



**Testimony of
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**New York State Assembly
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Hearing:**

Invasive Species

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Chairman Sweeney, committee members, and members of the public, thank you for the opportunity to provide testimony on invasive species, one of the most significant environmental issues facing New York State. My name is Christopher Amato, and I am the Assistant Commissioner for Natural Resources at the Department of Environmental Conservation (DEC). I am also Commissioner Martens' designated representative to the New York State Invasive Species Council, and in that role I serve as co-chair, along with my colleagues at the state Department of Agriculture and Markets (DAM), of the Council.

Background: Environmental and Economic Impacts of Invasive Species

Invasive species are a form of biological pollution and pose a significant and growing threat to New York's ecological and economic health. Invasives negatively impact native species through direct predation, competition for nutrients, disruption of food webs, and altered physical habitats. Invasive species are almost entirely spread by humans, and global trade and travel have greatly increased the rate of invasion. Invasives arrive by many vectors, including direct introduction, live animal trade, movement of firewood and other raw wood products, the nursery and landscape industry, recreational boating, cargo transport, and shipping ballast.

Economic losses associated with invasive species have been calculated at nearly \$120 billion per year in the United States. Maintenance at water intakes to address zebra mussel infestations costs an estimated \$267 million in North America. In New York, expenditures related to zebra mussels by 44 facilities were calculated to be \$9 million over a six year period. Rate payers, municipalities, tax payers and consumers shoulder the burden.

Commercial and recreational fishing are severely impacted by invasive species. Of the estimated \$5.7 billion in economic and environmental damage invasive species cause annually in the Great Lakes Basin, \$4.5 billion occurs in the fishing sector. In the New York State Canal and Hudson River system, an estimated \$500 million in economic losses occur each year from at least 154 non-indigenous species; 80% of that loss is in commercial and sport fishing. The Long Island Sound commercial lobster fishery, worth more than \$40 million in the mid-1990s, has yet to recover from the impacts of an infestation of non-native paramoeba. Complete loss of the scallop fishery due to brown tide, a type of harmful invasive algal bloom, resulted in economic losses estimated at \$3.8 million annually. Two non-native parasitic diseases, MSX and Dermo, have significantly reduced native Eastern oyster harvest since the early 1990s, with consequent economic losses to the shellfish industry.

Approximately 65% of the invasive species found in the Great Lakes and St. Lawrence were introduced in ship ballast water. Many of the most damaging nonnative invasive species are native to the Black, Caspian and Azov Seas. A number of these species are now abundant in European waters used by vessels destined for the Great Lakes. Ocean-going vessels are the likely means of transport for the introduction of new aquatic invasive species, while lake freighters spread the organisms among the various waters traversed.

Terrestrial invasive species, including invasive insects such as emerald ash borer (EAB) and Asian longhorned beetle (ALB,) are likely to cause millions of dollars of damage in New York. These pests are readily transported in firewood and other untreated wood products. EAB is a

small insect that has destroyed over 70 million ash trees in the United States. Approximately \$10.7 billion will be spent by 2019 for ash tree treatment, removal and replacement in 25 states. First discovered in Detroit in 2002, this beetle is moving steadily and rapidly and has now been found in 15 states and two neighboring Canadian provinces. New York has more than 900 million ash trees, representing about seven percent of all trees in the State; all are at risk.

Our northern hardwood forest is also at risk of invasion by ALB, first discovered in New York in 1996 after being transported here in wooden packing crates. This insect prefers maple trees upon which the lumber, maple product, and tourism industries rely. The tremendous threat these insects pose to New York's native hard woods has forced DEC and others to cut down thousands of prized shade trees in an effort to prevent or slow the beetle's spread.

DEC's Regulatory Response

DEC has taken a number of regulatory actions in response to the threats posed by terrestrial and aquatic invasive species.

DEC promulgated regulations to address the risk posed by firewood movement. The regulations prohibit the transport of untreated firewood into New York State (treated firewood has been heated to 160 degrees Fahrenheit for 75 minutes to eliminate pests living inside the wood. Treated firewood can be moved without restriction). The regulations also prohibit the transport of untreated firewood more than 50 miles from its source.

