

FINAL REPORT
of the
NEW YORK STATE INVASIVE SPECIES TASK FORCE

Fall 2005



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Environmental Conservation**
Acting Commissioner Denise M. Sheehan



**New York State Department of
Agriculture and Markets**
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The New York State Invasive Species Task Force

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Special Thanks

to the Steering Committee for their hard work and continuing contributions to the work of the Invasive Species Task Force:

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EXECUTIVE SUMMARY

Chapter I. OVERVIEW

The Task Force

In response to the growing problem of invasive species, in 2003, Governor Pataki signed legislation sponsored by Senator Marcellino and Assemblyman DiNapoli. Chapter 324 of the Laws of New York of 2003 called for an Invasive Species Task Force to explore the invasive species issue and to provide recommendations to the Governor and the Legislature by November 2005. The statute describes the intended membership of the Task Force and directs that it be co-led by two New York State agencies:

Department of Environmental Conservation (DEC)
Department of Agriculture and Markets (DAM)

Other members of the Task Force include:

New York State Department of Transportation
New York State Thruway Authority (and Canal Corporation)
New York State Museum (and Biodiversity Research Institute)
New York State Office of Parks, Recreation and Historical Preservation
New York State Department of State
Adirondack Park Agency
New York Sea Grant
Cornell University
Invasive Plant Council
The Nature Conservancy
New York State Natural Heritage Program
New York State Farm Bureau
Empire State Marine Trades Association
New York State Nursery and Landscape Association

The Task Force has taken numerous steps toward accomplishing its mission. It first established a Steering Committee to oversee the day-to-day work of the Task Force. Early on, it arranged for the whole Task Force to consult with the Executive Director of our federal counterpart, the National Invasive Species Council. The next task was to design and conduct an in-depth survey of all Task Force member organizations to assess concerns, capabilities, and needs. Then, the Task Force established several smaller teams to investigate in detail, to analyze existing efforts, to identify needs, and to develop recommendations. Each team was designed to pull together organizations that share a common area of interest or expertise. The Task Force reached out to numerous stakeholders to invite them to participate as members of these teams.

The Task Force has met at various locations around New York State. These

meetings were open to the public and dates, times and locations were announced in the *Environmental Notice Bulletin*. At most meetings, members visited sites of on-going invasive species management projects. Formal public review of the *Draft Report of the Invasive Species Task Force* will be accomplished through a combination of both in-person public meetings and internet communication. It will be completed during the summer of 2005.

Definitions

Invasive species are non-native species that can cause harm to the environment or to human health. The Invasive Species Task Force adopted the definition of invasive species contained in the federal Executive Order 13112, signed in 1999. Thus, for the purpose of this *Report*, an invasive species is a species that is: 1) non-native to the ecosystem under consideration, and; 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. In the latter case, the harm must significantly outweigh any benefits.

Many of New York's species of plants and animals are non-native. Most experts agree, for example, that about one-third of our plants are native to places other than New York. However, only a small fraction - perhaps ten to fifteen percent - of these cause the harm necessary to be deemed invasive. To the contrary, many provide numerous benefits and enrich the lives of New Yorkers every day. Most of the species we know as food crops, livestock, pets, landscaping and garden plants cause no significant harm to our economy, environment or health.

Pathogens - disease-causing organisms like viruses, bacteria, and even prions - present a challenge in defining the scope of the invasive species issue. Most would concede that West Nile Virus - an African disease brought here in the 1990s and affecting both birds and humans - has all the characteristics that define an invasive species. Other diseases, though, like HIV/AIDS in humans or foot-and-mouth disease in domestic cattle, are regarded differently by society. One ready distinction is that these diseases are managed by longstanding health care systems, whether for humans or for livestock. This report does not attempt to include these pathogens within the scope of findings or recommendations.

The Problem

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. A wide variety of species are problematic for many sectors of our world: our ecosystems, including all natural systems and also managed forests; our food supply, including not only agriculture but also harvested wildlife, fish and shellfish; our built environments, including landscaping, infrastructure, industry, gardens, and pets. Invasive species have implications, too, for recreation and for human health. Clearly, all New Yorkers hold a stake in the invasive species issue.

