

U.S. SUBMISSION TO THE CONVENTION ON BIOLOGICAL DIVERSITY IN-DEPTH REVIEW ON IAS

Introduction

The United States has considerable experience recognizing and addressing the impacts of invasive alien species. As a consequence of the size of the country and diversity of ecosystems, invasive alien species (often referred to domestically as “invasive non-native species”) may originate from within as well as outside, national borders. Therefore, there is a long history of local, state, tribal, regional and national efforts to develop effective, appropriate responses to the threat of invasive alien species (IAS). Over 100 years ago, the Rivers and Harbors Act of 1899 directed the Department of Defense’s Army Corps of Engineers to manage aquatic invasive plants – and the Corps continues to conduct control activities today. The Lacey Act of 1900 first prohibited the importation of animals including European starlings (*Sturnus vulgaris*) and English sparrows (*Passer domesticus*), and “such other birds or animals as the Secretary of Agriculture may...declare injurious to the interest of agriculture or horticulture.” Since that time, our awareness of the challenges and the threats posed by invasive alien species, and our technical capacity to manage them, have increased dramatically - yet so has the need for comprehensive approaches to deal with IAS and their impacts.

Based on this experience, the United States is active and committed to addressing invasive species domestically and in the international arena. Rather than addressing control measures individually for specific pathways, this document emphasizes broader U.S. efforts to improve implementation of IAS control through strengthening national authority, coordination of national management and enforcement, improving technical capacity, and promoting international cooperation and information sharing as a comprehensive strategy for battling IAS globally. Where possible, we have cited specific illustrative examples of activities and provided references to additional resources and information on which to build regional and international cooperation.

LEGISLATIVE MEASURES & NATIONAL POLICIES:

Legislation

Over time, a significant number of legislative measures and national policies have been developed in the United States in response to a wide variety of IAS. Some of the most important legal measures deal with specific taxa or groups of invasive alien species or their impacts. Major pieces of national legislation include:

- Federal Noxious Weed Act of 1974 / amended by the Plant Protection Act
Provisions: intentional and unintentional introduction of IAS through ports-of-entry and to conduct follow-up activities for control.
- Animal Damage Control Act
Provisions: control of wildlife damage on federal, state, or private lands.

- Lacey Act - Injurious Wildlife Provisions
Provisions: pertain to prosecution for the intentional introduction and trade of certain designated species and other injurious animals.
- Endangered Species Act
 Provisions: provide authority for eradication of invasive species which threaten endangered plants and animals.
- The Non-indigenous Aquatic Species Prevention and Control Act (NANPCA)/ National Invasive Species Act (NISA)
 Provisions: unintentional introductions of marine organisms through ballast water.

The Department of Homeland Security's U.S. Customs and Border Protection (CBP), through the work of its Agriculture Specialists at the U.S. ports of entry, serves as a component of the first line of defense against prohibited agriculture items that may have the potential to become an invasive alien species. In addition to these broader national laws, numerous other national state and local laws target particular species out of concern for their economic impact or their impact on the environment, including biodiversity.

National Coordination and Strategy

Over 30 U.S. federal agencies have authorities, programs, or policies that deal with invasive alien species. The Presidential Executive Order 13112 (EO 13112) on invasive alien species was issued in 1999 to address the need for coordination, planning, and partnership efforts among federal, state, tribal and local governments in the United States to prevent and control invasive alien species.

EO 13112 established the National Invasive Species Council (NISC) as a high-level body to ensure effective coordination of federal agencies. NISC is co-chaired by the U.S. Secretaries of Agriculture, Commerce, and Interior. Other NISC members include the Secretaries of State, Defense, Homeland Security, Treasury, Transportation and Health and Human Services, the U.S Trade Representative, as well as Administrators of the Environmental Protection Agency (EPA), the U.S. Agency for International Development (USAID), and the National Aeronautics and Space Administration (NASA).

NISC is supported by monthly meetings in which IAS liaisons from member agencies coordinate activities and discuss current IAS issues. The advisory group to NISC, the Invasive Species Advisory Committee (ISAC), was also established by EO 13112. ISAC is composed of non-federal experts and stakeholders that provide expert advice and involve private interests and regional and local officials. In 2001, NISC issued a National Invasive Species Management Plan, which is currently being revised (available at: www.invasivespeciesinfo.gov/council). The Plan is designed to facilitate international cooperation on invasive alien species; provide for information sharing with the public; focus measures to prevent IAS introductions; and provide for early detection and rapid response as the most effective and efficient means to deal with IAS before their establishment.