EAB was discovered in New York in 2009 in Cattaraugus County and it has now been confirmed in Erie, Genesee, Greene, Livingston, Monroe, Orange, Steuben, and Ulster counties. Nineteen counties are under EAB quarantine imposed by DEC and DAM restricting the movement of firewood, lumber, nursery stock, tree limbs and other woody host materials. ALB quarantines are in place that restrict the movement of host materials in the New York City-Long Island area.

Despite quarantines and firewood regulations, some people continue to move firewood and enforcement actions have been taken. After an investigation by DEC and DAM, three individuals were recently charged with four counts each of violating the Greene County EAB quarantine order. Earlier this summer, firewood transported by visitors from the ALB quarantine area in Worcester was confiscated in Maine, which followed New York's lead in banning the importation of firewood.

DEC has also promulgated regulations prohibiting, with certain limited exceptions, the overland transport of baitfish in order to avoid the spread of invasive fish pathogens. New York, in consultation with other Great Lake states, has established ballast water discharge standards to provide environmental protection for the waters of the State which does not go into effect until 2013. However, New York favors a strong, environmentally protective national ballast water program and intends to work with the U.S. Environmental Protection Agency and the Coast Guard to achieve that goal.

Legislative Response

Legislation enacted in 2003 established the New York State Invasive Species Task Force (Task Force or ISTF) led by DEC and DAM and including the Thruway Authority, Canals Corporation, State Education Department, New York State Museum, Office of Parks, Recreation and Historic Preservation (OPRHP), Adirondack Park Agency (APA), non-governmental organizations, trade groups, and academia. The ISTF was created to explore the invasive species issue and to provide recommendations in a report to the Governor and the Legislature. The Task Force provided specific recommendations in its final report issued in November, 2005 and conducted six review sessions statewide to solicit discussion and comment. The report included the following twelve recommendations: (1) establish a permanent leadership structure to coordinate invasive species efforts; (2) prepare and implement a comprehensive invasive species management plan; (3) allocate appropriate resources to invasive species efforts; (4) establish a comprehensive education and outreach effort; (5) integrate databases and information clearinghouses; (6) convene a regular invasive species conference; (7) formalize New York State policy and practices on invasive species; (8) establish a center for invasive species research; (9) coordinate and streamline regulatory processes; (10) encourage non-regulatory approaches to prevention; (11) influence federal actions to support invasive species prevention, eradication and control; and, (12) recognize and fund demonstration projects.

Implementation of the ISTF recommendations toward building a comprehensive invasive species management framework began in early 2007 with the creation of a new Office of Invasive Species Coordination (OISC) at DEC. OISC was charged with implementing the ISTF recommendations and was directed to prevent or minimize the harm caused by invasive species to New York's environment.

As you know, significant invasive species legislation sponsored by Chairman Sweeney was enacted in 2007 (Chapter 674 of the Laws of 2007) and is codified in Article 9, Title 17 of the Environmental Conservation Law (ECL). The new law established the New York Invasive Species Council (Council) and the Invasive Species Advisory Committee (Advisory Committee). It also included a new statutory definition for invasive species as:

A species that is nonnative to the ecosystem under consideration and whose introduction causes, or is likely to cause, economic or environmental harm, or harm to human health. While not all nonnative species are invasive, some cause significant ecological harm and have serious negative economic impacts. *ECL § 9-1703(10)*

The Council's role and tasks as delineated in that law align with the ISTF recommendations and build on its work. The Council is co-chaired by DEC and DAM and includes seven other state agencies: the Departments of Transportation, State and Education; OPRHP; Thruway Authority; Canal Corporation; and APA. The law directs the Council to:

- assess the nature, scope and magnitude of the impacts caused by invasive species in the state;
- identify actions already taken to prevent, detect, respond rapidly to and control invasive species;
- 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 a comprehensive invasive species management plan;
- provide input on funding priorities and grant applications;
- hold a biennial invasive species summit;
- support the establishment and operation of Partnerships for Regional Invasive Species Management (PRISMs);
- submit a report to the Governor and the Legislature recommending a four-tier system for nonnative animal and plant species; and
- recommend statutory actions to prohibit, manage and control invasive species.