Since the Invasive Species Task Force first convened in 2004, at least six new organisms have invaded New York: three from Europe - the European Crane Fly, the European Wood Wasp, and the Swede Midge; one from Africa - the Southern Bacterial Wilt; one from China - the Brown Fir Long-horned Beetle; and one from the western United States - Chronic Wasting Disease.

The costs associated with invasions are substantial. Although we do not have estimates for New York State by itself, others have calculated the economic impact to the United States as a whole. Studies at Cornell University estimate that annual costs exceed \$ 120 billion. Some examples from our state give a sense of the costs. The annual bill thus far for trying to eradicate Asian Long-horned Beetle from New York City and Long Island has ranged between 13 and 40 million dollars. Each year, New York State spends about one-half million dollars to control Sea Lampreys in the Great Lakes. There is no end in sight for this expenditure.

Strategic Need

Existing management efforts are limited. Although the invasive species issue is recognized by professionals as a major threat to our natural resources, limited resources have been allocated toward solutions. The National Invasive Species Council was established by Executive Order to coordinate efforts among federal agencies, but there is no overarching federal legislation that recognizes the magnitude of invasive species as an issue. Thus, there is no dedicated federal funding stream available for their management.

Chapter II. THE PROBLEM

A longstanding problem is growing.

Invasive species are not a new problem. The increase in globalization is increasing - dramatically - the rate of invasion.

Familiar Invasives

Many species have been in New York for so long that many have forgotten that they are not native. Such species as the Norway Rat, Water Chestnut, Watermilfoil, Carp, Mute Swans, Dutch Elm Disease, House Sparrow, Starling, and the Golden Nematode are familiar to most.

Recent Arrivals

More newsworthy have been those invasive species coming to New York in recent decades. Zebra and Quagga Mussels, the Fishhook and Spiny Waterfleas, Round Goby, West Nile Virus, Hemlock Woolly Adelgid, Asian Long-horned Beetle are causing many millions of dollars of damages each year.

Imminent Threats

We know of numerous species poised to invade New York. The agricultural threats are best known. Swede Midge, Southern Bacterial Wilt, Soybean Rust and Plum Pox Virus. Ecological threats include the Bighead and Silver Carps, Emerald Ash Borer, Sudden Oak Death, and Chinese Mitten Crabs. Chronic Wasting Disease has been found here in 2005.

Why do they do so well?

Invasive species are opportunists from out of town who rely on “unfair”

competition. Most come without the predators, pests, parasites and pathogens that keep their populations in balance in their native ecosystems. Without these limitations to reproduction and survival, they often thrive. They have an enormous advantage over native species because they can live largely untaxed by natural forces. Because natives co-evolved with a suite of predators, pests, parasites, and pathogens, they cannot compete with the unencumbered invaders.

It's easy to travel to New York.

The potential for invasive species introduction, establishment, and dispersal within our State is high. It is a major point of entry for passengers, cargo and mail entering the United States.

“Hitch-hikers”

The “vector” is the means by which invasives move around the globe. Invasive species may arrive in New York State as freight proper, or they may just come along “for the ride”. Diseases or pest organisms may travel on or inside imported foods, plants, livestock or pets - and they may come in human travelers and their luggage. Others may be purely incidental, such as insect pests in wooden packing crates or snakes or animals inadvertently entrapped within shipping containers. Smuggling and “black market” trades avoid most of the mechanisms intended to preclude invasive species from entering New York State. Ballast water is likely the major means of aquatic species invasions worldwide. Water taken on by a ship in one port, along with whatever is in it, can be later released thousands of miles - or a hemisphere - away.

Protecting New York's resources is critical.

Agriculture, forestry, parks, tourism and a richly diverse abundance of natural resources are at risk from invasive species. For example, New York's 37,000 farms cover about one-quarter of the State. Our residents enjoy over 4,000 freshwater lakes, major portions of the Great Lakes Erie and Ontario, 70,000 miles of rivers and streams, and over 2 million acres of freshwater wetlands. Recreational boaters with boats registered in New York State spent an estimated \$2.1 billion in 2003 on boating-related expenses. A recent study of 183 State Parks and Historic Sites found that New York's parklands harbor many rare species of plants and animals as well as significant natural communities. The survey found 504 separate populations of state endangered or threatened species

Our food supply must be protected.