The Aquatic Nuisance Species Task Force (ANSTF, www.anstaskforce.gov) was established by NANPCA to encourage federal and state agencies to work with partners to enhance their collective efforts to address aquatic nuisance species issues. The ANSTF relies on the expertise of its six Regional Panels, composed of representatives of states, tribes, non-governmental organizations, commercial interests, and neighboring countries. These panels identify regional aquatic nuisance species (ANS) priorities; coordinate ANS program activities in each region; make recommendations to the ANSTF; and provide advice to public and private interests for ANS prevention and control.

MANAGEMENT:

Coordination of management, control, and eradication

The general approach to combating IAS in the United States is through national and sub-national measures for prevention, early detection, and rapid response. NISC has generated guidance documents on early detection and rapid response prioritization of control actions, and analysis of major pathways for introduction of invasive species. Certain invasive alien species populations are too widespread for complete eradication and may span geographic and jurisdictional boundaries. Therefore, several control methods may need to be implemented and coordinated across large geographic scales for long periods of time, such as: localized eradication, population suppression, containment, reducing impacts, resource recovery, and other diverse objectives. In these cases, control actions may be carried out by federal, state, tribal, and local governments and/or the private sector.

Critical inter-jurisdictional cooperation and coordination at the national level is provided by four major bodies: the NISC; the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW, www.fws.gov/ficmnew); the ANSTF; and the Committee on Invasive Terrestrial Animals and Pathogens (ITAP). In addition, many state governments have established similar coordination groups. Many of the prevention, management and control activities for invasive species also occur at the state level. For example, in 2006 the State of Florida spent almost \$100 million on invasive species control and the State of California spent \$39 million on control of aquatic invasives alone.

To facilitate management and control efforts, several federal agencies have the authority to provide assistance to state, tribal, and local governments, as well as the private sector. An example of one such multi-jurisdictional, public-private effort is Team Leafy Spurge - a \$4.5 million, five-year U.S. Department of Agriculture's Agricultural Research Service (USDA-ARS) research and demonstration program. This program supports research and demonstration activities relative to the Integrated Pest Management of the invasive plant, leafy spurge (*Euphorbia esula*) in the States of Wyoming, Montana, North Dakota, and South Dakota. Team Leafy Spurge is managed by USDA-ARS in cooperation with the USDA-Animal and Plant Health Inspection Service (APHIS), however Team members include the Bureau of Land Management, U.S. Forest Service, National Park Service, Bureau of Indian Affairs, Bureau of Reclamation, U.S. Geological Survey (USGS), several state departments of agriculture and other state agencies, land grant universities, USDA Cooperative Extension Services, county weed managers, and private sector landowners. Participants submit proposals to the USDA for joint work

under the TEAM Leafy Spurge program. USDA-APHIS plays a significant regulatory and cooperative role in supporting several Federal and State invasive species survey and eradication projects.

ASSESSMENT:

Risk Analysis: Pathways & Vectors

The United States places high value on the use of risk analysis (which includes risk assessment, risk management and risk communication) as a major tool for making informed decisions and determining regulatory actions to address IAS pathways and vectors. Improving the quality of risk analysis is an ongoing effort within the federal government and is currently taking place in a number of federal agencies. One of the largest efforts concerns phytosanitary and sanitary prevention and control and is housed under USDA-APHIS. Multi-Departmental/Agency working groups formed under the NISC and the ANSTF coordinate and advance new risk analysis methodologies and processes (including screening methods) to identify potential IAS before allowing them entry into the United States. The NISC and the ANSTF recently released a Training and Implementation Guide for Pathway Definition and Risk Analysis and Risk Prioritization for risk management via unintentional man-made pathways (available at: www.anstaskforce.gov). Ballast water is a major pathway for the introduction of aquatic nuisance species and represents a good candidate pathway for prevention measures. Domestically, the United States has developed a national ballast water management program and is working to make this program more preventive.