The Council’s Implementation of the Statutory Mandates

Since its inception, the Council has worked closely with the Advisory Committee, which is comprised of representatives of up to 25 non-governmental stakeholders. The first meeting of the Council was held on February 13, 2008. To date, the Council has met on fourteen occasions. I will briefly address how the Council has carried out its statutory mandates.

Report Recommending a Four-Tier System: The Council submitted its report titled “*Final Report: A Regulatory System for Non-native Species*” on June 10, 2010 to the Governor and the Legislature. A 17- member multi-disciplinary steering team from State and Federal agencies, industry, conservation organizations and academia, led by the OISC, contributed substantially to the preparation of this report. A preliminary draft was reviewed by the steering team, the Advisory Committee and the Council, and published for public review. After a public comment period, the Council reviewed all comments received and, after consultation with the Advisory Committee, incorporated responsive changes into a final report.

The regulatory four-tier system required by statute and proposed in this report would, if fully implemented, assign one of three regulatory categories to all species of non-native plants and animals based on an assessment methodology set forth in the report. The most restrictive category is “Prohibited Species” and would ban the commerce, use and purposeful introduction of non-native species that pose clear risks to New York’s economy, ecology, and/or human health. The second category is “Regulated Species;” this would restrict, but not prohibit, the commerce and other use of species that have the potential to cause significant harm and could be effectively contained through practicable and meaningful regulatory programs. The final category, “Unregulated Species,” would identify those non-native species that are expected to pose no significant threat and so could be used freely.

It is important to note that the proposed system and its lists are primarily intended for the regulation of commerce: buying, selling and introducing non-native species. The lists are not intended to establish priorities for other management actions, such as early detection, rapid response, eradication, spread prevention or restoration. While resource managers may consider many of the same biological traits or other information used in this proposed process, in most instances, management planning and decision-making would consider numerous other factors, such as distribution and available resources.

The first task in developing the proposed four tier regulatory system was to develop assessment tools for quantifying (i) the biological invasiveness of each non-native species, and (ii) the social and economic values, positive and negative, of each non-native species. The intent has been to develop assessment tools that are objective and efficient, rely upon available information, and provide outcomes that are useful within the proposed regulatory system.

In consultation with the Advisory Committee, the Council created an Invasiveness Ranking Form that serves as the invasiveness assessment tool. The Form considers the species' known and potential distribution within New York State; ecological impacts; biological characteristics and dispersal ability; distribution within both its native landscape and other places it has been introduced; difficulty of detection and control; and likeliness of hybridizing. The Invasiveness Ranking Forms yield numerical scores, higher scores and rank reflect a higher ecological risk associated with a particular invasive species. Separate forms were developed for Plants, Fish and Aquatic Invertebrates, Terrestrial Invertebrates, and Terrestrial Vertebrates.

A second assessment tool, the Socio-economic Assessment Form, gathers information about the socio-economic values of those non-native species that score moderate or higher on the invasiveness assessment. This tool provides information about a species' value to human health, economy and culture. It does not monetize value; rather, it requires qualitative assessments and then assigns a value.

As proposed in the Council's report, a review procedure, coordinated by an assessment team consisting of DEC and DAM staff with other Council agencies participating as desired, would lead the assessment process with expert consultation, as needed. Review of any new, unlisted non-native species would start with a check of federal invasive species lists. If the federal government has already determined that a species should be banned because of its invasive qualities, or has listed the species as "noxious," New York would generally follow suit without additional process.

Next, the biological characteristics of a species would be assessed using the Invasiveness Ranking Form resulting in a score and rank. For species that are ranked moderate or higher, a socio-economic assessment would be completed, gathering information about the beneficial uses and non-ecological impacts of a species. The results of this assessment can be used to change the category of a species. The assessment team would present its recommendations to the Advisory Committee for comment and then to the Council. The Council would then prepare draft regulatory lists for rulemaking and promulgate the lists through normal State Administrative Procedure Act process. Public comments received during the formal public review period would be considered by the Council prior to completion of the rulemaking.