Our food supply, whether harvested from conventional farms or from our waters or woods, has always been at risk from pests and diseases. Farmers have had to manage Colorado Potato Beetles, Corn Rootworm, and Oriental Fruit Moth for many years. Other invasives threatening our agricultural crops are Swede Midge, Plum Pox Virus and Southern Bacterial Wilt. Both MSX and Dermo spread through proximity to infected oysters and toxic algae such as “red tide” pose threats to human health and to marine organisms. They are known to have been transported around the world in ballast water and can also be transported through aquaculture, baits or other avenues.

Invasive species may offer opportunities for bioterrorism. Our food supply is most vulnerable if pests or disease organisms are loosed upon major crops. This potential has been reflected in the fact that the inspections of imported fruits, vegetables, and other plant materials has been placed under the federal Department of Homeland Security in recent years.

Invasives threaten New York’s biodiversity.

Most scientists regard invasive species as second only to habitat loss as a threat to our biodiversity. It is one of the leading causes of endangerment. On a nationwide basis, about half - 46 percent species of plants and animals listed as federally Endangered or Threatened are at risk because of invasive species; for eighteen percent, invasive species are the principal cause of endangerment and for 24 percent they are a contributing factor.

The Great Lakes have had a long history dealing with invasive species. Many of the nearly 170 non-indigenous species currently in the Great Lakes were transported to these waters from local, regional, and global sources. Recent invaders include Zebra and Quagga Mussels and Round Gobies - which together aid the growth of Type E Botulism.

Other well-known invasives that have reduced New York’s biodiversity are the European Starling, Purple Loosestrife, Eurasian Watermilfoil, Sea Lamprey, and Common Reed (*Phragmites*).

Some invasives follow unusual pathways.

In addition to commerce and tourism, invasive species reach New York State by many other ways. Landscaping and nurseries use mostly non-native species. Captive and ornamental wildlife, pets, live food, live bait, aquaculture, and recreational boating can all introduce invasive species.

Our “built environs” are at risk, too.

We humans have made “improvements” to the landscape through our building, landscaping, and gardening. We have created urban and suburban parks that require maintenance and we build elaborate infrastructure. Each of these endeavors is threatened - and made more costly - by invasive species. Ships, docks, water intakes, and bathing beaches are under constant attack by invasive fouling and boring organisms. Parks, yards and gardens are invaded by Norway Maple, Giant Hogweed, Kudzu, Oriental Bittersweet, and Japanese Knotweed.

Chapter III. EXISTING EFFORTS

The perfect system does not yet exist.

A complete system for addressing invasive species would include fully-developed programs to ensure: prevention; early detection; rapid response and eradication; control and management; and restoration. Each of these programs would require: funding; coordination; information management; research; and education and outreach.

Some systems are well-established and have dedicated funding.

Agriculture has the most well-developed systems. The systems are not without problems but they have most of the program elements and the supporting activities listed above. The vulnerability of agriculture to invasive species has been recognized for a long time. The Plant Quarantine Act of 1912 and subsequent statutes and interpretations have given rise to today's system of safeguarding American animal and plant resources. While this patchwork of laws has served us reasonably well, it has failed to keep pace with emerging challenges resulting from trends in technology, commerce, and travel.

USDA's Foreign Agricultural Service (FAS) and Programs of APHIS-PPQ provide a first-line defense. They provide early detection and rapid response capability when coupled with the Cooperative Agricultural Pest Survey (CAPS) through DAM. The federal government also provides taxonomic and diagnostic support to identify invasive pests and also maintains pest databases. Coordination and public outreach are key components of this system.

Plant pests provide some examples.

Such invasives as Golden Nematode, Late Blight, Plum Pox Virus, Asian Long-horned Beetle, Sudden Oak Death have been quarantined, controlled, or prevented through the application of these federal-State partnerships.

We have learned some useful lessons.

Experience has shown that the most effective tools for invasive species management include: careful monitoring, rapid response, basic research, public outreach, meaningful restoration, sustained funding, industry cooperation, and best management practices.

Other efforts are independent, have no reliable funding streams, and frequently rely upon volunteers.

Some examples of effective programs in terrestrial habitats are undertaken by: the Brooklyn Botanic Garden, American Museum of Natural History, New York Flora Association, New York State Invasive Plant Council, New York Natural Heritage Program, New York State Parks, and New York City Parks. Voluntary industry standards provide great promise. Weed Management Areas coordinate numerous partners for a single purpose. "Linking Girls to the Land" involves Girl Scouts in the detection of invasive plants.

Some successful programs that deal with aquatic invasive species include: Adirondack Park Invasive Plant Program (APIPP), biological control of Purple Loosestrife; and the Great Lakes Fishery Commission. The revised New York State Aquatic Nuisance Species Plan is being held in abeyance to be incorporated into a more comprehensive plan for all invasive species. The National Aquatic Nuisance Species Clearinghouse and the Invasive Plant Database enable the sharing of accurate and current information. An educational partnership involving the pet and aquarium hobby and industry is called "Habitattitude". "Aquatic Hitchhikers" is a similar effort aimed at recreational boaters.

Success is incomplete.

Some of the shortcomings of existing programs can be seen in efforts to manage Eurasian Watermilfoil, the ship vector, and Common Reed (*Phragmites*). Recent Sea Grant Surveys have found numerous marine invasives previously undetected. And fish and wildlife laws and regulations provide limited ways to prevent introductions.

Chapter IV. SURVEY OF TASK FORCE ORGANIZATIONS

Between July and September of 2004, the Task Force surveyed its seventeen member organizations to assess who is doing what to combat invasive species. The goal was to capture information on a significant majority, but not all, of the State, Federal, local and private invasive species program activities in the State. The questionnaire also started the process of identifying other interested organizations and collecting possible recommendations.

Conclusions

Based on the survey responses, the problems and threats of invasives are well understood by the experts. There are a number of dedicated State staff and excellent programs that exist to address various specific invasive problems, but there is no dedicated capacity charged with providing overall strategic coordination.

The members of the New York State Invasive Species Task Force appear to be more reactionary than proactive with regard to the invasive species problem, with a growing but still inadequate degree of inter-agency and public-private coordination and cooperation. There is a clear need for a stronger federal role in preventing invasive species problems, and providing states such as New York with Federal funds to assist in this effort.

The survey identified some of the greatest successes regarding invasive species in New York today at the local level and indicated that these are the result of local or regional coordination and cooperation among a combination of local, state, federal and private parties. Such strategic coordination at the statewide level, and additional funding and support for regional coordination, is key to a successful New York State invasive species program.

There exists both opportunity and support for establishing dedicated invasive species funding. A public-private partnership should invest proportionately more resources in overall strategic planning, coordination and communication. As available funds increase, by looking more at prevention and early detection and rapid response as priorities for those funds, future invasive species problems and costs can be more effectively contained and minimized.

Chapter V. RECOMMENDATIONS

- 1. Establish a permanent leadership structure to coordinate invasive species efforts.**

An Executive Council should be established to address and pursue the preliminary recommendations of the ISTF. The Executive Council would be comprised of select state agencies and authorities engaged in the prevention, control and eradication of invasive species. The group should include State agencies and authorities whose missions relate to invasive species: the Departments of Agriculture and Markets; Education; Environmental Conservation; Health; Parks, Recreation and Historic Preservation; and Transportation. The Adirondack Park Agency, the Thruway Authority and Canal Corporation should also be considered

The Executive Council should identify resource needs and allocate staff and other resources to facilitate the advancement of goals and objectives. It should also possess the ability to establish ad hoc teams comprised of public and private sector representatives to assist in the pursuit of stated goals and objectives.