Risk analysis is being increasingly utilized to address the protection of natural resources, including North America's extensive biodiversity. The United States is assessing the existing components of its invasive alien species national capabilities for early detection, rapid assessment, and rapid response in this context. The Framework for Early Detection, Rapid Assessment, and Rapid Response to Invasive Species will provide access to reliable resources on IAS identification, reporting, expert verification, occurrence databases, and planning (<http://edrr.nbii.gov>). This effort is being carried out within the Department of the Interior, the USDA, and the EPA. The U.S. Forest Service also addresses IAS prevention, detection, management of invasive plants related to fire management and development of modeling tools to assist in documenting and predicting the distributions of invasive plants and animals, and restoration of forest and grassland ecosystems (www.fs.fed.us/invasivespecies/).

Research

In addition to supporting basic research on invasive alien species through the National Science Foundation, research on invasive alien species is directly carried out and financially supported through grants to universities and other research entities by numerous federal agencies, including the EPA, the National Oceanic and Atmospheric Administration (NOAA), USGS, USAID, and USDA. The USDA conducts research related to IAS in at least 6 of its 8 agencies that work on IAS issues: the Agricultural Research Service; USDA Forest Service; Cooperative State Research, Education, and Extension Service; and the Economic Research Service; Risk Management Agency; and the Animal and Plant Health Inspection Service. The USGS conducts research on

invasive alien species to assist the Department of the Interior in their efforts to prevent and control invasive plants and animals on federal lands. The National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service have sponsored research on development of new technologies to deal with invasives.

“ECONOMIC INSTRUMENTS”/ FUNDING MECHANISMS

Control actions for many IAS populations span geographic and jurisdictional boundaries and are frequently carried out by consortia of federal, state, tribal, and local and/or private sector entities. Inter-jurisdictional efforts are generally funded through the budgets of each partner agency or organization. Several federal agencies may provide funds to non-federal partners as cost-share payments. In some cases, funds may be designated for specific IAS projects by the federal appropriations process. Certain private sector charitable foundations can also support funding control efforts. State, local, tribal, or private sector partners often provide their proportion of a cost-share to a foundation grant in the form of in-kind contributions (i.e., wages and benefits, travel costs and computer time dedicated by each partner to carry out the invasive alien species control program).

Economic incentives that reduce the spread of invasive alien species may be provided by policies to promote certified invasive alien species-free products for specific markets. Certified products usually have a higher market value and/or access to specialized markets. Some federal agencies employ requirements for use of such products. For example, the National Park Service may require that only certified weed-free hay be used for livestock within a national park. Other examples are the requirement that crop seed must meet weed contamination standards before sale; regulations requiring that only artificial/nonliving fishing baits be used; and requirements that firewood be debarked to remove invasive insects or other bark-inhabiting organisms prior to shipment within the United States. Other measures, such as bounties and unrestricted hunting seasons and bag limits, are sometimes implemented to reduce populations of certain invasive alien animal species. When implemented, these measures can reduce the spread of invasive alien species.

“PROVISION OF RESOURCES”

The United States recognizes that efforts to prevent the introduction of IAS depend on effective regional and international cooperation. The United States supports international efforts to prevent, control, and sometimes eradicate IAS. Among other mechanisms, the United States supports IAS-specific efforts by providing technical expertise for educational outreach, as well as funding for cooperative work to address building capacity on IAS issues globally. Recent USG support includes: a study on development assistance as a pathway for the movement of IAS; a capacity-building workshop for the Association of Southeast Asian Nations (ASEAN) countries, “ASEAN Nonindigenous Invasive Species (ASEAN-NIS) Training Workshop on Invasive Species and Database Development”; support for information papers on IAS on islands and in inland waters; co-sponsorship of the Beijing workshop to formulate an IAS strategy for Asia-Pacific Economic Cooperation (APEC); coordination of the Inter-American

Biodiversity Information Network's Invasives Information Network I3N (with active participation from 18 countries in the Western Hemisphere); and sponsorship (via the Global Invasive Species Programme) of seven regional IAS workshops, from Denmark to Ghana, which brought together government officials and non-governmental experts to share information and develop strategies (www.sdp.gov/sdp/initiative/ias/).