As proposed in the Council's report, the provisions of the Prohibited and Regulated lists would reside in the Environmental Conservation Law, Agriculture and Markets Law, and Parks, Recreation and Historic Preservation Law so that they could be enforced by personnel in all three agencies consistent with their existing areas of regulatory authority. Any fines and penalties should be sufficient to serve as a deterrent and should clearly outweigh any economic benefit that would result from commerce in invasive species. Statutory language relative to sanctions should reflect the full potential cost of spread prevention, control and eradication. Authority to

obtain injunctive relief would allow immediate action through the courts to prevent the spread of an invasive species. Provisions for recovering response costs and other natural resource damages resulting from illegal trafficking in invasive plants and animals should be included.

The information used to assess both invasiveness and socio-economic values can change over time for any species. This is especially true if an organism invades successfully. Risks and impacts can prove to be greater or less than known when an initial determination is made. Thus, it is important that a regulatory system include provisions for reassessing a species. In most cases, this could occur after a reasonable number of years. In other cases, provisions should allow for emergency reassessments and determinations. In addition, members of the public should be able to appeal the regulatory status of a particular species or request that a species be added by making a written request directly to the Council.

Development of a Comprehensive Plan for Invasive Species Management: Under contract with an environmental consulting company, through DAM, a *New York State Invasive Species Management Strategy* has been developed. This document supports the need to implement the twelve recommendations of the Task Force and the use of the federal model for the development of an adaptive, statewide invasive species management plan. Recommendations were provided to address five major issues, including: 1) the need for adequate funding and staffing; 2) effective administration; 3) coordinated invasive species program integration; 4) adaptive management; and 5) pathway analysis. The report concludes that the Council, Partnership for Regional Invasive Species Management (PRISM) network, and Advisory Committee provide an infrastructure that is well designed to build the state's capacity to respond to new invasions and implement an effective invasive species program.

Support Establishment and Operation of PRISMs: There are eight PRISMs covering the entire State. These are grassroots groups formed by not-for-profit organizations that include state agencies, local governments, a variety of stakeholders and individual volunteers. Core functions of the PRISMs is funded via state contracts using Environmental Protection Fund (EPF) funds. PRISM functions identified in each contract scope of work include:

- Coordinating among partners and with the Council;
- Recruiting and training volunteers;
- Identifying and meeting education needs;
- Establishing and maintaining a monitoring network for early detection;
- Preparing for and conducting rapid response to extinguish new invasions as they occur;
- Implementing specific eradication projects;
- Providing the citizen science component of research investigations;
- Integrating existing natural resource management plans; and
- Developing five-year strategic plans.

Four PRISMs are currently under multi-year state contracts totaling approximately \$4.7 million (Adirondacks, St. Lawrence - Eastern Lake Ontario, Catskills, and Long Island). These contracts are funded through the EPF. An RFP is in process to develop contracts for the remaining four PRISMs (Western, Finger Lakes, Lower Hudson, and Capital-Mohawk).

Promote Public Education: An online invasive species clearinghouse has been established through a multiyear contract with Cornell University totaling approximately \$272,000. This contract is funded through EPF. The clearinghouse is essentially an online library and resource for invasive species information, activities, PRISM information and more. Deliverables under this contract include:

- Provide diverse audiences with timely and accurate scientific and policy information;
- Develop website for New York State Invasive Species Clearinghouse, with links to other clearinghouses, and other complementary invasive species projects;
- Develop searchable electronic bibliographic directory of invasive species of interest to New York State in collaboration with Council agencies;
- Develop an electronic invasive species newsletter;
- Establish a scientific advisory board to advise the Clearinghouse;
- Integrate efforts with outreach partners and the Invasive Species Research Institute (see below); and
- Refer invasive species information requests to entities as appropriate.

DEC also has a multi-year contract with Cornell Cooperative Extension (CCE) to provide the Council, PRISMs and other interested stakeholders access to invasive species-related educational materials and programs. This contract, which is funded through EPF, totals approximately \$1.25 million. The CCE materials and programs provide information about the environmental and economic risks posed by invasive species and the means to prevent the spread of invasive species. CCE is also in the process of hiring regional invasive species educators.

Assess the Scope and Magnitude of Invasive Species: Pursuant to a multi-year contract, The Nature Conservancy (TNC) has established the New York State Invasive Species Database, a GIS-based comprehensive database to map invasive species in New York. This is a multi-year contract totaling approximately \$1.65 million and is funded through EPF. TNC has launched iMaps Invasives New York, which is a web-based database and map for all invasive species, which over time, can track introduction, spread, control and eradication efforts. Under this contract, TNC also aggregates available data, provides network resources for partners, provides training for interested stakeholders, encourages the use of citizen scientist initiatives, and provides professional users access to treatment data, difficult species identification assistance, and invasive species prevention zones. The maps and data produced are available to the public and all data entered is quality controlled.

Conduct Research: The New York Invasive Species Research Institute has been established through a multi-year contract with Cornell University, funded through EPF, totaling approximately \$425,000. A website has been established, advised by a scientific advisory committee assembled from academic institutions and researchers, that:

- Identifies research needs;
- Catalogues ongoing research;
- Identifies funding sources;
- Involves PRISMs in citizen science; and
- Advises the Council on new invasive outbreaks and research priorities.

Accomplishments to date include hiring a professional coordinator with a PhD, coordination of a research symposium, development of an invasive species researcher database, compiling white papers on Eurasian watermilfoil, Asian clam and Hydrilla, and authoring the invasive species text for the draft New York State Climate Change report.

Control and Eradication: Starting with \$1 million of Aid-to-Localities included in the State Fiscal Year 2005-06 budget, DEC has initiated and administered three rounds of eradication grants. To date, 65 aquatic eradication grants, coordinated by DEC's Division of Fish, Wildlife, and Marine Resources, and 10 terrestrial eradication grants, coordinated by DEC's Division of Lands and Forests, have been awarded across the State. A total of \$3 million in grants have been awarded, of which \$2 million was funded through the EPF.

Prevention: All elements of New York's invasive species implementation strategy include prevention components. The "four tier" list report and the related legislation drafted by Council, along with the draft boat transport legislation are prevention-focused tools aimed at preventing or minimizing the harm caused by invasive species to New York's environment. Another example of a prevention related initiative includes the Clean Stock initiative, which encouraged a non-regulatory approach to prevention. Through a contract with the New York Agricultural Experiment Station, the Clean Stock pilot assisted the agricultural community in obtaining desired cultivars from foreign sources that are virus-free tested before they are propagated and distributed. Lastly, development and adoption of voluntary codes of conduct designed to reduce or eliminate the use and distribution of invasive species has been encouraged by the Council.

Rapid Response: The OISC, with input from the Advisory Committee, developed a "Rapid Response Framework for Invasive Species" to serve as an aid to resource managers who are responsible for responding to newly discovered invasive species infestations. The document provides a framework for responding thoroughly, professionally and effectively to the many challenges that result from new invasions and addresses the necessary components of an effective response, including coordination, communication, public outreach, planning, science, information management, laws and regulations, resources and logistics. The OISC framework draws on experiences with snakehead fish, chronic wasting disease, Hydrilla, oak wilt, ALB and EAB.

Council members are currently involved in a number of ongoing rapid response actions involving EAB, Asian clam, Hydrilla and Giant Hogweed.

EAB was first discovered in New York in 2009. The immediate response was to determine the extent of the infestation. Approximately 8,000 traps were deployed in summers of both 2010 and 2011. EAB was detected in traps in four additional counties in western New York and two in southeastern New York. EAB was detected in two additional counties this year (Erie and Orange). The management response adopted jointly by New York and the federal government is "Slow Ash Mortality" or "SLAM." In July, 2011, a non-stinging parasitic wasp was released as a biological control for EAB on a trial basis. EPF funds (\$200,000) were used for the response and was used to purchase wood chippers, safety gear, cargo trailers, trucks, etc. needed for this response. The Catskills PRISM conducted insect forest pest training, forest insect pest surveys, and community ash tree inventories to assist Catskill communities. The Adirondack PRISM has

conducted EAB training and is poised to work with Adirondack communities on this issue. Governor Cuomo declared May 22-28, 2011 as “Emerald Ash Borer Awareness Week” to encourage state residents and visitors to become better educated about the emerald ash borer and the destruction it causes.