The New York State Invasive Species Task Force should continue as a permanent body and serve as the overarching advisory group, paralleling the Federal model. The full breadth of stakeholders should be represented. Industry, especially, should be given an opportunity to participate. Arborists, the turfgrass trade, contractors, pesticide manufacturers, utilities, tourism, and recreation should have voices, perhaps through trade associations. The Task Force should serve as an advisory committee to the Executive Council.

2. Prepare and implement a comprehensive invasive species management plan.

New York State should have a “Comprehensive Plan for Invasive Species Management”. Such a plan should address all taxa of invasive species. The Comprehensive Plan should, at a minimum: establish interagency responsibilities; describe coordination among different agencies and organizations; recommend approaches to funding invasive species work; address prevention, early detection and rapid response; identify opportunities for control and restoration, including research needs; and describe effective outreach and education. Responsibilities for different agencies need to be clearly defined and contradictory or conflicting procedures need to be resolved. The Comprehensive Plan should identify needs for additional staff positions at State agencies. It should also identify needed New York State or federal legislation.

3. Allocate appropriate resources invasive species efforts.

Adequate funding should be allocated to invasive species management activities, including: coordination; prevention; eradication; control and management, including research; and public education. In the near-term, sufficient staff should be allocated to invasive species management. The development of a comprehensive plan should begin as soon as possible but should not delay on-going efforts that are of obvious value.

4. Establish a comprehensive education and outreach effort.

New York State should develop a comprehensive outreach and education program for invasive species. It should do so by coordinating existing efforts but also utilizing opportunities to incorporate invasive species messages into the full variety of educational opportunities.

5. Integrate databases and information clearinghouses.

New York State should establish a state-wide database clearinghouse for all taxa of invasive species that incorporates existing data from agencies and organizations in the state, as well as from nearby states, provinces, Canada, and our own federal government. Such a database would provide the aggregate data on-line in a GIS so the information can be easily accessed and visualized and it would also allow users to interactively create their own maps and do their own queries of the database.

6. Convene a regular invasive species conference.

The permanent coordinating body should organize and convene a regular (annual or biennial) invasive species “summit” to focus and maintain attention on New York’s comprehensive invasive species program. The conference should attract and include representatives from all stakeholder groups and should cover a broad array of topics. At its inception, it should be integrated with the development of the comprehensive invasive species management plan.

7. Formalize New York State policy and practices on invasive species.

A Governor’s Executive Order should be issued to direct all State agencies and authorities to: 1) phase out uses of invasive species; 2) expand use of natives; 3) promote private and local government use of natives as alternatives to invasives; and 4) wherever practical and where consistent with watershed and Weed Management Area Plans, prohibit and actively eliminate invasives at project sites funded or regulated by New York State.

8. Establish a center for invasive species research.

New York State should establish a regional Center for Invasive Species Research to serve the region and the State, stretching from the Great Lakes to the Mid-Atlantic to New England and southeastern Canada. It should be independent and not be under the umbrella or direction of State government; it should be a research arm that closely collaborates with the Invasive Species Task Force and State agencies as well as with other federal and regional entities involved in invasive species management.

9. Coordinate and streamline regulatory processes.

New York State should reform relevant regulatory processes to remove unnecessary impediments to the restoration of invaded ecosystems. Processes should facilitate the efficient application of best management practices.

10. Encourage nonregulatory approaches to prevention.

New York State should encourage the broad array of stakeholder industries to develop and or adopt voluntary codes of conduct like the “St. Louis Protocols.” The State should explore ways to award some form of official recognition of such efforts.

11. Influence Federal actions to support invasive species prevention, eradication and control.

New York State should work with its Congressional Delegation, National Governors Association, Environmental Commissioners of States, federal agencies, and other bodies to influence federal actions.

12. Recognize and fund demonstration projects.

New York State should begin funding efforts that would clearly demonstrate the possibilities for successful invasive species management. Such demonstration projects should include the full range of activities: prevention; monitoring and detection; information management; eradication and control; applied research; and education and outreach. Funding, whether through competitive grants or other mechanisms, should be aimed at multi-year projects with durations sufficient to generate meaningful results.

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