The U.S. Government has also funded efforts to develop and support the Global Invasive Species Information Network (GISIN, www.gisinet.org). The GISIN is a Department of the Interior/National Biological Information Infrastructure-led partnership with members from more than 40 nations. Its goal is to provide a global platform for sharing IAS information and build capacity for integration of IAS databases. The project has received support from the U.S. Department of State, USGS, NASA, the Convention on Biological Diversity Secretariat, the Global Biodiversity Information Facility, and the Group on Earth Observations. In addition the U.S. Government has made regular contributions to numerous international entities that deal with the cross-cutting IAS issue, including the Ramsar Convention on Wetlands, the Convention on International Trade in Endangered Species, the UN Framework Convention on Climate Change, the International Plant Protection Convention, the UN Convention to Combat Desertification, the Inter American Biodiversity Information Network, and many others. The United States also participates in, the Commission on Environmental Cooperation (between the United States, Canada, and Mexico), providing critical funding and in-kind support for IAS.

COMMUNICATION, EDUCATION, AND PUBLIC AWARENESS:

Public Awareness

Communication, education and public awareness are among the most important components of any national or international approach to prevent and control of IAS. All U.S. federal agencies include education and public awareness as components of IAS programs. The EO 13112 and other U.S. laws dealing with IAS require the inclusion of education and public awareness activities. As part of a larger campaign to build national awareness of invasive alien species issues, U.S. Government agencies frequently sponsor and support symposia, workshops, and meetings around the country on issues relating to IAS. An example is the annual USDA sponsorship of a national conference on the Gypsy Moth (*Lymantria dispar*) and other invasive forest pests.

The United States makes a concerted effort to involve the public, industry and stakeholder groups in developing targeted messages and codes of conduct to prevent and contain IAS. Through publications such as *Protecting America's Agricultural Resources* and other public outreach activities, the U.S. Customs and Border Protection informs the public of the importance of declaring agricultural items that could introduce invasive alien species into the United States. The ANSTF has developed a successful campaign aimed at recreational boaters called "Stop Aquatic Hitchhikers" (www.protectyourwaters.net). An on-line training program by the U.S. Fish and Wildlife Service trains volunteers from the public to assist in managing invasive plants on National Wildlife Refuge System lands (www.fws.gov/invasives/). Federal agencies worked with the pet/aquarium and nursery/landscape industries to develop the "Habitattitude" program (www.habitattitude.net) to educate the industries and their

customers about the impacts of releasing pets and invasive plants into the wild. The nursery and landscape industry has also worked with gardening organizations and others to develop codes-of-conduct to limit the spread of invasive plants. All of these efforts contribute to prevention and control of IAS through education.

Data Sharing

Sharing information among agencies and other stakeholders on IAS is critical. Some federal databases of IAS information include (but are not limited to): The Global Organism Detection and Monitoring System, a data consortium of the National Institute of Invasive Species Science (www.niiss.org); the USDA's PLANTS database (<http://plants.usda.gov>), with extensive information on noxious weeds; the National Agricultural Pest Information Service, a repository of cooperative agricultural pest survey data ((NAPIS, <http://ceris.purdue.edu/napis/>); and NISbase (www.nisbase.org), a collaborative effort of the Smithsonian Institution and the USGS that provides information on non-indigenous species. The National Ballast Information Clearinghouse (<http://invasions.si.edu/nbic/>), developed jointly by the U.S. Coast Guard and the Smithsonian Environmental Research Center is being used to synthesize, analyze, and interpret national data regarding ballast water management.

U.S. federal agencies have also been working to provide greater access to and interoperability to federal databases and information sources on IAS to facilitate communication and data sharing. A primary effort in this area is the Department of the Interior and USGS's Biological Informatics Program, which hosts the National Biological Information Infrastructure (NBII). The NBII provides coordination for I3N in the Western Hemisphere, and for the Global Invasive Species Information Network (GISIN) at a global level. USGS-NBII also hosts a mirror website of the Global Invasive Species Database (GISD, <http://www.invasivespecies.net/>) and partners with the IUCN Species Survival Commission's Invasive Species Specialist Group to compile species profile information for the GISD. Federal agencies involved in weed management are also working together with the North American Weed Management Association to support implementation of uniformed data standards to facilitate data sharing from various database sources.

The USDA has the lead in the implementation of a related element of the NISC National Management Plan, which calls for a global, web-based, scientific peer-reviewed Invasive Species Compendium. The U.S. Agency for International Development and the U.S. Department of Commerce have also joined in this effort. The compendium is a three-year project that will initially include over 1,000 invasive alien species from all over the world. This effort is a public-private partnership of countries (to date – the United States, India, and Canada, with Australia, Mexico, Brazil, Argentina, Japan, and others considering participation) along with private industry and international donor agencies.

