

Overcoming the Invasive Species Challenge

Fall 2003



To provide coordination between Federal, state, local and tribal authorities to prevent negative impacts from invasive alien species on ecosystems, health and economies, through leadership, research and information management.

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Table of Contents

Executive Summary Pages 3-4

Introduction Pages 5-6

Defining the Challenge Page 5

Costs and Threats Page 6

International & Domestic Legislative Background Page 7-10

Historical Legislation Page 7

Development of a Nationwide Approach Page 7

Outlining the Executive Order Page 8

Delegating Responsibilities to the National Invasive Species Council Page 9

Funding the Executive Order Page 9-10

Program Design Page 10-13

Leadership and Coordination Page 10

Research Page 11

Information Management Pages 12-13

Organization and Staffing of the Council Page 13-15

Budget Page 15-17

Performance Management Page 17-22

Indicators Page 18

Reporting Pages 19-21

Feedback Page 22

Timeline for Accomplishments in the Initial Year Page 22-23

Conclusion Page 23-24

Appendix Page 25-30

Bibliography Page 31-32

Executive Summary

According to Executive Order 13112, invasive species have been defined as: a species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Invasions are occurring at an unprecedented rate and scale, in the United States alone approximately 4,500 known invasive species have gained a permanent foothold. The total number of invading species and their impacts are still unknown making the real assessment difficult, these numbers may be underestimates. They have had devastating effects on natural areas and are the second most serious threat to endangered species after habitat destruction. In the United States, it is estimated that the economic cost of invasive species to Americans is an estimated \$137 billion dollars a year (Pimental et al, 2001). They have reduced crop yields by over 15% through introductions of insects, weeds, and vertebrate pests like the European Starling, approximately 9% of forest products in the United States are lost to plant pathogens (Pimental et al, 2001). They also act as a disease vector and have transferred diseases like the West Nile virus to the human population.

The rise in the introductions of invasive species is really a story about trade and globalization. Travel, transport, trade and an increasing population are responsible for the increase in the spread of invasive species worldwide. Large numbers of humans are traveling faster and further while more goods and materials are being traded among nations. This activity has increased the spread of invasive species plants, animals and microbes worldwide. The human population boom and the activities associated with the spread of civilization have altered the environment, making it easier in some cases for invasive species to thrive.

Several solutions have been put in place both internationally and nationally to address the growing problem of invasive species. In 1992, at the Summit for Sustainable Development in Rio de Janeiro, article 8(h) of the Convention of Biological Diversity was adopted. It called for the adopting parties to “prevent the introduction of, control of, eradicate those alien species which threaten ecosystems, habitats or species.” (CBD). The United States signed the agreement at this time but it is not legally bound to it since it has not ratified the agreement.

As the U.S. decided not to ratify the CBD, a national initiative was necessary to combat invasive species. In 1998, President Bill Clinton signed Executive Order 13112, which outlined a national coordinated effort to lessen the negative environmental, economic and health impacts caused by invasive species. The component of the Executive Order most pertinent is the creation of a National Invasive Species Council (NISC), which was tasked with developing and administering a National Invasive Species Management Plan. NISC is housed in the U.S. Department of the Interior, and is comprised of 10 Federal Agencies and Departments; the Department of Interior, Department of Agriculture, Department of Commerce, Department of State, Department of Transportation, Department of Defense, Department of the Treasury, Department of Health and Human Services, and the Environmental Protection Agency. The Departments of Interior, Agriculture and

Commerce are the Council co-chairs, and the remaining departments and agencies play a lesser, albeit important role.

The core objectives of the Council are to prevent the introduction of invasive alien species, to control existing invasive populations, and to minimize economic, environmental, and human health impacts. To accomplish these core objectives it is imperative that the Council take key steps in leadership and coordination, research, and information management within the first year, and into the future. In its initial year, the Council will develop a transparent oversight mechanism to lead and coordinate the efforts of the member agencies, craft an initiative to guide and fund invasive species research, and create an accessible web-based clearinghouse of invasive species data through the coordination of existing databases. The creation of the National Invasive Species Council Task Force (comprised of the member agencies) will aid in ensuring complete coordination between all of the member agencies as well as begin policy implementation initiatives throughout the nation.

In order to accomplish the immediate goals of the Council and to prepare the Council for future capacity, the Alien Species Project Group has redesigned the currently existing Council Structure into a first year staffing and organization plan that creates three sub-offices aligned with the core goals of the Council. These sub-offices are: Leadership and Coordination, Research, and Information Management.

Invasive species are one of the most serious national threats of the 21st century. By providing a unified and cooperative approach through the development of three sub-offices (Leadership and Coordination, Research and Information Management) the reorganization plan will minimize the spread and impact of invasive species throughout the U.S., and throughout the world. At a cost of \$1.5 million, the Council will coordinate mitigation programs between the member agencies in order to lessen the \$137 billion of negative economic impact caused by invasive species every year. The plan will not only lessen the economic losses, but will also aid in protecting our natural environments and the health of inhabitants of the United States of America.

Introduction

The world is comprised of millions of species living and interacting within millions of ecosystems. Humans depend on all species and healthy ecosystems to survive; the challenge lies in that humans are causing unprecedented changes to the world. Since humans began walking on earth, the composition of every landscape has been altered through our actions.

Most living species are native to some area of earth (excluding genetically modified organisms); in this area they are in harmony with their surroundings; aiding ecosystem processes. However, as species are moved from their natural systems to different locations their relationship with the ecosystem may change dramatically. A species is considered 'alien' when it is moved out of its natural habitat; however, alien species are not necessarily harmful. Our agricultural system is fully comprised of alien species, thus are a major economic component. Alien species become a challenge when they can be classified as 'invasive'; defined as those “species introduced deliberately or unintentionally outside of its normal distribution whose introduction causes or is likely to cause economic or environmental harm or harm to human health,” (Meeting the Invasive Species Challenge, **pg.**).

Defining the Challenge

Alien species, including invasive species, are moved intentionally or unintentionally from their native habitats to new regions of the world. As humans colonized new areas of the world they wished to bring familiar species with them, this desire leads to intentional introductions. A common example of this is purple loosestrife (*Lythrum salicaria*), an ornamental flower from Asia. Though the aesthetic properties of this flower are pleasing, they cause immense damage to waterways and wetlands they colonize. Each plant releases thousands of seeds per year; and due to the plants attributes, is well suited for the waterways and wetlands of the United States. As no organisms native to the U.S. utilize purple loosestrife, it is able to dominate the wetlands and waterways - becoming invasive. Over a period of a few years, purple loosestrife is able to eliminate most native plants from the infested area, leading to the downfall of the entire ecosystem. Native plants, birds, fish, reptiles, mammals, etc. are effectively excluded from their natural habitat, disrupting the ecosystem balance.

Although intentionally introduced organisms are problematic, more alien species, including invasive species, arrive unintentionally. Common transporters include planes, trains, and automobiles. However, the largest transporter of alien species is boats. Boats, or more accurately shipping vessels, transport organisms in their ballast water (water stored in the hull of the ship for balance) and cargo holds. Upon reaching their destination, these organisms enter the new ecosystem undetected. Zebra mussels (*Dreissena polymorpha*), are a well-known invasive species which arrived in the ballast of ships from the Mediterranean Ocean. Zebra mussels were first detected in the St. Lawrence Seaway, and rapidly spread through the Great Lakes; having their largest impact in Lake Erie. Initially, these

organisms filtered the polluted waters of the Great Lakes, increasing their water quality. However, as they proliferated, they began to cause damage, including clogging water intake pipes, over-filtering water (filtering out necessary phytoplankton), and the sheer magnitude of their invasion led to areas overlain by feet of zebra mussels. They form continuous beds of shells along the floor of freshwater lakes and streams, eliminating native mollusks, clams, and snails, and by filtering the water, reduced phytoplankton and the food supply, altering the entire aquatic ecosystem. They clog intake pipes for electrical utilities causing them to shut down and have cost over \$5 billion a year to control mitigate their damages (Pimental, et al 2001).

Costs and Threats

Invasive species cause environmental, economic and health damages in the U.S. and throughout the world. Invasive species affect the environment at three main levels; genetic, biological and ecosystem. Genetic diversity is threatened when invasive species lower the number of individuals of a native species to a point where their genetic variety is limited. This limited diversity can lead to a vulnerability to disease, reproduction threshold (some species require large numbers of individuals in a small area in order to reproduce), and other associated problems.

Biological diversity is threatened by the exclusion of a large number of native species, as in the case of purple loosestrife. When the total number of species is reduced, the overall function of the ecosystem is compromised. If invasive species are able to dominate many ecosystems within an area, the ecosystem diversity of the entire biome may be reduced; potentially leading to large-scale devastation.

Human Health has been affected in a variety of aspects. Some of the nation's worst disease vectors are invasive species. West Nile Virus, a virus carried by mosquitoes, can cause encephalitis in the brains of birds and humans; potentially leading to death. Additionally, human health is affected by the loss of ecosystem function when invasives overtake natural systems. Affected ecosystems lose partial ability to provide services such as water filtration and flood control. Furthermore, our agricultural systems are negatively impacted, causing reductions in food quality.

Though many Americans are concerned with the environment, they are more aware when their finances are affected. Invasive species impinge on the nation's economy in three fashions; our crops, overall land area and direct money. According to Pimental, invasive species reduce the productivity of our agricultural lands by 15%. They have reduced crop yields by over 15% through introductions of insects, weeds, and vertebrate pests like the European Starling; additionally, approximately 9% of forest products in the United States are lost to plant pathogens (Pimental et al, 2001). Throughout the U.S. invasive species are shown to infest 100 million acres - approximately the size of California. Disruptions to ecosystems, agricultural lands, and health cause negatively impact the nations

economy by \$137 billion per year (Pimental, 2001); approximately 1.5% of the U.S. Gross Domestic Product.

International & Domestic Legislative Background

Historical Legislation

The key to addressing the problem of invasive species is to approach the challenge with a holistic and integrated policy based on legislation specific to the issue. Early U.S. legislation that addressed invasive species includes the National Environmental Policy Act of 1969¹, Endangered Species Act of 1973², Federal Noxious Weed Act of 1974³, Lacey Act⁴, Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990⁵.

Internationally the United Nations Convention on Biological Diversity (CBD, Rio 1992) established a comprehensive approach to protecting biodiversity in the context of trade, transportation, and associated environmental changes. A major concern was addressed in Decision VI/23 of the CBD, which states “Alien species that threaten ecosystems, habitats or species”.⁶ The U.S. played a role in the development of the CBD, including Decision VI/23; leading the U.S. to sign the CBD agreement in 1992. However, concerns over genetically modified organisms (GMO) crops and the subsequent possible negative influence stopped the U.S. from subsequently ratifying the CBD.

Although the U.S. decided against ratifying the CBD, they continued to recognize invasive species as a major threat. Nationwide studies continued to show increases in the number of invasive species (currently 4,500 known in the U.S.), that these species were becoming more of a threat to endangered species (currently the second biggest threat), and that the United States has had to spend a substantial amount of money “\$137 billion dollars a year on alien species.”⁷

Development of a Nationwide Approach

Although the U.S. had developed legislative measures to combat invasive species, these measures were fragmented and resulted in ineffective national management. Recognizing that a collaborative effort was necessary to combat invasive alien species, President Clinton signed Executive Order 13112, which was adopted February 3, 1999. Utilizing the CBD as a philosophical basis Executive Order 13112 launched the National Invasive Species Council and directed the Council to

¹ As amended, 42 U.S.C. 4321 et seq.

² As amended, 16 U.S.C. 1531 et seq.

³ As amended, 7 U.S.C. 2801 et seq.

⁴ As amended, 18 U.S.C. 42

⁵ As amended, 16 U.S.C. 4701 et seq.

⁶ Convention on Biological Diversity, <http://www.biodiv.org/decisions/default.asp?lg=0&dec=VI/23>

⁷ Pimental et al 2001

create a National Invasive Species Management Plan forming the basis of the current US policy. The Executive Order contains a number of definitions, guidelines, and lays out organizational structure of the Council consisting of nine federal agencies (listed below).

Membership of the Invasive Species Council

Co-chairs

- The Secretary of the Interior
- The Secretary of Agriculture
- The Secretary of Commerce

Members

- The Secretary of State
- The Secretary of the Treasury
- The Secretary of Defense
- The Secretary of Transportation
- The Secretary of Health and Human Services
- The Administrator of the Environmental Protection Agency

Outlining the Executive Order

To achieve the goals set by Executive Order 13112, the National Invasive Species Council (NISC) was created. The NISC will work to develop recommendations for international cooperation in addressing invasive alien species. Secondly, the Council will coordinate nine different Departments and Agencies, which currently are separately involved with invasive alien species. Lastly, the NISC will implement the invasive species management plan (*Meeting the Invasive Species Challenge*, 2001). The management plan identifies the personnel and resources required for such aforementioned Federal Department and Agency interaction and sets performance-oriented goals. The NISC will then measure the outcome of these goals through specific measures.

The Executive Order is the first federal action, which requires:

- Prevention of introducing invasive alien species.
- Detection and rapid response to and control of populations, using a cost-effective and environmentally safe method
- Management of control species through research and the development of new prevention techniques as more invasive alien species are identified
- Provision, requiring the restoration of native species and habitats in the invaded ecosystems.
- Promotion of public education on invasive alien species

Delegating Responsibilities to the National Invasive Species Council

The Executive Order delegated the Council with the responsibility of inviting additional federal agencies to the Council and prescribing special procedures for their participation. The Department of Interior is charged with staffing and administration of the Council and appointing the Executive Director. In addition the Department of Interior is also delegated the responsibility of inviting stakeholders to the special advisory committee and providing financial and administrative support to that committee.

The Council is required to oversee the planning and implementation of the Executive Order on the local, tribal, State, regional, and ecosystem-based levels. This includes ensuring cooperation, compliance, and efficiency among agencies whose actions may affect the status of invasive species. Consultations must be made with the Council on Environmental Quality to provide guidance to federal agencies pursuant to the National Environmental Policy Act on the prevention and control of invasive species.

The most significant task set forth for the Council is the creation of the National Invasive Species Management Plan. The Executive Order states that the Plan must be developed through a public process and in consultation with federal agencies. The Management Plan must recommend performance-oriented goals and objectives and specific measures of success for federal agency efforts concerning invasive species, and specific objectives and measures for carrying out each of the federal agency duties.

The Council must facilitate the development of a coordinated network among federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health; establish a coordinated and up-to-date information-sharing system; and prepare, issue, and update the National Invasive Species Management Plan. The Council must assess the effectiveness of the Executive Order no less than once every five years.

Funding the Executive Order

Although the Executive Order provided a groundwork for national management, it did not include funding for the NISC's work plan. Therefore, Congress in the House Resources (H.R.) and Senate Environment and Public Works (S) Committees are attempting to pass Bills H.R. 266 and S. 536. The wording is identical in both houses of Congress. Thus, passage of such legislation would require "the Director of the Office of Budget and Management to prepare and submit to Congress and the Council a yearly budget analysis and summary of all Federal programs relating to invasive species."⁸ Additionally, these Bills further detail proposed coordination by requiring the establishment of the Invasive Species Advisory Committee, which will provide information and advice for the NISC.

⁸ H.R. 266 & S. 536, Bills in Congress to create the National Invasive Species Council:
<http://thomas.loc.gov/cgi-bin/bdquery/D?d108:1:./temp/~bdo0rx:@@L&summ2=m&/bss/d108query.html>

Both Bills H.R. 266 and S. 536 are sponsored by Republicans, Congressmen Vernon J. Ehlers (MI) and Michael DeWine (OH). Jim Matheson, (Utah), is the only western co-sponsor of either Bill. In a telephone interview, Matheson stated the Bill was initiated by the extensive invasive nature of alien species. "...In Utah we have cheat grass that drives out other native species and then creates a fire hazard when it dries out. It threatens Utah agriculture. This bill also calls for the coordination among Federal agencies. They should be speaking with one voice, that's something they should be doing anyway."⁹

Program Design

The program design presented by the Alien Species Project Group for the first year of implementation is based on the Management Plan. In total, the Executive Order lists nine categories, in hierarchical order, that the Management Plan must meet. The nine categories are leadership and coordination, prevention, early detection and rapid response, restoration, international cooperation, information management, education and public awareness. Though the Management Plan outlines nine categories, the Council's assignments include; providing national leadership and coordinating Federal efforts, facilitating a network to monitor and document Invasive Species, developing a web-based information network, and preparing and implementing the Management Plan. Therefore, the program design is based on three of the nine categories (leadership and coordination, research, and information management), as these are the only categories for which the Council is directly involved. Also, this program design reflects the most important categories for the first year of implementation.

The Council has made a commitment to provide a foundation for implementation of the Plan by meeting and working towards the delineated goals from the Executive Order by following the overall objectives stated in the Mission Statement the Alien Species Group created.

Mission Statement: *To provide coordination between Federal, state, local and tribal authorities to prevent negative impacts from invasive alien species on ecosystems, health and economies, through leadership, research and information management.*

Leadership and Coordination

The Management Plan is very complex and involves many agencies; therefore, cooperation is extremely important for the program to be successful in combating invasive alien species. Without cooperation, the Management Plan will not be successful. As part of this effort, authority to implement sections of the Plan should be given to different agencies through the creation of policies and regulations to deal with the prevention, control and management of invasive species within the US.

⁹ Thayer, Toni. [Sierra Times](#) 5-25-03.

Establish a Transparent Oversight Mechanism

Under leadership and coordination, the Council will establish a Transparent Oversight Mechanism. The Council appointed liaisons from the Departments of Interior, Agriculture (USDA), and Commerce to assist the Council (Interdepartmental liaison group) in communicating with Council staff. Under the Transparent Oversight Mechanism, the Council communicates through the liaison group and coordinates all federal agencies (See Appendix O). The Council will appoint a task force to comply with the Executive Order, and to monitor and report on the implementations. The Transparent Oversight Mechanism gives authority to the Council, in order to comply with specific parts of the Management Plan, and the responsibility to report on the success of implementation. This mechanism facilitates information flow among Council members, Council staff, and other Federal agencies.

The efficiency of implementing the Management Plan and achieving the overall goals can be increased through joint efforts between agencies and organizations. Also, the Council structure sets up a checks and balances program between all agencies, which will ensure compliance and increase the success of the program. The Transparent Oversight Mechanism will lead to better utilization of existing authorities, and provide a basis for future planning, such as future budget planning, and ability to update the Management Plan biannually.

Research

Research programs provide the foundation for increasing the effectiveness of policy-makers, outreach programs, scientists and agencies involved in creating management plans. Research efforts include gaining a thorough understanding of invasive species processes, ability to better assess risk, and improving the ability to predict new or expanded pathways of invasion. Additionally, the Council will research the current and potential barriers for implementing the invasive species program.

Initiative to Fund Research Programs

This plan will be prepared by the Council, the Smithsonian Institute, National Science Foundation and the Committee on Environment and Natural Resources, and the purpose will be to start an initiative to fund Federal invasive species research programs that will address several research issues. For example, the ability of a species to be invasive in a region can be used as a predictor of whether the species will become invasive in another region. Or, investigating invasive species processes can be used to recommend monitoring procedures. The research results will assist invasive species control, restoration and eradication efforts. It will also determine how, and to what extent, invasive species affect populations of native species, and their effects on ecosystem functions (water quality, nutrient cycling), agriculture, economics, and social processes. Lastly, research results will be applied to the development of monitoring and control protocols, methods and tools to support the prevention of introduction and spread.

The results of Federal research can be provided to Federal, state, local, tribal and private sectors for their utilization. This program can work in conjunction with the information management efforts in the development of the Council's website. The research can lead to better understanding of invasive species, which can assist policy makers in effective policy decisions.

Information Management

Under the first year program design, the Council will create an Internet-based clearinghouse as a coordinated information-sharing system that supports documentation, evaluation and for monitoring the impacts from invasive species on the economy, the environment and human health. The long-term goal will be to provide accessible, accurate, referenced, up-to-date, comprehensive and comprehensible information on invasive species for Federal Agencies, States, local and tribal managers, scientists, policy-makers, teachers, students, and others.

Maintain and Enhance the Council's website

The Council shall maintain and enhance the Council's website, including the development of a website steering committee to provide advice on the continuing development of its website. The website will include relevant international agreements, codes of conduct, meetings, publications, experts, programs and financial resources, as well as regional and global invasive species databases. The website establishes an invasive species assessment and monitoring network comprised of on-the-ground managers of Federal invasive species programs.

Enhancing the Council's website is an ongoing process and building upon the existing material will help to meet the objectives of the website. Several Federal agencies, including the Agricultural Research Service, Forest Service, NOAA, and the EPA have on-going research projects and partnerships where collaboration and correlation of information can be utilized for short-term projects.

Establish an Integrated Network System

The Council's website will be linked to major U.S. databases, websites, and information networks concerning invasive species. