004 Task Force Questionnaire – A list of questions distributed by the New York Invasive Species Task Force to its member organizations to assess status of invasive species needs and concerns, helping form the 12 recommendations published in the Task Force Report.

Executive Summary

New York State (NYS) is regionally positioned between Canada, Lakes Erie and Ontario in the eastern Great Lakes Basin, St. Lawrence Seaway, Hudson River Estuary, and the Atlantic Ocean. Represented by 967 United States Geological Service (USGS) topographic maps, New York encompasses 47,000 square miles. New York State Department of Environmental Conservation (NYSDEC), New York State Office of Parks, Recreation and Historic Preservation (OPRHP), New York State Department of State (NYSDOS), New York Ocean and Great Lakes Ecosystem Conservation Council, The Nature Conservancy (TNC) and others have identified and mapped a myriad of environmentally significant conservation areas, forest unit management areas, critical habitats within ecoregions and ecological communities defined by New York's Natural Heritage Program (NHP). There are few natural areas and managed urban landscapes in the state that are not impacted by exotic, invasive organisms. These features contribute to the complexity and diversity of New York's natural landscape, all important considerations for evaluating the current and future status of IS control, management, and prevention measures.

The New York State Invasive Species Task Force (Task Force) report to the New York State Legislature of November 2005 noted "Invasive species are a form of biological pollution. They have caused many problems in the past, are causing problems now, and pose threats to our future." Threats and impacts identified in the Task Forced report include economic losses associated with degradation of ecological function and process as well as environmental quality of life of communities across the state. At the global level, similarities between IS introductions and impacts and national response to bio terrorism and homeland security initiatives have been identified that support state IS policy and regulatory initiatives. This report outlines the issues confronted and recommends the steps needed to develop a statewide invasive species control and management (ISCM) strategy that addresses threats and prioritizes response actions to protect the state's economic and natural resources.

The New York State Invasive Species Council (Council) and Advisory Committee believe critical elements of a statewide IS plan require direct "coordination between the NYS Invasive Species Council and non-governmental partners," which is "critical to ensure an effective approach to managing invasive species in New York. This collaboration is especially important as the state is looking to propose an invasive species regulatory process, limit the introduction of new in-

vasive species, and eradicate new invasions. The work that we've completed by working together in New York is looked upon as a model throughout the nation, and we must remain a fully functioning and collaborative body that protects New York's farms, forests, and waters from invasive species."[1]

A statewide ISCM strategy based on the Task Force recommendations and a fully operational Partnership for Regional Invasive Species Management (PRISM) infrastructure would provide a state and regional network of collaborative and cooperative support to address IS issues in New York State. However, the state agencies and PRISMs charged with this responsibility do not have the resources or capacity to develop and implement effective programs much less a comprehensive ISCM plan.

This report supports the need to implement the 12 recommendations developed by the Task Force in the report to the Governor and Legislature in 2005 and the use of the National Invasive Species Council's (NISC) federal model for the development of an adaptive, statewide IS management plan. In addition, the report concludes that the Council member agencies, PRISM network, Advisory Committee, including the representative non-governmental organizations (NGOs), provide an infrastructure that is well designed to retool and rebuild the state's capacity to implement an effective IS management protocol and methodology within an operational statewide plan.

Following a comprehensive study of existing resources, the Project Team developed and outlined approaches that should be incorporated into the NYS management plan for IS. These recommendations address the following issues:

1. Adequate Funding and Staffing;
2. Effective Administration;
3. Coordinated IS Program Integration;
4. Adaptive Management (AM); and
5. Pathway Analysis.

The Project Team made a broad range of recommendations to aid in the control and management of non-native nuisance species as a collective effort in NYS, all of which can be adapted for change over time. Critical to the effectiveness of any plan manifested as a result of these recommendations is an understanding of the complex balance of what is necessary and what is cost-effective. Additionally, a successful plan will not be administered strictly by the state, and therefore needs the involvement of the joint efforts of government, the private sector, NGOs, stakeholders, academic institutions, and the general public. Following is a summary of these recommendations:

[1] O'Neill, Jr., Charles R. (Letter). 15 March 2010. Letter to Governor David A. Paterson. RE: Continuation of NYS Invasive Species Council and Advisory Committee.

1. Secure and provide adequate funding and staffing;

2. Coordinate and distribute existing IS funds and other resources more efficiently and effectively;

3. Ensure that the Council, OISC, and associated agencies have the resources and administrative staffing capacity to identify, prioritize, and manage IS funds and other resources and programs, and most importantly, to administer and coordinate the full implementation of the 12 Task Force recommendations;

4. Develop and implement AM methodologies; and

5. The Council, OISC, and PRISM network, collectively with NYSDEC and New York State Department of Agriculture and Markets (NYSDAM), should identify and assess IS pathways and vectors to prevent the introduction and spread of known and potential IS.

1 Introduction

1.1 Background

Invasive Species in New York State

Many species of plants and animals currently in New York State (NYS) have been introduced, either intentionally or unintentionally, by human activity. Scientists estimate that approximately one-third of our plant species have been introduced from places outside of NYS. Most introduced species cause no significant harm to our economy, environment, or health. Many introduced species even provide important benefits to New Yorkers, such as food crops, livestock, pets, and landscaping and garden plants. A small fraction of introduced or exotic species, however, cause significant harm to our economy, environment, and health. These harmful species are deemed to be "invasive." Invasive species (IS) represent a clear and present danger to the biotic health of ecosystems, human health and safety, and the overall ecological balance of organisms across the landscape of NYS. In addition, exotic or non-indigenous species with unknown capacities to become invasive continue to enter the state from a variety of known sources and pathways.

Federal Executive Order 13112, signed in 1999, and adopted by the NYS Invasive Species Task Force (Task Force) in 2005, defines IS as species that are nonnative to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health with the added provision that the harm must significantly outweigh any benefits. Worldwide, it is estimated that 20 to 30% of all introduced species are problematic (Pimentel *et al*. 2001).

The emerald ash borer (EAB; *Agrilis planipennis*), Asian longhorned beetle (ALB; *Anoplophora glabripennis*), Asian shore crab (*Hemigrapsus sanguineus)*, round goby (*Negobius melanostomus*), zebra mussel (*Dreissena polymorpha*), Brazilian waterweed (*Egeria densa*), common reed (non-native strain) (*Phragmites australis*), Japanese knotweed (*Polygonum cuspidatum*), West Nile virus (*Flavivirus*), water chestnut (*Trapa natans*), Eurasian water milfoil (*Myriophyllum spicatum*), and purple loosestrife (*Lythrum salicaria*) have already had major impacts in NYS. These non-native species have contributed significantly to negative economic impacts in NYS. For example, since 1996 New York City and Long Island have incurred between $13 and $40 million in damages annually

from the ALB (New York Sea Grant 2011). The Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA) has estimated that an infestation of this pest within all urban areas in the lower 48 states would result in the loss of nearly 35% of the total canopy cover, 20% tree mortality (equaling 1.2 billion trees), and a value loss of $669 billion (USDA-APHIS December 2005). Zebra mussels have caused hundreds of millions of dollars in damage in the Great Lakes since introduced in 1988 (NYISC 2011). Economic losses associated with detection, control, and management of impacts are not static components of NYS's IS program response. In 2008, the United States Fish and Wildlife Service (USFWS) Great Lakes Office confirmed water chestnut in Tonawanda Creek in Amherst, New York. In June 2011, the EAB was confirmed in Buffalo, New York, and the ALB was confirmed in Bethel, Ohio. The economic impacts of these recent findings are uncertain at this point, but based on prior attempts to combat these IS nationwide, the cost of management efforts is expected to be significant.

As a major point of entry for travelers, cargo, and mail entering the United States, NYS is highly vulnerable to introduction of additional IS. Examples of pathways of introduction include ship ballast water, ornamental plants and soil associated with the trade of nursery stock, imported fruits and vegetables, the pet trade, containers and packing materials used in shipping, and the movement of people and gear for travel, tourism, and national defense.

In 2003 and again in 2008, the NYS Legislature found that invasive plant and animal species pose an unacceptable risk to NYS's environment and economy. The legislature additionally found that IS have detrimental effects on the state's freshwater and tidal wetlands, waterbodies and waterways, forests, agricultural lands, grasslands, and other natural systems by out-competing native species, diminishing biological diversity, altering community structure and, in some cases, changing ecosystem processes. The legislature also recognized that IS have adverse impacts on parks and preserves; rare, threatened, or endangered species; water supplies; and recreational and agricultural sectors of NYS's economy.

1.2 Invasive Species Task Force

In 2003 the governor signed legislation to address the growing problem of IS and established the Invasive Species Task Force (Chapter 324 of the *Laws of New York 2003*). The Task Force studied the problem of IS and provided recommendations to the governor and legislature in the *Final Report of the New York State Invasive Species Task Force* (Task Force 2005).

The Task Force was co-chaired by the commissioners of the NYS Department of Environmental Conservation (NYSDEC) and NYS Department of Agriculture and Markets (NYSDAM) and consisted of members from 14 other key state agencies, authorities, and organizations. These members were:

- NYS Department of Transportation (NYSDOT);
- NYS Thruway Authority (and Canal Corporation);

- NYS Museum (and Biodiversity Research Institute);
- NYS Office of Parks, Recreation and Historic Preservation;
- NYS Department of State;
- Adirondack Park Agency;
- New York Sea Grant;
- Cornell University;
- Invasive Plant Council of New York;
- The Nature Conservancy (TNC);
- NYS Natural Heritage Program;
- NYS Farm Bureau;
- Empire State Marine Trades Association; and
- NYS Nursery and Landscape Association.

In 2004, the Task Force developed and distributed an in-depth questionnaire to survey its member organizations and at-large members to assess their concerns, capabilities, and needs. Teams comprising Task Force members and other stakeholders investigated issues, analyzed existing efforts, identified needs, and developed recommendations. Formal public review was accomplished through public meetings and Internet communication. The results formed the 12 recommendations provided in the Task Force report.

The Task Force recommendations are briefly summarized below:

1. Establish a permanent leadership structure to coordinate IS efforts;

2. Prepare and implement a comprehensive IS management plan;

3. Allocate appropriate resources to IS efforts;

4. Establish a comprehensive education and outreach effort;

5. Integrate databases and information clearinghouses;

6. Convene a regular IS conference;

7. Formalize NYS policy and practices on IS;

8. Establish a center for IS research;

9. Coordinate and streamline regulatory processes;

10. Encourage non-regulatory approaches to prevention;

11. Influence federal actions to support IS prevention, eradication, and control; and

12. Recognize and fund demonstration projects.

1.3 Invasive Species Council and Advisory Committee

In 2008 the NYS Legislature implemented the first Task Force recommendation by establishing the NYS Invasive Species Council (Council) and the Advisory Committee to the Council (Chapter 26, Laws of New York, 2008, Environmental Conservation Law, Article 9, Title 17). The nine-member Council is co-chaired by the commissioners of NYSDEC and NYSDAM and consists of members from nine key state agencies and authorities. The Advisory Committee includes up to 25 at-large members that provide information, advice, and guidance to the Council.

The Council meets at least quarterly and its role includes, but is not limited to:

1. Assessing the nature, scope, and magnitude of the environmental, ecological, agricultural, economic, recreational, and social impacts caused by IS in the state;

2. Identifying actions taken by members of the council, state and local governments and the public to:
   - Prevent the introduction of IS,
   - Detect and respond rapidly to and control populations of IS in a cost-effective and environmentally sound manner,
   - Monitor IS populations accurately and reliably,
   - Provide for restoration of native species and habitat conditions in ecosystems that have been invaded,
   - Conduct research on IS and develop technologies to prevent introduction,
   - Provide for environmentally sound control of IS, and
   - Promote public education on IS and the means to address IS;

3. Developing a “comprehensive plan for IS management”;

4. Providing input on funding priorities and grant applications regarding monies made available for the implementation of this title and grants for projects related to the control and management of IS, education and outreach, and early detection and prevention of IS;

5. Organizing and convening a biennial IS summit;

6. Encouraging industries and trade organizations to develop and adopt voluntary codes of conduct designed to reduce or eliminate the use and distribution of IS, reviewing such voluntary codes of conduct and officially recognizing approved codes;

7. Supporting within available funds and encouraging Partnerships for Regional Invasive Species Management (PRISMs) in their efforts to address IS;

8. Submitting to the legislature and governor a report with recommended legislation for a four-tier system for non-native animal and plant species, including:
   - A list of prohibited species,
   - A list of regulated species,
   - A list of unregulated species, and
   - A procedure for the review of nonnative species; and

9. Developing other recommendations on statutory actions to prohibit, manage, and control IS.

The commissioners of NYSDEC and NYSDAM appoint up to 25 at-large members to provide information, advice, and guidance to the Council, including providing assistance with the development of the four-tier classification system for non-native animal and plant species. Each of the following is represented on the Advisory Committee:

- Associated General Contractors of NYS
- Audubon New York
- New York Biodiversity Research Institute
- Cornell University
- Empire State Council of Agricultural Organizations
- Empire State Forest Products Association
- Empire State Marine Trades Association
- Environmental Energy Alliance of New York
- New York Sea Grant
- New York Farm Bureau
- New York Upstate Chapter of the American Society of Landscape Architects
- Lake Champlain Basin Program
- New York Forest Owners Association
- NYS Association of Counties
- Darrin Freshwater Institute, RPI
- NYS Federation of Lakes Association
- New York Natural Heritage Program
- NYS Flower Industries
- NYS Turfgrass Association
- New York City Department of Environmental Protection
- PRISMs
- Soil & Water Conservation Districts
- State University of New York (SUNY) Environmental Science & Forestry
- The Nature Conservancy
- The Wildlife Society

1.3.1 Comprehensive Management Planning

To further the work of the Council in addressing the nine numbered items listed in Section 1.3, NYSDAM issued a Request for Proposal (RFP) in March 2009 that stated:

> *In order to proceed with these critical responsibilities, it is essential for the Invasive Species Council to have a thorough understanding of the existing statutes, authorities, rules, regulations, policies, funding and other resources that address invasive species management in the State of New York. The development of a detailed schematic diagram identifying the existing roles and responsibilities of state agencies and other authorities and their existing relationships, funding streams, interactions and coordination, will assist the Council in this understanding. It is anticipated from this diagrammatic depiction that the overlapping authorities and gaps can be identified and, ultimately, addressed to reduce or eliminate, where practicable, any redundant, contradictory or conflicting policies and programs.*
>
> *To facilitate a more thorough understanding of invasive species issues, the [Task Force] initiated a review of existing efforts and programs in New York State. The Task Force conducted a preliminary survey of state agencies, authorities and private sector agencies and organizations at the state level. Because the Federal agencies' role in invasive species management (exclusion, detections and control) and their relationship and/or interaction with state agencies is also of paramount importance, the New York State comprehensive strategy for invasive species management must therefore also explore and evaluate these Federal interrelationships and how these entities interact with New York State agencies and programs.*

In July 2009, as a result of the RFP, the Council contracted with a private consulting firm, Ecology and Environment, Inc. (E & E) through this competitive bidding process administered by NYSDAM to complete the first phase of a process to develop a comprehensive statewide IS management plan: the Comprehensive Statewide Strategy for the Management of Invasive Species in NYS (Strategy). E & E joined forces with the expertise of EEA Inc. (Energy and Environmental Analysts) to comprise the Project Team to develop this Strategy. Final authorization to begin work on the contract was delayed until July 2010 due to statewide funding issues.

Phase 1 of the Strategy involves the development of a framework for the plan that identifies and recommends the necessary elements for an effective, long-term and adaptable comprehensive strategy for the management of IS in the state. The Council established a joint Council and Advisory Committee Work Team to work closely with the Project Team to ensure successful completion of Phase 1. Due to statewide delays in funding and staffing shortages, however, coordination between the Advisory Committee and the consultant did not develop to the level initially intended.

1.3.2 Integration of Task Force Recommendations

The fifth Task Force recommendation, initiated in October 2008, highlights the need for an integration of databases and an information clearinghouse. The New York Invasive Species Information Web site, in coordination with its host, the New York Invasive Species Clearinghouse, along with the iMapInvasives database project have made some considerable accomplishments to further this recommendation under a contract furnished by NYSDEC.

In 2008, the New York Invasive Species Research Institute (NYISRI) was established in response to the Task Force's eighth recommendation. With support from NYSDEC, the NYISRI was incorporated into Cornell University's College of Agriculture and Life Sciences, in the Department of Natural Resources. The objective of the NYISRI is to promote information-sharing, research, and collaboration among land managers, researchers, and other stakeholders comprising the IS community. Additionally, research orchestrated by the NYISRI helps facilitate recommendations to the Council, Office of Invasive Species Coordination (OISC), and other entities that guide funding and policy decisions of IS in NYS.

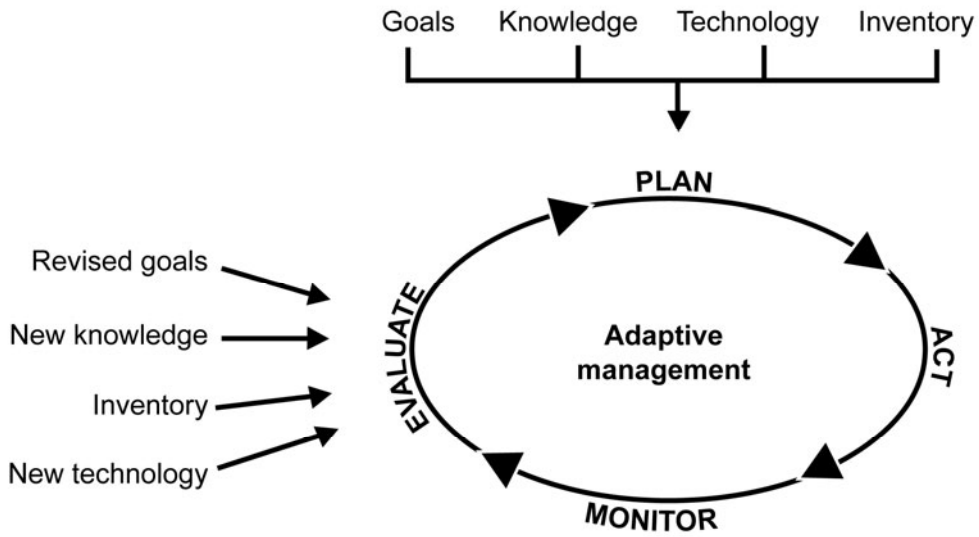
1.4 Strategy Development

This document provides a science-based, logistical approach to the development of an IS strategy for NYS based on the established mission and contributions of the Council and the Advisory Committee. The complexity and scope of a statewide strategy integrated with regional to global vectors and pathways warrants the application of an adaptive management (AM)[2] methodology to adequately address the uncertainties and unknowns during implementation (see Figure 1-1 from USDA United States Department of the Interior [DOI]). In addition, AM is compatible and most effective when applied within a framework of ecosystem-based management (EBM) for natural resource protection, conservation, and recovery.[3,4] EBM is a comprehensive management approach that examines the entire ecosystem, with both humans and the environment, as opposed to isolating individual issues or resources. EBM specifically includes anthropogenic stressors as well as the participatory role of humans in strategic natural resource planning.

> Adaptive management (AM) is a structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring. In this way, decision making simultaneously maximizes one or more resource objectives and, either passively or actively, accrues information needed to improve future management. AM is often characterized as learning by doing.

[2] http://www.doi.gov/initiatives/AdaptiveManagement/documents.html (DOI 2010).
[3] Summary Report to the New York Ocean and Great Lakes Ecosystem Conservation Council Ecosystem-based Management in New York State: Taking the Next Steps A Summary of Contributions by Participants at Five Statewide Dialogues in 2006 (Senecah *et al.* 2006).
[4] http://www.ebmtoolsdatabase.org (EBM Tools 2011).

This Strategy, however, acknowledges the limitations of a purely scientific and engineering approach to an IS control and management strategy. Perhaps the most complex and fluid portions of the strategic process are the social science and anthropogenic components associated with IS as biotic stressors. Understanding the ecological and economic impacts of IS in NYS involves the integration of specific knowledge of governance, policy development, public agency interaction, private sector trade, environmental law, public education, academic and scientific research, and conflicting cultural values and societal interests. An effective IS strategy for NYS requires a sound scientific assessment and working knowledge of societal goals concerning ecosystems in which the IS exist, a comprehensive understanding of the short- and long-term impact of IS on the ecosystems, and an understanding of the true biological (i.e., degradation of ecosystem functions or loss of ecological services associated with native biota) and economic value (i.e., value of loss of commercial and recreational opportunities, goods, and infrastructure) of the strategies being put forth to control and manage IS. A science and knowledge-based IS strategy would feature a decision support system to quantify risk, direct and indirect impacts, predictable consequences and acceptable ecological and economic losses linked to the solutions to deal with existing biotic and abiotic problems or stressors. Implementation of the Task Force recommendations through the existing Council infrastructure is essential to an effective, operational IS strategy that would include but not be limited to state and federal agency coordination, environmental education, public outreach, socio-economic philosophy, media relations, funding opportunities, and policy analysis.



Source: Stankey *et al* 2005.

Figure 1-1 Adaptive Management Cycle

"Two things have been learned from recent experience with ecosystem valuation. First, it is easy to spend large amounts of money on economic studies that attempt, against all odds, to assign dollar values to environmental improvements. Second, it is easy for environmental program managers to misuse the results of these studies in ways that can undermine support for their programs." Certified Hydrogeologist, State of California

Practical Importance of Ecosystem Valuation (King and Mazzotta n.d.)
http://www.ecosystemvaluation.org/big_picture.htm#1

The diversity of natural resources is illustrated in the NYSDEC ecoregion map of NYS, courtesy of the NYS Natural Heritage Program (NHP).

A detailed ecoregion map developed by the EPA, United States Geological Survey (USGS), and USDA Natural Resources Conservation Service (NRCS) illustrates the spatial extent and distinct habitat characteristics that contribute to the biological integrity of each region.[5] "Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. These general purpose regions are critical for structuring and implementing ecosystem management strategies across Federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas. Ecoregion maps assist managers of aquatic and terrestrial resources to understand the regional patterns of the realistically attainable quality of these resources."[6]

The pathways, establishment, and ecological impacts of IS are subject to regional variance in habitat type and complexity as well as existing flora and faunal communities. A thorough understanding of IS physiology and habitat adaptability within each ecoregion is required to develop a regionally effective IS control and management (ISCM) plan that delivers control efforts effectively across regional and local levels.

Sections 2 and 3 provide an overview of the methodology used and Project Team efforts to develop a statewide strategy (see Section 4) for the management and control of IS in NYS.

NYS contains great ecological diversity in its low coastal plains, large river valleys, rolling plateaus, glacial lakes, forested mountains, and alpine peaks. Nine level III ecoregions and 42 level IV ecoregions occur in NYS and many continue into ecologically similar parts of adjacent states or provinces.

[5] Ecoregions of New York http://www.epa.gov/wed/pages/ecoregions/ny_eco.htm (EPA 2011)
[6] Ecoregions of New York http://www.epa.gov/wed/pages/ecoregions/ny_eco.htm (EPA 2011)

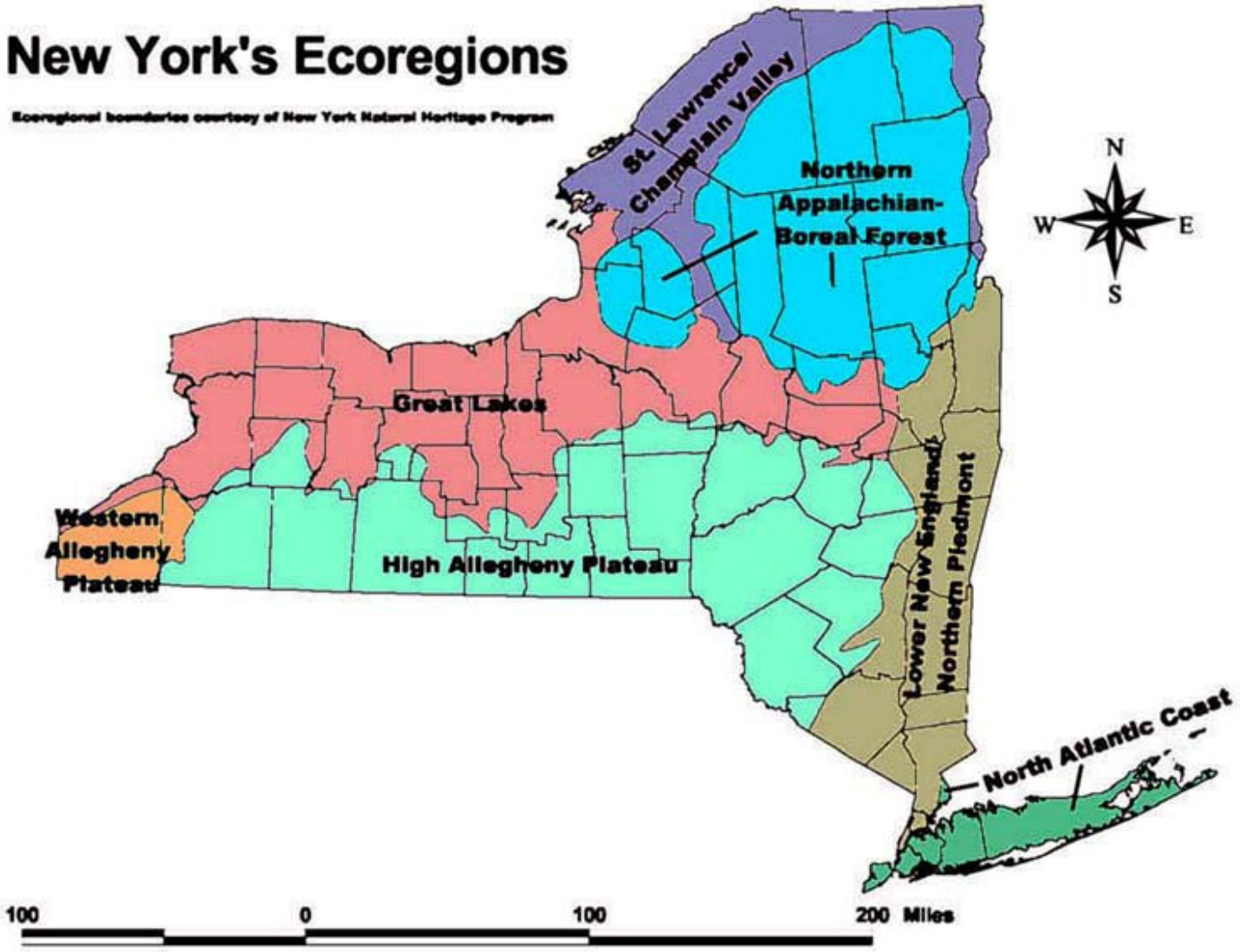


Figure 1-2 NYSDEC New York Ecoregion Map

2 Work Plan (Methodology)

2.1 Task A – Existing Legal Authorities and Coordination Among Agencies and Organizations Involved with IS

Based on their extensive exposure and contributions to IS issues and programs both regionally and nationally, the Project Team created a comprehensive list of existing legal authorities, agencies, and organizations currently involved with IS management in NYS. This list was used to identify the primary elements of the existing NYS infrastructure for IS management.

Governmental authorities, federal and state regulatory agencies, and non-governmental organizations were categorized by the functional areas they would address, including prevention, early detection and rapid response, monitoring, research, management and control, restoration, education, and funding. In addition, legal authorities, agencies, and organizations were categorized by the types of IS with which they are involved, including aquatic species, plants, animals, and microbes. This approach used functional areas and IS type to help accurately and clearly identify strengths and weaknesses, redundancies, gaps, and conflicts with current statewide IS management efforts. Given the complex nature of federal and state statutes and regulations, the comprehensive list aims to highlight only the primary legal authorities, agencies, and organizations having the greatest impact on IS activities in NYS.

The Project Team identified nearly 120 governmental and non-governmental entities as having some role in the identification and management of IS in NYS (see Appendix A). To identify the 60 highest profile entities to be contacted for specific information regarding their roles, responsibility, and funding in NYS, information on the various entities was obtained by desktop research, review of published information, and, in some cases, through direct verbal and written correspondence. This process facilitated the design of a matrix of research areas and points of contact that included a broad representation of public and private sectors directly or peripherally involved with NYS IS management, policy, regulatory compliance, research and project design, and implementation.

Through this process, the Project Team was able to refine its understanding of the respective roles and responsibilities of individuals and organizations as well as their mission and future goals and objectives. The end result was a paring of the list to those entities that the Project Team felt best represented the overall efforts within the state as it related to IS management and control. This effort assisted

the Project Team in developing and carrying out a comprehensive survey of the 60 entities, as described in Section 2.1.1. The following is an overview of entity types considered for participation in this survey:

- Federal agencies with regulatory authority for IS;
- Other federal agencies;
- Federal interagency groups;
- Nationwide groups;
- National funding organizations;
- Indian nations (federally recognized);
- NYS agencies/departments;
- State/regional cooperative agencies/organizations;
- NYS legislative branch;
- State universities and other affiliated organizations;
- Other universities;
- PRISMs;
- Non-profit organizations and associations;
- New York City;
- International organizations;
- Trade groups; and
- Commercial.

A list of the federal and state governmental entities and non-governmental organizations (NGOs) contacted is provided in Table 2-1. In Table 2-1, the "Completion of Questionnaire" column indicates if the contacted entity participated in the Project by responding to the questionnaire described below.

Given the extensive, complex, and overlapping nature of governmental entities and NGOs addressing IS, the Project Team sorted nearly 120 entities into three levels (A, B, and C – listed in the "Level of Contact" column in Table 2-1) based on degree of involvement in policy, practice, and research of IS. The levels were chosen based upon the Project Team's understanding of the roles and responsibilities of each entity before they were contacted and requested to participate in the Project.

Table 2-1 List of Entities Contacted for 2010 IS Survey

Organization Name	Federal/ State/NGO	Level of Contact	Completion of Questionnaire
Great Lakes National Program Office	Federal	A	
Invasive Species Advisory Committee (National)	Federal	A	
National Invasive Species Council	Federal	A	X
National Park Service	Federal	A	
New York Sea Grant – MIT Sea Grant	Federal/State	A	X
U.S. Army Corps of Engineers – Buffalo District	Federal	A	

Table 2-1 List of Entities Contacted for 2010 IS Survey

Organization Name	Federal/ State/NGO	Level of Contact	Completion of Question-naire
U. S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Plant Health, Plant Protection and Quarantine	Federal	A	X
U.S. Department of Agriculture Forest Service – Regional Invasive Species Issue Team for the Eastern Region	Federal	A	
U.S. Department of the Interior – Fish and Wildlife Service	Federal	A	X
U.S. Geological Survey	Federal	A	X
The Nature Conservancy (National)	NGO – National	A	
Adirondack Park Invasive Plant Program	NGO – State	A	X
Capital-Mohawk PRISM	NGO – State	A	X
Catskills Regional Invasive Species Partnership	NGO – State	A	X
Cornell Cooperative Extension Invasive Species Program	NGO – State	A	X
Finger Lakes PRISM	NGO – State	A	X
Long Island Invasive Species Management Area (PRISM)	NGO – State	A	X
Lower Hudson PRISM	NGO – State	A	X
New York Farm Bureau	NGO – State	A	
New York State Nursery & Landscape Association	NGO – State	A	X
St. Lawrence & Eastern Lake Ontario PRISM	NGO – State	A	X
The Nature Conservancy (New York State) Central and Western NY	NGO – State	A	X
Western New York PRISM	NGO – State	A	
Invasive Plant Program of New England	NGO – State	A	
Northeast Aquatic Nuisance Species Panel	NGO – State	A	
New York City Department of Parks & Recreation	New York City	A	X
Cornell University Biological Field Station	State – Academic	A	
New York Invasive Species Research Institute (Cornell University)	State – Academic	A	X
Great Lakes Commission	State/ Regional – Bi-National	A	
NYS Assembly	State	A	
NYS Museum Education Department	State	A	
NYS Senate	State	A	

Table 2-1 List of Entities Contacted for 2010 IS Survey

Organization Name	Federal/ State/NGO	Level of Contact	Completion of Question-naire
NYS Office Parks, Recreation & Historic Preservation	State	A	X
NYS Department of Environmental Conser-vation	State	A	X
NYS Department of Transportation	State	A	X
NYS Canal Corporation	State	A	
NYS Department of Agriculture and Markets	State	A	X
NYS Department of Environmental Conser-vation – Natural Heritage Program	State	A	X
Aquatic Nuisance Species Task Force	Federal	B	
U.S. Coast Guard	Federal	B	
U.S. Department of Energy – Brookhaven National Lab	Federal	B	X
U.S. Department of Homeland Security – Customs and Border Protection	Federal	B	
U.S. Department of Transportation	Federal	B	
U.S. Environmental Protection Agency	Federal	B	
Audubon Society of New York – Constitution Marsh Audubon Center and Sanctuary	NGO	B	X
Trout Unlimited	NGO	B	X
Lake George Park Commission	NGO – State	B	X
Long Island Sound Study	NGO – State	B	
New York Flora Association	NGO – State	B	
Northeast Aquatic Plant Management Society	NGO – State	B	
Brooklyn Botanic Garden	New York City	B	X
Haudenosaunee Environmental Task Force Mohawk Council of Akwesasne	Tribal	B	X
Plant Conservation Alliance's Alien Plant Working Group	Federal	C	
U.S. Army Corps of Engineers – Engineer Research and Development Center	Federal	C	X
U.S. Department of Agriculture – Forest Ser-vice Northwestern Research Station	Federal	C	X
U.S. Department of Agriculture Natural Re-sources Conservation Service	Federal	C	X
The World Conservation Union's Invasive Species Specialist Group	International	C	X
NYS Department of State	State	C	X
NYS Thruway Authority	State	C	X

Level A contacts have dedicated roles in professional disciplines engaged in full-time research, policy-making, or practice of IS. As such, federal and state agencies with direct regulatory and/or funding authority for IS programs were automatically designated as Level A. Some private sector and trade groups, policy experts from border states, and other non-governmental stakeholders were also designated as Level A contacts due to the significance of their roles in IS management. Level A contacts included members of the IS Council, Advisory Committee, and other representatives with ties to the prominent federal agencies.