The USDA also makes comprehensive information and links to invasive alien species information for the United States available via the USDA's National Agricultural Library website (www.invasivespeciesinfo.gov). This site features information on individual invasive alien species, links to biological databases, current and proposed IAS legislation, discussion groups, events, and non-governmental and government management programs at federal, regional, and state levels. The website is designed with

interfaces organized for use by the public, government agencies, scientists, educators or other stakeholders.

COOPERATION:

In addition to cooperation among government and other stakeholders domestically, the United States is actively cooperating on a regional (North American) scale to reduce the spread of invasive alien species. The North American Plant Protection Organization (NAPPO) Invasive Alien Species Panel's main function is to address the current gaps in protection coverage on invasive alien plants and plant pests in Mexico, Canada, and the United States. Current work projects are: 1) development of a regional standard for screening live plants for invasiveness; 2) determining the scope of coverage and protection provided under the International Plant Protection Convention (IPPC); and 3) development of a regional standard to help rank IAS pathways/vectors so that limited resources can be put to best use. NAPPO's Forestry Panel helped forge the recently implemented standard for wood packing materials, and is currently working with Japan, China, and Korea to establish port monitoring programs for the gypsy moth (*L. dispar*).

The USDA cooperates globally on research through the USDA-ARS, which has a network of laboratories in five countries where U.S. scientists collaborate with local IAS experts to identify potential species for biological control in the United States. Exchange of data, experience, and staff are actively undertaken. For example the USDA-ARS South American Laboratory in Argentina conducts research in Brazil, Paraguay, Uruguay and South Africa to find potential biological control organisms for invasive alien weeds in the United States.

The International Program at the USDA-APHIS is striving to enhance technology transfer and training of foreign nationals on issues related to risk assessment, port inspections and phytosanitary best management practices. The USDA Foreign Agricultural Service has programs to enhance other countries personnel capacity to deal with IAS issues that may impact agricultural trade. APHIS manages the Offshore Pest Information Program (OPIP), an agency community of services and specialists that collaborate in the collection, reporting, analysis, and utilization of relevant exotic pest information from foreign locations. USDA Forest Service also has many projects overseas that investigate forest IAS in their countries of origin to reduce their impacts the United States (www.fs.fed.us/global/). In May, 2008 the Forest Service will host a multi-taxa work group focusing on the movement of IAS in trade through the International Union of Forest Research Organizations (IUFRO, www.iufro.org/events/calendar/).

Environmental cooperation agreements that have been negotiated in concert with trade agreements also have provided opportunities for the parties to engage in cooperative efforts to prevent the inadvertent movement of invasive alien species through trade. The United States undertakes regional cooperation with Canada and Mexico under the auspices of the Commission on Environmental Cooperation (CEC). The CEC is an international organization under the North American Agreement on Environmental Cooperation (NAAEC), and complements the environmental provisions of the North American Free Trade Agreement (NAFTA). All three countries are

actively involved in efforts to conduct work on IAS within the CEC work program as a priority issue. Under the CEC, the United States, Mexico, and Canada have developed a risk analysis process for aquatic invasive animals and are currently completing North American risk assessments on the Snakehead fish (*Channa argus*) and Armored Catfish (*Callichthys callichthys*). The United States is also working bilaterally with Canada through the CEC, the Great Lakes Commission, and the International Joint Commission to improve understanding, coordination and implementation of ballast water management practices.

The United States recognizes the current and potential future threats to the ecosystems and the economies of all nations posed by IAS, and continues to support cooperation among relevant international bodies such as the World Organization for Animal Health (OIE), the IPPC, the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) and other regional and international standard setting bodies on combating invasive alien species. The United States is currently working with other countries in the IMO Ballast Water Management Convention forum to develop international standards and regulation to prevent the spread of aquatic invasive alien species through this pathway.

Whenever feasible, the U.S. will continue to reach out to other nations and multilateral organizations in this endeavor. Key areas include: exchange of lessons learned from programs to inform and involve the public in efforts to combat IAS; development and dissemination of biological information related to invasive alien species; and contributions to global databases related to IAS, including biological information, distribution, effective prevention measures, useful control tools and current research efforts. The U.S. continues to encourage and participate in efforts to build other countries national capacity to prevent, control, and eradicate invasive alien species through regional cooperation on IAS and cooperative exchange of information, experiences, and best practices.