Asian clam, a thumbnail size clam capable of rapid expansion due to its hermaphroditic characteristic, was discovered in the south end of Lake George in August, 2011. This species is widespread in the eastern United States and in parts of New York. The Lake George Asian Clam Rapid Response Task Force formed under guidance of the Lake Champlain Basin Program and the Lake George Park Commission. A rapid response was conducted in Fall 2010 through the summer of 2011 placing over 800 benthic mats on the five-acre infestation. This action resulted in clam mortality of approximately 97%. Unfortunately, additional infestations have been recently detected in other areas of the lake. A lakewide survey is now underway. To date, the response has cost \$475,000; substantial additional funding will be needed to address all infestations.

Hydrilla was discovered in early August 2011 in the inlet to Cayuga Lake. Considered one of the most aggressive aquatic plants to invade North America, it threatens to spread to a vast network of connected water bodies in New York State and beyond, including the Great Lakes. Several lines of field evidence support the conclusion that the Cayuga Lake inlet infestation is less than two years old, and has not yet expanded into the shallow southern shelf of Cayuga Lake. Council members and local partners are coordinating a rapid response using the herbicide endothal to be applied this month. It is anticipated that EPF funds will be used to assist in this response.

Giant hogweed poses a serious threat to human health. This federally-listed noxious invasive plant was introduced to the United States in the early 1900s as a garden plant. It can cause severe skin and eye irritation, blistering, scarring and, in rare cases, blindness. Council members have conducted an aggressive control program using a federal American Resource and Recovery Act grant of \$670,000 to remove giant hogweed from private property. This funding source expires next April.

Council members have also participated in rapid response efforts that resulted in successful eradication of invasive species such as Northern snakehead fish, ALB and oak wilt.

Northern snakehead fish were discovered in a private pond in Orange County in 2008. The response was coordinated by the OISC and DEC Bureau of Fisheries, and involved two successive treatments with rotenone, an organic aquatic chemical that kills fish. No snakehead fish have been found in follow-up monitoring efforts. Approximately \$200,000 in EPF funding was used to assist this response.

ALB was first detected in Islip, New York in September 1999. This year, after more than ten years of coordinated federal and state efforts, ALB was successfully eradicated from this location.

Oak wilt, an aggressive disease that affects many species of oak was confirmed for the first time in New York State in September, 2008, in Glenville, Schenectady County. This serious tree disease in

the eastern United States kills thousands of oaks each year in forests, woodlots, and home landscapes. DEC removed 73 infested and potential host trees from private properties. No new infested trees have been found in the infested area and no new infested areas have been found elsewhere in the state.

Recommend Statutory Actions: In 2010, the Council submitted two proposed bills to the legislature and governor: one implementing the recommendations of the Council's "*Final Report: A Regulatory System for Non-native Species,*" and the other addressing the transport and spread of invasive species by watercraft.

The regulatory system bill reflected the consensus of the Council on how best to implement the Final Report's recommendation that authority be provided for promulgation of regulations establishing lists of prohibited, regulated, and non-regulated invasive species for New York. The bill (i) authorizes DEC, with the approval of the Council, to adopt regulations listing prohibited, regulated and non-regulated species; (ii) authorizes DEC and DAM to issue permits for possession or use of prohibited or regulated species for certain approved purposes; (iii) expressly pre-empts local regulation of the sale of invasive species (except for Suffolk and Nassau counties, which already have regulations); (iv) directs DAM to establish an invasive species compensation program; and (v) provides for penalties and enforcement authority.

The watercraft bill would prevent the spread of aquatic invasive species by requiring that all boats and trailers be cleaned of visible plants or animals prior to launching and prior to leaving launch sites. The bill provides for some common sense exemptions, and includes provisions for enforcement.

Conclusion

The State has joined with its partners to prepare for, and respond to, invasive species. Resources, including the EPF, are being used to fund a variety of contracts and grants to non-government organizations. Council members will continue to lead New York's efforts to respond to invasive species and to identify alternative funding streams, where available, to optimize New York's fiscal resources.

Commissioner Martens and I thank you again for holding this hearing today to keep needed focus on this important matter. We look forward to continuing our work with you to address invasive species.