Level A entities were contacted first by email, and then by direct phone interviews. The vast majority of the individuals contacted as part of this study preferred the flexibility of completing the questionnaire on their own time rather than participating in face-to-face interviews with a Project Team member, as originally planned.

Once contact had been made with the Level A contacts, the Project Team moved forward on making contact with Level B group of governmental agencies and organizations. Level B entities were determined to have involvement with IS issues and policies, but the Project Team made a judgment based on experience, that the Level B agencies and organizations have a somewhat lesser relationship with the issues of IS in NYS than the Level A entities. Level B entities were contacted first by email with follow-up conversations via phone. The information anticipated from Level B contacts was determined to be of no lesser importance than the information and guidance obtained from the Level A contacts.

Level C entities are organizations and agencies that provide a wide variety of valuable services to the IS activities within NYS, such as IS-specific publications, policy statements, recommendations, research papers, and plans related to environmental law; ISCM planning and design; as well as the control of IS vectors. Contact with Level C entities was limited mainly due to time constraints and was not the result of any determination that they were any less important in the control and management of IS. The limited information gathered from Level C resources was obtained primarily by email with some follow-up by phone and desktop research.

2.1.1 2010 IS Survey

The 2010 IS Survey was developed to provide a snapshot at one point in time of efforts, gaps, inconsistencies, and successes of IS management and research, with the intention of strengthening and guiding future IS initiatives. The Survey provided ample opportunity for respondents to identify specific aspects of their involvement with IS. The questions provided were in the form of 14 multiple choice as well as 21 open-ended. Additional space was always provided for respondents to further expand on their responses and also provide a response that was not listed.

The Task Force's Stakeholder Survey of 2004 was used as the foundation for development of the 2010 Survey. The 2010 Survey integrated a general understand-

ing of the basis of the 2004 stakeholder survey with expansion and update of the previously developed information. The Project Team distributed the questionnaire to the selected 60 represented institutions listed in Table 2-1. Questionnaires were either completed by the individual contacted, or by another individual delegated by them to provide more accurate responses that would reflect the work and responsibilities of their organization. When a completed questionnaire was not returned, the Project Team made second and third attempts to contact the individual via e-mail or phone. Out of the 60 individuals who were sent the questionnaire, 35 returned completed copies, as indicated in the final column of Table 2-1.

The Project Team compiled all responses from the completed questionnaires into a table (see Appendix B), organizing results by respondent. While the Project Team strived to contact individuals who could articulate the specific mission of their respective agencies as it relates to IS issues, some of the individuals contacted chose to respond more on their own personal work assignments rather than in a way that represented the endorsed mission of their agency or organization. As such, their identities were kept confidential. This information was also withheld so as not to influence analysis of results.

While the Project Team had originally suggested using the Delphi method for collecting and collating information from respondents, this was not ultimately required. Due to the complexity and length of the questionnaire, considerable time and effort was required for its completion. As such, the Project Team considers the turnout of first round survey results to be a great success. Since Level A contacts also received phone or in-person follow-up, the Project Team determined that a second round of surveying would not have resulted in an appreciable amount of additional information.

For the Survey, the Project Team expected to meet with each of the eight regional PRISMs throughout NYS. PRISMs were singled out initially because they were viewed as primary sources of first-hand knowledge of how information is gathered and disseminated within NYS. PRISMs can also provide information about existing collaborative and project-scale activities involving federal, state, local, and private sector programs.

Most importantly, PRISMs provide an understanding of the regional variances within NYS regarding ISCM policy, regulatory compliance and practice as it relates to environmental planning, design and restoration of natural resources. Given the Project's start-up in the fall of 2010, it was evident by the time the Survey was developed in late October and initial contacts made, that arranging a meeting between each of the PRISMs and the Project Team in the late fall was going to be nearly impossible due to primary stakeholders' schedules. In place of the face-to-face meetings, it was decided that the Project Team would seek support directly from the state PRISMs' leadership. As shown in Table 2-1, six of the eight PRISMs participated in the Project. The PRISM leaders and members that did participate did so freely and enthusiastically.

2.1.2 Schematic Design

Based on the survey responses combined with research and personal interviews, a schematic design was developed to graphically portray existing programmatic functions of the local, state, federal, tribal, and NGOs. The Project Team recognized the immense level of complexity associated with multiple authorities and resource managers of those entities engaged in IS management efforts statewide. The Project Team recognized that NYS's efforts in identifying, responding to and managing IS issues is further complicated by its geographical location and ecoregion variance. Furthermore, efforts to address the various issues must also consider bordering states and bi-national programs involving Great Lakes IS programs, Canada, and NYS. Therefore, the Project Team produced a schematic that outlines New York's IS decision-making model for purposes of moving forward in developing an effective statewide ISCM plan. Figure 4-1 represents the complexity of IS problems, program overlap, and operational gaps associated with statewide efforts and utilizes existing agency and organizational leadership to illustrate the potential framework for future success in statewide management.

2.2 Task B – Agency Responsibilities and Coordination

The Project Team conducted extensive desktop research and analysis to examine the existing regulatory and programmatic framework for ISCM in NYS in order to understand the regulatory authorities and policies that influence the efforts to prevent and/or control the introduction, and management of IS in NYS. Federal, as well as state agencies and authorities have overlapping jurisdictions as it relates to IS. This task focused on determining where overlaps and gaps in ISCM exist. The Project Team developed a strategy and recommendations for improving ISCM statewide. The objective was to increase efficacy of existing program level efforts and identify future opportunities for creative, cost effective partnerships for mutual benefit.

The Project Team examined the state's current legal and organizational frameworks to provide a rationale for the most efficient programs, processes, and coordination. Recommendations from this effort, including expanding project scale collaboration, education, and implementation of practices consistent with the overall NYS control and management goals are presented in Section 4. The Project Team examined existing ISCM programs from neighboring states with similar issues or species infestations to identify potential opportunities for technology transfer or direct collaboration and took relevant program elements into consideration in developing the Strategy (see Appendix G).

2.3 Task C – Approaches to Achieve Adequate Funding for IS Efforts

This task focuses on gaining an understanding of the history and current status of funding for IS in NYS and determining where gaps in funding and staffing exist. The Project Team conducted extensive desktop research to identify government and private funding sources that could be utilized for the management of IS in NYS. In addition, the Project Team conducted a series of in-person and telephone

interviews with the staff of various NYS government agencies and NGOs, primarily members of the Council and Advisory Committee, to determine the state's history and current status of funding (see Table 2-2). These interviews also addressed the identification of needs and opportunities for additional staffing and funding, particularly for state agencies.

Table 2-2 List of Interviews

Interviewee	Agency or NGO	Date
Dan Spada+*	Adirondack Park Agency	January 20, 2011
Hilary Smith*	The Nature Conservancy & Adirondack Park Invasive Plant Program	January 25, 2011
Troy Weldy*	The Nature Conservancy	February 1, 2011
Meg Wilkinson	NY Natural Heritage Program	February 9, 2011
Leslie Surprenant*	DEC Office of Invasive Species	February 16, 2011
Bruce Williamson	DEC Division of Lands and Forests	February 16, 2011
Pam Otis+*	Office of Parks Recreation & Historic Preservation	February 25, 2011
Kevin King+*	Department of Agriculture and Markets	March 7, 2011
Peter Dunleavy+*	Department of Transportation	March 11, 2011
Tom Lyons	Office of Parks, Recreation & Historic Preservation	March 16, 2011

+ Council Member, * Advisory Committee Member

The information gathered during the desktop analysis and interviews was utilized to make recommendations for additional sources of funding and address staffing needs for IS control and management in NYS. A comprehensive table of funding resources was also developed for use by state agencies or NGOs (see Appendix D).

2.4 Task D – Means Required to Address Prevention, Early Detection and Rapid Response

This report includes a task oriented strategy relevant to the elements required for the development of a comprehensive statewide ISCM plan. This task aims to integrate the status and capacity of existing organizations to participate in and engage at various levels in ISCM planning, coordination, prioritization, and design. Entities and organizations identified in this report support the use of the ISCM protocol identified by the Task Force, Council, and federal agencies involved in ISCM in NYS. Refinement and implementation of the specific elements associated with the protocol listed below are critical to the execution of methodologies that will be developed to ensure immediate and long-term efficacy of a statewide ISCM plan. The Project Team researched and identified existing entities and planning documents associated with IS planning, within and outside the NYS PRISM network, and included some of these as appendices to this report. Each provides examples of specific practices that are appropriate to an NYS ISCM plan. Design and implementation through individual PRISMs has been successful. The opportunities are abundant and undeveloped for all levels of academia

and research-oriented parties to support an NYS ISCM plan. Critical components of a statewide strategy that could be developed within an NYS ISCM plan include stakeholder coordination, outreach and public education, awareness, and technical training, and are further developed in Section 3.4.

2.5 Task E – Best Means to Incorporate New York State ANS Plan, Lake Champlain Basin ANS Plan, and Adirondack Park ANS Plan

The Project Team understands that aquatic IS are an increasingly serious economic and environmental threat to freshwater and marine systems throughout the state. Once established, aquatic species are particularly difficult to control. In order to provide a summary analysis of aquatic nuisance species (ANS) management plans from around the state, the Project Team established contact with coordinators from the Adirondack Park Invasive Species Program (APIPP) and the Lake Champlain Basin Program. The Project Team also performed desktop analysis on various other management resources from NYS and the surrounding region. Because of the extent of waterbodies within the ecosystems of the Adirondacks and the Lake Champlain Basin, the management plans created for these areas are primarily focused on aquatic IS due to the significant threats they pose to these areas. The Project Team chose to examine these plans and devise methods from them that possessed the relevance necessary to be implemented into the NYS management strategy and local PRISM infrastructures. The Project Team believes this methodology can be combined with risk analysis and preventive protocols for application to other IS. The Province of Ontario's *Draft Ontario Invasive Species Strategic Plan 2011* (Ontario Ministry 2011) and results from the 2010 Survey also helped to shed light on how existing plans can be factored into the overall organization and infrastructure of IS management in NYS.

2.6 Task F – Next Steps

The Project Team organized a procedural approach to facilitate the Council's review of project products developed from surveys. Survey findings in addition to the schematic support the identification of "next steps," as discussed in Section 4, to initiate development of the final "Comprehensive Plan for Invasive Species Management" for NYS. The strategy outlined in Section 4 provides an amalgamation of key techniques and systems to implement into a functional and effective statewide management plan.

3 Results/Analysis

3.1 Task A – Existing Legal Authorities and Coordination

3.1.1 2010 Survey Results

The 2010 survey was conducted in the fall/winter of 2010 (see Appendix E). Out of sixty organizations, 35 responded with completed surveys. The 35 respondents from the various IS-related authorities, agencies, and organizations surveyed offered their expertise and knowledge by answering the survey's 35 multiple choice and qualitative questions. The questionnaire allowed for objective assessment of multiple choice items across all respondents. It also gave respondents, by way of the qualitative questions, the opportunity to provide input on management strategies based on their own exposure to IS. The breakdown of agencies consisted of:

- Federal: 9
- State: 9
- City: 2
- NGO: 12
- Tribal: 1
- International: 1
- Federal/state: 1

Figure 3-1 exhibits the number of entities contacted as well as the number of completed questionnaires received from each entity category (see Table 2-1). While the Project Team would have preferred to receive 100% participation from the groups surveyed, those that completed surveys cover a broad, representative range of knowledge and professional diversity in the area of IS management in NYS. Additionally, the questions provided in the surveys were supplemented by interviews, which included several members of the Advisory Committee.

The 2010 IS questionnaire allowed the Project Team to consolidate information on IS control and management from multiple entities from around NYS into one aggregate pool of information. The results provide significant guidance to help understand the current status of IS management in NYS. A variety of themes prevail from the results, namely respondents expressing the need for more funding and inter-agency cooperation, as well as the importance of understanding pathways to better direct IS management. The Survey results also provide insight into how these groups both communicate and educate on their progress and involvement with IS in NYS.

The purpose of the Survey was to encourage selected contacts to provide feedback on the successes and shortcomings of their current and past efforts. The questions were designed to highlight a snapshot of the existing IS situation in NYS and provide organizations the opportunity to share their successes and frustrations.

Identifying and examining who chose to complete the Survey, the Project Team gleaned perhaps equally important information on the current status of IS control and management in NYS as the answers themselves. After reviewing completion numbers, the Project Team identified that less than half of the federal agencies contacted submitted completed surveys. This acknowledges a few potential considerations, one of which is the severe budget cuts in federal funding, especially in the area of IS (as discussed in Section 3.3). Without the proper funding allocated to federal government agencies to implement IS regulations, the efforts of state agencies and NGOs are undermined and are often unable to complete their stated goals and objectives due to the lack of necessary support from their federal counterparts.

The objective of the 2010 questionnaire was to solicit organized responses from those professionals who work closest to the issues discussed, as opposed to individual opinions. While the Project Team was pleased with 35 completed Surveys, due to the complexity of the questions, the number of responses may potentially indicate strong reservations among the individuals contacted and an uncertainty they may have in responding as voice of their organization. While the Project Team recognizes there are numerous individual efforts to manage IS in the state, there is no consensus in the professional community regarding the lines of responsibility and where overlap should and does occur. The lack of federal response appears to highlight an overall lack of collaborative interaction among the federal and state agencies. While those identified as contacts within the agencies on matters concerning IS are dedicated to improving the control and management of IS, several of the individuals from federal agencies surveyed may not have the authority to collaborate on such a public project as the 2010 Survey. Additionally, the fragmented accessibility to resources hinders the sharing of this information. In order for all parties to improve the current and future conditions of IS management in NYS, it is imperative to maintain an open dialog.

Multiple Choice

In one of the survey's multiple choice items, respondents were asked to evaluate their agency's top three resource needs for IS management. The questionnaire provided a list of potential answers allowing respondents to rank the options from one to three. The overall top-rated response for resource need was more dedicated funding -- 18 respondents prioritized this as number one. Responses for the second and third most needed resources were spread out across several other options. In a tie for second highest prioritized resource need were additional staff and improved control methods (both with 12 responses). More agency emphasis (with 9 responses) came in fourth. More agency emphasis was interpreted as agency management does not put enough emphasis on addressing IS issues within

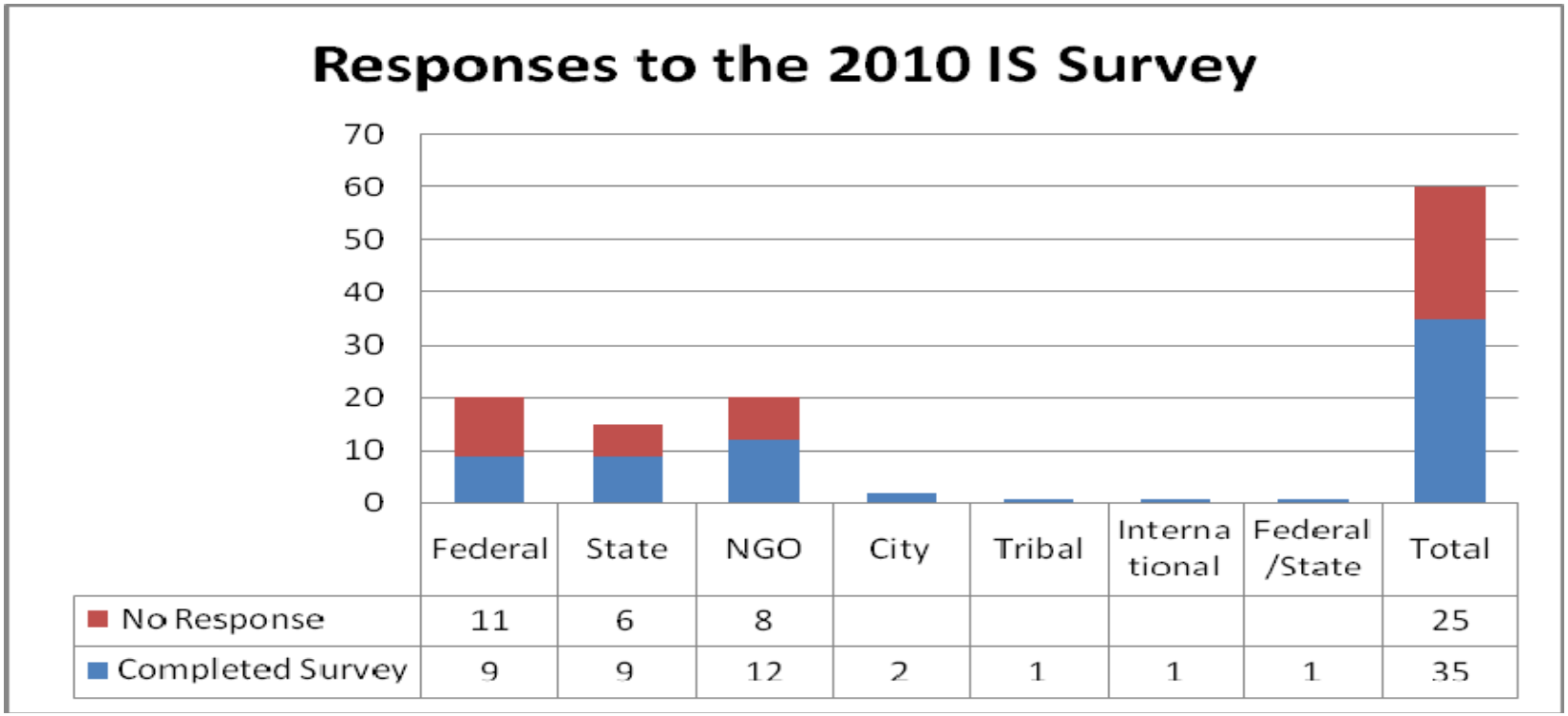


Figure 3-1 Responses to the 2010 IS Survey

their organization. Respondents also had an opportunity to select "other" and submit their own resource needs in the blank provided. Nine individuals took advantage of this response option and provided an additional resource need that was not identified on the survey list. These responses varied widely; however, three individuals identified a reallocation of existing funding. This was interpreted to signify that the respondent wanted a shift in funding priorities within their organization. A full representation of the spread of these responses is presented in Figure 3-2.

A large component of IS management is education and outreach. Respondents to the 2010 questionnaire acknowledge a vast group of audiences for delivering information on management of nuisance species. The top three audiences identified in the results are the public (24), state elected officials (14), and internal agencies or entities (13). The public is, without question, a necessary audience to educate on IS. Because this group is so extensive and comprises a large population of citizen scientists and vested community members, the professionals working as policy-makers and researchers can greatly amplify the knowledge base by educating the public. State elected officials and internal agencies also benefit from outreach on IS affecting the state. It is essential that these groups are aware of both the threats and current management efforts so that more of a concerted effort in addition to continued funding allocations can be implemented (see Figure 3-3).

Open-Ended Questions

Respondents took advantage of the survey's open-ended questions to provide detail on the specifics of their involvement with IS. These opportunities allowed the respondents to expand upon the responses they provided in the multiple choice questions. Following the analysis of the survey responses, the Project Team attempted to follow up on the responses of individuals, thus allowing them to further confirm details of their response. The open-ended questions provided respondents the opportunity to contribute additional commentary in a non-formatted forum and expound on any initial responses.

One of the goals of the 2010 IS Survey was to identify the top five IS vectors that agencies encounter in their work. Question 9 allowed respondents to list any IS that are actively managed within their agency. This sort of information could significantly contribute to the creation of a statewide priority list for IS in NYS. Additionally, PRISMs offer regional knowledge of IS within their regions to organize region-specific lists. This question received a 100% response rate from respondents as it is a unifying issue in IS management. Comprehension of the various pathways, or vectors, by which non-native species are introduced into NYS is an important step in IS management. Because these pathways are numerous and complex, they require the involvement of a variety of state agencies and organizations on a variety of different levels.

The Aquatic Nuisance Species Task Force (ANSTF) and the National Invasive Species Council (NISC), in their 2007 jointly published *Training and Implementation Guide for Pathway Definition, Risk Analysis and Risk Prioritization,* pro-

vides a series of diagrams to illustrate the vast complexity of IS pathways. ANSTF and NISC organized IS pathways into three categories: Transportation-Related Pathways, Living Industry Pathways, and Miscellaneous Pathways (see Figure 3-4).

Figure 3-4 illustrates the general overview of how NISC organized the "first-cut" pathway groupings. This first-cut analysis makes up a portion of Step 2 of a larger five-step plan for pathway analysis designed by ANSTF and NISC:

1. Preparation;

2. Multiple Pathway Triage and Threat Level Assessment;

3. Single Pathway Definition. Associated vectors/invasives. Threat-level review;

4. Single Pathway Consensus Risk Analysis and Assignment to Scale of Invasiveness; and

5. Final Reports to Decision and Policy Makers.

ANSTF and NISC define this first-cut analysis as a "triage of pathways, wherein decisions are made as to what pathways are relevant to agency mission, what the traditional characteristics of the pathway(s) are; what invasives are traditionally transmitted via these pathways; and finally, what the threat level of invasives transmitted via those pathways represent" (ANSTF and NISC January 2007). The initial categories were then further expanded into separate diagrams for each category due to the extensive amount of potential pathways each category represents, provided on pages 9 through 11 of their guide.

The most prevalent responses to question 9 in the 2010 Survey were ballast water discharge (Transportation), movement of firewood (Living Industry), wood packing material used in the trade industry (Transportation), and recreational boating (Transportation). Utilizing the ANSTF and NISC framework for pathway analysis, Figure 3-5 illustrates the distribution of responses from the 2010 IS Survey into these categories.

These categories demonstrate the various responses to top vectors because, while there were some similar trends, many responses were unique but fell into the same type of management or required monitoring. The ANSTF and NISC categories allow a clearer picture of the 2010 Survey responses, which helps determine how to focus resources on pathway management.

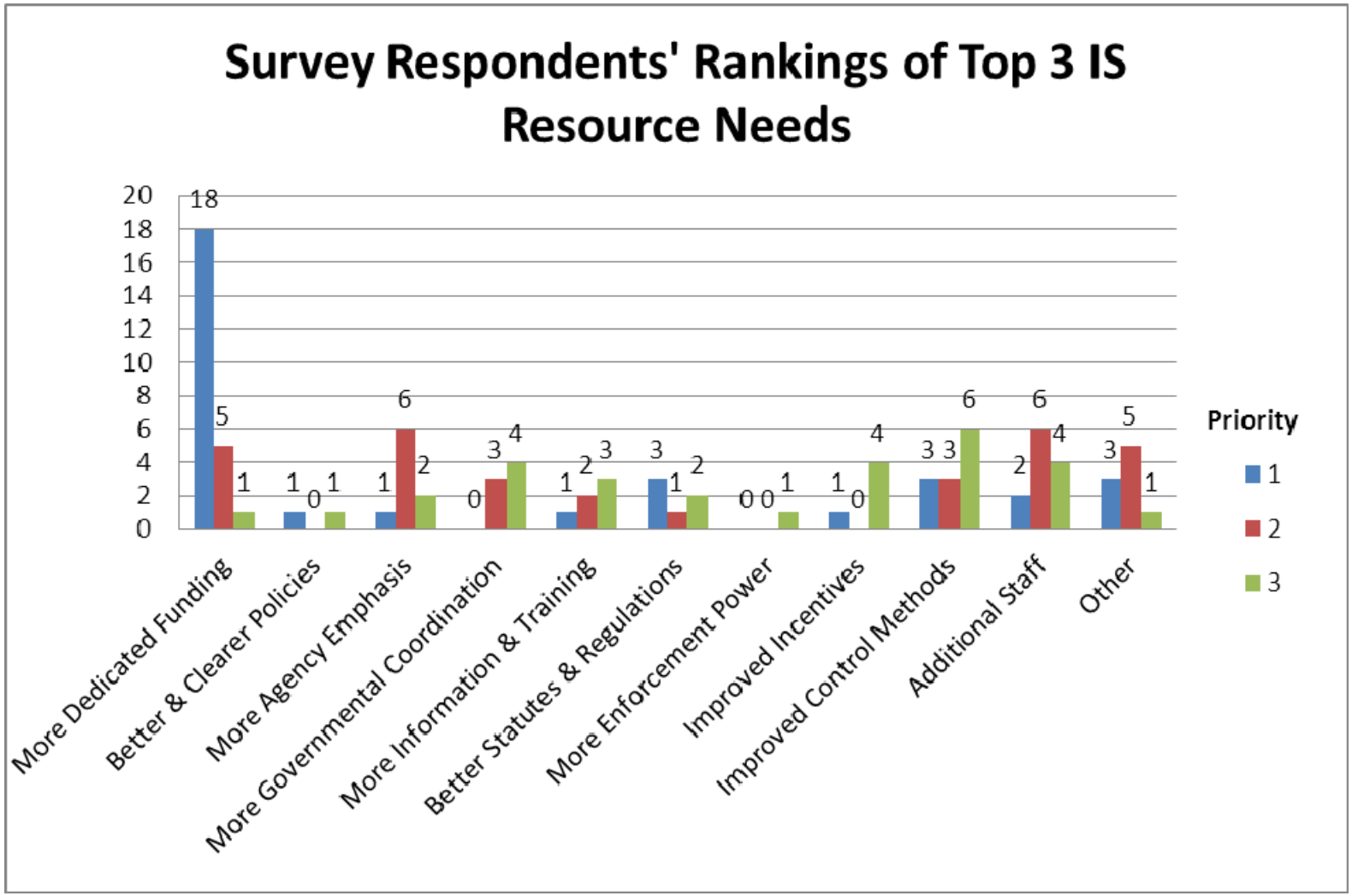


Figure 3-2 Survey Respondents' Rankings of Top Three IS Resource Needs

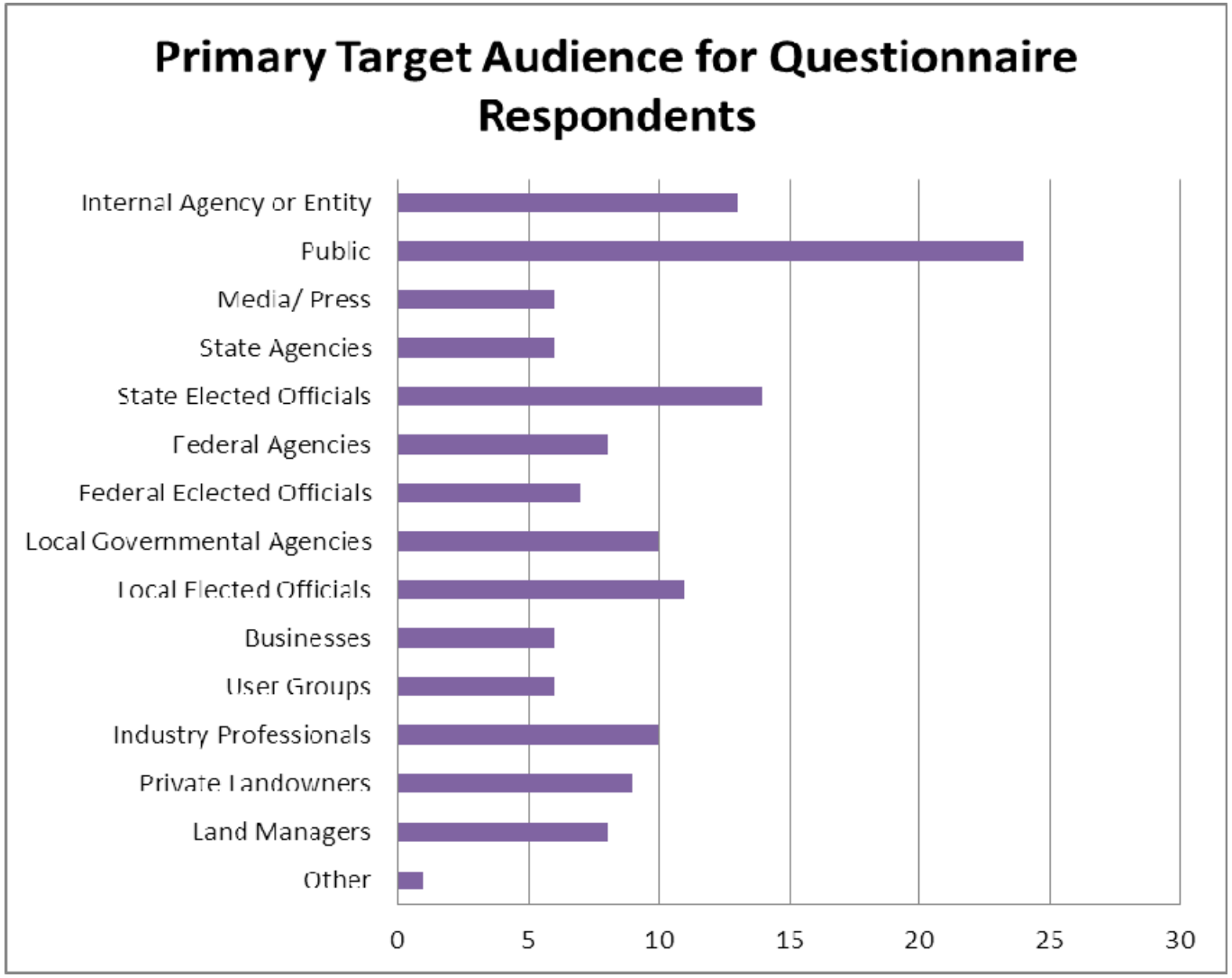
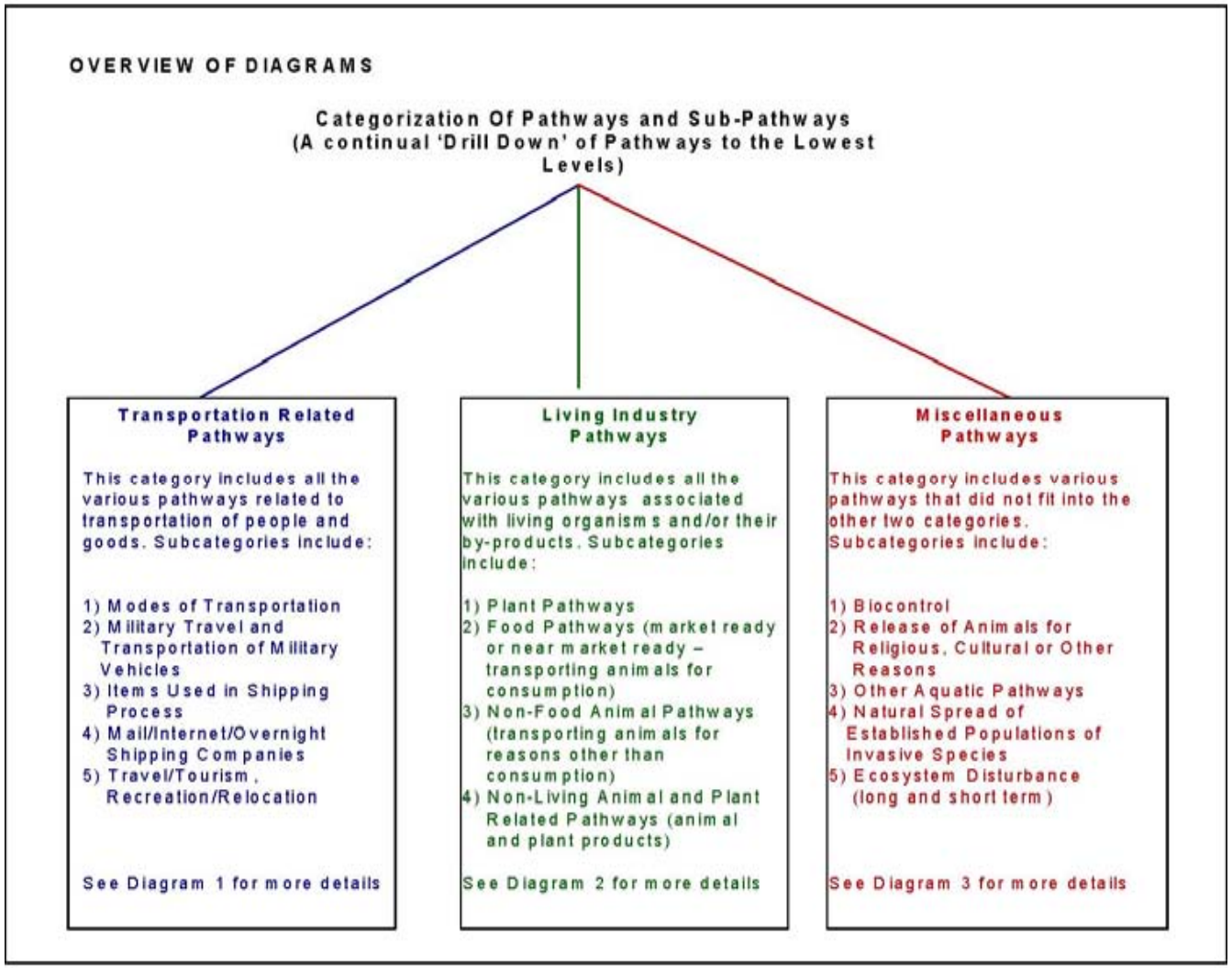


Figure 3-3 Primary Target Audiences Identified by Survey Respondents



Source: ANSTF and NISC January 2007

Figure 3-4 Categorization of Pathways of Invasive Species Introduction

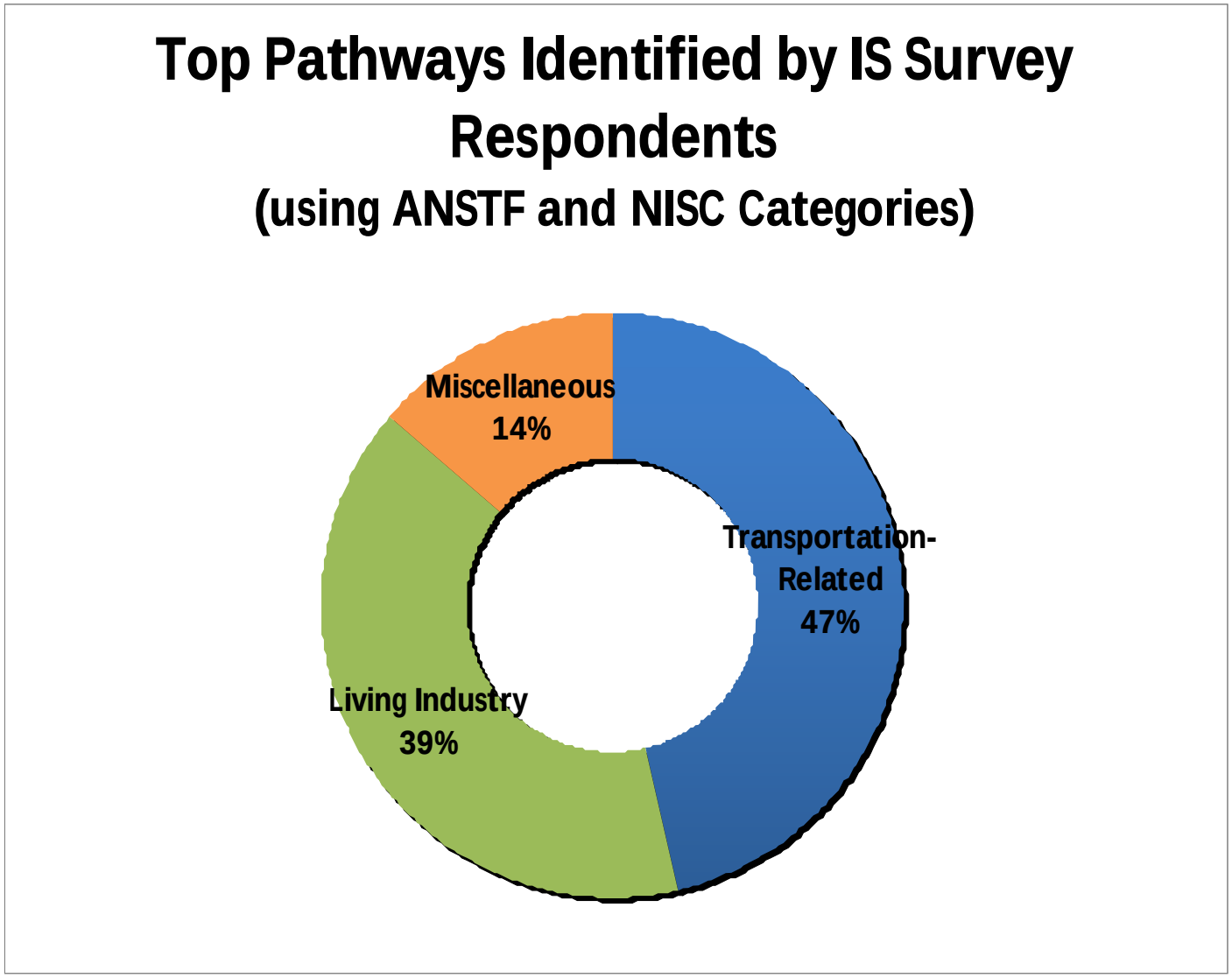


Figure 3-5 Top Pathways Identified by IS Survey Respondents

The last question (No. 35) of the Survey invited respondents to provide additional recommendations of approaches or strategies to address early detection/rapid response (EDRR) and prevention to "reduce, minimize, and/or eliminate future IS damage in the state." The Project Team felt that all responses should be included in this report so that each respondent's ideas were considered. These concepts were compiled with responses acquired during additional follow-up correspondence as well as exchange with Level C contacts and is provided as Appendix F. All responses were organized into the categories of prevention, EDRR, control and management, restoration, and organizational collaboration. The responses submitted range from increasing and enforcing regulation, to establishing protocols for detecting and managing IS threats. Additional discussion of pivotal responses is included in Section 4.

3.1.2 Schematic Design

The Project Team conceded that IS management and control in NYS is not a clean process, but a complicated grouping of both overlapping and individual programs and efforts with 120 active entities involved. As such, a schematic diagram provided in Section 4 proposes an organized coordination framework for future NYS management efforts (see Figure 4-1).

3.2 Task B – Agency Responsibilities and Coordination

As stated in Section 2.2, the Project Team conducted desktop research to identify the existing regulatory and programmatic framework for ISCM at the federal and NYS levels of government. The purpose of this research was to obtain an understanding of the regulatory authorities and policies that influence the efforts to prevent and/or control the introduction and management of IS in NYS. A summary of the existing legislation is presented in Appendix C.

At the federal level a great deal of legislation has been focused on the prevention, control and eradication of IS of all types. Some of the legislation currently in effect dates to the 1940s, while some was enacted as recently as the last session of Congress. Primary agencies with authority to implement programs or take action with respect to IS include the:

- U.S. Environmental Protection Agency (EPA);
- USDA (particularly the Animal and Plant Health Inspection Service and Forest Service);
- DOI (particularly the USFWS and the National Park Service);
- Department of Defense (particularly the United States Army Corps of Engineers [USACE]);
- U.S. Department of Transportation (USDOT; particularly the Federal Highway Administration);

- U.S. Department of Homeland Security (particularly the Coast Guard), and
- U.S. Department of Commerce (particularly National Oceanic and Atmospheric Administration).

At the state level, NYSDEC and NYSDAM are responsible for:

- Inspection and sale of seeds,
- Integrated pest management,
- Prevention and control of disease in trees and plants,
- with NYSDEC, establishing and maintaining the Council,
- Insects, and
- Sale of fruit-bearing trees.

The Integrated Pest Management (IPM) Program is supported by both NYSDAM and NYSDEC. Funded largely through grants, the program has working groups focused on vegetables, livestock and field crops, fruit, ornamentals and community outreach. The program, hosted by Cornell University, focuses largely on outreach and education as well as research and development projects focusing on IPM issues. The Division of Plant Industry within NYSDAM handles some IS programming, including seed and fertilizer inspections and implementation of plant pest laws.

NYSDEC has responsibility for:

- Forest health;
- Oceans and Great Lakes;
- Water Resources/Pollution, Wetlands, and Streams;
- Lake George Park Commission, LI Pine Barrens, Albany Pine Bush Commission, Hudson River Estuary Program;
- Endangered and Threatened Species;
- with NYSDAM, Establishing and maintaining the Council,
- Coordinating the IS program through OISC on a statewide level:
- Issuing permits for release of wildlife including biocontrol agents, and

- Establishing and maintaining fish and wildlife management practices through cooperative programs.

The entity in NYS with the widest ranging program for IS is the Council, which is co-chaired by the commissioners of NYSDEC and NYSDAM. The Council serves to:

- Assess the nature, scope and magnitude of the impacts caused by IS in the state;
- Identify actions already taken to prevent, detect, respond rapidly to, and control IS;
- Recommend ways to restore native species and habitat conditions in impacted ecosystems;
- Conduct research and develop technologies to prevent new introductions;
- Promote public education;
- Develop an IS management plan;
- Provide input on funding priorities and grant applications; and
- Hold a biennial IS summit.

A discussion of the efficiencies of these co-existing programs as well as potential gaps in the regulatory framework is found in Section 4.

3.3 Task C – Funding

In 2005, the Task Force identified funding as one of the key issues to addressing IS in NYS in its final report.

"Adequate funding should be allocated to IS management activities, including: coordination; prevention; eradication; control and management, including research; and public education. In the near-term, sufficient staff should be allocated to IS management. The development of a comprehensive plan should begin as soon as possible but should not delay ongoing efforts that are of obvious value." As discussed in Section 2.1.1, respondents to the 2010 survey also overwhelmingly identified additional funding as the highest priority resource need for IS management.

Funding progress has been made on a number of fronts. Pursuant to the Task Force recommendation that there be a dedicated state funding source, an IS category has been established in the Environmental Protection Fund (EPF) and has been providing funding every year since state fiscal year 2006/2007 (FY 06/07). Note: the state also provided $1 million in IS funding in the Aid to Localities

Budget in 2005. In addition, the state, often in partnership with NGOs, has increasingly relied on federal funding sources for natural resource management (NRM) programs, which include IS as well as programs addressing specific nuisance species, such as the EAB. These programs, however, face unprecedented federal and state funding issues due to the economic downturn. State agencies including NYSDEC, NYSDAM, NYS Office of Parks, Recreation and Historic Preservation (OPRHP) and NYSDOT have fewer resources now due to budget cuts, staff layoffs, and early retirements. While federal funding has seen some increases, particularly due to the American Recovery and Reinvestment Act (ARRA), the future does not bode well due to federal deficit reduction efforts.

Currently, a broad range of activities are funded through a mix of federal, state and private sources at the state and local levels. In addition to compiling and evaluating the various funding sources, the Project Team interviewed several key stakeholders to get their experience and perspective on these programs. Following are the Project Team's findings and recommendations.

Federal Funding

The state relies heavily on various federal sources for funding of IS programs including the USDA, USDA Forest Service, and EPA. Following is a discussion of the programs that the Project Team has identified. Given the certainty of additional federal budget cuts, however, the state will likely see a decrease in funding from some of these programs.

The APIPP, a state PRISM, has received federal funding through partner contributions from the USDOT and EPA. These federal funds have primarily been utilized to support staff. In 2001, a Wetland Program Development Grant from the EPA funded the APIPP's first full-time employee. The USDOT discretionary funds have been used to employ additional seasonal and full-time staff. In 2005 and 2007, APIPP was also awarded $100,000 through the USDOT National Scenic Byways Discretionary Grants program. As a follow-up to previous grants, APIPP received an additional $170,000 from a private foundation grant in early 2011. A primary use of this grant is to pilot a terrestrial regional response team to manage terrestrial invasive plants in priority areas across the Adirondack region.

Great Lakes Restoration Initiative (GLRI) funds have been awarded for IS-related activities including the Buffalo Niagara Riverkeeper for the Niagara River Regional Habitat Restoration Strategy and to TNC, Central and Western New York Chapter for the Lake Ontario wetland IS control and restoration project. However, this funding only applies to the Great Lakes Region.

NYSDEC's Division of Lands and Forests taps into several USDA Forest Service programs to fund some of its work for IS management. The Technology Development for the Biological Control of Invasive Native and Non-Native Plants (BCIP) Program and the Northeastern Area State and Private Forestry (S&PF) Competitive Allocation Program are examples of grant programs offered through the USDA Forest Service. The state recently received Forest Service funding for

forest activities including pest control. The OPRHP received funding to control hemlock woolly adelgid (HWA) in a Finger Lakes park, a new region of HWA infestation in an NHP-significant hemlock forest.

The primary source of funding for IS management for NYSDAM has been cooperative agreements with APHIS. Through a $1.2 million cooperative agreement, the Asian Longhorn Beetle Program has been very successful. In addition, a $1.3 million cooperative agreement is in place for the management of Plum Pox virus in the lake plains area of the state.

NYSDAM has also been able to utilize Farm Bill funding through Section 10.201. Fourteen projects are funded under the Farm Bill totaling $3.5 million. This funding is allocated through the Federal Commodity Credit Corporation supported by the Farm Service Agency (FSA) of the USDA. Farm Bill funding has expanded in recent years from $40 to $50 million for federal FY 2010.

State Funding

The primary source of state funding is the EPF. Based on the recommendation of the Task Force, starting in FY 06/07 the EPF included funding for IS. While funding for IS appears to have increased in percentage in the last five years, the amount allocated has actually decreased due to a decrease in the overall amount available. Additionally, a small portion of EPF funds through the State Land Stewardship line has been used by NYSDEC and the OPRHP for non-staff related IS management on state-owned properties. Table 3-1 summarizes those appropriations[7]:

Table 3-1 Environmental Protection Fund History of Appropriations, Fiscal Year (FY) 99/00-10/11

(in thousands of $)				
Enactment Year	DEC/OPRHP State Land Stewardship	% of Total EPF Appropriations	Invasive Species	% of Total EPF Appropriations
FY99/00	12,000	9.6	--	--
FY00/01	12,000	8.9	--	--
FY01/02	7,000	5.6	--	--
FY02/03	6,500	5.2	--	--
FY03/04	5,750	4.6	--	--
FY04/05	5,750	4.6	--	--
FY05/06	6,500	4.3	--	--
FY06/07	15,000	6.7	3,000	1.3
FY07/08	22,250	8.9	5,000	2.0
FY08/09	5,750	2.3	5,000	2.0
DRP FY08/09	4,000	2.0	4,000	2.0
FY09/10	7,000	3.2	5,000+	2.3
DRP FY 09/10	5,000	2.4	4,794+	2.3

[7] This category includes agency spending on both invasive species activities and projects.

Table 3-1 Environmental Protection Fund History of Appropriations, Fiscal Year (FY) 99/00-10/11

(in thousands of $)				
Enactment Year	DEC/OPRHP State Land Stewardship	% of Total EPF Appropriations	Invasive Species	% of Total EPF Appropriations
FY10/11	16,228	12.1	3,800	2.8
FY11/12	16,228	12.1	3,800	2.8

Source: New York State Budget-Enacted FY99/00 through FY11/12

Key:
DRP = Deficit Return Planning
\+ = An additional $1 million was appropriated for Eradication Grants in FY 09/10.

While the Task Force did not recommend a specific level of funding, there was a general discussion that $10 million annually of dedicated funding would be needed to "run a comprehensive program and implement the recommendations of the Task Force report." (See pages 132 and 133 of the *Final Report of the New York State Invasive Species Task Force*). It was also expected that this would include staffing and resources within agencies as well as interagency coordination. The EPF, however, does not provide funds for agency staffing. It should also be noted that the state has never provided funds at this level.

The NYS Biodiversity Research Institute (BRI) was previously funded through the EPF. The OPRHP utilized BRI funds to support research initiatives in state parks that would have been otherwise difficult to fund. Most funding sources are looking for on-the-ground conservation and success, and it is difficult to find support for the background research that is a necessary component of this success. OPRHP also received an EPF Eradication Grant of $100,000 to create an Invasive Species Prevention Zone in Minnewaska State Park. In addition, Stewardship Initiative funds have supported staff positions at the OPRHP. Seven biologists have been hired, including one biologist specifically dedicated to IS management; however, the agency recently lost the IS dedicated position.

The state does not typically support the hiring of seasonal or temporary staff for field crews; however, the OPRHP has used two means to hire seasonal staff: the Student Conservation Association (SCA) and the Natural Heritage Trust (NHT). Under previous administrations, the SCA would hire staff and administer state funds providing a highly effective temporary work force for OPRHP. A former SCA intern was hired as the statewide IS field director with Stewardship Initiative funding. The NHT is a public benefit corporation through which OPRHP directs funding to hire temporary staff, while only equipment can be purchased directly by OPRHP.

Private and Other Funding Sources

There are a number of private foundations that fund environmental projects including natural resource restoration and IS eradication. Following is a discussion of some of the sources identified by the Project Team.

The Charles A. and Anne Morrow Lindbergh Foundation provides grants of up to $10,580 (a symbolic amount representing the cost of the Spirit of St. Louis) to individuals who further the Lindberghs' vision of a balance between the advance of technology and the preservation of the natural/human environment. These grants are allocated in a variety of categories that could be applicable to IS management including: Agriculture, Conservation of Animal Resources, Conservation of Plant Resources, Conservation of Water Resources, and General Conservation.

The National Fish and Wildlife Foundation (NFWF) is a 501(c) (3) non-profit that preserves and restores our nation's native wildlife species and habitats. Created by Congress in 1984, the NFWF directs public conservation dollars to environmental needs and matches those investments with private funds. There are several grant programs through NFWF that could be used for IS management in NYS. Bringing Back the Natives is a grant program presented in cooperation with the USFWS, Bureau of Land Management (BLM), USDA Forest Service, and Trout Unlimited to fund initiatives for restoring, protecting, and enhancing native populations of sensitive or listed aquatic species, especially on lands on or adjacent to Federal agency lands. The Native Plant Conservation Initiative supports on-the-ground conservation projects that protect, enhance, and/or restore native plant communities, including pollinators, on public and private lands. The Pulling Together Initiative seeks proposals that will help control invasive plant species, mostly through the work of public/private partnerships such as Cooperative Weed Management Areas. All three of these programs require matching funds. See Appendix D for a complete list of IS funding sources.

3.4 Task D – Means Required to Address Prevention, Early Detection and Rapid Response

The NYS IS Council has been authorized by Title 17 Section 9-1701 to implement the 12 recommendations approved by the NYS legislature in 2005. The recommendations include the creation and administration of the PRISM infrastructure, which was established to implement an accepted protocol for IS control and management within an AM framework. An established, collaborative IS network of professionals from public and private sectors, as well as academia, is in place to provide a decision support system for regional PRISMs. This infrastructure is composed of eight geographic regions representative of distinct ecoregions with some overlap of resource areas in the state (see Figure 3-6).

The PRISM network was conceived to facilitate the empowerment of local stakeholders and experts within each region to define the ecological impacts and priority actions to address IS within each PRISM. Inadequate funding and staff reductions, however, have prevented effective implementation of the existing recommendations to make PRISMs operational and develop IS control and management projects in NYS. While great progress was recently made in August 2011 to fund an additional PRISM with state resources, RFPs for the remaining four independent PRISMs have yet to be implemented. At this time, the regional PRISM network is only partially operational with four of the eight PRISMs under contracts

with NYSDEC which inhibits coordination and program efficacy within unfounded PRISMs.

The IS Strategy, in schematic form, illustrates the integration and knowledge transfer between administrators, regulators, program managers, academics, and practitioners (see Figure 4-1). The IS Strategy is represented as a visual diagram for implementation by NYS to facilitate the organized flow of technical and educational information within public and private sectors. The adoption of the following strategic components into a statewide ISCM plan, with dedicated programmatic support through the PRISM infrastructure, could provide quantifiable results that could be replicated by other stakeholders and private sector programs throughout the state.

Stakeholder Coordination and Outreach

At the state level, administration of existing IS programs and coordination of PRISM activities is the mutual responsibility of the OISC. This office interfaces directly with the Council and its advisory committee to:

OISC Mission: "…to prevent or minimize the harm caused by IS to New York's environment by collaborating and coordinating efforts with all stakeholders across the State.

Steve Sanford, 2009, Former Director of the OISC

- Facilitate coordination with all stakeholders;
- Communicate (governor and legislature);
- Identify program needs;
- Identify resource needs;
- Develop programs;
- Pursue resources; and
- Implement Title 17.

Each of the eight PRISMs represents an organizational structure that has the potential (when fully operational) to identify and prioritize IS threats and impacts within each ecoregion of NYS.

Public Education, Awareness, and Technical Training

Public education and awareness is one of the best and most cost-effective means to control the introduction and manage the spread of IS. Federal, state, and local agencies continue to address fiscal challenges exacerbated by global and national economic conditions. Without full implementation of the Task Force's 12 recommendations, the existing capacity of governmental agencies to conduct public

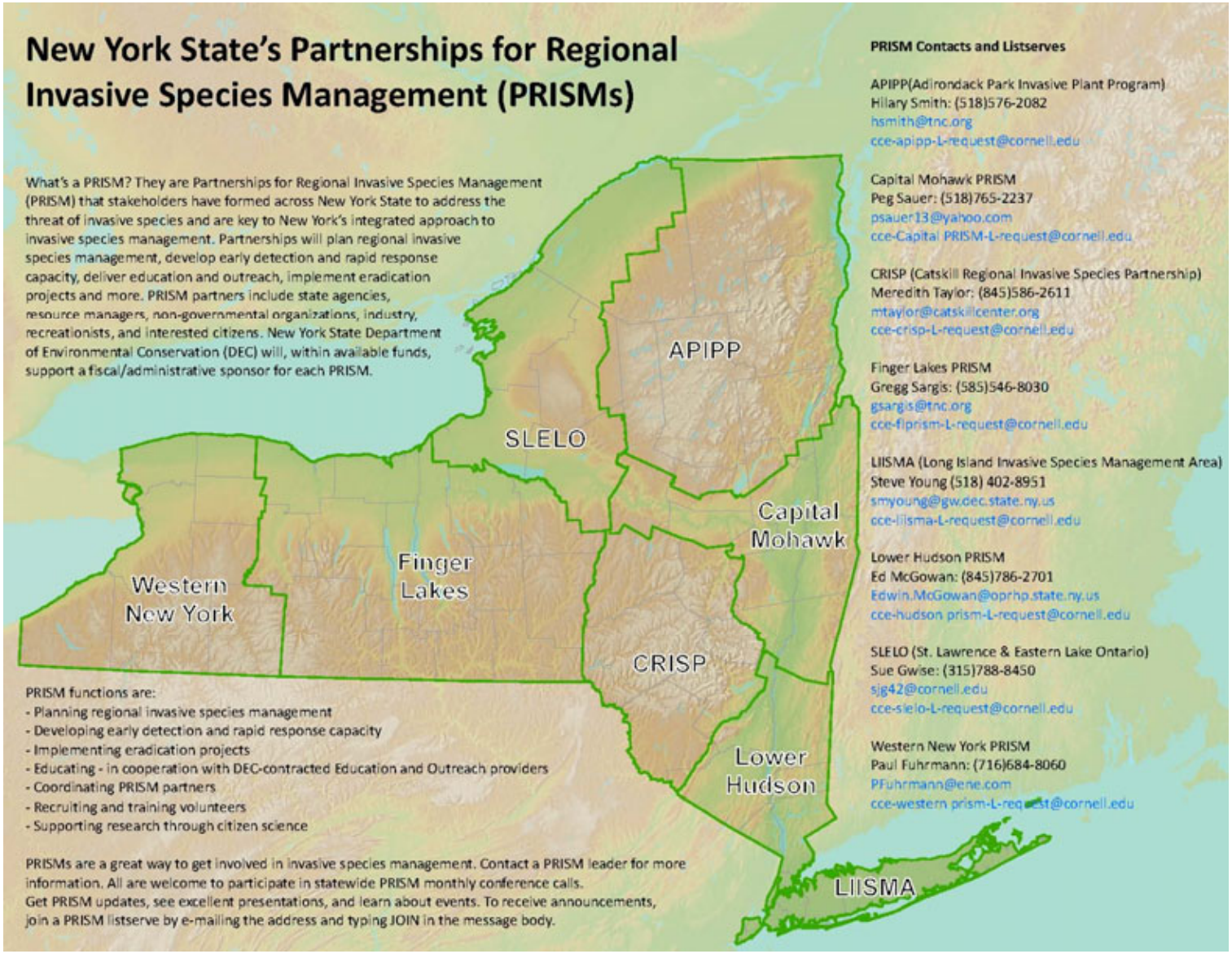


Figure 3-6 New York State PRISM Map

education, awareness and training programs to address IS impacts in NYS is severely limited. Reduced capacity to develop and deliver IS program objectives is directly related to reduction in IS agency staffing as a result of the state's fiscal crisis. The OISC has lost two critical positions representing 50% of their staff. All agencies represented on the IS Council have experienced reduction in staff and budgets as well. Uncertainty of federal budget allocations warrants the state to commit increased dedicated funding for IS control and management through the EPF to support actions prescribed by the Task Force. Building consensus within the private sector through educational programs that document the ecological and economic impacts of IS is a critical step to the development of successful natural resource stewardship programs. PRISM regional programs that have received funding support have developed successful IS control and management programs that are focused on regional IS and are consistent with state and federal programming. An operational PRISM infrastructure represents the ability to develop internal capacity, IS education and outreach modules, and community stewardship as well as regional IS control and management projects.

Educational outreach and training initiatives have begun with IS education and control demonstration projects involving technical guidance from professional resource managers, academics, or industry technicians. Knowledge and experience is transferrable and can be reproduced at other locations. Volunteer professionals and experts, however, cannot be available on a consistent basis. Each PRISM Coordinator must have a combination of administrative support and funding to develop IS programs that empower stakeholders with knowledge and experience and encourage project sponsors to engage in effective IS control and management project planning. The following protocol is consistent with state and federal methodology for IS control and management:

- **Prevention** – Understanding vectors and pathways to facilitate the development of resource protection measures as well as the means to ensure regulatory compliance through a combination of education and enforcement.

- **Early detection** – Understanding of existing or known IS by region as well as predictable temporal and spatial scale of IS recruitment and colonization.

- **Mapping/assessment** – The iMapInvasives Program[8] methodology developed by the NHP and presently implemented through the PRISM infrastructure is essential to creation and management of a NYS IS database. This program provides regional PRISMs, researchers, and

In 2006, the Government Accountability Office issued the report *Invasive Forest Pests: Lessons Learned from Three Recent Infestations May Aid in Managing Future Efforts*, GAO-06- 353 which stated that insufficient funds helped explain failures to eradicate the Asian longhorned beetle and to contain the EAB and sudden oak death (phytopthora leaf blight) pathogen.

[8] www.imapinvasives.org (NYNHP n.d.)

other IS stakeholders with baseline data to prioritized project activities, document and quantify measureable results. iMap Invasives is currently being utilized as an effective IS management tool largely within the public sector. If fully operational, bridging the public, NGOs, and government, the iMapInvasives Program would provide a functional geographic information system (GIS)-based IS database that would provide transfer of spatial data to public and private sector IS program managers.

- **Rapid response** – Many occurrences of IS, when detected early, can be controlled or eradicated by local response teams. Despite the availability of emergency response resources and technical control methods, critical programmatic support and direction is lacking to implement this element of a comprehensive IS strategy. Two successful models that have implemented elements of an early detection/rapid response method are the combined NYSDEC and USDA-APHIS program for EAB (*Agrilus planipennis*) detection and the NYSDEC program for regional control of giant hogweed (*Heracleum mantegazzianum*). Both programs have provided public and private sector stakeholders with information on ecological and economic impacts as well as engaged local volunteers to assist in survey and monitoring consistent with the NYS OISC and PRISM program mission.

- **Control** – IS control methods are dependent on local municipal policy, land ownership, and available resources. Within the framework of state authority and municipal home rule governance, NYS ISCMP requires the development of biological, technical, and legally defensible approaches to implementing control and management measures. Training of state and local land managers on appropriate control techniques and coordinated development of Best Management Practices (BMPs) is needed.

- **Natural Resource Management and Community Stewardship** – Strategic alliances between public resources managers, private landowners, and environmental organizations would strengthen existing IS programs and maximize expenditures for ISCM projects. Partnerships with state and federal agencies are consistent with the OISC and PRISM network mission and can effectively integrate academic and citizen organizations to address IS issues at local levels.

- **Monitoring** – The iMapInvasives Program is a functional, interactive, and user-friendly database appropriate for multiple skill levels that is becoming the foundation for IS monitoring in NYS. The iMapInvasives consortium has formed “to develop, support and maintain an online, GIS-based, all-taxa IS mapping tool, iMapInvasives, focused on serving the needs of land managers, regional planners and others working to prevent, control or manage IS. A par-

ticular emphasis is placed on functionality designed to aid in Early Detection/Rapid Response efforts."[9]

The following Action Items represent an IS control and management template that is described in greater detail in Section 4.

- Administrative Coordination: Provide leadership and collaborative environment;
- Education and Outreach: Support IS awareness programs in academic, public, and private sectors;
- Policy/Legislation: Develop science based policies and laws;
- Regulation/Enforcement: Define regulatory compliance and enforcement actions;
- Ecological, Economic and Human Health Risk Assessment: Identify biological threats and impacts within natural and managed systems and prioritize threats for wise allocation of resources;
- Management Plans: Develop species-specific plans and BMPs; and
- Performance Monitoring: Develop and increase monitoring capacity to include "citizen science" and climate change and improve science-based monitoring of control projects to evaluate efficacy.

Implementation of the action items listed above would result in the following:

- Reduction of IS impacts;
- Prevention of IS introductions and recruitment;
- Public and private sector awareness and surveillance; and
- Development of restoration guidance for areas in recovery.

3.5 Task E – Best Means to Incorporate New York State ANS Plan, Lake Champlain Basin ANS Plan, and Adirondack Park ANS Plan

APIPP

During the interview conducted with APIPP, it became evident that their ANS Management Plan (APIPP Plan) was modeled after the national ANS Task Force

[9] *iMapInavsisives*-Geotracking invasive exotic species www.imapinvasives.org (NYNHP n.d.)

framework for state management plans as well as the NISC Management Plan (Hilary Smith, personal communication, April 27, 2011). For this reason, it is no surprise that the APIPP ANS Management Plan would contain methods that could appropriately be applied to a statewide management strategy for NYS. There are, however, characteristics of the Adirondack region that require any examination of their ANS management plan be filtered through an objective lens.

The Adirondacks comprise a very ecologically rich region unique to both NYS and the United States. The Adirondack Park is made up of 6 million acres of diverse ecosystems, almost half of which are allocated to the people of NYS and constitutionally protected as a forest preserve. The remaining land is private and mostly consists of businesses, residences, farms, camps, and timber lands (APA 2003). The Adirondack Park Invasive Plant Program was established in 1998 by a group of interested local stakeholders and residents. It was incorporated as the first of NYS's PRISM structure in October 2008 (New York Sea Grant 2011). APIPP is set apart from the other PRISMs in that they have a captive audience of vested residents and tourists passionate about the region, commonality to the region, and a lifestyle and economy unlike any other area in the state. While there are components of their region unique to their area that help facilitate a successful partnership, there is also much to learn from their management plan in order to better focus the statewide management strategy.

A key component to the success and effectiveness of the APIPP Plan is the outreach they conduct with regional stakeholders. Interested local partners were established to collaborate with APIPP well before they became one of the state's eight PRISMs. These PRISM partners have been essential to both helping develop the APIPP Plan, and also executing its goals.

Taking cue from the *Final Report of the New York State Invasive Species Task Force*, the structure of the APIPP Plan utilizes a framework of objectives, strategies, and actions. Each of the seven outlined objectives (Coordination, Enforcement and Legislation, Education and Outreach, Early Detection and Monitoring, Management, Restoration, and Research) lists a systematic approach to that goal. Each listed action for carrying out these objectives names a lead agency or organization to head that effort in addition to "potential key players" to assist the lead.

Currently, APIPP maintains a priority list of ANS of concern. As management is implemented, the list of species of concern is periodically revised, using the following criteria:

- Severity of existing impacts;
- Scientific capability to resolve the problem;
- Cost of management or prevention;

- Existence of established management or prevention programs;
- Potential for species to expand their range within the Park and cause greater impacts; and
- Potential for species to enter the region and cause substantial impacts if introduced.

Using this approach, APIPP applies AM practices to its management strategy for the Adirondacks. AM makes it feasible to address both species-specific concerns and also broader concerns, such as pathways. The predominant priority in maintaining a healthy management plan, however, as proven by APIPP and its accomplishments, is adequate funding. Defined directly within the APIPP Plan, "the challenge of IS cannot be managed by piecemeal and sporadic funding, nor by assigning existing staff additional responsibilities associated with coordinating…" (Adirondack Aquatic Nuisance Species Committee 2006).

While the APIPP Plan is currently defined as an ANS Management Plan, based on state PRISM recommendations the plan is being restructured to encompass other IS in the Adirondacks as well. APIPP's updated management plan will incorporate new feedback from their partners and stakeholders. Some of these additional concepts will include more pathway and vector analysis, rapid response, and also climate change and resource development.

The Lake Champlain Basin

The first endorsement of the Lake Champlain Basin Program's (LCBP) *Opportunities for Action: An Evolving Plan for the Lake Champlain Basin* (OFA) was agreed upon in October 1996 by the governors of Vermont and New York, in cooperation with corresponding regional EPA administrators and the Premier of Québec. It was established at that time that the OFA would undergo future updates. The OFA was updated in 2003 and more recently in November 2010. The updated OFA includes a list of eight goals for the Lake Champlain Basin, one of which is to manage aquatic IS. Implementing this goal is the *Lake Champlain Basin Aquatic Nuisance Species Management Plan* which received approval from the National ANS Task Force in 2005 (Lake Champlain Steering Committee [LCSC] 2010). The LCB ANS Management Plan (LCB Plan) establishes the framework of the OFA objective to "prevent the introduction, limit the spread, and control the impact of non-native aquatic invasive species in…the Lake Champlain ecosystem" (LCSC 2010).

Due to the extent of the waterways within the Lake Champlain Basin, the LCB Plan focuses primarily on pathways of IS introduction within both natural and artificial waterways. In addition to a focus on pathways, the LCB Plan also clearly identifies priority ANS of concern and non-native species of potential concern (both within and outside of the LCB). This allows the LCB to manage those species that are most problematic and recognize procedures that will monitor and control their spread.

The LCB Plan also implements the framework that includes objectives, strategies, and actions. Actions designated as high priority were previously defined as actions in the OFA, preceding the LCB Plan. The main objectives highlighted in the LCB Plan are:

A. Coordinate Plan Implementation

B. Education, Outreach, and Legislation

C. Early Detection, Monitoring, and Research

D. Develop, Evaluate, and Prioritize ANS and Management Actions

E. Implement Rapid Response and Management Actions

One of the key focuses in Objective B of the LCB Plan is managing spread prevention by way of educating and communicating with various audiences within the region. In addition to contributing new informational signage and educational materials to the public, one of the actions identified is to "encourage development of Hazard Analysis and Critical Control Point Plans." These Hazard Analysis and Critical Control Point Plans (HACCPs), are a management tool, modeled after those used in the food industry to prevent contamination, now applied to natural resource management (NRM) as well (HACCP-NRM 2011). "HACCP is a systematic and preventive approach that addresses biological, chemical and physical hazards through anticipation and prevention, rather than through end-product inspection and testing or retrospective engineering solutions necessitated because of previous undertakings." – American Society for Testing and Materials (ASTM) International.

One of the benefits of effectuating a Hazard Analysis-Critical Control Point (HACCP) is that while plans are individualized, as an overall management tool, the concept is recognized as an international standard in limiting the presence of nuisance species during specific procedures. The critical control points utilized in HACCP planning are defined as "a step at which control can be applied and is essential to prevent or eliminate a hazard or reduce it to an acceptable level" (USFWS March 5, 2009).

Numerous state agencies and bureaus within NYS utilize the methodologies that the HACCP planning framework establishes (e.g., OPRHP has a HACCP for its water quality monitoring program). There is a need, however, to implement an IS-specific HAACP for management and control for NYS. HACCP-NRM provides tools on their Web site for drafting HACCP plans. In addition, various training and workshop opportunities are offered throughout the year in different locations across the country and throughout the world.

Each HACCP includes a series of steps, one of which is a flow diagram that outlines a series of procedures to be completed in sequence for any HACCP designated activity or project. These steps are then carried over to a hazard analysis worksheet where potential threats are identified and assessed for each task. Criti-

cal control points are then assigned among these tasks to identify where control will be applied to best address a potential hazard that may be encountered in the procedure. HACCPs promote repetition to assure consistent control and evaluate outcomes of particular systems or tasks. The plans can be modified easily to accommodate for new technology, personnel, or deviations.

Other Regional and National Agency Resources

In addition to the NYS aquatic IS plans, significant planning information is available from regional and national agencies as well. One such organization is the Northeast Regional Aquatic Nuisance Species Panel (NEANS).

> *The Northeast Aquatic Nuisance Species Panel (the NEANS Panel) was established in the summer of 2001 in response to the growing threat of Aquatic Nuisance Species (ANS) to the region, as well as the need for a coordinated, regional approach to stop their spread. The NEANS Panel will address ANS concerns in the Gulf of Maine, as well as the freshwater systems of the Northeastern US and Atlantic Canada. The Panel is currently comprised of 41 members representing state and federal agencies, academic institutions, non-profits, and industry.*[10]

NEANS is composed of a number of issue-oriented committees organized into a panel that addresses issues and concerns relative to the freshwater and marine resources of the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York. Each jurisdiction is represented on the Panel membership.

This bi-national organization includes the Province of Quebec in Canada but not Ontario. Despite Ontario's absence, NEANS actively collaborates with the federal governments of Canada and the United States on marine and freshwater IS issues. NEANS is a credible and substantive source of current data and methods for IS management in areas of prevention, control, and mitigation. NEANS represents a valuable resource to NYS for understanding and mitigating ecological impacts as well as policy and administrative programmatic management of aquatic IS. NYS is represented by OISC on the NEANS Great Lakes Panel. The NYSDEC Nuisance and Invasive Species Program[11] and NYS in general would benefit greatly from continued affiliation and organizational collaboration with NEANS.

In May 2011, Ontario released a draft of their *Ontario Invasive Species Strategic Plan* (OISSP*)* for public comment (Ontario Ministry 2011). This document provides a breakdown of various goals, respective actions, and tactics for achieving those goals in the areas of Leadership and Intergovernmental Coordination, Monitoring and Science, Risk Assessment and Risk Analysis, Development of Management Measures, and Communication and Education in the province of Ontario.

[10] http://www.northeastans.org/ (The Northeast Aquatic Nuisance Species Panel n.d.).
[11] http://www.dec.ny.gov/animals/50121.html (NYSDEC 2011).

One of the goals outlined in the OISSP is to maintain a current management plan for the province. Updates to a plan, in addition to AM, are key in ensuring that IS are controlled with the most current knowledge and resources.

Climate change is also discussed as a need in the OISSP in the realm of AM. The OISSP follows guidance from *Climate Ready: Ontario's Adaptation Strategy and Action Plan*, issued by the Minister of the Environment appointed Expert Panel on Climate Change Adaptation. As mentioned in the OISSP, "climate change is likely to increase the rate of new invasions…and promote the spread of already-established species" (Ontario Ministry 2011). While AM applies to various uncertainties, recent studies show that climate change is a very real concern for the future. As an example, range monitoring can be used for monitoring the introduction and spread of IS within a region. With respect to climate change concerns, range monitoring can help track IS and determine if they perhaps have a high incidence along their northern temperature range that may be a result of changing temperatures or weather systems that push an invasive specimen further outside its observed range. Both temperature and duration of precipitation events, caused by climate change, will change the way floral and faunal organisms respond and impact both native and non-native species in a region.

Another key action discussed in the OISSP is to "improve effectiveness of existing inter-jurisdictional bodies in addressing invasive species." Based on the Canadian national strategy's recommendation to establish inter-jurisdictional coordination, the OISSP defines various national and international entities that should participate in a regular forum of information exchange. This interaction, on a regional level, not just within a particular state or province, takes coordination one step further outside regional, state, or international boundaries.

Beyond the resources provided in Section 3.5, an additional list of statewide management plans was researched and evaluated based on both regional applicability and recommendations from professionals working in the field of IS. State management plans from other states can be a very useful tool in determining standard elements of management that provide successful outcomes. This list is provided in Appendix H.

4 Strategy

The purpose of the three Project components (i.e., questionnaire, desktop research and interviews) is to provide NYS with the information needed to develop a comprehensive and effective statewide strategy for IS prevention, management, and education. These Project components, presented in the preceding sections and in the appendices, were designed to establish a foundation that is based on the integration of past and current data as well as relevant IS programs at the national, state, and regional level. This report confirms the need for an effective programmatic strategy focused on the statewide control and management of IS and their impacts. This section specifically recommends actions designed to strengthen the existing multi-disciplinary decision support system for the development of effective, future ISCM planning documents. The Project Team expects that this document will be helpful to the Council, its member agencies, and the Advisory Committee as well as stakeholders in the planning processes to develop future IS program objectives based on cost effective-, goal-oriented and function-based design.

Following a comprehensive study of existing resources, the Project Team developed and outlined approaches that should be incorporated into the NYS management plan for IS. These recommendations are listed below and further expanded upon in the proceeding text:

1. Adequate Funding and Staffing;
2. Effective Administration;
3. Coordinated IS Program Integration;
4. Adaptive Management (AM); and
5. Pathway Analysis.

4.1 Adequate Funding and Staffing

The state has provided dedicated funding for IS through Aid to Localities ($1 million in 2005) and through EPF since 2006, ranging from $3.25 to 5.0 million annually. While these dedicated funds have been instrumental in establishing key components of the State IS prevention and management program, such as PRISMs, Invasive Species Research Institute, iMap Database, Information Clearinghouse, Education Outreach and Eradication, and IS Eradication Grants, these funds are not sufficient to fully implement the recommendations of the 2005 Task Force Report and effectively deal with IS in a comprehensive manner.

The state needs to provide sufficient funding for a comprehensive IS program, including public outreach and education, research, prevention and eradication, and funding for PRISMs. Given the current state fiscal situation, the EPF is the most realistic source for this funding in the foreseeable future. Therefore, it is recommended that the state continue to provide dedicated funding for the EPF in the IS category. NYSDEC and OPRHP should also include IS management projects in their State Land Stewardship requests. The 2005 Task Force Report discusses the need for a minimum of $10 million for infrastructure and interagency coordination. The percentage of EPF that goes to IS funding will need to increase over time as the EPF is restored to its historic levels in order to achieve the $10 million envisioned by the Task Force.

The state relies heavily on various sources for federal funding for an array of IS activities, including inspection, eradication, prevention, and removal. The state needs to maximize its efforts to pursue federal funding. State agencies, however, are often unable to apply for and administer grants due to inadequate staffing. Federal grants are difficult to administer due to cumbersome reporting and metrics required. Often there is a need to have a third party to administer the grant. The state needs to consider these concerns in its staffing allocation and to maximize outside assistance through partnering with NGOs, academic institutions and other organizations.

In addition, state agencies need sustainable funds dedicated to IS staffing. State agencies are currently held to or below their target level and, therefore, agencies are often not able to replace retirements or promotion/lateral staffing changes or obtain authorization to hire staff for grant writing, contract administration, or temporary field staff. For example, while the OISC was planned for a total of six staff, it obtained a maximum of four in 2008 and then was reduced to two in 2010. NYSDAM had a dedicated IS staff person starting in 2009, but lost that position in 2010. At the very least, efforts should made to restore IS staffing for NYSDEC, NYSDAM and OPRHP to previous levels.

For land management agencies, field teams made up of one or two full-time staff members with seasonal staff and/or volunteers has proven to be a cost-effective, efficient method to achieve IS survey, control and monitoring, as well as site restoration. Mechanisms need to be developed for devoting staff in agencies specifically for public land management of IS.

Matching

Portions of the state IS program, such as Forest Health, rely heavily on federal funding for an array of IS activities, including prevention, monitoring/survey, and management. The state should continue to pursue federal funding, and even increase efforts to do so if opportunities allow, given the state's fiscal situation. A major limitation to successful grant funds for state agencies is the ability to apply for and administer grants because of inadequate staffing and the lack of matching funds. In addition, federal grants are often difficult to administer because of

cumbersome reporting and metrics required, which necessitate involvement of a third party to administer the grant and results in potential dilution of funds allocated to on-the-ground work.

Matching funds for federal funds are typically on the order of a 1 to 1 or even 2 to 1 ratio. Identifying state matching funds, outside of EPF, to leverage federal grants can be challenging. While NGOs, including the PRISMS, are currently required to obtain permission prior to using EPF funds, grant matching may be more feasible at the regional or local level. Several PRISMs have successfully leveraged outside funds once state funding was made available. The state should consider these concerns when developing staffing allocation and undertake additional efforts to maximize outside assistance through partnering with NGOs, academic institutions, and other organizations. Such partnering can best be accomplished by coordination of efforts at the state and PRISM levels, essentially matching partners to projects to efficiently develop successful grant applications and projects.

4.2 Effective Administration

In addition to the need for "more dedicated funding" as indicated in Figure 3-2, Survey responses suggested that the State could distribute the funds that already exist more effectively. Cumbersome administrative hurdles within State government inhibit accomplishment of the Council's objectives and Task Force recommendations. In order to increase access to EPF funds, the State needs to streamline the contracting and allocation process to increase efficiency while maintaining necessary transparency. OISC staff have identified up to 28 steps required to successfully execute a single contract, with multiple reviewers at several of these steps, resulting in a minimum two-year process to execute a single contract. This significantly inhibits implementation work on IS. It is also critical that EPF reappropriations are carried forward in future budget years and that the state agencies are allowed to access them in a timely manner to complete stated contract objectives and obtain the contract deliverables specified. Also NYSDEC should be authorized to enter into a memorandum of understanding (MOU) with other state agencies such as NYSDAM and OPRHP as well as NGOs, such as the TNC, to distribute EPF funds.

An effective administrative framework is in the existing PRISM structure. There are eight PRISMS within the state. Currently, four of these PRISMS (APIPP, Catskill Regional Invasive Species Partnership [CRISP], St. Lawrence-Eastern Lake Ontario Partnership for Regional Invasive Species Management [SLELO], and Long Island Invasive Species Management Area [LIISMA]) are single source, meaning that there is a lead organization dedicated to the coordination of activities and staffing for that PRISM. The four remaining PRISMs (Lower Hudson, Western, Finger Lakes, and Capital-Mohawk) are volunteer-based. A lead organization has not yet been established or is close to being established for these PRISMs. Volunteer-based PRISMS are still waiting for the RFP from the state so that organizations can bid to provide for coordination, staffing, and program im-

plementation. The RFP should be given high priority and released as soon as possible subject to the limitations of EPF funding.

4.3 Coordinated IS Program Integration

The diminished capacity directly associated with staff reductions in the OISC that has occurred since its inception has severely limited its ability to provide the active leadership and coordination of IS management in NYS. Numerous efforts have been developed over the years and the segregation of these groups due to lack of coordination, has developed a conglomerate of individual efforts. What is essential to cooperation, effectiveness, and efficiency of IS efforts, is the empowerment of the OISC as the lead entity. The OISC, guided by the Council, and supported by the associated agencies need to have the resources and staffing capacity to identify, prioritize, manage funding, and, most importantly, oversee the implementation of the state's IS management strategy. An operational OISC could properly administer and coordinate IS programs under the direction of the Council and in collaboration with other state agencies that are designed to develop and implement IS projects within the already established PRISM network. Figure 4-1 is an illustration of how coordination of management efforts should function on a statewide level within the established PRISM infrastructure.

Figure 4-1 represents the Council, in cooperation with the Advisory Committee, as the lead entities assigned the role of coordination at the state level, while the eight PRISMs take on the principal role of developing regional capacity to implement IS projects to address local priorities within an overall state strategy. NYSDEC, with OISC, and NYSDAM would continue efforts to facilitate policy change and development of funding needs, whereas PRISMs are more involved with the development, supervision, and prioritization of project-scale activities at the regional or community level. Within PRISM functionality, there is exchange and coordination in the region among individuals, federal, state, and local government, and NGOs.

IS project development, management, and monitoring are best achieved at the local level with administrative guidance from the OISC and respective Council member agencies. In addition to overseeing the PRISM operations, the OISC, in association with the Council, NYSDEC, and NYSDAM, interacts with both federal IS agencies and programs. In addition to interagency communication within the state, it is essential that IS management efforts are integrated with IS control and monitoring programs implemented by federal agencies, states, or provinces outside NYS. Technical knowledge transfer, policy, and practices developed by out-of-state IS management entities would allow valuable informational exchange opportunities for IS control practitioners and planners. The seven states and two Canadian territories that share a border with New York, either by land or water, have been included in the diagram as well. Exchange of information is at the epicenter of this concept, so every individual arrow of communication is dual-sided to encourage collaborative interaction.

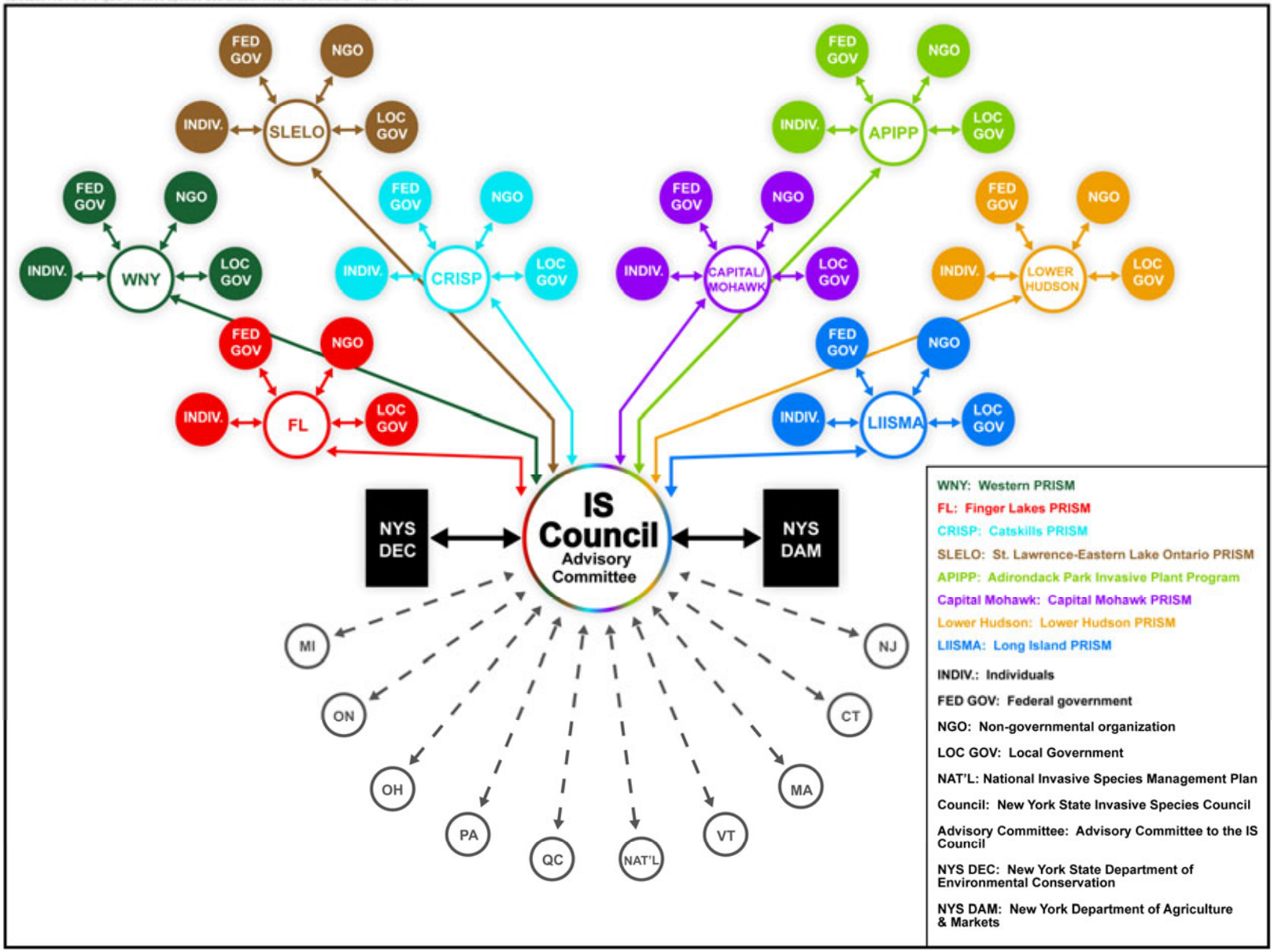


Figure 4-1 Proposed Schematic Diagram of IS Management in NYS

In order for all parties to improve the current and future conditions of IS management in NYS, it is imperative to maintain an open dialog with local, state, and regional IS managers. This open dialog requires endorsement and participation by administrative agencies, researchers, land and natural resource managers, stakeholders, and individual members of the community. The Task Force made recommendations concerning interagency coordination in addressing IS that specifically led to the legislation that established the Invasive Species Council. An effective organizational infrastructure for statewide IS administration and management is already in place. There continues to be a need, however, for better coordination between state agencies and program implementation, particularly in light of the current fiscal situation in NYS. Better coordination would result in a more efficient use of limited resources. Examples of statewide coordination include:

- Integration of IS removal methodologies for the OPRHP as well as other agency and NGO-sponsored habitat restoration projects;

- Ongoing effort by the USDOT to update their Environmental Manual to include IS in transportation planning and construction; and

- USACE regulatory compliance criteria allowing credits for IS management within mitigation projects.

In 2001, on a national scale, federal agencies were organized to engage state agencies to facilitate coordination and administration of resources for IS management. The following is an excerpt from the National Invasive Species Management Plan 2008-2012 (NISC 2001). (The current federal plan is an update of the original 2001 Plan which provided guidance for federal action on IS and was characterized as a primary coordination tool by NISC.)

"Populations span geographic and jurisdictional boundaries; thus efforts to manage invasive species must be coordinated across boundaries. In 1999, Executive Order (EO) 13112 established the National Invasive Species Council (NISC), co-chaired by the Secretaries of the Interior, Agriculture, and Commerce. NISC members include the Secretaries of Transportation, State, Defense, Homeland Security, Treasury, and Health and Human Services; the Administrators of the Environmental Protection Agency and the National Aeronautics and Space Administration; as well as the Director of the United States Agency for International Development and the United States Trade Representative. NISC was charged with providing coordination, planning and overall leadership for federal invasive species programs and reaching out to state, tribal, local and private partners." Simulating the action the NISC plan provides a well-developed template for IS management in NYS. NYS should adopt protocol and methodologies outlined by the NISC plan in areas of Prevention, Early Detection Rapid Response, Control and Management, Restoration and Organizational Collaboration that are consistent with the Task Force recommendations and the Council's mission.

At the regional level, proposed actions for better coordination and integration of IS data and technical practices are defined in the OISSP. NYS needs to establish not just inter-state coordination, but international and inter-jurisdictional coordination as well, due to the proximity to Canada and other Great Lakes states. In addition to the International Joint Commission (IJC) referenced in the OISSP, NYS should also incorporate the Great Lakes Water Quality Agreement, PRISMs, North American Plant Protection Organization, Cornell as the NYS Land Grant University and other academic institutions, agencies, and NGOs. Universities in New York and neighboring states conducting ongoing and future IS research could greatly assist in formulating management goals, and, therefore, need to be included in statewide communication efforts.

NYSDEC, under the direction of the Council, should be given the appropriate statutory authority to implement the four-tier regulatory system identified in the Council's June 2010 report in order to more effectively prioritize resources for IS management within the state. The Council should also undertake an initiative to integrate IS concerns in all relevant state and local planning and construction projects. Consideration should also be given to developing guidance under the State Environmental Quality Review (SEQR) to better address IS issues.

Finally, given the ongoing impact of IS on New York's economy and natural environment, and to forestall further damage, IS management should be integrated across all state and local government activities. In allocating its limited resources, NYS should give priority to IS management and prevention in its policies, programs, and agency budgets.

4.4 Adaptive Management

An AM methodology that addresses the uncertainty and dynamic evolution of biotic and abiotic conditions is appropriate for implementation at all levels of IS management planning, design, and project implementation. AM as part of the strategy accommodates both HACCP and National Incident Management Systems (NIMS) frameworks and should be integral components of the statewide strategy. These well-developed programs allow regulatory authorities and involved stakeholders to assess control or modify management options in an effective manner. An HACCP plan can be especially practical when incorporated into the daily procedures of regulatory agencies that, for example, monitor and patrol waterbodies. This type of HACCP application could greatly benefit the assessment process for waterways as a pathway for IS to spread.

The NIMS[12] is a general framework developed by the Federal Emergency Management Agency (FEMA) for standardizing procedures that can have applicable context with IS management in NYS. The NIMS template is consistent with the

[12] Federal Emergency Management Agency U.S. Department of Homeland Security
500 C Street SW, Washington, D.C. 20472 202) 646-2500
http://www.fema.gov/emergency/nims/AboutNIMS.shtm

programmatic approach of the NISC, which can be integrated into all levels of government, the private sector, and NGOs involved with IS management and incident response.

> "Systems operating in an incident management environment must be able to work together (across disciplines and jurisdictions) and not interfere with one another. Interoperability and compatibility are achieved through the use of tools such as common communications and data standards, digital data formats, equipment standards, and design standards." http://www.fema.gov/emergency/nims/CommunicationsInfoMngmnt.shtm

A key attribute to the approach of incident management is its scalability to various situations and contexts.

The five basic components to NIMS are:

1. Preparedness;
2. Communications and Information Management
3. Resource Management
4. Command and Management; and
5. Ongoing Management and Maintenance.

Using these five components, the following elements can be formulated to apply to a statewide, operational management plan.

The Structured Decision Making (SDM) process would complement the effectiveness of the NIMS program approach for IS Control and Management. SDM is directly compatible with implementation of an AM framework for responding to IS by:

- Defining the management problem;
- Refining the objectives;
- Identifying alternative management actions; and
- Assessing consequences and tradeoffs among selected management alternatives.

The following are benefits of SDM:

- It is a process that is deliberate, thorough, and value-focused to help find solutions that address and respond to uncertainty, site constraints, and differences in values or preferences;
- The process is explicit, transparent, able to be documented, and replicable;
- SDM supports learning and improvement; and

- SDM increases consensus among program stakeholders through participation.

An AM approach to the planning, design, and operational capacity elements of IS management programs for the state and projects involves the development of key modules that include:

Preparedness Public outreach and education is the foundation for development of community preparedness plans. Preparedness elements within a statewide IS Strategy would encompass "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action".[13] Public or community consensus among public and private sector stakeholders based on the basic understanding of IS ecology and biotic impacts within spatial and temporal scales is critical to develop partnerships for appropriate response. A combination of informational exchange mechanisms and collaboration through multimedia venues are already supported by the Cornell University Cooperative Extension, New York Invasive Species Research Institute, and Sea Grant New York. Each entity has well developed Web sites that are updated regularly to provide the most current data and information on state IS issues and PRISM network activities.

A set of procedures can be implemented for each threat level IS has on the natural environment and human health. A unified approach to this, by way of PRISMs, is critical so that various regions can collaborate and work towards a common goal. In the event of a statewide or regional IS emergency, PRISMs should be integrated with and be knowledgeable of the management plans of their neighboring PRISMs to enable effective action.

Communications and Information Management. For efficiency of resources, it is imperative that communication and exchange of information is facilitated by agencies, PRISMs, and their respective local and federal government offices and the public (see Figure 4-1). With the support of both NYSDEC and NYSDAM, adequate funding, and a necessary level of authority, PRISMs can help disburse educational material and information to the public and regional stakeholders. Public involvement is an imperative step in taking advantage of available resources.

Resource Management. The status and availability of operational resources (personnel, equipment, or materials) for deployment on an emergency or long-term basis for IS management is a critical element of incident management especially in incidents that require EDRR. An adequate inventory of physical resources and materials as well as staff required for allocation is critical to achieving incident management objectives. Resource management involves procure-

[13] Federal Emergency Management Agency U.S. Department of Homeland Security, 500 C Street SW, Washington, D.C. 20472 (202) 646-2500 http://www.fema.gov/emergency/nims/

ment, storage and inventory control to facilitate mobilization, staging and adaptable methods of deployment to incident sites and operations personnel.

Command and Management. The NIMS program approach to disaster preparedness and emergency response includes the Incident Command System (ICS) framework for standardizing procedures that have applicability to IS management in NYS, especially EDRR. A key attribute to the approach of incident management relative to IS impacts is its scalability to various situations and contexts.

NYS has historically utilized this approach to management for search and rescue and fire control. More recently, the ICS approach has been endorsed by IS practitioners and utilized to make planning and EDRR actions more effective and economical. The management actions taken to eradicate the snakehead fish in Orange County during the 2008 and 2009 seasons utilized ICS, and, as a result, achieved a higher level of coordination and effectiveness than would likely have otherwise occurred. In 2010 and 2011, the ICS approach was initiated and continues to be applied for statewide EAB response.

Ongoing Management and Maintenance. The statewide management plan and respective plans for the eight New York PRISMs must be maintained on a fixed schedule to incorporate new research and technology, updated management success, and adaptations to previous plans. This is one of the fundamental concepts of AM because as approaches and strategies are modified due to application, so must the overarching management plan.

Another crucial component to incorporate into AM for IS management is recognition of the potential effects of climate change and the need for strategic planning and response.

Climate Change. Climate, combined with existing and emerging IS presence in the state, interferes with the natural succession of native flora and faunal communities. Atmospheric temperature and precipitation variations occur at unprecedented rates within spatial and temporal scales. The resiliency of biotic systems and biological integrity, often on a landscape scale, within the state's ecoregions is being degraded by multiple stressors associated with IS and exacerbated by climate change.

Climate change has the capacity to promote the expansion and proliferation of some IS in the state. Indirectly, elevated atmospheric carbon dioxide (CO_2) levels promote growth in most vegetation layers thereby altering growth habits and phenology of native plants as well as growth rates of aggressive IS. Others stressors combined with climate change, such as nutrient loading, habitat modification and fragmentation, and acid precipitation, imperil the natural recruitment and regeneration of native plant communities and successional patterns that support native flora and faunal communities. The effects of climate change are a crucial component to incorporate into the development of an AM strategy to ad-

dress the complex effects of IS on the diverse environments in the NYS. Furthermore, ISCM should be integrated in the state's Climate Action Plan.

4.5 Pathway Analysis

The OISC and PRISM network, collectively with NYSDEC and NYSDAM, will need to identify and assess all possible vectors of introductions of known and potential IS in order to properly identify pathways used by IS to enter NYS. The results of vector and pathway assessment will require thorough evaluation to prioritize immediate and long-term actions within a statewide strategy. To begin this process, NYS will need to adopt a similar approach to pathway analysis to that published by NISC and ANSTF, using Transportation, Living Industry, and Miscellaneous categories to group all known pathways. Economic and ecological impacts of established IS in the state associated with their known vectors and pathways require analysis to identify and prioritize appropriate levels of response. Emerging IS issues and potential introductions identified through national and global collaboration and information exchange is a critical component of vector and PA used to implement EDRR methodologies. Evaluation of known IS introductions that have already become established or are adventives in the state's ecological communities begins with PA to develop preemptive rather than reactive elements in a statewide IS strategy.

> "How do we prioritize resources dedicated to the evaluation of invasive species in light of multiple competing pathway *interests and yet to be determined pathway risk levels?"*
>
> NISC Pathways Work Team

The NISC has noted: "The most effective method of preventing unintentional introduction of non-native species was through identifying the pathways by which they were introduced; with the need to develop environmentally sound methods to interdict introductions. Ballast water is probably the largest single source of non-native species introductions into coastal and estuarine waters. Wood packing materials are a source of serious forest pests". [14] Both are primary sources of existing and potentially serious IS in the state and region.

The NISC Pathways Work Team has identified the following as significant components of PA which are relevant to the development of a strategic statewide IS plan:

- "International competitiveness is impacted by invasive species." State and regional commerce is dependent on import and export of international commodities.

- "Pathway ranking combines community, government and corporate interests." Prioritization of known and suspected vectors and pathways involves local, state and regional collaboration and regulatory policy agreements.

[14] National Invasive Species Council (NISC) Pathways Work Team. Focus Group Conference Report and Pathways Ranking Guide. June 21 – 22, 2005

- "Sound science, transparency and consistency are essential for formulating policy." Decision support systems for local and statewide stakeholders require products developed through valid and defensible science and research programs are critical to developing an appropriate regulatory response.

- "Neutrality is essential in providing scientific advice to decision makers." The OISC, in collaboration with the Council and Advisory Committee is responsible for the circulation and coordination of IS data and findings that are impartial and scientifically accurate.

- "Market and non-market forces must be analyzed for final decisions." Economic and ecological impacts and benefits of IS management must be considered in the development and implementation of IS control and management plans. Statewide IS management plans must be consistent with the intent and mission of NYSDAM to promote economic development, environmental stewardship, food safety & security, and consumer services associated with agriculture and green industries operating in the state.

- "Invasive species prevention is inherently an international activity." Prevention and mitigation of existing IS threats must involve public and private sector stakeholders but especially international jurisdictions to be considered as the most cost effective method

- "Methodology must include public, stakeholder and expert participation."

- "Assessment is to provide common perspectives." Ecological, cultural and economic impact assessments are elements of IS impact analysis.

- "Decisions must occur at individual agency levels." NYSDEC and established PRISM regions represent a functional template that is already in place for developing agency programmatic responses.

- "Outcome of the process is the characterization of relative risk of pathways." Risk analysis methodology is an integral component of prioritization process for PA findings.

- "Policy makers must devise plans for pathway management, resource leveraging, policy development, budget decisions and technology transfer/development." State executive and legislative commitment to implement the recommendations of the Task Force is critical to develop effective IS prevention and control methods based on PA.

4.6 Final Recommendations

The ideas the Project Team has discussed in this strategy cover a broad range of recommendations to aid in the control and management of non-native nuisance species as a collective effort in NYS, all of which can be adapted for change over

time. Critical to the effectiveness of any plan manifested as a result of these recommendations is in understanding the complex balance of what is necessary and what is cost-effective. Additionally, a successful plan will not be administered strictly by the state, and, therefore, needs the involvement of the joint efforts of government, the private sector, NGOs, stakeholders, academic institutions, and the general public.

A systematic approach to address the state's IS threats and issues is recommended to encompass the needs identified by the Task Force, the Council, and the many public and private sector stakeholders in NYS. Survey information and interviews conducted for this report indicate the preference for an effective, holistic approach to IS control and management that is flexible, transparent, and responsive to change or uncertainty within a prioritization process. This approach would allow IS programmatic integration, collaboration, and coordination between state agencies and federal programs as well as public and private sector stakeholders.

Systematics, as an applied science, is an appropriate methodology to integrate environmental science, policy, and practice. Systematics can address IS ecology as it works with groups of organisms by understanding their origins, relationships, ecological associations, and spatial and temporal distributions. This process is compatible with the AM methodologies discussed in this report that enable program managers to address diversity and uncertainties represented in all taxa of IS and their host biotic and abiotic systems.

The Council and the Advisory Committee realize the value of a systematic approach to statewide IS management. Its reduced capacity, however, prevents operational effectiveness and the level of coordination to develop, manage or implement the type of project-scale activities required to assess, control and manage impacts of IS at the statewide level. The Council is further inhibited in developing a systematic statewide strategy by fiscal uncertainty and lack of commitment at the federal level.

> Protecting America's economy, environment, health, and security against invasive species requires a strong Federal program in systematic biology.
> **Situation Report on U.S. Systematic Biology**
> *ITAP, Systematics Subcommittee*

NYS, however, through the Council, should proceed with a planning and policy strategy that utilizes systematics as a methodology integrated within an information technology platform for statewide IS coordination, control, and management.

This report endorses the NISC Management Plan[15] as a model for long range strategic planning and development that is consistent with federal agency IS plans and an appropriate framework for a statewide IS management plan. The follow-

[15] National Invasive Species Council (NISC). 2008. 2008-2012 National Invasive Species Management Plan. 35 pp.

ing elements of the national IS plan are consistent with the needs of the state and should be incorporated into policy and operational procedures within an AM framework.

PREPARATION - Provide Leadership and Coordination, Research, Information Management

PREVENTION - Prevent New Introductions and Control Existing Pathways, Early Detection and Rapid Response, International Cooperation

PROTECTION - Control and Management, Restoration, Education and Public Awareness

RESTORATION - The restoration of native species and natural habitat in form, function and process is critical to rehabilitation and restoration of terrestrial and aquatic systems degraded by IS. The design and establishment of resilient native flora and faunal communities to compete with existing IS and future IS recruitment is an integral part of IS management.

ORGANIZATIONAL COLLABORATION – Facilitate statewide, effectiveness and collaboration on invasive species issues through a fully operational PRISM infrastructure administered by the OISC. Integrate citizen science with agency programs to develop education and outreach projects designed to recruit public and private sector stakeholders for IS surveillance, management and monitoring.

Additionally, in accordance with the five key approaches discussed in Sections 4.1 through 4.5, the Project Team has developed the following final recommendations to foment a sound, successful statewide process to effectively manage and control all existing and future invasive and nuisance species:

1. Secure and provide adequate funding and staffing.

    - Facilitate statewide effectiveness and collaboration through a fully funded, staffed, and operational PRISM infrastructure.

    - Provide adequate funding, staffing levels, and staff allocations, including for state administrative staffing to develop and coordinate public outreach and education, research, prevention and eradication programs, contract management and administration, and funding for PRISMs.

    - State agencies need sustainable funds dedicated to supporting an adequate number of IS staff. At the very least, efforts should be made to restore IS staffing for NYSDEC, NYSDAM, and OPRHP to previous highest levels.

- The percentage of the EPF that goes to IS funding needs to increase over time as the EPF is restored to its historic levels in order to achieve the $10 million envisioned by the Task Force.

- NYSDEC and OPRHP should include IS management projects in their State Land Stewardship requests.

- Maximize efforts to pursue federal and other outside funding. Provide adequate staffing levels and allocations to maximize federal and other outside assistance through partnerships with NGOs, academic institutions, and other organizations to obtain and manage additional federal and other funding.

- Identify and secure matching funds to further leverage federal grants.

- Coordinate efforts for the state and PRISMs to match partners to projects to efficiently develop successful grant applications and projects.

2. Coordinate and distribute existing IS funds and other resources more efficiently and effectively.

   - Streamline the contracting and fund allocation processes, as well as permitting and licensing processes, to increase efficiency while maintaining necessary transparency.

   - Support an adequate number of state agency IS staff to effectively manage and administer contracts and grants.

   - Support PRISMs as a cost-effective administrative, organizational, and functional framework under the leadership of the Council with administration and coordination by OISC.

   - Issue RFPs from the state so that organizations can bid to provide for coordination, staffing, and program implementation for PRISMs.

   - Consider the use of MOUs between NYSDEC and other state agencies and PRISMs to distribute EPF funds.

3. Ensure that the Council, OISC, and associated agencies and institutions, as appropriate, have the resources, authority, policies, practices, laws, regulations, enforcement capabilities and administrative staffing capacity to identify, prioritize, and manage IS funds and other resources and programs, and most importantly, to administer and coordinate the full implementation of the 12 Task Force recommendations.

- There continues to be a need for better coordination between state agencies and program implementation, particularly in light of the current fiscal situation in NYS.

- Support the eight PRISMs to take on the principal role of developing regional capacity to implement IS projects to address local and regional priorities within an overall state strategy.

- Within PRISM functionality, ensure adequate exchange and coordination in the regions and between PRISMs, among individuals, federal government, state and local governments, institutions of higher education and research, and NGOs.

- It is essential that IS management efforts are integrated with IS prevention, EDRR, management, and monitoring programs implemented by federal agencies, other states, provinces, countries, and regional, national, and international organizations.

- The Council and NYSDEC should be given the appropriate statutory authority to implement the four-tier regulatory system identified in their June 2010 report.

- The Council should undertake an initiative to integrate IS concerns in all relevant state and local planning and construction projects.

- Consideration should be given to developing guidance under SEQR to better address IS issues.

- Enact improved policies and enforcement for aquatic invasive species (AIS) transport and the purchase/sale of non-native invasive species.

4. Develop and implement AM methodologies.

   - An AM methodology that addresses the uncertainty and dynamic evolution of biotic and abiotic conditions is recommended for implementation at all levels of IS management planning, design, and project implementation.

   - AM accommodates both HACCP Planning for Natural Resource Pathways and NIMS. HACCP and NIMS frameworks and should be integral components of the statewide strategy.

   - Employ the ICS framework for standardizing procedures that have applicability to IS management in NYS, especially EDRR. A key attribute to the approach of incident management relative to IS impacts is its scalability to various situations and contexts.

- The status and availability of operational resources (personnel, equipment, and materials) for deployment on an emergency or long-term basis for IS management is a critical element of incident management especially for incidents that require EDRR.

- Public outreach and education is the foundation for development of community preparedness plans. Preparedness elements within a statewide IS strategy would encompass a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective actions.

- A set of procedures can be implemented for each threat level invasive species have on the natural environment and human health. A unified approach to this, by way of PRISMs, is critical so that various regions can collaborate and work toward a common goal.

- In the event of a statewide or regional IS emergency, PRISMs should be integrated with and be knowledgeable of the management plans of their neighboring PRISMs to enable effective action.

- For efficiency of resources, it is imperative that communication and exchange of information is facilitated by agencies, PRISMs, and their respective local and federal government offices.

- With the support of both NYSDEC and NYSDAM, adequate funding, and a necessary level of appointed authority, PRISMs can help disburse educational material and information to the public and regional stakeholders. Public involvement is an imperative step in taking advantage of available resources.

- A statewide management plan and respective plans for PRISMs must be maintained on a fixed schedule to incorporate new research and technology, update management success, and adapt to previous plans. This is one of the fundamental concepts of AM because as approaches and strategies are modified due to application, so must the overarching management plan.

- A crucial component to incorporate into AM for IS management is recognition of the potential effects of climate change and the need for strategic planning and response.

- Require NYSDOT to implement BMPs and control new infestations resulting from new roadside projects.

- Fully engage all appropriate staff within state agencies and utility companies in prevention, EDRR and BMPs.

- Better establish equity and priorities for prevention and EDRR among agricultural, forestry, fisheries, and plant interests.

- Streamline the permitting and licensing processes for invasive species management and habitat restoration.

5. The Council, OISC, and PRISM network, collectively with NYSDEC and NYSDAM, should identify, assess, and manage IS pathways and vectors to prevent the introduction and spread of known and potential IS.

   - The state should adopt a similar approach to pathway analysis to that published by NISC and ANSTF, using Transportation, Living Industry, and Miscellaneous categories to group all known pathways.

   - The results of vector and pathway assessment will require thorough evaluation to prioritize immediate and long-term actions within a state-wide strategy.

   - Emerging IS issues and potential introductions identified through regional, national and international collaboration and information exchange is a critical component of vector and pathway analysis used to implement prevention and EDRR methodologies.

   - State executive and legislative commitment to implement the recommendations of the Task Force is critical to develop effective IS prevention and control methods based on PA.

   - Strengthen regulations to provide staff that are responsible for enforcing regulations the authority they need to prevent introductions.

   - Enhance the inspections of cargo and passenger vehicles at major entry points into the state. Inspection facilities should be constructed to conduct these types of activities.

   - Retain and ramp up enforcement of firewood and baitfish regulations.

   - Institute boat ramp/river access stewards where appropriate.

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A List of 120 Entities in the NYS Invasive Species Community

Federal Agencies With Regulatory Authority For Invasive Species	
Animal and Plant Health Inspection Service (APHIS)	U.S. Customs and Border Protection (CBP)
U.S. Fish and Wildlife Service (USFWS)	U.S. Environmental Protection Agency (EPA)
Centers for Disease Control and Prevention (CDC)	Food and Drug Administration (FDA)
National Oceanic and Atmospheric Administration (NOAA)	*U.S. Coast Guard (USCG)*
U.S. Postal Service (USPS)	*US Army Corps of Engineers (USACE)*
Other Federal Agencies	
USDA Economic Research Service (ERS)	National Park Service (NPS)
USDA Natural Resources Conservation Service (NRCS)	USDA Forest Service (FS)
Other Federal Agencies (Cont.)	
USDA Farm Service Agency (FSA)	USDA Cooperative State Research, Education and Extension Service (CSREES)
U.S. Department of Transportation (DOT)	U.S. Department of Defense (DOD)
U.S. Geological Survey (USGS)	United States General Accounting Office (GAO)
Federal Interagency Groups	
Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW)	National Invasive Species Information Center (NISIC)
National Invasive Species Council (NISC)	Aquatic Nuisance Species Task Force (ANS Task Force)
Invasive Species Advisory Committee (ISAC)	
Nationwide Groups	
National Biological Information Infrastructure (NBII)	Invasive Species Working Group (ISWG)
Plant Conservation Alliance's Alien Plant Working Group	National Governors Association (NGA)
NatureServe	
National Funding Organizations:	
National Fish and Wildlife Foundation (NFWF)	National Science Foundation (NSF)
Sustainable Agriculture Research and Education (SARE)	
Indian Nations (Federally Recognized)	
Cayuga Nation	Oneida Nation
Onondaga Nation	St. Regis Mohawk Tribe
Seneca Nation of Indians	Tonawanda Band of Senecas
Tuscarora Nation	
New York State Agencies/Departments	
Department of Environmental Conservation (DEC)	*Department of Agriculture and Markets (DAM)*
Department of Transportation (DOT)	*New York State Thruway Authority*
Thruway Authority and Canal Corporation	*New York Natural Heritage Program (NHP)*
Adirondack Park Agency (APA)	Lake George Park Commission
Department of State (DOS)	New York Power Authority
Office of Parks, Recreation and Historic Preservation	
State/Regional Cooperative Agencies/Organizations	
Great Lakes Commission	*NYS Invasive Species Council and Advisory Committee*
Hudson River Estuary Program	*New York State Biodiversity Research Institute (BRI)*
Invasive Plant Atlas of New England (IPANE)	Invasive Plant Council of New York State (IPC)
Palisades Interstate Park Commission	*Northeast Aquatic Nuisance Species (NEANS) Panel*
Long Island Sound Study (LISS)	Delaware River Invasive Plant Partnership (DRIPP)
Port Authority of New York and New Jersey	Mid-Atlantic Exotic Pest Plant Council (MA-EPPC)
Haudenosaunee Environmental Task Force (HETF)	
New York State Legislative Branch	
New York State Assembly	*New York State Senate*

State Universities and Affiliated Organizations	
Cornell University	*Cornell Cooperative Extension (CCE)*
Cornell Cooperative Extension Invasive Species Program	State University of New York (SUNY)
New York Sea Grant (NYSG)	*NY Invasive Species Clearinghouse*
New York State Museum (University of the State of New York—USNY)	
Other Universities	
Center for International Earth Science Information Network at Columbia University (CIESIN)	
Partnerships for Regional Invasive Species Management (PRISMs)	
Adirondack Park Invasive Plant Program (APIPP)	*St. Lawrence—Eastern Lake Ontario PRISM (SLELO)*
Long Island Invasive Species Management Area (LIISMA)	*Western New York PRISM*
Capital-Mohawk PRISM	*Finger Lakes PRISM*
Catskill Regional Invasive Species Partnership (CRISP)	*Lower Hudson PRISM*
Non-Profit Organizations and Associations	
The Nature Conservancy	Audubon New York
New York Flora Association (NYFA)	Environmental Law Institute (ELI)
Invasive Species Research Institute	Ducks Unlimited (DU)
Trout Unlimited (TU)	Brooklyn Botanic Garden (BBG)
National Wildlife Federation (NWF)	Environmental Defense Fund (EDF)
New York-New Jersey Trail Conference	Ecological Society of America
Northeast Aquatic Plant Management Society (APMS)	Entomological Society of America
American Society of Landscape Architects (ASLA)	Society for Ecological Restoration
National Academy of Sciences / National Research Council	
New York City	
Department of Environmental Protection	Department of Parks and Recreation
International Organizations	
Global Invasive Species Program (GISP)	Invasive Species Information Node (ISIN)
International Council for the Explorations of the Sea (ICES)	UN Food Agriculture Organization (FAO)
Commission for Environmental Cooperation (CEC)	International Maritime Organization (IMO)
Governors and Premiers of the Great Lakes States and Provinces	The World Conservation Union's Invasive Species Specialist Group (IUCN-ISSG)
Trade Groups	
New York State Nursery and Landscape Association (NYSNLA)	New York Farm Bureau
Empire State Marine Trades Association	Pet Industry Joint Advisory Council (PIJAC)
Commercial	
Monsanto Company	Dow AgroSciences
BASF Corporation	

B Matrix of 2010 Questionnaire Responses

INVASIVE SPECIES MANAGEMENT STRATEGY CONTACT LIST			Functional Areas																Protected Resources													Categories of Invasive Species Involved With					Work With								
ID Number	Level	Organization	Prevention	Research	Monitoring	Information Management	Risk Assessment	Prevention	Surveying & Mapping	EDRR	Control and Management	Restoration	Education & Outreach	Regulation, Legislation, Policy	Enforcement	Secure Funding	Distribute Funding	No Action	FEDERAL	STATE	CITY	NGO - National	NGO - State	Other	Terrestrial Resources	Aquatic Resources	Marine Reources	Agricultural Land	Urban/ Suburban	Other	Aquatic Plants	Aquatic Animals	Terrestrial Plants	Terrestrial Animals	Microbes	University/ Acedemic Institutions	Private non-profit organizations	Local Governments	State Governments	Federal Government	Business	Private Individuals	Other
1	A	Federal		25%	10%	30%	40%	10%	50%	60%	25%		30%	25%	10%	15%	25%		X						X			X	X					X	X	X	X	X		X	X	X	
2	A	Federal			20%		4%	20%	2%	20%	4%		20%				10%		X						X	X	X				X	X				X		X	X	X	X	X	X
3	A	Federal/State																					X				X				X	X											
4	A	Federal		5%	5%	10%	10%	10%		15%	10%	5%	10%	15%		5%						X			X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	
5	A	Federal																																									
6	B	Federal																																									
7	B	Federal																																									
8	A	NGO - State																					X		X	X		X		X	X	X	X	X	X								
9	A	NGO - State		5%	15%	15%	15%	5%	5%	10%	10%	5%		5%		5%	5%						X		X	X	X				X	X	X	X		X	X	X	X	X	X	X	
10	A	NGO - State											10%										X		X	X							X	X		X	X	X	X	X				
11	A	NGO - State			20%		5%	10%	20%	20%		10%	5%	5%		5%							X		X	X					X	X	X	X		X	X	X	X	X	X	X	
12	A	NGO - State			10%	10%	25%	20%	10%	10%			10%			5%							X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X			X
13	A	NGO - State		15%	10%	5%			10%	15%	20%		15%			10%							X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
14	A	NGO - State		10%	20%			10%	20%				40%										X		X	X	X				X	X	X	X	X	X	X	X	X		X		
15	A	NGO - State																																									
16	A	NGO - National																				X																						
17	A	NGO - State		5%	15%	15%	15%	5%	5%	10%	10%	5%		5%		5%	5%						XX		XX	XX	X				XX	XX	XX	XX		X	X	X	X	X	X	X	
18	B	NGO - State																																									
19	B	City																			X				X	X			X		X		X										
20	A	State - Academic																		X					X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
21	A	State		5%	12%	6%	6%	3%	10%	11%	25%	10%	4%	2%	1%	5%				X					X	X	X		X		X	X	X	X		X	X	X	X	X	X	X	X
22	B	Federal			25%	25%	5%		25%		10%	5%	5%						X						X	X			X		X		X	X		X	X	X	X	X			
23	B	Federal																																									
24	A	Federal																																									
25	C	Federal		80%		1%						18%							X						X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	
26	C	Federal		2.00%	0.50%	0.50%	0.20%	0.30%	0.10%	9%	0.50%	1%	1%	0.10%			0.20%		X						X	X		X	X		X		X			X	X	X	X	X	X	X	X
27	A	Federal																																									
28	C	Federal		80%	5%	3%	5%						5%				2%		X						X	X			X		X		X	X	X	X		X	X	X			
29	B	Federal																																									
30	A	Federal																																									
31	B	Federal																																									
32	C	Federal																																									
33	A	Federal																	X						X	X	X	X			X	X	X	X	X	X	X	X	X	X		X	X
34	A	Federal		83%						17%									X						X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
35	A	State		4%	2%	16%		2%	57%	3%			11%	4%		<1%	1%			X					X	X	X			X	X	X	X	X	X	X	X	X	X	X	X		

INVASIVE SPECIES MANAGEMENT STRATEGY CONTACT LIST			Functional Areas															Protected Resources												Categories of Invasive Species Involved With					Work With							
ID Number	Level	Organization	Prevention	Research	Monitoring	Information Management	Risk Assessment	Prevention	Surveying & Mapping	EDRR	Control and Management	Restoration	Education & Outreach	Regulation, Legislation, Policy	Enforcement	Secure Funding	Distribute Funding	No Action	FEDERAL	STATE	CITY	NGO - National	NGO - State	Other	Terrestrial Resources	Aquatic Resources	Marine Reources	Agricultural Land	Urban/ Suburban	Other	Aquatic Plants	Aquatic Animals	Terrestrial Plants	Terrestrial Animals	Microbes	University/ Acedemic Institutions	Private non-profit organizations	Local Governments	State Governments	Federal Government	Business	Private Individuals	Other
36	A	State		5%	5.20%	0.90%		31.70%	1%	11.40%	15.30%	28%	0.90%	0.30%		0.20%	0.20%			X					X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	
37	A	State																																								
38	C	State												8%			92%			X					X	X	X	X	X		X	X	X			X	X	X	X	X			
39	A	State			10%	2%	2%	5%	30%	10%	10%		5%	3%	22%	1%				X					X			X	X		X		X	X	X		X	X	X	X	X	X	
40	C	State			5%	2%		15%	3%	5%	45%	5%	15%	5%						X					X	X				X	X	X	X	X		X	X	X	X			
41	A	State			2.50%	75%			2.50%	5%			10%			5%				X					X	X	X			X	X	X	X	X		X	X	X	X	X	X	
42	B	NGO - State									80%		20%										X		X	X			X		X	X				X	X		X			
43	A	State/Regional - Binational																																								
44	A	Federal																																								
45	A	NGO - State																																								
46	B	NGO - State																																								
47	B	Tribal		5%	5%		5%	5%		5%	5%		5%											X	X	X		X	X	X	X	X	X	X	X	X	X		X			X
48	A	State																																								
49	A	NGO - State																																								
50	A	State																																								
51	A	State																																								
52	A	NGO - State																					X		X	X	X				X	X	X	X	X							
53	B	NGO						40%		20%	15%		25%											X	X	X	X				X	X	X	X			X	X	X			
54	B	NGO - State																																								
55	B	NGO			10%						80%		5%			5%							X		X	X	X				X		X				X		X	X	X	X	
56	A	City			1.20%				2.40%		47.60%	47.60%				1.20%					X				X	X	X		X				X	X					X				
57	C	International		5%	5%	30%	10%		3%	10%	10%	2%	5%	10%	5%	5%								X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X - intl organizations
58	A	NGO - State											I/N/A											X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	
59	A	NGO - State																																								
60	A	State - Academic																																								

INVASIVE SPECIES MANAGEMENT STRATEGY CONTACT LIST			Legal Mandates	Insufficient legal authority?	Funding Sources	Performance			Top 3 Resource Needs										Primary Target Audience																
ID Number	Level	Organization				Complete & Thorough	Good	Lacking	More Dedicated Funding	Better & Clearer Policies	More Agency Emphasis	More Governmental Coordination	More Information & Training	Better Statutes & Regulations	More Enforcement Power	Inproved Incentives	Improved Control Methods	Additional Staff	Other	Internal Agency or Entity	Public	Media/ Press	State Agencies	State Elected Officials	Federal Agencies	Federal Eclected Officials	Local Governmental Agencies	Local Elected Officials	Businesses	User Groups	Industry Professionals	Private Landowners	Land Managers	Others
1	A	Federal	Plant Protection Act Title IV 7USC 7702, 7701, public law 106-224 June 2000 Lacey Act 16 USC 3371 The ability to prohibit/restrict the importation, exportation, and interstate movement of plants, plant products, bioogical control organisms, noxious weeds, and plant pests.		Federal (Congressional appropriations)		X		1			2						3			1										2	3	4	
2	A	Federal	Non-Indigenous Aquatic Nuissance Prevention and Control Act (NISA); Executive Order #13112; USFWS Manual Chapter 750 FW1: Managing Invasive Species Pathways		Federal (USFWS/DOI appropriations); Other (in-kind services from NGOs, county and local governments		X		3			2						1		4	1		3		2	5								
3	A	Federal/State																																
4	A	Federal	NISC is not a regulatory agency. NISC has been directed to oversee implementation of Executive Order 13112 which provides that no agency may take an action likely to cause the introduction or spread of an invasive species unless the benefits outweigh the harm caused. NISC has drafted an oversight policy for this directive; however compliance with this directive has not been systematically tracked.		Federal (Department of the Interior and funding from other NISC membr)		X		1					2		3						3		2	5	1		2		4					
5	A	Federal																																
6	B	Federal																																
7	B	Federal																																
8	A	NGO - State																																
9	A	NGO - State	None		State (EPF); Federal (APHIS, US Farm Bill, US Transportation Bill); Foundation grants (various); Private (various)		X							1		3			2		1	4		2			2	5		3				
10	A	NGO - State	N/A		State (small grant from NYS Ag & Markets)		X		1		2							3					2			3	2			5	1	4		
11	A	NGO - State	None		State (EPF); Federal (APHIS, Farm Bill, EPA, NFWF); Foundation grants (various); Privage (various)		X					3					1		2		1	5		2			2	3			4			
12	A	NGO - State	None		State (expecting state funding by 2011)		X		1									2	3			1	3			4				2	5				
13	A	NGO - State	Operating as the LH PRISM under a cooperating agreement signed by some principal partners		State (not specifically to PRISM, but members have DEC Eradication Grants); Federal (USDA grant to PIPC for Mile-a-minute coordinator		X		1							3	2		5	3					4						2	1	
14	A	NGO - State	None		None		X		1						3		2				1	4		5			2	5				3		
15	A	NGO - State																																
16	A	NGO - National																																
17	A	NGO - State	None		State (EPF); Federal (APHIS, US Farm Bill, US Transportation Bill); Foundation grants (various); Private (various)		X							1		3			2		1	4		2			2	5		3				
18	B	NGO - State																																
19	B	City																																
20	A	State - Academic	None, however NYISRI does advise organizations/agencies that do have legal mandates.		State (contract between DEC and Cornell University)		X		1										2	2	3	5	4									1		
21	A	State	None, however OPRHP has direction from 3.09(15) Parks, Rec and Hist. Preservation Law with regard to habitat and restoration				X		1		2		3							1	2			4				4			5	3		
22	B	Federal	DOE Order 450.1a (but it is not funded)		State (Central Pine Barrens Commission); Federal (internal operating budgets)		X		2		1							2			5			4	2	3		4			1			
23	B	Federal																																
24	A	Federal																																
25	C	Federal	River and Harbor Act of 1958; National Invasive Species Act 1990 & 1996	No	Federal, USACE direct funding; Other, Funding may be terminated in FY12 for cost savings	X			1		2					3				2	5	3		4	1									
26	C	Federal	None		Federal		X		2					1		3					3			4		5					1	2		
27	A	Federal																																
28	C	Federal	None		State (Pennsylvania); Federal (USDA is a federal entity, may also receive grants from NIFA or inhouse)				1		3							2		5	1									2	3	4		
29	B	Federal																																
30	A	Federal																																
31	B	Federal																																
32	C	Federal																																
33	A	Federal	None		State (Colorado); Federal (USGS, NPS, BLM, USFWS); Private (Citizen Scientist groups)				1		2							3		2	3	4	5										1		
34	A	Federal	Authority 43 U.S.C. 31 et. Seq. The Organic Act of March, 3, 1879; Fish and Wildlife Coordination Act Congressional authorization (PL 110-161 Division F Title 1 SEC. 125)		Federal (NBII National, New England, Mid-South, Southeast, CA, HA)				1			2	3							4	3			1								2		
35	A	State	ECL Title 17 and numerous other statutes (e.g. ECL Articles 9, 11, 15)		State (Environmental Protection Fund, General Fund); Federal (GLRI "Stimulus," APHIS, Fish and Wildlife, USDA Forest Service		X		1		2			3			3			1			5	2		4		2		3				

INVASIVE SPECIES MANAGEMENT STRATEGY CONTACT LIST			Legal Mandates	Insufficient legal authority?	Funding Sources	Performance			Top 3 Resource Needs										Primary Target Audience														
ID Number	Level	Organization				Complete & Thorough	Good	Lacking	More Dedicated Funding	Better & Clearer Policies	More Agency Emphasis	More Governmental Coordination	More Information & Training	Better Statutes & Regulations	More Enforcement Power	Inproved Incentives	Improved Control Methods	Additional Staff	Other	Internal Agency or Entity	Public	Media/ Press	State Agencies	State Elected Officials	Federal Agencies	Federal Eclected Officials	Local Governmental Agencies	Local Elected Officials	Businesses	User Groups	Industry Professionals	Private Landowners	Land Managers	Others
36	A	State	"As a voting member of the Invasive Species Council, we are charged to support the development of lists which wil regulate plants, and a Comprehensive plan which will look into regulations and enforcement statewide, as well as draft legislation which will regulate cleanliness of watercraft. We include strong language and recommendations in our specifications and guidance by are generally not the enforcing authority for legal action. We have some authority in issuing permits to others working on our ROW and can include conditions which entail invasives to some extent.				X						3				1		2 (better and clearer guidance)	1	2					5		4	5	3			
37	A	State																														
38	C	State	None		State (Environmental Protection Fund); Federal (NOAA)			X	1		3							2			1			3	5	2	4							
39	A	State	Article 14 of Ag & Mkt law as generic authority - "Prevention and control of trees, insects, and pests." Some authority in granting game licensing		State (general fund, Environmental Protection Fund); Federal (Farm Bill, 10-201 Funding, USDA-APHIS funding)		X					3	2			1											1		2	3		
40	C	State	None		Other - Toll revenues	X			2								3	1		1	4		5			2			3				
41	A	State			State (EPF funds support ISDB work & supported state lands assessment); Federal (Resource inventories on Federal land)				2	4				3				1			4	1				2					5		3
42	B	NGO - State	None		State (EPF and agency allocations which are locally derived); Private (various grants from lake protective organizations	X			1								1		1		1		1				1						
43	A	State/Regional - Binational																														
44	A	Federal																														
45	A	NGO - State																														
46	B	NGO - State																														
47	B	Tribal	Department of the Environment mandate from the Mohawk Council of Akwesasne		Other - Mohawk Council of Akwesasne funding		X		1	3								2															
48	A	State																														
49	A	NGO - State																														
50	A	State																														
51	A	State																														
52	A	NGO - State																														
53	B	NGO											1			3	2			1	2		3										
54	B	NGO - State																														
55	B	NGO	Audubon New York is the lead agency charged with the management of Constitution Marsh (although the marsh is owned by NYS OPRHP)				X		1			3					2			3	5		1		2				4				
56	A	City	Legal authority to manage vegetation on their own property. Partial authority to regulate vegetation in public ROWs		State (NYSDOS, NYSDEC); Federal (EPA)	X			1		2							3			2			3			1	3					
57	C	International	Convention on Biological Diversity (int'l)		Federal - Italian government; Other - US and European institutions				2	1		3								1	2	3		4		5		6					
58	A	NGO - State	Reference to advise found in Invasives Species Council Law to support efforts		State (Farm Viability Institute); Federal (via Farm Viability Institute);		X						2				3		1		2	1				5				4	3	
59	A	NGO - State																														
60	A	State - Academic																														

INVASIVE SPECIES MANAGEMENT STRATEGY CONTACT LIST			IS Funding from Entity					Desired Top Funding Priorities											
ID Number	Level	Organization	IS species being funded	Specifically Designated Funding	Can funds be used over multiple years?	Provide Staff	Provide Equipment	Prevention	EDRR	Control & Management	Information Management	Risk Assessment	Monitoring	Surveying & Mapping	Research	Restoration	Education	Regulation, Legislation, Policy	Enforcement
1	A	Federal	Asian Longhorned beetle; Emerald ash borer	Yes		Yes	Yes		1 (50%)						2 (20%)		4 (15%)		3 (15%)
2	A	Federal	Water chestnut; Asian Carp (Bighead and Silver); Ruffe	Yes		Yes	Yes	3 (20%)	2 (20%)	1 (50%)							4 (10%)		
3	A	Federal/State																	
4	A	Federal	N/A	Yes		Yes	No												
5	A	Federal																	
6	B	Federal																	
7	B	Federal																	
8	A	NGO - State																	
9	A	NGO - State	N/A	Yes		Yes	Yes	1 (5%)	5 (10%)	12 (5%)	4 (10%)	6 (10%)	9 (10%)	10 (5%)	7 (15%)	11 (5%)	3 (15%)	2 (5%)	8 (5%)
10	A	NGO - State		No		No	No	4 (8%)	1 (25%)	5 (5%)	11 (5%)	2 (15%)	3 (12%)	12 (2%)	6 (5%)	9 (5%)	7 (5%)	8 (5%)	10 (5%)
11	A	NGO - State	N/A	Yes		Yes	Yes	2 (15%)	3 (10%)	4 (10%)	7 (5%)	8 (5%)	11 (2.5%)	9 (5%)	10 (5%)	5 (10%)	1 (20%)	6 (10%)	12 (2.5%)
12	A	NGO - State	N/A	No		Yes	Yes	1 (30%)	2 (15%)	10 (5%)	11 (5%)	3 (10%)	7 (5%)	9 (5%)	6 (5%)	12 (5%)	5 (5%)	4 (5%)	8 (5%)
13	A	NGO - State	N/A	No		Yes	No		50%	10%	5%				15%	5%		20%	
14	A	NGO - State	No funding	No		Yes	No	1 (20%)	3 (20%)	4 (10%)	12 (5%)	10 (5%)	9 (5%)	8 (5%)	5 (10%)	11	2 (20%)	6 (5%)	7 (5%)
15	A	NGO - State																	
16	A	NGO - National																	
17	A	NGO - State	N/A	Yes		Yes	Yes	1 (5%)	5 (10%)	12 (5%)	4 (10%)	6 (10%)	9 (10%)	10 (5%)	7 (15%)	11 (5%)	3 (15%)	2 (5%)	8 (5%)
18	B	NGO - State																	
19	B	City																	
20	A	State - Academic						1 (10%)	3 (10%)	5 (10%)	9 (10%)	10 (10%)	6 (10%)	8 (10%)	4 (10%)	7 (10%)	2 (10%)		
21	A	State	Emerald Ash Borer	Yes	Yes	Yes	Yes	7 (7%)	1 (12%)	2 (15%)	6 (8%)	4 (5%)	5 (10%)	4 (11%)	9 (5%)	6 (10%)	3 (7%)	10 (5%)	11 (5%)
22	B	Federal	Japanese barberry	No		No	No	4 (10%)	3 (20%)	1 (30%)	11 (5%)	8 (5%)	6 (5%)	10 (3%)	7 (2%)	2 (10%)	9 (5%)	5 (3%)	12 (2%)
23	B	Federal																	
24	A	Federal																	
25	C	Federal	Phragmites australis	Yes		Yes	Yes	1	2; 20%	4	11	12	10	5	3	6	9	7	8
26	C	Federal	Purple loosestrife	Yes		No	No	6 (10%)	4 (10%)	5 (10%)	12 (5%)	11 (5%)	9 (5%)	10 (5%)	7 (10%)	8 (10%)	3 (10%)	1 (5%)	2 (15%)
27	A	Federal																	
28	C	Federal	Gypsy moth; Hemlock woolly adelgid; Sudden oak death; Silex; Japanese stiltgrass/tree of heaven	Yes		Yes	Yes	1 (10%)	6 (10%)	7 (10%)	9 (10%)	11 (3%)	3 (10%)	2 (10%)	4 (15%)	8 (5%)	5 (5%)	10 (5%)	12 (2%)
29	B	Federal																	
30	A	Federal																	
31	B	Federal																	
32	C	Federal																	
33	A	Federal	Brown treesnake; dozens of other species	Yes		No	No												
34	A	Federal		Yes		Yes	No	1	2		3						4		5
35	A	State	Emerald ash borer; Northern snakehead fish; Eurasian watermilfoil; Feral swine; oak wilt	Yes		Yes	Yes	1 (34%)	2 (33%)	3 (33%)									

INVASIVE SPECIES MANAGEMENT STRATEGY CONTACT LIST			IS Funding from Entity					Desired Top Funding Priorities											
ID Number	Level	Organization	IS species being funded	Specifically Designated Funding	Can funds be used over multiple years?	Provide Staff	Provide Equipment	Prevention	EDRR	Control & Management	Information Management	Risk Assessment	Monitoring	Surveying & Mapping	Research	Restoration	Education	Regulation, Legislation, Policy	Enforcement
36	A	State	Phragmites; Giant hogweed; Purple loosestrife; Japanese knotweed	No		Yes	Yes	1 (20%)	2 (10%)	9 (10%)	5 (5%)	12	10 (5%)	3 (10%)	4 (10%)	6 (10%)	8 (10%)	7 (5%)	11 (5%)
37	A	State																	
38	C	State	Porcelain berry; Phragmites; Swallowort; Eurasian watermilfoil; Zebra mussel	Yes		Yes	Yes	1 (15%)	1 (15%)	1 (15%)	5 (3%)	5 (3%)	5 (7%)	5 (3%)	5 (3%)	2 (15%)	1 (10%)	4 (3%)	3 (8%)
39	A	State	Asian Longhorned Beetle; Emerald Ash Borer; Golden nematode; Plumpox virus; Feral swine	Yes	No	Yes	Yes	1 (22%)	4 (10%)	5 (8%)	7 (6%)	10 (3%)	11 (3%)	8 (5%)	12 (2%)	9 (4%)	6 (7%)	3 (13%)	2 (17%)
40	C	State	Phragmites; Water chestnuts	No		No	Yes		30%	25%		30%	5%		10%				
41	A	State				No	No	1	2		3					5	4	6	
42	B	NGO - State	Eurasian watermilfoil; general education aquatic	No		Yes	Yes	1	2	3									
43	A	State/Regional - Binational																	
44	A	Federal																	
45	A	NGO - State																	
46	B	NGO - State																	
47	B	Tribal																	
48	A	State																	
49	A	NGO - State																	
50	A	State																	
51	A	State																	
52	A	NGO - State																	
53	B	NGO		No		Yes	No	3 (15%)	1 (25%)		4 (15%)						2 (15%)	5 (15%)	6 (15%)
54	B	NGO - State																	
55	B	NGO		No		Yes	Yes	3 (15%)	2 (15%)	1 (20%)	8 (5%)	11 (2%)	6 (10%)	7 (2%)	9 (2%)	4 (15%)	5 (10%)	12 (2%)	10 (2%)
56	A	City	Asian longhorned beetle	No		Yes	No		3 (20%)	2 (40%)							1 (30%)		
57	C	International	N/A	Yes		Yes	No	3	4	5	2	6	8	9	7	12	10	1	11
58	A	NGO - State	N/A	No		Yes	No	4	6	7	8	2 (40%)	4	5	1 (50%)	9	3 (10%)	10	11
59	A	NGO - State																	
60	A	State - Academic																	

C Summary Table of Invasive Species Legislation

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
Federal Laws			
U.S. Environmental Protection Agency	Federal Insecticide, Fungicide, and Rodenticide Act (1947) 7 USC 136 et seq.	Gives EPA authority to regulate importation and distribution of substances, including organisms, that are intended to function as pesticides. The most important relationship between FIFRA and IS falls under the Section 18-Emergency Exemptions. Where IS are introduced, the EPA has authority to grant an emergency or crises exemption for use of pesticides otherwise restricted. See: http://water.epa.gov/type/oceb/habitat/fifra18.cfm#when for more information. Furthermore, FIFRA Section 24(c) authorizes states to register an additional use of a Federally-registered pesticide product or a new end use product to meet a special local need. IS rapid response or control methods using pesticides must comply with FIFRA and the regulations promulgated thereunder. If a pesticide is already registered for the rapid response or control use under FIFRA, the action does not require additional permitting from EPA. If the rapid response or control action requires the use of an unregistered pesticide or a pesticide registered for a different end use or use pattern and a state can demonstrate a special local need, FIFRA Section 24(c) authorizes a state to register an additional use of a Federally-registered pesticide product. For more information: http://water.epa.gov/type/oceb/habitat/fifra24.cfm#when	Regulations for FIRA Generally -- 40 CFR Parts 150 -189 State registrations under Section 24(c) are subject to EPA's regulations at 40 CFR Part 162.
U.S. Department of Agriculture, Animal and Plant Health Inspection Service	Plant Protection Act Public Law 106-224 (Jun 20, 2000); Replaces the Federal Noxious Weed Act and many other APHIS Plant Protection Authorities	Consolidates and modernizes all major statutes pertaining to plant protection and quarantine (Federal Noxious Weed Act, Plant Quarantine Act) Permit APHIS to address all types of weed issues; Increase maximum civil penalty for violation; Authorize APHIS to take both emergency and extraordinary emergency actions to address incursions of noxious weeds	**Title 7 Agriculture, Subtitle B--Regulations of the Department of Agriculture, CHAPTER III--ANIMAL AND PLANT HEALTH INSPECTION SERVICE, DEPARTMENT OF AGRICULTURE, Subparts 300-399** **This Chapter III - Animal and Plant Health Inspection contains a wealth of federal regulations related to IS. For example:** **7 CFR 301--DOMESTIC QUARANTINE NOTICES** 7 CFR 301.38 Notice of quarantine; restrictions on interstate movement of regulated articles. 7 CFR 301.38-2 Regulated articles. 7 CFR 301.38-3 Protected areas (Subpart_Black Stem Rust) 7 CFR 330 - FEDERAL PLANT PEST REGULATIONS; GENERAL; PLANT PESTS; SOIL, STONE, AND QUARRY PRODUCTS; GARBAGE 7 CFR 352 Plant quarantine safeguard regulations **7 CFR 360—NOXIOUS WEED REGULATIONS** § 360.100 Definitions. § 360.200 Designation of noxious weeds. § 360.300 General prohibitions and restrictions on the movement of noxious weeds; permits. 7 CFR 361 Importation of seed and screenings under the Federal Seed Act **7 CFR 340 - INTRODUCTION OF ORGANISMS AND PRODUCTS ALTERED OR PRODUCED THROUGH GENETIC ENGINEERING WHICH ARE PLANT PESTS OR WHICH THERE IS REASON TO BELIEVE ARE PLANT PESTS**

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of Agriculture, Animal and Plant Health Inspection Service	Animal Damage Control Act 7 USC 426	Animal Damage Control Act (7 USC 426-426c) -- The Act of March 2, 1931, (46 Stat. 1468) provided broad authority for investigation, demonstrations and control of mammalian predators, rodents and birds. P.L. 106-387, effective October 28, 2000, 114 Stat, 1549, amended section 426 of the Act to give broad authority to the Secretary of Agriculture in carrying a wildlife services program with respect to injurious species. The Act provides broad authority for investigation, demonstration and control of mammalian predators, rodents and birds which are nuisance to agriculture. According to 7 USCS § 426, the Act directs the Secretary of Agriculture to conduct campaigns for the destruction of animals injurious to agriculture and livestock on the national forest and the public domain. The Act also authorizes the Secretary of Agriculture to conduct investigations, experiments, and tests to determine the best methods of controlling those animals that causes injury to agriculture, horticulture, forestry, animal husbandry, wild game animals, fur-bearing animals and birds.	Regulations Regarding the Animal Damage Control Act: TITLE 7--Agriculture Subtitle B--REGULATIONS OF THE DEPARTMENT OF AGRICULTURE CHAPTER VI--NATURAL RESOURCES CONSERVATION SERVICE, DEPARTMENT OF AGRICULTURE SUBCHAPTER F--SUPPORT ACTIVITIES PART 658--FARMLAND PROTECTION POLICY ACT
U.S. Department of the Interior	Wild Bird Conservation Act (1992) Public Law 102-440 (Oct 23, 1992)	Regulates importation of foreign wild birds. By regulating the importation of certain wild birds, the WBCA may reduce imports of non-native parasites and diseases which could affect wild populations of native birds. More information as to the new Federal system established to limit or prohibit U.S. imports of exotic bird species can be found at the following site: http://www.fws.gov/laws/lawsdigest/wildbrd.html	Regulations are found at 50 CFR 15 Title 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR PART 15--WILD BIRD CONSERVATION ACT
Dept. of Agriculture	Alien Species Prevention and Enforcement Act (1992) Public Law 102-393 (Oct 6, 1992)	The Alien Species Prevention and Enforcement Act of 1992 makes it illegal to ship certain categories of plants and animals through the mail. The prohibited species are · those injurious animals whose movement is prohibited under 18 U.S.C. 42;32 · those plant pests whose movement is prohibited under the Federal Plant Pest Act (7 U.S.C. l50bb or l50cc); · those plants, articles, or plant matter whose importation or interstate shipment is prohibited under the Plant Quarantine Act (7 U.S.C. 151 et seq.); and · plants and animals whose shipment is prohibited under the Lacey Act (16 U.S.C. 3372). ASPEA does not make any new categories of plants or animals illegal to ship, but rather makes it clear that the use of the U.S. mail is to be included among those forms of transport whose use is illegal for their shipment. For more information please visit: http://www.fws.gov/laws/lawsdigest/aliensp.html or http://wildlifelaw.unm.edu/fedbook/alienspe.html	7 CFR 2.80 delegates authority by the Under Secretary for Marketing and Regulatory Programs to the Administrator, Animal and Plant Health Inspection Service Read more: http://cfr.vlex.com/vid/2-80-administrator-plant-inspection-19897361#ixzz1821k9zbt
	National Aquatic Nuisance Prevention and Control Act and subsequent National Invasive Species Act	is the Act under which the USFWS Branch of Invasive Species manages the Aquatic Nuisance Species Task Force and its Aquatic Nuisance Species Program. The National Invasive Species Act (NISA) was passed in 1996 amending the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. The 1990 Act established the ANS Species Task Force to coordinate nationwide ANS activities. The ANS Task Force is co-chaired by the Service's Assistant Director for Fisheries and Habitat Conservation and the Undersecretary of Commerce/NOAA. NISA furthered ANS activities by calling for ballast water regulations, the development of State management plans and regional panels to combat the spread of ANS, and additional ANS outreach and research. (from http://www.fws.gov/contaminants/ANS/ANSLaws.cfm)	33 CFR 151.1500 through 1518 Subpart C--BALLAST WATER MANAGEMENT FOR CONTROL OF NONINDIGENOUS SPECIES IN THE GREAT LAKES AND HUDSON RIVER 33 CFR 151.2000 Through 2065 Subpart D--BALLAST WATER MANAGEMENT FOR CONTROL OF NONINDIGENOUS SPECIES IN WATERS OF THE UNITED STATES

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
	Executive Order 13112 (February 1999)	On Feb 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. The Executive Order requires that a Council of Departments dealing with invasive species be created. Currently there are 13 Departments and Agencies on the Council. Defines invasive species as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health" Directs all federal agencies to: Address invasive species concerns; Refrain from actions likely to increase invasive species problems; Creates interagency Invasive Species Council Calls for National Invasive Species Management Plan to better coordinate federal agency efforts For more information please visit: http://www.invasivespeciesinfo.gov/laws/execorder.shtml The Council was created by executive order in 1999, Executive Order 13112, (E.O.) not only to address the growing problem of invasive species but the need for coordination among federal programs and the lack of a comprehensive federal plan to deal with the issue. The Council is co-chaired by the Secretaries of the Interior, Agriculture, and Commerce and includes the Secretaries of the Treasury, State, Health and Human Services, Defense, Transportation, and (most recently) Homeland Security, as well as, the Administrators of the Environmental Protection Agency (EPA) and the US Agency for International Development. The E.O. also provides for an Invasive Species Advisory Committee (ISAC), which includes a wide variety of nonfederal experts and stakeholders to advise the council and provide nonfederal perspective and input. The key tasks of the Council, in addition to extensive coordination on invasive species programs and budgets are: 1) drafting and guiding implementation of the National Invasive Species Management Plan; (executive summary attached) 2) working with Department of State to enhance international cooperation to prevent and control invasive species; 3) building partnerships with local, state, and tribal governments; 4) organizing and providing enhanced public access to invasive species information; and 5) enhancing public education and outreach on invasive species issues. Early in 2001, the Council issues the first edition of the National Invasive Species Management Plan. The Plan, which includes 57 action items, is a comprehensive blueprint to address invasive species. Recent accomplishments include: drafting guidelines for early detection and rapid response systems; listing significant pathways for introduction of invasive species; establishing (working with USDA's National Agricultural Library) an invasive species website that provides information about all federal invasive species programs; enhancing international cooperation by co-sponsoring international invasive species regional workshops, and beginning work on a North American invasive species strategy. In addition, the Council has proposed modifications to the Executive Order (now under review) to enhance the role of states and tribal interests with the Council. Finally, the Council has completed the first, performance-based invasive species crosscut budget for FY 2004 in order to leverage federal invasive species programs and resources in three targeted areas, and proposes to further strengthen budget coordination in FY 2005.	Published at 64 FR 6183, February 8, 1999

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
		(information from http://epw.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=deac2176-802a-23ad-4fb2-8fe5e8b94efa&Witness_ID=3926b9e8-f2c2-4820-9917-3433cf33bcc6) In 1999, President Clinton signed Executive Order 13112 on Invasive Species. This Order established a National Invasive Species Council, which helps coordinate activities of existing federal agencies that address terrestrial and aquatic invasive species. It also directed Federal agencies to conduct, as appropriate, activities related to invasive species prevention; early detection, rapid response, and control; monitoring; restoration, research; and education. The Order also directed Federal agencies to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States unless the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions. (info from http://www.fws.gov/contaminants/ANS/ANSLaws.cfm)	
	National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2008 (2008; PDF | 1.7 MB) Public Law 110-181; Sec. 314 (Jan 28, 2008)	Prevent the introduction of the brown tree snake into Hawaii, the Commonwealth of the Northern Mariana Islands, the continental United States, or any other non-native environment as a result of the movement from Guam of military aircraft, personnel, and cargo, including the household goods of military personnel and other military assets. Provisions: Section 314 of this law requires the Secretary of Defense to submit to the congressional defense committees a report on control of the brown tree snake (BTS).	
U.S. Department of the Interior	Water Resources Development Act (1999) Public Law 106-53 (Aug 17, 1999)	Control of existing organisms in and around the Great Lakes Sec. 506(a)- "In conjunction with the Great Lakes Fishery Commission, the Secretary is authorized to undertake a program for the control of sea lampreys in and around waters of the Great Lakes. The program undertaken pursuant to this section may include projects which consist of either structural or nonstructural measures or a combination thereof."	
USACE	Water Resources Development Act of 2007 Public Law 110-114; Sec. 3061 (Nov 8, 2007)	Asian carp dispersal barrier demonstration project, Upper Mississippi River. Pathways: Control of existing organisms in and around the Great Lakes Provisions: To provide for the conservation and development of water and related resources, to authorize the Secretary of the Army to construct various projects for improvements to rivers and harbors of the United States, and for other purposes.	This really appears to have muh more bearing on Illinois and the Chicago River. I'm not sure its relevant to NYS

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of the Interior	Lacey Act (1900, Amended 1998) 18 USC 42, Amended further by the 2008 Farm Bill effective May 22, 2008	Prohibits import of: A list of designated species Other vertebrates, mollusks, and crustacea that are "injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States" Declares importation or transportation of any live wildlife as injurious and prohibited, except as provided for under the Act BUT Allows import of almost all species for scientific, medical, education, exhibition, or propagation purposes The Lacey Act (pdf) is a law that dates back to the early 1900's and is one of the oldest wildlife related laws on the books. Under the Lacey Act, the Secretary of the Interior is authorized to regulate the importation and transport of species, including offspring and eggs, determined to be injurious to the health and welfare of humans, the interests of agriculture, horticulture or forestry, and the welfare and survival of wildlife resources of the U.S. Wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, and reptiles are the only organisms that can be added to the injurious wildlife list. Species listed as injurious may not be imported or transported between States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the U.S. by any means without a permit issued by the Service. Permits may be granted for the importation or transportation of live specimens of injurious wildlife and their offspring or eggs for bona fide scientific, medical, educational, or zoological purposes. An injurious wildlife listing would not prohibit intrastate transport or possession of that species within a State, where those activities are not prohibited by the State. A current list of Injurious Wildlife Species and information on Injurious wildlife species under evaluation can be found by visiting our Injurious Wildlife page (info found http://www.fws.gov/contaminants/ANS/ANSLaws.cfm)	The following are the relevant regulations pertaining to the Lacey Act: TITLE 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR SUBCHAPTER B--TAKING, POSSESSION, TRANSPORTATION, SALE, PURCHASE, BARTER, EXPORTATION, AND IMPORTATION OF WILDLIFE AND PLANTS PART 10--GENERAL PROVISIONS

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
	Great Lakes Fish and Wildlife Restoration Act of 2006 Public Law 109-326 (Oct 11, 2006)	Sea lamprey Pathways: Unintentional and intentional introduction Provisions: To amend the Great Lakes Fish and Wildlife Restoration Act of 1990 to provide for implementation of recommendations of the United States Fish and Wildlife Service contained in the Great Lakes Fishery Resources Restoration Study. The Great Lakes Fish and Wildlife Restoration Act Grant Program provides federal grants on a competitive basis to states, tribes and other interested entities to encourage cooperative conservation, restoration and management of fish and wildlife resources and their habitat in the Great Lakes basin. The projects are funded under authority of the Great Lakes Fish and Wildlife Restoration Act of 2006. Originally enacted in 1990 and reauthorized in 1998 and 2006, the Act authorizes $14 million annually to implement fish and wildlife restoration projects and Service activities of regional importance. Future work via the Act will continue to encourage cooperative conservation, restoration, and management of fish and wildlife and their habitats and address impacts associated with climate change, population growth, demand for water, pollution and contamination, habitat alteration and destruction, fish and wildlife diseases, and invasive species.	2011 Request for proposals can be found at http://www.fws.gov/midwest/fisheries/glfwra-grants/FY11GLFWRARequestForProposalsFinal10-14-10.pdf The Great Lakes Regional Collaboration Strategy can be found at http://www.glrc.us/strategy.html Grants are issued in accordance with 43 CFR 12 Subpart C--UNIFORM ADMINISTRATIVE REQUIREMENTS FOR GRANTS AND COOPERATIVE AGREEMENTS TO STATE AND LOCAL GOVERNMENTS
U.S. Department of Transportation, Federal Highway Administration	Title 6006 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act (2005) Public Law 109-59 (August 10, 2005)	Provision that makes activities for the control of noxious weds and the establishment of native species eligible for Federal-aid funds under the National Highway System and the Surface Transportation System. Noxious weeds and aquatic weeds are usually controlled by maintenance districts or State contractors, but now eligible to receive Federal funding. The SAFETEA-LU makes certain weed control activities and the establishment of native plants eligible for NHS and STP funds. The addition of Section 329 to Title 23 U.S. Code not only provides for Federal-aid eligibility for weed control by State vegetation managers, but also supports their work concurrently with, in advance of, or following the construction of a project funded under this title. This flexibility should be of great assistance to State vegetation managers to respond to weed infestations at any time. The Federal Highway Administration's guidance on the implementation of this funding can be found at http://www.fhwa.dot.gov/hep/noxweeds.htm	23 CFR 752.11 Provides that "Federal-aid highway funds may participate in any landscaping project undertaken pursuant to paragraph (a) of this section provided that at least one-quarter of one percent of funds expended for such landscaping project is used to plant native wildflower seeds or seedlings or both."

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of Agriculture	Noxious Weed Control and Eradication Act (2004) Public Law 108-412 (Oct 30, 2004) amends Plant Protection Act	The Secretary shall provide financial and technical assistance to control or eradicate noxious weeds. Grants shall be made available to weed management entities. Although the Plant Protection Act superseded and repealed most of the Federal Noxious Weed Act of 1974 (FNWA), it left intact section 15 of the act, "Management of undesirable plants on Federal lands" (7 U.S.C. 2814). Section 15 of the FNWA requires Federal land management agencies to develop and establish a management program for control of undesirable plants that are classified under State or Federal law as undesirable, noxious, harmful, injurious, or poisonous, on Federal lands under the agency's jurisdiction (7 U.S.C. 2814(a)). The Act also requires the Federal land management agencies to enter into cooperative agreements to coordinate the management of undesirable plant species on Federal lands where similar programs are being implemented on State and private lands in the same area (7 U.S.C. 2814(c)). The Secretaries of Agriculture and the Interior must coordinate their respective control, research, and educational efforts relating to noxious weeds (7 U.S.C. 2814(f)). (from http://www.fs.fed.us/invasivespecies/policy.shtml)	USDA's Departmental Regulation 9500-10 sets forth the Departmental policy relating to the management and coordination of noxious weeds activities among the agencies within USDA and other entities. This Regulation 9500-10 can be found at http://www.apfo.usda.gov/Internet/FSA_File/dr9500-010.pdf 36 CFR § 222.8 Cooperation in control of estray or unbranded livestock, animal diseases, noxious farm weeds, and use of pesticides. (a) Insofar as it involves National Forest System lands and other lands under Forest Service control or the livestock which graze thereupon, the Chief, Forest Service, will cooperate with: (1) State, county, and Federal agencies in the application and enforcement of all laws and regulations relating to livestock diseases, sanitation and noxious farm weeds. Title 7: Agriculture PART 371—ORGANIZATION, FUNCTIONS, AND DELEGATIONS OF AUTHORITY 7 CFR 371.3 Plant protection and quarantine. This Plant Protection and Quarantine (PPQ) protects and safeguards the Nation's plant resources through programs and activities to prevent the introduction and spread of plant pests and diseases.
U.S. Department of Agriculture, Animal and Plant Health Inspection Services	Public Health Security and Bioterrorism Preparedness and Response Act of 2002 Public Law 107-188 (Jun 12, 2002)	Ensuring coordination and minimizing duplication of Federal, State and local planning, preparedness, and response activities, including during the investigation of a suspicious disease outbreak or other potential public health emergency The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188; June 12, 2002) requires that the United States improve its ability to prevent, prepare for, and respond to acts of bioterrorism and other public health emergencies that could threaten either public health and safety or American Agriculture. It necessitates that individuals possessing, using, or transferring agents or toxins deemed a severe threat to public, animal or plant health, or to animal or plant products notify either the Secretary of the Department of Health and Human Services (HHS) or the Secretary of the Department of Agriculture (USDA).	In accordance with the Act, implementing regulations detailing the requirements for possession, use, and transfer for select agents and toxins were published by HHS (42 CFR part 73) and by USDA (9 CFR part 121 and 7 CFR part 331) .
U.S. Department of Agriculture	Farm Security and Rural Investment Act of 2002 Public Law 107-171 (May 13, 2002)	Prevention, detection, control and eradication of diseases and pests of animals are essential to protect: animal health; health and welfare of people; economic interests in livestock; the environment; interstate commerce and foreign commerce.	Regulations which impact the Farm Security and Rural Investment Act of 2002: TITLE 7--Agriculture Subtitle B--REGULATIONS OF THE DEPARTMENT OF AGRICULTURE CHAPTER XIV--COMMODITY CREDIT CORPORATION, DEPARTMENT OF AGRICULTURE SUBCHAPTER B--LOANS, PURCHASES, AND OTHER OPERATIONS PART 1410--CONSERVATION RESERVE PROGRAM

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of Agriculture, U.S. Department of the Interior	Agreement on the Application of Sanitary and Phytosanitary Measures (1995) (SPS Agreement)	A supplementary agreement to the World Trade Organisation Agreement. Provides a uniform interpretation of the measures governing safety and plant and animal health regulations. Applicable to all sanitary and Phytosanitary measures directly or indirectly affecting international trade. Sanitary and Phytosanitary measures are defined as any measure applied a) to protect animal or plant life or health within (a Members' Territory) from entry, establishment or spread of pests, diseases, disease carrying organisms; e) to prevent or limit other damage within the (Members Territory) from the entry, establishment or spread of pests	Regulations involving the Agreement on Application of Sanitary and Phytosanitary Measures: TITLE 9--Animals and Animal Products CHAPTER III--FOOD SAFETY AND INSPECTION SERVICE, DEPARTMENT OF AGRICULTURE SUBCHAPTER A--AGENCY ORGANIZATION AND TERMINOLOGY; MANDATORY MEAT AND POULTRY PRODUCTS INSPECTION AND VOLUNTARY INSPECTION AND CERTIFICATION **PART 381--POULTRY PRODUCTS INSPECTION REGULATIONS** TITLE 9--Animals and Animal Products CHAPTER III--FOOD SAFETY AND INSPECTION SERVICE, DEPARTMENT OF AGRICULTURE SUBCHAPTER A--AGENCY ORGANIZATION AND TERMINOLOGY; MANDATORY MEAT AND POULTRY PRODUCTS INSPECTION AND VOLUNTARY INSPECTION AND CERTIFICATION **PART 327--IMPORTED PRODUCTS**
U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Department of Homeland Security Coast Guard, EPA, Department of Defense Army Corps of Engineers, Department of Commerce NOAA	Non-indigenous Aquatic Nuisance Prevention and Control Act Public Law 101-646 (Nov 29, 1990)	Established Aquatic Nuisance Species Task Force to: identify areas where ballast water does not pose an environmental threat, assess whether aquatic nuisance species threaten the ecological characteristics and economic uses of U.S. waters (other than the Great Lakes), determine the need for controls on vessels entering U.S. waters (other than Great Lakes), identify and evaluate approaches for reducing risk of adverse consequences associated with intentional introduction of aquatic species Directs Coast Guard to issue regulations to prevent the introduction and spread of aquatic nuisance species into the Great Lakes through ballast water Directs Corps of Engineers to develop a program of research and technology to control zebra mussels in and around public facilities and make available information on control methods	33 CFR Part 151

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of the Interior	Convention on International Trade in Endangered Species (CITES) (1975)	Represents alternate model for regulating invasive species not already covered by the IPPC or other agreements. Convention intended to prevent harm in exporting country; however, can be applied when species is endangered in exporting country and considered an invasive in importing country.	Regulations frequently referenced in connection to CITES: TITLE 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR SUBCHAPTER B--TAKING, POSSESSION, TRANSPORTATION, SALE, PURCHASE, BARTER, EXPORTATION, AND IMPORTATION OF WILDLIFE AND PLANTS **PART 10--GENERAL PROVISIONS** TITLE 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR SUBCHAPTER B--TAKING, POSSESSION, TRANSPORTATION, SALE, PURCHASE, BARTER, EXPORTATION, AND IMPORTATION OF WILDLIFE AND PLANTS **PART 13--GENERAL PERMIT PROCEDURES** TITLE 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR PART 17--ENDANGERED AND THREATENED WILDLIFE AND PLANTS Regulations specifically pertaining to CITES: TITLE 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR SUBCHAPTER B--TAKING, POSSESSION, TRANSPORTATION, SALE, PURCHASE, BARTER, EXPORTATION, AND IMPORTATION OF WILDLIFE AND PLANTS **PART 23--CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES)**
	Convention on Great Lakes Fisheries Between the United States and Canada (1955)	The Convention established the Great Lakes Fisheries Commission whose purpose is to control and eradicate the non-native, highly invasive Atlantic sea lamprey from the Great Lakes	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Department of Commerce	Endangered Species Act (1973) 16 USC Section 1531 et seq.	Protects endangered species when non-native invasive species threaten endangered species, this act could be used as basis for their eradication	Regulations often referenced in connection with the Endangered Species Act:Regulations are found at 50 CFR 15 Title 50--Wildlife and Fisheries CHAPTER I--UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR PART 15--WILD BIRD CONSERVATION ACT The regulations for Endangered Species Act (1973) 16 USC Section 1531 et seq. can be found at: TITLE 50--Wildlife and Fisheries CHAPTER IV--JOINT REGULATIONS (UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR AND NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, DEPARTMENT OF COMMERCE); ENDANGERED SPECIES COMMITTEE REGULATIONS SUBCHAPTER A PART 402--INTERAGENCY COOPERATION--ENDANGERED SPECIES ACT OF 1973, AS AMENDED
	Public Lands Corps Healthy Forests Restoration Act (2005) Public Law 109-154 (Dec 20, 2005) (Amends Public Land Corps Act of 1993)	To address the impact of insect or disease infestations or other damaging agents on forest and rangeland health	Related regualtions reference in connection with the Public Lands Corps Healthy Forests Restoration Act (2005) include: 50 CFR 30. 1998. Code of Federal Regulation, Title 50- Wildlife and Fisheries Chapter I-United States Fish and Wildlife Service, Department of Interior Part 30-Range and Feral Animal Management
U.S. Department of the Interior	Salt Cedar and Russian Olive Control Demonstration Act (2006); Public Law 109-320 (October 11, 2006)	Directs the Secretary of the Interior, acting through the Commissioner of Reclamation, to carry out an assessment and demonstration program to control salt cedar and Russian olive.	
U.S. Department of Agriculture	National Plan for Control and Management of Sudden Oak Death; Public Law 108-488 (Dec 23, 2004)	(a) Development of National Plan.--Subject to the availability of appropriated funds for this purpose, the Secretary of Agriculture, acting through the Animal Plant and Health Inspection Service, shall develop a national plan for the control and management of Sudden Oak Death, a forest disease caused by the fungus-like pathogen. Phytophthora ramorum.	
U.S. Department of the Interior; U.S. Department of Agriculture, Animal and Plant Health Inspection Service	Brown Tree Snake Control and Eradication Act (2004); Public Law 108-384 (Oct 30, 2004)	Unintentional and intentional introduction of Brown Tree Snake.	
U.S. Department of the Interior State of Maryland State of Louisiana	Nutria Eradication and Control Act (2003); Public Law 108-016 (Apr 23, 2003)	The purpose of this Act is to authorize the Secretary of the Interior to provide financial assistance to the State of Maryland and the State of Louisiana for a program to implement measures to eradicate or control nutria and restore marshland damaged by nutria.	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
U.S. Department of Agriculture, Forest Service	Hawaii Tropical Forest Recovery Act (1992); Public Law 102-574 (Oct 29, 1992)	Creates task force to develop action plan to: "promote public awareness of the harm caused by introduced species" develop recommendations on "the benefits of fencing or other management activities for the protection of Hawaii's native plants and animals from non-native species, including the identification and priorities for the areas where these activities are appropriate. Authorizes Sec. of Agriculture and USFS to establish biological control agents for non-native species.	
U.S. Department of Agriculture, Animal and Plant Health Inspection Service	Organic Act (1944)	Gives APHIS the authority to conduct pest eradication programs	
U.S. Department of Agriculture, Animal and Plant Health Inspection Service	Federal Seed Act (1940; amended 1998); 7 USC §1551 et seq.	Requires accurate labeling and purity standards for seeds in commerce. Prohibits importation and movement of adulterated or misbranded seeds	
New York State Law			
Agriculture and Markets (AGM)	Inspection and Sale of Seeds (article 9)	Labeling of noxious weed seeds Sec. 142 The commissioner may, through promulgation of regulations, add to, or subtract from, the list of noxious weed seeds set forth in definition seven, section one hundred thirty-six of this article, whenever he finds, after public hearing, that such addition or subtraction is in the best interests of the agriculture of this state.	1 NYCRR Chapter III Plant Industry, Subchapter A Inspection and Sale of Seeds (Article 9, Agriculture and Markets Law) Part 95.3. Interpretation of Terms Used. . . Seeds of wheat, oats, rye, barley and other seeds of similar size or larger will be considered to be 'so unclean as to be unfit for planting' if they contain 10 noxious weed seeds or more per pound. Part 95.9 Noxious Weed Seeds. The term "noxious weed seeds" includes, in addition to those seeds set forth in definition 7 of section 136 of the Agriculture and Markets Law, the seeds of the following: Leafy spurge (Euphorbia esula). Annual bluegrass (Poa annua) when present in lawn seed or lawn seeding mixtures.
	Integrated Pest Management Program (AML article 11)	(Sec. 148) Established an integrated pest management program for the purposes of managing insects, diseases, nematodes, weeds and rodents. Such program shall include, but not be limited to programs of instruction, research and development, the purpose of which is to educate the agricultural community and integrate programs of: a. crop management and cultural practices; b. field scouting; c. economic threshold; and d. chemical and biological control. (Sec. 148A) Within the integrated pest management program there shall be established four separate but interrelated programs for pest management and the impact thereof on the following agricultural production areas: a. livestock/forage production system; b. fruit production; c. vegetable and potato production; and d. ornamentals production.	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
	Prevention and Control of Disease in Trees and Plants; Insects; Sale of Fruit-bearing Trees (article 14)	(Sec 163) The commissioner shall take such action as he may deem necessary to prevent the introduction into this state of injurious insects, noxious weeds, and plant diseases. (Sec 164) The commissioner shall take such action as he may deem necessary to control or eradicate any injurious insects, noxious weeds, or plant diseases existing within the state. (Sec. 164A) No person, shall sell, barter, offer for sale, or move, transport, deliver, ship, or offer for shipment, into or within this state any living insects in any state of their development, or noxious weeds, living fungi, bacteria, nematodes, viruses or other living plant parasitic organisms without first obtaining a permit from the commissioner. (Sec. 166) The commissioner shall, as often as he or she deems necessary and no less than once every two years, inspect all nurseries or places where nursery stock is grown for sale.	1 NYCRR Chapter III Plant Industry, Subchapter C Prevention and Control of Disease in Trees and Plants; Insect Pests; Sale of Fruit-Bearing Trees(Article 14, Agriculture and Markets Law) Part 127 Golden Nematode (Globodera Rostochiensis) Quarantine Part 128 Gypsy Moth (Porthetria Dispar L.) Quarantine Part 129 Control of the Gypsy Moth Part 130 Control of Scleroderris Canker Part 131 Pine Shoot Beetle Quarantine Part 132 Vegetable Plant Quarantine Part 135 Blossom Thinning Sprays Part 136 Dealers in Nursery Stock Part 137 Pear Root Stock and Seed Part 138 Certification of Grape Root Stocks and Propagating Material Part 139 Control of the Asian Long Horned Beetle Part 140 Control of the Plum Pox Virus (Potyvirus Dideron Strain) Part 141 Control of the Emerald Ash Borer Part 150 Voluntary Program for the Production of Virus-Tested Plant Materials
Environmental Conservation (DEC)	Forest Insect Disease Control (Title13 9-1301)	For the purpose of suppressing and controlling white pine blister rust and currant rust (Cronartium ribicola),	6 NYCRR Chapter II Lands and Forest, Part 192 Forest Insect and Disease Control s 192.1 Certain cultivars of black currants prohibited. s 192.2 Immune and resistant cultivars of currants and gooseberries s 192.3 Fruiting currant districts. s 192.4 White pine blister rust quarantine districts.
	Forest Insect Disease Control (Title13 - 9-1303)	For the purpose of control and preventing the spread of forest insects and forest tree diseases (except white pine blister rust and currant rust, covered by section 9-1301) Sets forth the DEC authority to investigate, quarantine, poison forest areas, etc.	6 NYCRR Chapter II Lands and Forest, Part 192 Forest Insect and Disease Control s 192.5 Firewood restrictions to protect forests from invasive species. This regulation will reduce the damage done to trees by invasive insects and diseases by restricting the movement, sale and possession of untreated firewood.
	New York Invasive Species Council (Article 9, Title 17)	(Sec. 9-1705) There is hereby established the New York invasive species council. (Sec. 9-1707) There shall be established a New York invasive species advisory committee which shall provide information, advice and guidance to the council, including but not limited to providing assistance with the development of the four-tier classification system for nonnative animal and plant species. (Sec. 9-1709) For the purpose of carrying out the provisions of this title, the department in cooperation with the department of agriculture and markets shall have the authority, within funds available, to: 1. establish, operate and maintain state-wide databases and clearinghouses for all taxa of invasive species that incorporate existing data from agencies and organizations in the state, as well as from nearby states, provinces, Canada, and the federal government. 2. coordinate state agency and public authority actions to do the following: (a) phasing out uses of invasive species; (b) expanding use of native species; (c) promoting private and local government use of native species as alternatives to invasive species; and (d) wherever practical and where consistent with watershed and/or regional invasive species management plans, prohibiting and actively eliminating invasive species at project sites funded or regulated by the state; and 3. in collaboration with the council, aid in the review and reform of relevant regulatory processes to remove unnecessary impediments to the restoration of invaded ecosystems.	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
	Fish and Wildlife Management Practices Cooperative Program (Article 11, Title 5)	§ 11-0509. Water chestnut. No person shall plant, transport, transplant or traffic in plants of the water chestnut or the seeds or nuts thereof nor in any manner cause the spread or growth of such plants.	
	Environmental Conservation Law (generally)		6 NYCRR CHAPTER I. FISH AND WILDLIFE SUBCHAPTER J. MISCELLANEOUS REGULATIONS PART 180. MISCELLANEOUS REGULATIONS (a) Purpose. The purpose of this section is to list species of native or non-native fish that present a danger to the health or welfare of indigenous fish populations, and to the health or welfare of people of the State.
International (note, international treaties not ratified by the US are not listed here)			
(note, international treaties not ratified by the US are not listed here)	International Plant Protection Convention (IPPC)	Organisms affected: Pests of plants or plant products: "any form of plant or animal life, or any pathogenic agent, injurious or potentially injurious to plants or plant products." Quarantine pests involved with international trade: "pest of potential national economic importance to the country endangered thereby and not yet present there, or present but not widely distributed and being actively controlled." Pathways for introduction: "Storage places, conveyances, containers and any other object or material capable of harbouring or spreading plant pests, especially where international transportation is involved." Packing material or matter of any kind accompanying plant products3 Storage places Transportation facilities Relevance: Applies primarily to quarantine pests in international trade. Creates an international regime to prevent spread and introduction of plant and plant product pests premised on exchange of Phytosanitary certificates between importing and exporting countries' national plant protection offices. Parties have national plant protection organizations established according to the Convention with authority in relation to quarantine control, risk analysis and other measures required to prevent the establishment and spread of all invasive alien species that, directly or indirectly, are pests of plants. Parties agree to co-operate on information exchange and on the development of International Standards for Physosanitary Measures, which include agreements on definitions (terminology), and ways of working (procedures). Supplementary agreements on regions, pests, plants or plant products, and methods of international transport. Regional agreements exist for Europe and the Mediterranean region; the Asia-Pacific region, and the Near East	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
National and local governments (US ratified 1986)	Convention on Wetlands (Ramsar Convention)	The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world". The Convention uses a broad definition of the types of wetlands covered in its mission, including lakes and rivers, swamps and marshes, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans. At the centre of the Ramsar philosophy is the “wise use” concept. The wise use of wetlands is defined as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development". "Wise use" therefore has at its heart the conservation and sustainable use of wetlands and their resources, for the benefit of humankind.	
National Government	Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) (established 1995)	Organisms: Pests, diseases, disease-carrying organisms, or disease-causing organisms Pathways: Importation Relevance: A supplementary agreement to the World Trade Organization Agreement. Provides a uniform interpretation of the measures governing safety and plant and animal health regulations. Applicable to all sanitary and Phytosanitary measures directly or indirectly affecting international trade. Sanitary and Phytosanitary measures are defined as any measure applied a) to protect animal or plant life or health within (a Members' Territory) from entry, establishment or spread of pests, diseases, disease carrying organisms; e) to prevent or limit other damage within the (Members Territory) from the entry, establishment or spread of pests (annex A).	
National Government	Convention on the Law of Non-navigational Uses of International Watercourses (PDF | 317 KB) (adopted 1997)	Organisms: Species "detrimental to the ecosystem of the watercourse" Pathways: Unintentional and intentional introduction Relevance: Article 22: Watercourse states shall take all necessary measures to prevent the introduction of species, alien or new, into an international watercourse which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse states.	
Declarations, reports, and directives			
Governors of the Great Lakes Regional States	Great Lakes Declaration: Protection and Restoring the Great Lakes through a Regional Collaboration of National Significance	Consistent with the laws applicable to each parties respective jurisdictions, the state and federal govenments surrounding the Great Lakes pledged their support for the development of a widely understood and broadly supported strategy including actions to further protect and restore the Great Lakes ecosystem through the Great Lakes Regional Collaboration process. See the GLDeclaration at http://www.glrc.us/documents/GLDeclaration12032004.pdf	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
National governments, international organizations, conventions	Fuzhou Declaration on Biological Invasions - 'Managing Biological Invasions under Global Change'	Key outcomes of ICBI (2009) include: 1. A call to governments, international organisations and conventions to reaffirm their commitment to CBD Article 8h, to prioritise invasive species and provide the necessary resources to address this global threat. 2. Establishment of an International Expert Committee to provide scientific, technical and policy guidance to the International Congress of Biological Invasions (ICBI) on the development of an ICBI Website, e-Newsletter, and a forum for the exchange of scientific ideas and capacity building. 3. Agreement that the International Congress on Biological Invasions (ICBI) would in future be held on a regular basis (4-year interval). More information can be found at: http://www.cabi.org/Uploads/File/China%20PDFs/ICBI%202009%20Fuzhou%20Declaration%20draft%20-%20Drafting%20Committee.pdf	
	Baltimore Declaration (PDF | 36 KB)	Result of the Experts Meeting on Implementation of a Global Invasive Species Information Network (GISIN) The Mission of the Global Invasive Species Information Network: ♦ To provide a platform for sharing invasive species information at a global level, via the Internet and other digital means. ♦ To offer a central place for the reporting and tracking of new alien species sightings via email listserv. ♦ To develop and share electronic information management tools to better identify, map, and predict the spread of invasive species at regional and global levels. ♦ To build the capacity of network members in the development and use of information tools to integrate IAS databases. for more information please visit: http://www.gisinetwork.org/Documents/BaltimoreDeclaration.pdf	
	Davis Declaration	Conclude that: There is an urgent need to develop a comprehensive global strategy to strengthen and coordinate IAS taxonomic and information services. Encourage: Establishment of a global information system based on a network of regional information hubs for providing information services and tools relating to IAS and building wherever possible on existing efforts . Support of IAS information services by strengthening of the infrastructure for information technology and management, taxonomic identification, systematics research, vouchering and collections management worldwide. Development of tools to increase taxonomic capacity worldwide. These tools, which should be made available wherever possible in hard copy, on CD, and on the Internet, include, inter alia, a guide to taxonomic services for IAS; common nomenclatural standards; identification aids; searchable lists of floras and faunas; and training programs for new taxonomists and parataxonomists. Establishment of partnerships with key stakeholder groups, including industry, non-governmental organizations, and the general public, for developing and applying taxonomic services and information to combat IAS. For more information please visit: http://i3n.iabin.net/documents/davis_declaration031.doc	

Table 3.2-1 Summary of Legislation

Authority	Legislation	Description	Relevant Regulations
	Kirstenbosch Declaration	South Africa / United States of America Bi-National Commission Symposium on Best Management Practices for Preventing and Controlling Invasive Alien Species For more information please visit: http://www.dwaf.gov.za/wfw/Docs/Articles/THE%20KIRSTENBOSCH%20DECLARATION.doc	
	St. Louis Declaration On Invasive Plant Species	In December 2001, experts from across the globe met in St. Louis, Missouri to explore and develop workable voluntary approaches for reducing the introduction and spread of non-native invasive plants, which are serious threats to protecting biodiversity and ecosystems in the United States and other countries. Findings: People are major dispersers of plants. The magnitude of this dispersal is unprecedented and has allowed dispersal of species that manifest aggressive traits in new areas. Plant introduction and improvement are the foundation of modern agriculture and horticulture, yielding diversity to our supply of plants used for food, forestry, landscapes and gardens, medicinal and other purposes. A small proportion of introduced plant species become invasive and cause unwanted impacts to natural systems and biological diversity as well as economies, recreation, and health. Plant species can be invasive in some regions, but not in others. The impacts of invasive plant species can occur at times and places far removed from the site of introduction. For more information please visit: http://www.fleppc.org/FNGA/St.Louis.htm	
	CRS Report for Congress Harmful Non-Native Species: Issues for Congress IV	Listing of Arthropods, Mollusks, and Vertebrates considered harmful non-native species For the full list please visit: http://ncseonline.org/nle/crsreports/biodiversity/biodv-26f.cfm	
United States Department of Agriculture Animal and Plant Health Inspection Service	WS Directive 2.320, 02/06/04, Invasive Species Damage Management	To provide guidelines for WS actions in the control of invasive species, including feral animals and exotic wildlife in fulfillment of the objectives of Executive Order 13112 (1999), the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 as amended (1996), the Endangered Species Act of 1973 as amended when invasive vertebrate species threaten those species covered under the Act, and the Animal Damage Control Act of 1931 as amended.	

D Funding Resource Table

Organization Name	Grant Name	Funding Amounts	Matching Amount	Eligibility	Distribution Cycle	Contact Information	Focus Areas
USDA - NRCS	Wildlife Habitat Incentive Program (WHIP)			Landowners with eligible agricultural lands including cropland, grassland, pasture, and other land determined by NRCS to be suitable for wildlife habitat development are eligible to apply.		Albert Cerna (202) 720-9358 (albert.cerna@wdc.usda.gov)	WHIP in New York will have two focus areas: enhancing early successional wildlife habitat with shrubland and establishing and enhancing grassland habitat for declining bird species, pollinators, and other grassland wildlife species.
USDA Animal and Plant Health Inspection Service (APHIS)	Cooperative Agricultural Pest Survey (CAPS)		Matching funds are not required, but are encouraged.	State Departments of Agriculture and their cooperating partners (occasionally universities)		John Bowers (301) 734-3658 (John.Bowers@aphis.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects
USDA Animal and Plant Health Inspection Service (APHIS)	Pest Detection (Cooperative Agricultural Pest Survey-CAPS)		Matching funds are not required, but are encouraged.	State Departments of Agriculture and their cooperating partners (occasionally universities)		John Bowers (301) 734-3658 (John.Bowers@aphis.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects
USDA Animal and Plant Health Inspection Service (APHIS)	Various Plant Health Programs		Matching funds are not required, but are encouraged.	State Departments of Agriculture		Assistant Deputy Administrator, Emergency and Domestic Programs (301) 734-3769 (David.T.Kaplan@aphis.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects
USDA Animal and Plant Health Inspection Service (APHIS)	Animal Health Monitoring and Surveillance		Matching funds are not required, but are encouraged.	State Departments of Agriculture		Debra Cox (301) 734-4397 (debra.cox@aphis.usda.gov)	Pests and diseases of livestock
USDA Animal and Plant Health Inspection Service (APHIS)	Emergency Management Systems		Matching funds are not required, but are encouraged.	State Departments of Agriculture and Tribal nations		Summer Bailey (301) 734-3593 (Summer.D.Bailey@aphis.usda.gov)	Pests and diseases of livestock
USDA Animal and Plant Health Inspection Service (APHIS)	Various Animal Health Programs		Matching funds are not required, but are encouraged.	State Departments of Agriculture and Tribal nations		Associate Deputy Administrator for National Animal Health Policy and Programs (301) 734-8093	Pests and diseases of livestock
USDA Animal and Plant Health Inspection Service (APHIS)	Wildlife Services Operations		Cooperators provide matching funds, normally 50 percent of a project's cost.	State and local agencies, businesses, and private citizens		John Sinclair (301) 734-5650 (John.A.Sinclair@aphis.usda.gov)	Invasive animals
USDA - Forest Service	Northeastern Area State and Private Forestry (S&PF) Competitive Allocation	A minimum project proposal amount of $30,000 in Federal funding has been established. The maximum amount of Federal funding that will be awarded to any one State via this competitive process is $1.5 million. The intent is to consider and fund both large and small projects. There is no limit on the number of proposals (single or multistate) any one State can submit. However, it is recommended that smaller projects be "bundled" to create a larger project.	Required matching funds (50/50 minimum). The match must be met by eligible and allowable costs and is subject to match provisions in grant regulations. See http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title07/7cfr3015_main_02.tpl (Subpart G).	In FY2011, State Forestry agencies are eligible to submit or authorize proposals (pass-through direct to partners) for consideration under this competition. Nonprofit organizations, universities, and other partners must submit proposals through the State Forester. State Agriculture agencies or other organizations with State Forest Health program responsibilities can submit proposals through the State Forester or they can submit them directly with a letter of concurrence from the State Forester.		Barb Tormoehlen – St. Paul, MN at (651) 649–5276 or btormoehlen@fs.fed.us Bob Lueckel – Morgantown, WV at (304) 285–1540 or rlueckel@fs.fed.us Terry Miller – Durham, NH at (603) 868–7694 or twmiller@fs.fed.us	
USDA Forest Service Forest Health Protection Forest Health Technology Enterprise Team (FHTET)	Technology Development for the Biological Control of Invasive Native and Non-Native Plants (BCIP)		Cost sharing or matching is required.	Projects will be funded as Cooperative Agreements with State agricultural experimental stations, colleges and universities, other research institutions and organizations, Federal Agencies, national laboratories, private organizations or corporations, and individuals.		Dr. Richard Reardon, National BCIP Program Leader (rreardon@fs.fed.us, 304-285-1566).	Invasive plants/weeds and bio-control agents.
USDA National Institute for Food and Agriculture (NIFA)	Agriculture and Food Research Initiative (AFRI) Foundational Program – Controlling Weedy and Invasive Plants		Cost sharing or matching may, or may not be required. See the AFRI FY 2011 Request for Applications for details (http://www.nifa.usda.gov/funding/afri/afri.html)	Eligible applicants for Research Projects include: 1) State Agricultural Experiment Stations; 2) colleges and universities (including junior colleges offering associate degrees or higher); 3) university research foundations; 4) other research institutions and organizations; 5) Federal agencies, 6) national laboratories; 7) private organizations or corporations; 8) individuals who are U.S. citizens, nationals, or permanent residents; and 9) any group consisting of 2 or more entities identified in 1) through 8). Eligible institutions do not include foreign and international organizations.		Michael Bowers, National Program Leader (202) 401-4510 (mbowers@nifa.usda.gov)	Invasive plants/weeds

Organization Name	Grant Name	Funding Amounts	Matching Amount	Eligibility	Distribution Cycle	Contact Information	Focus Areas
USDA National Institute for Food and Agriculture (NIFA)	Agriculture and Food Research Initiative (AFRI) Foundational Program – Insects and Nematodes		Cost sharing or matching may, or may not be required. See the AFRI FY 2011 Request for Applications for details (http://www.nifa.usda.gov/funding/afri/afri.html)	Eligible applicants for Research Projects include: 1) State Agricultural Experiment Stations; 2) colleges and universities (including junior colleges offering associate degrees or higher); 3) university research foundations; 4) other research institutions and organizations; 5) Federal agencies, 6) national laboratories; 7) private organizations or corporations; 8) individuals who are U.S. citizens, nationals, or permanent residents; and 9) any group consisting of 2 or more entities identified in 1) through 8). Eligible institutions do not include foreign and international organizations.		Mary Purcell-Miramontes, National Program Leader (202) 401-5168 (mpurcell@nifa.usda.gov)	Plant-associated pest and beneficial insects and nematodes
USDA National Institute for Food and Agriculture (NIFA)	Regional Integrated Pest Management (IPM) Competitive Grants Program		No matching requirements	Eligibility for research projects includes: state agricultural experiment stations, Land Grant colleges and universities, research foundations established by Land Grant colleges and universities, colleges and universities receiving funds under the Act of October 1, 1962 (16 U.S.C. 582a et seq.), and accredited schools or colleges of veterinary medicine. Eligibility for extension projects is limited to land-grant colleges and universities.		Mike Fitzner, National Program Leader (202-401-4939 (mfitzner@nifa.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species.
USDA Natural Resources Conservation Service (NRCS)	Wetlands Reserve Program		USDA pays 75 to 100 percent of restoration costs; landowner pays 0 to 25 percent depending on enrollment type.	Landowners of private lands and Tribes		Jessica Groves, NRCS Program Manager (202) 720-1067, (jessica.groves@wdc.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species.
USDA Farm Service Agency (FSA)	Conservation Reserve Program (CRP)		50 percent of establishment costs plus annual payment based on soil rental rate; funding limit of $50,000 per accepted application per fiscal year	Individuals and/or groups who have owned highly erodible or cropped wetlands and for at least one year		Robert Stephenson, Conservation and Environmental Programs Division, FSA (202) 720-6221 (robert.stephenson@usda.gov) and Patricia Engler, National Program Manager, NRCS (202) 720-1836 (Patricia.Enger@wdc.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA NRCS	Environmental Quality Incentive Program (EQIP)		EQIP may provide financial assistance up to 75 percent of the estimated incurred costs or income foregone of certain approved conservation practices. Historically underserved producers (Limited resource, beginning, and socially disadvantaged individuals or Tribal entities) may be eligible for payments up to 90 percent of the estimated incurred costs.	Persons who are engaged in livestock or agricultural production on eligible lands or landowners with an interest in eligible agricultural land may be eligible to apply for EQIP benefits. Other eligibility requirements, such as Adjusted Gross Income (AGI), Payment Limitations, may also apply.		Mark Parson, EQIP Program Team Leader (202) 720-1845 (Mark.Parson@wdc.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA FSA with technical support from NRCS	Conservation Reserve Enhancement Program (CREP)		A Federal annual rental rate, including an FSA state committee-determined maintenance incentive payment, is offered, plus cost-share of up to 50 percent of the eligible costs to install the practice. Further, the program generally offers a sign-up incentive for participants to install specific practices.	The program is a partnership among producers; Tribal, State, and Federal governments; and, in some cases, private groups. CREP addresses high-priority conservation issues of both local and national significance, such as loss of critical habitat for threatened or endangered wildlife species, soil erosion, and reduced habitat for fish populations such as salmon. The land must have been owned or operated by the applicant for the previous 12 months and must have been planted in crops 2 of the last 5 years and be physically and legally capable of being planted in a normal manner.		County Department of Agriculture Service Center.	Invasive plants/weeds

Organization Name	Grant Name	Funding Amounts	Matching Amount	Eligibility	Distribution Cycle	Contact Information	Focus Areas
USDA NRCS	Conservation Innovation Grants (CIG)	The Federal contribution may not exceed $1 million for a single project.	Selected applicants may receive grants up to 50 percent of the total project cost. Applicants must provide nonfederal matching funds for at least 50 percent of the project cost. An exception allows for beginning and limited resource farmers and ranchers, Tribes and community-based organizations representing these groups to obtain a higher percentage of project matching funds from in-kind contributions.	EQIP funds are used to award competitive grants to non-Federal governmental or non-governmental organizations, Tribes, or individuals. Project must include participation of producers eligible under EQIP. Project may be watershed based, regional, multi-state or nation-wide in scope.		Gregorio Cruz, Natural Resources Specialist (202) 720-2335 (Gregorio.Cruz@wdc.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA NRCS, FSA, and USFS	Grassland Reserve Program (GRP)		Participants may choose a 10, 15, or 20-year rental contract with USDA providing annual payments of not more than 75% of the grazing value of the land covered by the contract for the length of the rental contract with a $50,000 payment limitation. Or participants may choose a permanent GRP easement held by either the United States or an eligible entity. When applicable, 50% of needed restoration costs up to the $50,000 payment limitation may be paid for rental contracts and easements held by the United States. For easements held by an eligible entity, USDA will match 50% of the fair market value.	Expanding land eligibility criteria to include land that has been historically dominated by grassland, forbs, or shrubland when it contains historical or archaeological resources, or when it would address issues raised by State, regional, and national conservation priorities. Priority for land previously enrolled in the Conservation Reserve Program. Requirement for implementation of GRP management plan. Added authority for eligible entities to write, own and enforce GRP easements.		NRCS: Elizabeth Crane, GRP Program Manager (202) 720- 0242 (Elizabeth.crane@wdc.usda.gov) and FSA: Jim Williams (202) 720-9562 (jim.williams@wdc.usda.gov)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA NRCS	Conservation Technical Assistance (CTA)		Not applicable	This program provides technical assistance to participants in USDA cost-share and conservation incentive programs. Assistance is funded on a reimbursable basis from the Commodity Credit Corporation. Private land users, communities, units of State and local government, and other Federal agencies are eligible recipients.		Dan Lawson National Program Manager (202) 720-5322 (Dan.lawson@wdc.usda.gov). Eligible participants should contact their local USDA NRCS office to request assistance.	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA NRCS	Plant Materials Program		Not applicable	Limited to conservation cooperators' properties in conjunction with conservation districts, State Agricultural Experiment Stations, State Crop Improvement Associations and other Federal and State agencies. Plants or seed are not provided to the general public. The public is not eligible to participate in the program.		John Englert, National Plant Materials Specialist, 202-720-0536, john.englert@wdc.usda.gov	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA NRCS - Competitive grants administered by the National Fish and Wildlife Foundation	Conservation on Private Lands Program		At least 50 percent match required	Private landowners, primarily farmers and ranchers		Jody Olson, National Fish and Wildlife Foundation (202) 857-0166 x555 (Jody.Olson@nfwf.org)	Invasive plants/weeds, plant pathogens/diseases, insects, animals, animal pathogens, diseases, aquatic species
USDA NRCS	Cooperative Conservation Partnership Initiative (CCPI)	Competitive grants program that provides up to $200,000 for projects addressing conservation priorities.	Applicants must match CCPI funding 1:1. Up to 100% of the match can be in-kind.	CPI applicants must be a State or local agency, Federally-recognized Indian tribe, or non-governmental organization that has a history of working with agricultural producers. Individuals, private businesses, and Federal agencies, while not eligible to apply for CCPI funds, are invited to participate as partners in CCPI projects.		Tom Sommer, CCPI Program Manager, (202) 205-4211 (thomas.sommer@wdc.usda.gov). Additional information is available at: http://www.nrcs.usda.gov/programs/ccpi/	The program is not taxa-specific, nor geared toward particular taxa.
NRCS has leadership for the conservation provisions of AMA. The Agricultural Marketing Service (AMS) is responsible for an organic certification cost-share program. The Risk Management Agency (RMA) is responsible for mitigation of financial risk through a crop insurance program.	Agricultural Management Assistance (AMA) Program	Total AMA payments (from NRCS, AMS, and RMA) shall not exceed $50,000 per participant for any fiscal year.	The Federal financial assistance rate is up to75 percent of the cost of the estimated incurred cost and up to 100 percent of the estimated income foregone of an eligible practice.	AMA is available in 16 states, where participation in the Federal Crop Insurance Program is historically low, to applicants that own or control the land and agree to implement specific eligible conservation practices. The 16 states are: Connecticut, Delaware, Hawaii, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, **New York**, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming.		Dave Mason, AMA Program Manager, (202) 720-1873, (dave.mason@wdc.usda.gov). Additional information is available at: http://www.nrcs.usda.gov/programs/ama/index.html/	The program is not taxa-specific, nor geared toward particular taxa.

Organization Name	Grant Name	Funding Amounts	Matching Amount	Eligibility	Distribution Cycle	Contact Information	Focus Areas
USDA NRCS	Conservation Stewardship Program	For all contracts, CSP payments to a person or legal entity may not exceed $40,000 in any year and $200,000 during any 5-year period. Each CSP contract will be limited to $200,000 over the term of the initial contract period.	No match is required. CSP provides participants with two possible types of payments. An annual payment is available for installing new conservation activities and maintaining existing activities. A supplemental payment may be earned by participants who also adopt a resource-conserving crop rotation. Through 5-year contracts, payments will be made after October of each year for contract activities installed and maintained in the previous year.	CSP is available on Tribal and private agricultural lands, as well as non-industrial private forest lands in 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the U.S. Virgin Islands, American Samoa, and the Commonwealth of the Northern Mariana Islands.		Dwayne Howard, CSP Program Manager, (202) 720-3524, (Dwayne.howard@wdc.usda.gov). Additional information is available at: http://www.nrcs.usda.gov/programs/csp/	The program is not taxa-specific, nor geared toward particular taxa
NOAA	Community-based Habitat Restoration Partnership Grants	$150,000 to $1.5 million	1:1 match is offered by most successful applicants. The match may be cash, salary, equipment and supplies, in-kind services and labor.	Business , Community/Watershed Group , Nonprofit Groups , Educational Institution , Conservation District , Local Government , State/Territorial Agency , Tribal Agency Also eligible are regional governmental bodies and public or private agencies or organizations.		Melanie Gange Melanie.Gange@noaa.gov (301) 713-0174	Coastal Waters , Outreach/Education , Fisheries , Invasive Species , Monitoring , Partnerships , Restoration , Floodplains/Riparian Zones , Wetlands
USFWS	North American Wetlands Conservation Act (NAWCA) - Standard and Small-Grants Programs	Standard Grants Program: grant request between $75,001 and $1,000,000. Small Grants Program: grant request less than $75,000	1:1 match	No specific eligibility requirements		Division of Bird Habitat Conservation, (703) 358-1784, dbhc@fws.gov	The Standard Grants Program supports projects in Canada, the United States, and Mexico that involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats. The Small Grants Program operates only in the United States; it supports the same type of projects and adheres to the same selection criteria and administrative guidelines as the U.S. Standard Grants Program. However, project activities are usually smaller in scope and involve fewer project dollars.
USFWS/NYS DEC	Landowner Incentive Program (LIP)		States must provide a 25% match and a 50% match for all other types of eligible activities	All state fish and wildlife agencies		NYSDEC Bureau of Wildlife (518)402-8942	This program focuses on the protection and management of specific at-risk species and their habitat that have been identified as Species of Greatest Conservation Need in the DEC Comprehensive Wildlife Conservation Strategy
USFWS	State and Tribal Wildlife Grant Program		For planning-related grant activities, states must provide at 25% match and 50% for all other eligible activities.	All state fish and wildlife agencies			Assists states by providing Federal funds for development and implementation of programs that benefit wildlife and their habitat, including species that are not hunted or fished.
USFWS	National Coastal Wetlands Conservation Grant Program	Grants awarded under the National Coastal Wetlands Conservation Grant Program cannot exceed $1 million for an individual project.	1:1 mtach	All state fish and wildlife agencies		Northeast Region Coordinator Diane Lynch, U.S. Fish & Wildlife Service 300 Westgate Center Drive Hadley, MA 01035-9589 413-253-8628 FAX: 413-253-8482 Email: Diane_Lynch@fws.gov	Provides matching grants to States for acquisition, restoration, management or enhancement of coastal wetlands.
USFWS	Cooperative Endangered Species Conservation Fund		States and Territories must contribute a minimum non-Federal match of 25% of the estimated program costs of approved projects, or 10% when two or more States or Territories implement a joint project.	States and Territories			
	Farm Bill – Section 10201						
Various	Great Lakes Restoration Initiative (GLRI)						
Department of Defense (DoD)	Legacy Resource Management Program						

Organization Name	Grant Name	Funding Amounts	Matching Amount	Eligibility	Distribution Cycle	Contact Information	Focus Area
National Fish and Wildlife Foundation (NFWF)	Pulling Together		PTI applications must provide a 1:1 non-federal match for their grant request.	Private non-profit (501)(c) organizations, federally recognized Tribal governments, local, county, and state government agencies, and from field staff of federal government agencies		Teal Edelen, Program Coordinator, Central Partnership Office, teal.edelen@nfwf.org	Control invasive plant species, mostly through the work of public/private partnerships such as Cooperative Weed Management Areas
National Fish and Wildlife Foundation (NFWF)	Native Plant Conservation Initiative		Projects that highly leverage the funds requested under this RFP with non-federal funds (i.e., exceeding the minimum 1:1 federal/non-federal requirement), in the form of cash and/or contributed goods and services.	Projects that involve multiple federal, tribal, state, and local governments; corporations; private landowners; communities; and/or non-profit groups.		Teal Edelen, Program Coordinator, Central Partnership Office, teal.edelen@nfwf.org	NPCI grant program has funded multi-stakeholder projects that focus on the conservation of native plants and pollinators under any of the following 6 focal areas: conservation, education, restoration, research, sustainability, and data linkages.
National Fish and Wildlife Foundation (NFWF)	Bring Back the Natives Grant					Krystyna Wolniakowski Director, Western Partnership Office Krystyna.Wolniakowski@nfwf.org	
Hudson River Foundation	Hudson River Improvement Fund	The typical grant awarded by the Hudson River Improvement Fund will be under $10,000.				Hudson River Foundation Hudson River Improvement Fund 17 Battery Place, Suite 915 New York, NY 10004	Repair, restoration or creation of habitat.
Lindbergh Foundation		Single grants up to $10,580				The Charles A. and Anne Morrow Lindbergh Foundation 2150 Third Avenue North, Suite 310 Anoka, MN 55303-2200 Phone: 763-576-1596 Fax: 763-576-1664 E-mail: info@lindberghfoundation.orgThis e-mail address is being protected from spambots. You need JavaScript enabled to view it Website: http://www.lindberghfoundation.org	Agriculture, Conservation of Animal Resources, Conservation of Plant Resources, Conservation of Water Resources, General Conservation

E 2010 Invasive Species Survey (blank copy)

New York State Invasive Species Questionnaire 2010

Agency or Organization: _____

Individual Completing: _____ Phone: _____ Date: _____

Email address: _____ PRISM affiliation (if any): _____

The New York State Invasive Species Council is using this new questionnaire as part of an updated assessment and evaluation of governmental and non-governmental invasive species initiatives for the express purpose of developing statewide strategies for the comprehensive management of invasive species. This questionnaire builds on a previous questionnaire that was issued by the New York State Invasive Species Task Force in 2004.

You and other questionnaire recipients have been identified as playing key roles in facilitating the development of a collaborative strategy that will evolve into policy and implementation of the statewide Invasive Species Control and Management Plan (ISCMP) for New York State. Your response to this request for information is critical to the development of an effective and adaptable ISCMP. The following questionnaire covers seven broad categories in where it is felt that additional information is required in order to adequately assess the current state of invasive species management within New York, and/or where it is felt that public and private sector collaboration may be deficient or where technical information data gaps may exist. These general categories include:

- Leadership and Coordination;
- Impacts – Environmental, Ecological, Economic, Social;
- Existing Management Programs;
- Education and Outreach;
- Funding; and
- Conclusion and Comment.

BACKGROUND

An invasive species is defined as an "alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health" (National Invasive Species Council). It is important to note that not all "non-native species" are "invasive."

In 2003, the Governor signed legislation calling for the creation of a New York State Invasive Species Task Force (ISTF). ISTF prepared and submitted a Final Report to the Governor in 2005 with twelve (12) recommendations.

"**Recommendation 1**" called for the establishment of a permanent leadership structure to coordinate invasive species efforts.

"**Recommendation 2**" called for the preparation and implementation of a comprehensive invasive species management plan (see "Final Report of the New York State Invasive Species Task Force, Fall 2005", Pages 61-67 of 108).

In March 2008, the NYS Legislature amended legislation (Chapter 26, Title 17 of ECL Article 9) to establish the New York State Invasive Species Council and advisory committee to the Council. The legislation charges the Council with the development of a "comprehensive plan for invasive species management," along with other duties and responsibilities related to the long-term management of invasive species in the State. The plan includes all taxa of invasive species.

INSTRUCTIONS

In completing this questionnaire, please answer all questions that pertain to your agency or organization. If you feel that a question is not applicable, please indicate such by entering a N/A in the response line. While we are asking for concise responses to the questions, if you need additional space beyond that provided within the questionnaire, please continue your responses on an extra sheet and return it with the questionnaire.

"Extinction by habitat destruction is like a death in an auto accident: easy to see and assess.

Extinction by the invasive or exotic species is like death by disease: gradual, insidious, requiring scientific methods to diagnose."

E.O. Wilson

Questions 1 through 35

1. For your agency or organization, please give the title and name of the lead person or persons dealing with invasive species issues. List area(s) of expertise if appropriate.

Title	Lead Person(s)	Area of Expertise

2. Please check all of the following that are resources your agency or organization is trying to protect from invasive species:

- ☐ a. Terrestrial resources (forests, woodlands, grasslands, etc.)
- ☐ b. Aquatic resources (freshwater wetlands, streams, rivers, lakes, etc.)
- ☐ c. Marine resources (bays, estuaries, tidal wetlands, etc.)
- ☐ d. Agricultural land, rangeland, crops
- ☐ e. Urban/suburban resources (parks, street trees, etc.)
- ☐ f. Other (please identify) _____

3. Please check all of the following categories of invasive species with which your agency or organization is involved:

- ☐ a. Aquatic plants
- ☐ b. Aquatic animals (finfish, shellfish, mammals, etc.)
- ☐ c. Terrestrial plants
- ☐ d. Terrestrial animals (mammals, birds, reptiles, insects, etc.)
- ☐ e. Microbes (bacteria, viruses, protists, fungi, etc.)

4. Please check all of the following activities that are part of your agency's mission or authority regarding invasive species, the percentage of effort your agency spends on the specific activity relative to all other invasive species efforts, and enter the approximate amount of money spent annually on the checked activities:

a.	Research	_____%	$_____
b.	Monitoring	_____%	$_____
c.	Information management (e.g., computer database, geographic information system)	_____%	$_____
d.	Risk assessment	_____%	$_____
e.	Prevention	_____%	$_____
f.	Surveying and mapping	_____%	$_____
g.	Early detection/rapid response (EDRR)	_____%	$_____
h.	Control and management	_____%	$_____
i.	Restoration	_____%	$_____
j.	Education & outreach	_____%	$_____
k.	Regulation, legislation, policy	_____%	$_____
l.	Enforcement	_____%	$_____
m.	Securing funding	_____%	$_____
n.	Distributing invasive species funds to others	_____%	$_____
o.	No Action	_____%	$_____

5. Briefly list specific actions or programs conducted by your agency or organization for each of the areas you checked in question #5 above. (Use the last page if needed.)

6. How many full-time employees or full-time equivalents (FTEs) does your agency or organization engage in working on the invasive species issues or policies? (1 FTE is approximately 2080 person hours/year.) _____

How many part time employees? _____

How many seasonal employees? _____

7. Check and identify any of the following that your agency or organization works with on invasive species, including members of the horticultural industry:

- ☐ a. University/academic institutions _____
- ☐ b. Private non-profit organizations _____
- ☐ c. Local governments _____
- ☐ d. State government/other state agencies _____
- ☐ e. Businesses (including horticulture industry) or individual researchers _____
- ☐ f. Federal government _____
- ☐ g. Private individuals/volunteers _____
- ☐ h. Other (please identify) _____

8. From your agency or organization's viewpoint, what are the top three negative impacts associated with invasive species in the state of New York? Why?

1. _____
2. _____
3. _____

9. Please list up to 10 invasive species your agency or organization is actively controlling or managing.

10. Does your agency or organization prioritize management? If yes, what process does your agency use to determine which species to actively manage and which to not manage?

11. Briefly describe the successful strategies your agency or organization has used in dealing with invasive species.

12. Briefly describe any unsuccessful strategies your agency or organization has used in dealing with invasive species. Please provide a brief synopsis of why the strategies were unsuccessful.

13. Does your agency have a legal mandate or legal authority to manage or regulate invasive species or their vectors; or to support the efforts of others engaged in managing or regulating invasive species? If yes, please list legal mandates and/or authorities.

14. Are the strategies your agency employs to deal with invasive species problems too limited by a lack of or insufficient legal authority?

☐ a. Yes

☐ b. No

If yes, what legal authority would your agency need to effectively deal with invasive species problems? (Use the last page if needed.)

15. What are the top five vectors (pathways) for the spread of invasives you have observed within your jurisdiction?

1. _____

2. _____

3. _____

4. _____

5. _____

16. Do you have access to adequate invasive species diagnostic services?

☐ a. Yes

☐ b. No

Please explain: _____

17. What funding sources support your agency's or organization's invasive species initiatives? Please be specific, if possible.

☐ a. State; where _____

☐ b. Federal; where _____

☐ c. Foundation grants; where _____

☐ d. Private; where _____

☐ e. Other _____

19. When performing invasive species management, would you say the level of scientific knowledge available to you is:

- ☐ a. Complete and thorough
- ☐ b. Good, but usually not totally complete
- ☐ c. Lacking and much more is needed

20. Please indicate your agency's (or organization's) top 3 resource needs in order of importance (1 = most important):

- ☐ a. More dedicated funding
- ☐ b. Better and clearer policies
- ☐ c. More emphasis on invasive species within your agency
- ☐ d. More coordination with other government agencies
- ☐ e. More information and training about invasive species
- ☐ f. More adequate statutes and regulations
- ☐ g. More enforcement power
- ☐ h. Improved positive incentive programs to reward compliance
- ☐ i. Improved control methods and technology
- ☐ j. Additional staff
- ☐ k. Other _____

21. Please list potential strategies for how your agency or organization does or could obtain the three resources checked in question #20.

22. Does your agency or organization have a working relationship related to invasive species issues with individuals, agencies, or organizations located in other states?

- ☐ a. No
- ☐ b. Yes; briefly describe:

Type of relationship (formal, informal, etc.) _____

23. Does your agency or organization have a working relationship for invasive species issues with federal agencies or organizations?

- ☐ a. No
- ☐ b. Yes; briefly describe:

Type of relationship (formal, informal, etc.) _____

24. Does the public contact your agency organization for information about invasive species?

- ☐ a. Yes (if yes, estimate # contacts per year _____)
- ☐ b. No

25. Does your agency or organization integrate invasive species education or training into permitting and licensing programs? If yes, please explain.

26. Whom do you perceive is your primarily target audience in need of increased awareness and understanding of the invasive species issue? Please check no more than 5 and rank them (1 = most important).

- ☐ a State agency/organization staff
- ☐ b. Public
- ☐ c. Media/press
- ☐ d. Other state agencies

- ☐ e. State and local elected officials
- ☐ f. Federal elected officials
- ☐ g. Local government agencies
- ☐ h. Federal government agencies
- ☐ i. Businesses
- ☐ j. User groups
- ☐ k. Industry professionals
- ☐ l. Private landowners
- ☐ m. Land managers
- ☐ n. Other _____

27. Which invasive species received the greatest amount of state or federal funding from your agency or organization for the most recent fiscal year in NY State? Please list up to 5 species and roughly estimate the expenditures directed to the activity for these invasive species (enter the dollar amount or range).

	Species	**Fiscal Year State $**	**Fiscal Year Federal $**
1.			
2.			
3.			
4.			
5.			

28. Does your agency or organization have specifically designated funds for invasive species issues?

- ☐ a. Yes
- ☐ b. No

29. If your agency or organization does have specifically designated funds, can the funds be used over multiple years?

- ☐ a. Yes
- ☐ b. No
- ☐ c. Unsure

30. Does your agency or organization provide funding, equipment, or staff for invasive species management to other agencies or organizations?

- ☐ a. No
- ☐ b. Yes:
  - ☐ Funding
  - ☐ Equipment
  - ☐ Staff for joint projects

If yes, please briefly describe:

31. Briefly, how do you think funding and other resources needed for dealing with the invasive species issue could be increased?

32. If funding was increased, what would be the best use of funding by the State? Rank each option and indicate percentage for each strategy.

- ☐ a. Prevention _____%
- ☐ b. Early detection/rapid response _____%
- ☐ c. Control & management _____%
- ☐ d Information management (e.g., computer database, geographic information system) _____%
- ☐ e. Risk assessment _____%
- ☐ f. Monitoring _____%
- ☐ g. Surveying and mapping _____%
- ☐ h. Research _____%
- ☐ i. Restoration _____%
- ☐ j. Education & outreach _____%
- ☐ k. Regulation, legislation, policy _____%
- ☐ l. Enforcement _____%

33. What agency responsibilities, actions, or opportunities would you recommend to 1) reduce or eliminate contradictory or conflicting policies, 2) streamline current regulatory processes, and/or 3) improve international or interstate coordination and information sharing? (Use the last page if needed.)

34. What approaches or strategies would you recommend to achieve adequate funding or other resources (including staffing) for invasive species efforts in the state? (Use the last page if needed.)

35. What approaches or strategies would you recommend to properly address prevention and early detection/rapid response (EDRR) to reduce, minimize, and/or eliminate future invasive species damage in the state?

Thank you for your attention and timely response to this important request.

If you have questions or wish to contribute additional information, please use the Point of Contact information provided below.

NYSAM Invasive Species Strategy Project

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F

Responses to Additional Prevention and EDRR Strategies

PREVENTION

- Increase and improve education efforts to the public, agencies, and legislature that clearly illustrate the benefits of prevention and early detection/rapid response (EDRR). Sustained, well funded education and public relations efforts needs to be completely integrated into all messages from all agencies at all levels. Share success stories.

- Regulations need to be strengthened to provide staff that is responsible for enforcing regulations the authority they need to prevent an introduction. The inspection of cargo and passenger vehicles should be considered at our major entry points into the state. Inspection facilities should be constructed to conduct these types of activities. They could also be used by other agencies to enforce other regulations and laws. A model of this is what the state of California has done to protect their state from invasive species.

- The economics of prevention vs. control and cost to industries affected by a plant pest once it arrives should be documented to help lawmakers fund prevention.

- Partnerships for Regional Invasive Species Management (PRISMs) need additional funding, as well as to receive existing funds in a timely manner, for prevention and pathways management programs, such as funding for boat ramp and river access programs.

- Outside firewood should be banned from all state park and DEC campgrounds. Firewood should be provided on site.

- We need more specific legislation focusing on invasive species.

- Adoption of the 4-tier regulatory system is critical to assure consistent state policy implementation based on science.

- Work with the nursery and pet industries to develop social-based marketing programs which highlight non-invasive species and encourage the public to seek these non-invasive species.

- NGOs need to do more lobbying and improve overall government relations.

- Provide contingency funding, streamline the authorization process, identify roles and responsibilities, and improve data flow, including species identification, reporting, risk screening, reporting to competent authorities, and follow up of responses.

- Prevent the establishment of intentionally introduced invasive species (e.g., species moving intentionally through trade). There needs to be a solid, scientifically-based state list, proper enforcement which includes addressing online sellers, and in-store (or nursery) education materials. If a state invasive and noxious weed list existed, federal policies would require USDA to consider those issues in all federal actions.

- Pass “Do Not Sell” regulation.

- The key to successful prevention is impeccably-organized information management. New York could use expert consultation to create watch lists (species not yet in NY) for the beginning of an effective prevention and early detection program.

- Better integrate how state agency staff could more easily incorporate invasive species activities into their daily course of work. Mandate that state agencies implement invasive species best management practices and prevent and control new infestations resulting from project activities.

- Enact policies and enforcement for aquatic invasive species (AIS) transport and purchase/sale of non-native species.

- Ramp up enforcement of firewood and baitfish regulations.

- Establish Invasive Species Prevention Zones (ISPZ).

- Utilize predictive modeling to determine which species may be a threat to NYS environment.

- Education and outreach should be a primary strategy. Continue relationships with the press and garden writers, who are doing a pretty fair job and reporting, BUT more can be done.

- On a national level, there needs to be a good risk-assessment process akin to what Australia uses and, in general, more focus on invasive species, especially those coming from the pet trade.

- We need a national/federal biosecurity agency with the teeth to manage ballast water, hull fouling, and introductions via imports, among other items. Without sufficient regulatory authority, we flounder (no pun intended).

- In addition to species-specific efforts, focus prevention and EDRR efforts on invasive species pathways. Implement a process to identify and rank pathways by invasive species risk. The National Invasive Species Council (NISC) and Aquatic Nuisance Species Task Force (ANS) have developed guidelines for pathway definition, risk analysis, and risk prioritization. Develop new legislation and funding mechanisms to close, manage, and/or monitor introduction routes. For example, prevent the introduction of aquatic invasive species by inspecting and cleaning recreational boats. Encourage agencies to modify and incorporate the pathways management process into their own regulatory and non-regulatory programs.

- Use Hazard Analysis and Critical Control Point (HACCP) planning to manage invasive species pathways. HACCP provides a comprehensive method to identify risks and focus procedures to prevent spread of species through natural resource pathways. HACCP planning is an international standard (ASTM E2590 - 09) for reducing or eliminating the spread of unwanted species during specific processes or practices or in materials or products. Incorporate HACCP planning into state-funded or authorized projects. Promote HACCP planning with partners through training, technical assistance, and where appropriate, by encouraging the development and implementation of HACCP plans.

EARLY DETECTION AND RAPID RESPONSE

- Establish statewide rapid assessment and rapid response committees under the Council.
- Develop an effective EDRR program that will ultimately be coordinated by the Council.
- iMapInvasives is very important for effective EDRR. Increase support for, training, and use of iMapInvasives.
- Permitting needs to be streamlined for EDRR.
- Improve and increase education efforts to the public, agencies, and legislature that clearly illustrate the benefits of EDRR.
- PRISMs need EDRR teams that have the authority, funding, and resources to act immediately. PRISMs need additional dedicated funding to support the development of both aquatic and terrestrial rapid response teams.
- Rapidly respond with sufficient personnel and equipment resources, and rapidly pay for responses through a "no-year" rapid response fund.
- Increase the use of "on-call" contracts to extend the reach of regional staff. On-call contracts allow agencies to mobilize professional services quickly and easily under pre-negotiated terms and conditions. Simplify the process to ensure quick turn-around on issuing work orders under such contracts.
- Establish set protocols for detecting a threat and take action, regardless of where the threat resides. We've got to be able to cut across jurisdictional boundaries to effectively manage. If I detect something and don't have the resources for removal, I should be able to call a team to come in to eradicate the threat.
- Maintain an emergency fund specifically for EDRR.
- Coordinate messaging between agencies. For example, there is no reason why the public is directed to five different places to report EAB (e.g., APHIS, DEC site and hotline, CCE).
- Support general fieldwork by botanists to identify invasive species when they first appear in the landscape.
- Better engage agency staff and utility company staff in EDRR.
- Complete Generic Environmental Impact Statement for invasive species for EDRR and invasive species management.
- Streamline herbicide and pesticide regulations.

- Demonstrate and get the word out about successes so that the problem does not appear to be impossible to address.
- New York needs to work with neighboring states to identify prevention and EDRR methodologies most likely to work in the region.

CONTROL AND MANAGEMENT

- Improve control methods and technology, including biocontrols and targeted chemicals (e.g., injections against emerald ash borers). This needs to be an iterative process. We need to continue to be willing to try alternative practices and technologies project-to-project, with communication of best practices critical to success. This includes additional and/or expanded support for research.
- The state needs to fund research projects, but this has not yet been made a reality. This will require increased state budgets for invasive species and recognition by the Council of the importance and value of investing in research.
- The state needs to develop positive incentive programs.
- There needs to be more coordination between invasive species biologists and wildlife managers, especially those managing deer.
- Develop interstate cooperation agreements to control invasive species and invasion pathways at the borders. For instance, efforts to control feral pigs in New York have been hampered by lack of any agreement with PA.
- Institutionalize "the iterative process for invasive species management" -- data collection, modeling to inform new data collection, triage, management, more data collection -- repeat the steps above -- well, and forever.
- There is a risk of too many "perceived" problems diluting the message, in other words, making a case for every new non-indigenous species that is introduced or is threatening a region. Instead, highlight only the invasive species threats that we can clearly show measurable impacts, both economically and/or ecologically.
- Plant Materials Centers could be funded to spend more time researching invasive species control alternatives; Plant Materials Centers could be required to assure that new releases are non-invasive.

RESTORATION

- Restore native species and habitat conditions, high-value ecosystems, and key ecological processes that have been impacted by invasive species to meet desired future conditions.
- Identify, develop, and support sources of native and appropriate nonnative materials for restoration projects, such as the Long Island Native Plant Initiative , Greenbelt Native Plant Center, and a variety of commercial native plant nurseries.

ORGANIZATIONAL COLLABORATION

- Focus on Partnerships for Regional Invasive Species Management (PRISMs) and their priorities.
- PRISMs strongly need dedicated funding to have a consistent, long-term framework and get things done. The state needs to allocate and release funds for PRISMs and streamline the contract process. PRISM members are losing faith due to the extremely slow state contract process. MOUs might be a step in the right direction. Clear up contracting clogs and administrative obstacles so that funding that the state has access to (both state and federal funds available to New York) can be spent.
- New York State has one of the best foundations established for the implementation of a fully integrated multi-partner invasive species program, however, this foundation is at risk of collapsing if the state does not begin to disperse available funds and foster the various partners currently providing the state with many free hours of service.
- Funding issues at the state level are often more a matter of the approval procedures involved in spending than actual money. There needs to be more focus within the state to move contracts and to fully deploy existing dedicated funding in a timely manner. If one agency is unable to move funds in a timely fashion, consider moving authority to another state agency which seems to be able to move funds faster.
- Methods to develop uniform state procedures for invasives spending would be advantageous.
- Expand the coordinating work of the New York State Invasive Species Council ("Council") and its support groups, in particular the NYSDEC office of Invasive Species Coordination, PRISMs, and Invasive Species Advisory Committee. Fully utilize the capacity of the Invasive Species Advisory Committee.
- Additional active recruiting should be done to expand participation in PRISM activities. For PRISM conference calls, seek presentations from other states and at the federal level.
- Formalize and support greater state agency involvement in PRISMs.

    - Coordinate statewide invasive species plans and programs with regional invasive species plans and programs developed by PRISMs and other regional organizations, including the Adirondack Aquatic Nuisance Species (ANS) Management Plan and Lake Champlain Basin ANS Management Plan. This requires active participation in, and support for, PRISMs and other regional organizations by state agencies and their regional offices and staff.

- Greater buy-in and more active leadership on the part of the Council are needed. The Council needs to make a stronger case to the governor, legislature, and agency leadership that emphasizes why investments in invasive species activities are worthwhile.

- Foster greater communication within and among agencies.

- Secure additional funding for invasive species management at the state level. Funding needs to be stable and flexible. Grow the state Environmental Protection Fund (EPF), and/or reprioritize existing funds to adequately cover invasive species management. Consider having drink bottle deposits include all single use bottles. Suggested sources of additional funding include a tax or fee on boat registrations and fishing licenses, money generated from permit applications, fines for enforcement, user fees, lottery earnings, and taxing vectors (containers, tires, etc.).

- Fines and fees collected in relation to invasive species and non-native species should be returned to a dedicated invasive species fund.

- Increase staff capacity. The state needs an effective and directed invasive species program with additional full-time staff that coordinates invasive species efforts. At present, engagement, regular outreach, and ongoing dialog are limited by agency staffing capacity. Establish staff dedicated to fund development.

- Establish a position within each regional office of NYSDEC and OPRHP for an invasive species specialist.

- Establish a single point of control within NYSDEC (or other agency) to in-turn provide dedicated funding for staff in other state agencies to implement/address invasive species management.

- Gain greater support from the governor's office and state elected officials.

- Provide better and clearer guidance and specifications. Designers and field personnel want to know what they can do specifically, and want to have some reassurance that if they invest time and funds, then invasive species management will be effective.

- Expand coordination, information exchange, and education using the Internet. Have those responsible for invasive species management and policy in each agency, association, and NGO generate a comprehensive list with web links to invasive species related documents and resources, and provide the information online. Open access data and models and risk assessments will help with interstate coordination. Get data online in a modeling/forecasting framework.

- Designate and exchange points of contact within each agency. In addition, there needs to be a consistent and frequently communicating chain of command with a central point of contact to avoid duplication and streamline/coordinate where possible. The new Asian carp director for the White House Council on Environmental Quality may be an example of what this type of governance might look like (at least at a species by species approach).

- Regulations need to be aligned from lowest jurisdictions all the way up to federal regulations. They should be supportive of each other, and mandates should come with funding.

- Assure that agencies have authority to negotiate agreements for invasive species management with public and private entities.

- Do a better job of sharing research findings.

- Although NYSDEC has a vested interest in forest health and management, the ability to regulate forest pest issues should reside in the agency with primary regulatory responsibility over plant pests (NYSDAM) and not both agencies.

- Good communication between all parties, including the public using natural resources, is paramount for any success.

- More effort needs to be made to coordinate the activities of the two co-chairing agencies of the NYS Invasive Species Council, NYSDEC and NYSDAM. Incomplete coordination and cooperation has become apparent, for example, with EAB where NYSDAM is the agency through which most of the federal money (APHIS) is channeled, but NYSDEC is handling a lot of the on-the-ground response and education outreach; it seems like there are duplicate efforts in some areas. It also seems like there may be a conflict between NYSDAM constituents (agriculture business, growers, plant industry) and natural resource conservation (NYSDEC).

- The nursery and landscape trade needs more direct link of membership/ registration and cooperation with NYSDAM, as well as expanded dialog and understanding of various agency roles to better coordinate responsibilities. In addition, the nursery and landscape industry would like greater definition clarity and uniformity, for example as provided by white papers such as the Invasive Species Definition Clarification and Guidance White Paper submitted by the Definitions Subcommittee of the national Invasive Species Advisory Committee.

- The state's comprehensive plan should be consistent with national plans.

- Additional active recruiting should be done to expand participation in PRISM activities. For PRISM conference calls, seek presentations from other states and at the federal level.

- Invasive species teams within state agencies that perform survey/mapping, EDRR, monitoring, education, and control could be funded at relatively low cost for most effective results; only contract out for more complex projects.

- For agency projects requiring pesticide applicators, some may need to be contracted out. Train additional applicators in agencies/PRISMs for more cost-effective control, and/or have a "pool" of applicators under state contract that could be called upon relatively easily.

- Organized programs carried out by passionate, charismatic individuals are most effective (and often the most difficult to achieve). Charismatic fundraisers are now a must for the success of any invasive species effort.

- There needs to be equity for prevention and EDRR among agriculture, forestry, fisheries, and plant interests.

- There needs to be more active participation by state personnel on regional and national invasive species panels.

- With respect to interstate issues, the state should seek a stronger interstate plant pest compact amongst states. The ability of an individual state to bring resources to rapidly respond is usually far short of what is required even with federal assistance. Plant pest issues should be looked at similar to how we respond to a forest fire. The ability of multiple states to lend resources to respond is not only in the interest of the state that has the new pest problem, but also those states that border this state.

- Invasive species management needs improved coordination at the national/federal level. A national/federal organization with sufficient authority to address invasive species management is needed. Currently, the National Invasive Species Council (NISC) is only in place under an executive order and has no real authority. The organization needs to have direct funding and should coordinate the efforts of other federal agencies to address invasive species in a focused approach. This organization should not take away the current responsibilities of existing federal agencies, but should use their efforts in a directed approach.

- Coordination across state/national/international boundaries has always been a challenge, but there are good models to follow, such as migratory bird working groups.

- Integrate federal funding initiatives for natural resources management into one program that establishes national priorities and outcomes to refocus investment on natural resources management, including invasive species management. Consider Australia's "Caring for Our Country" program as an example.

- Some federal administrators view invasive species as a state problem. Make a better case to federal agencies and elected official s that invasive species are also a national problem.

- Federal agencies need congressional support to better manage invasive species. In addition, USACE needs a command emphasis on invasive species.

- Federal agencies should work more closely with states to model what is working and address gaps and inconsistencies. By more effectively utilizing current resources and doing a better job

of identifying impacts including economic and recreational impacts, more resources will become available to address invasive species if it is seen as a priority.

- Support the action of international institutions. Increase fund development efforts in collaboration with international institutions and governments. Improve international coordination and information sharing by supporting stronger international legal tools and international data sharing tools.

G Additional Research of Invasive Species Management Plans

Invasive Species Management Plan

State	Plan	Year Updated	Involved Parties	Summary	Goals/Objectives	Effective Goals	Source
Ontario	Ontario Invasive Species Strategic Plan	2011	Key Ministries responsible for delivery: MNP (lead), OMAFRA, MOE, MTO and other ministries as appropriate (MHLTC). Key partners to support delivery: OFAH, Ontario Invasive Plant Council, Municipalities, Conservation Authorities, Universities, Biodiversity Education and Awareness Network, and other partners	Certain actions can be successful against IS - actions include: research and monitoring, management (control and eradication), education and awareness, and regulation.	Prevent, detect, respond, manage and adapt through leadership and coordination, legislation regulation and policy, risk assessment, monitoring and science, management measures, and communication and outreach (figure 2). Actions and tactics outlines in Plan pages 19-37	Plan was designed to identify gaps and implement actions/tactics to reach goal	http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@letsfish/documents/document/stdprod_085804.pdf
Pennsylvania	Pennsylvania Forest Health Report	2010	PA - Department of Conservation and Natural Resources, Bureau of Forestry Division of Forest Pest Management. Page 7 includes all federal and state agencies involved. USDA federal grants were used to fund Pathology and Entomology projects. All agencies and departments listed on page 7 on document	Goals: to protect forest resources from harmful species and diseases. Actions: Active monitoring (ground and aerial surveys, biological suppression, biosurvelliance), management (training activities, removing of IS), cooperation and public outreach efforts (demonstration, training seminars, trade shows, diagnostic services)		Management of EAB (Emerald Ash Borer) was successful. Some projects/surveys still in progress. Almost 4,000 people attended public education presentations	http://www.dcnr.state.pa.us/forestry/leaflets/2010_PA_ForestHealth_Report.pdf

Invasive Species Management Plan

State	Plan	Year Updated	Involved Parties	Summary	Goals/Objectives	Effective Goals	Source
New Jersey	NJ Strategic Management Plan for Invasive Species	2009/2011	IS widely recognized by: New Jersey Invasive Species Council (NJISC), NJDEP, NJDA. Pages 4,5 list Plan contributors and members of Council	ED/RR program to be put into place. Methods listed on pg 85 with pros, cons, and notes	Goals: Protect/maintain NJ biodiversity, natural and agricultural resources. RECOMMENDATIONS: 1. Create effective/efficient invasive species program (NJ IS Council). 2. Educate stakeholders and increase public awareness. 3. Prevent further intentional introductions of IS. 4. Reduce unintentional introductions of IS. 5. Develop/implement early detection/rapid response program. 6. Create plan to reduce animals populations that facilitate IS. 7. Establish high priority sites. 8. Create restoration/control programs. 9. Formulate partnerships to combine efforts and fundraise. Recommendations pg 194-206	Must have an entity with sole responsibility in order for successful implementation of this plan. This may be difficult due to the diminishing government resources. Federal authority needs to be implemented in order to be successful against IS; IS don't care about state boundaries	http://njedl.rutgers.edu/ftp/PDFs/5965.pdf
Massachusetts	MA Aquatic Invasive Species Management Plan	2002	Prepared by: Massachusetts Office of Coastal Management. Plan created by Massachusetts Aquatic Invasive Species Working Group, a member group of Massachusetts Secretary of Environmental Affairs' Council on IS, members of Working Group consists of representatives from MA Department of Environmental Management, Massachusetts Bays National Estuary Program, Office of Coastal Management, Massachusetts Institute of Technology Sea Grant Program, Federal Aquatic Nuisance Species Task Force, US Fish and Wildlife Service	Plan priorities: designate lead agencies for plan implementation, continuing research of risks and transport vectors, coordinate with industries to minimize invasions, develop regional webpage and database on AIS distribution and other educational initiatives	Goals: implement coordinated approach to minimize ecological and socio-economic impacts of AIS in waters of the state. Eight objectives of this plan: 1. coordinate AIS management efforts. 2. prevent new introductions of AIS. 3. Monitor the introduction and spread of AIS. 4. Detect and eradicate IS before they become established. 5. Control spread of AIS and reduce risk of dispersal. 6. Educate public, resource managers, and industry representatives regarding their role. 7. Continue research and identify new measures of control. 8. Identify needs for additional legislation relating to control of AIS	Successes will be evaluated each year following implementation of Management Plan.	http://www.anstaskforce.gov/Mass_AIS_Plan.pdf

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New Hampshire	Report of the NH Exotic Aquatic Species Program	2006-2008	NH DES - coordinates all aspects of the Exotic Aquatic Plant Program. Fish and Game Department (NHF&G) - reviews permits for herbicide application, designates and enforces restricted use areas on water bodies, coordinates/performs education/outreach activities, displays aquatic plant species signs at boat launch facilities, collaborates with DES on development of educational materials. Department of Safety - enforcement of restricted use areas on water bodies, works with DES to implement Milfoil Prevention Grant Program, includes exotic plant awareness in boater safety instruction courses, ensures Marine Patrol are aware of exotic plants and protocols associated. Department of Agriculture, Markets and Food (NHDA) -	Program activities include: prevention of new infestations through education and outreach, monitoring for early detection of new introductions, control of new infestations, research new control methods, regional/national cooperation with other similar programs	Goals are to increase awareness, expand training and mapping for detection of infestations, develop a process for monitoring and assessment, conduct long-term research, continue to develop regional approaches for education, outreach, and monitoring.	Early detection has improved, over 500 Weed Watchers monitor over 130 water bodies. Control activities have increased from 28 to 49 projects. Found that regional exotic species legislation is more effective than state-by-state. Need for a standardized list of exotic plants that are prohibited in order to increase success against IS	http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/r-wd-09-08.pdf
Maine	Action Plan for Managing Invasive Aquatic Species	2002	Adopted by: Land and Water Resource Council, Interagency Task Force on Invasive Aquatic Plants and Nuisance Species. List of agencies and ongoing tasks - Table 1 pg. 40-41	Provide effective leadership, coordination and monitoring. Raise awareness. Strengthen programs to avoid introduction and transport. Be prepared to respond rapidly to control spreading. Effectively inventory, research and manage info.	Goals: 1. educate so there is no further spread of species. 2. Prevent new introductions. 3. Limit spread. 4. Reduce harmful effects resulting from infestations of IS by managing those that cannot be eradicated	?	http://www.maine.gov/dep/blwq/topic/invasives/invplan02.pdf

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Ohio	No official MP - just a brochure on known IS and possible controls	N/A	N/A	N/A	N/A	N/A	http://www.ohiodnr.com/Portals/3/invasive/pdf/invasive_plants06.pdf
Vermont	Vermont Aquatic Invasive Species Program 2010 Update	2010	VTDEC, LCBP (Lake Champlain Basin Program), numerous government and nongovernment entities (not listed), IS seminars provided by Lake Bomoseen Association, Lake Carmi Association, Friends of Green River Reservoir, NED-NALMS, Federation of VT Lakes and Ponds, Ticklenaked Pond Watershed Association, Ausable River Association.	Monitor populations, control and spread prevention projects, implemented a Cooperative Boat Wash Program, public information and educations (signs posted at public boat accesses), Educational IS seminars, Rapid Response Task Force, new emergency permitting authority, Aquatic Nuisance Control permit to address pesticide projects, Vermont Invasive Patrollers (VIPs) to detect invasions, Grassroots effort to establish Cooperative Invasive Species Management Area (CISMA)		Most sites showed reduction in Water chestnut populations - some still thriving. No violators of VT Invasive Plant Quarantine Rule #3 - websites were found shipping prohibited species into the state. Rapid response to water milfoil was successful, drastically reduced populations. As of 2010, no new IS infestations were discovered.	http://www.anr.state.vt.us/dec/waterq/lakes/docs/ans/lp_aisprogramupdate2010.pdf
Delaware	Delaware Invasive Species Management Plan	2005	DE Invasive Species Council (executive director needed in order to be successful), The Reilly Group (prepared document), DNREC (DSWC, DFW, DPR), DDA (plant industries, forestry, poultry, and animal health), DelDOT, USFWS and USDA-NRCS	Goals: 1. Increase public awareness of problems caused by IS. 2. Facilitate communication/exchange on info of IS and their control. 3. Promote use of native species. 4. Encourage research, management, and funding for prevention and control. 5. Serve as an advisory panel for IS management and actives and provide updated info on IS		Government agencies, organizations, corporations, and other businesses are unaware of problems with IS (other priorities). Communication between these groups is limited. Media coverage on IS is minimal. Must increase awareness. Need more laws and enforcement.	http://www.thereillygroup.net/DISC/Delaware%20Invasive%20Species%20Management%20Plan%202005.pdf
	CAPS (Cooperative Agricultural Pest Survey)		DE Department of Agriculture and the USDA	Conduct surveillance, detection and monitoring of agricultural crop pests and biological control agents			

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Connecticut	Aquatic Nuisance Species Management Plan	2006	CT Aquatic Nuisance Species Working Group, CT DEP, Page 5 working group members and related departments/agencies. Informal network between New England Regional Botanical Advisory committee, New England Wild Flower Society, NE Invasive Plant Group. NEANS Panel meets to exchange ideas, expertise, resources, etc. Page 72-79 table 6 - whose implementing/funding certain entities	Priority actions: hire statewide ANS coordinator and establish committee, develop educational materials and distribute to key groups, enforce regulations on importing species, secure funding, implement early detection, monitoring and assessment plans, implement rapid response protocol of CT, evaluate effectiveness of ANS control to adapt new techniques as necessary, develop/maintain ANS website, research, conduct legislative briefing on ANS issues in CT.	Goal: minimize ecological and socioeconomic and public health impacts on aquatic IS	Successes will be evaluated each year by Coordinating Committee. This was the first annual work plan.	http://www.anstaskforce.gov/State%20Plans/CT_ANS_Plan.pdf
California	CA Aquatic Invasive Species Management Plan	2008	Department of Fish and Game. Funded by Ocean Protection Council, State Coastal Conservatory, and US Fish and Wildlife Service. Table 5 - Implementation table: who is doing what (page 118/153)	Goals to minimize harmful ecological, economical, and human health impacts on AIS in California.	Eight Objectives: 1. Coordination and collaboration. 2. Prevention. 3. Early detection/monitoring. 4. Rapid response and eradication. 5. Long-term control and management. 6. Education outreach. 7. Research. 8. Laws and regulations. Priorities include formalizing major entities, formalize a process for AIS managers to share info., secure funding, conduct statewide assessment of risk, fund and launch early detection and rapid response actions.	This is the states' first plan. Will be evaluated on a regular basis.	http://www.dfg.ca.gov/invasives/plan/
Arizona	Arizona Invasive Species Management Plan	2008	Funding for preparation of plan by Wildlife Conservation Fund, AISAC (AZ Invasive Species Advisory Council). Pages 5-12 list lead entities for each recommendation	Five Concepts: leadership and coordination, research and info management, anticipation and outreach, control and management, and funding. Includes 15 objectives and 63 recommendations (pg 5-12)		Communication and cooperation with other councils is necessary for management of IS.	http://www.governor.state.az.us/ais/Documents/AISMPExecSumMatrix.pdf

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Rhode Island	Rhode Island Aquatic Invasive Species Management Plan - plan references Massachusetts AIS MP as major source	2007	Plan submitted by RI Coastal Resources Management Council. Plan is implemented under RI Aquatic Invasive Species Working Group, first draft of plan was produced through partnership with Coastal Resources Management Council, University of Rhode Island, and Rhode Island Natural History Survey. CRMC involved with AIS regulations and policy initiatives. DEM Division of Agriculture deals with wild animal importation, regulation of pesticides, and noxious seed regulations. DEM Office of Water Resources deals with water quality monitoring, TMDLS, RIDPES, wetlands permitting, habitat restoration, lake management,. Narragansett Bay Estuary Program deals with natural resource protection and management,. RI Natural		Goals include prevention of introduction and establishment of AIS, control growth and spread of AIS, and abate the impacts and minimize the harmful effects of AIS	Aware of the limited success worldwide in eradication of established AIS, therefore plan focuses on prevention measures and education on AIS	http://www.anstaskforce.gov/State%20Plans/RI_SMP_Draft.pdf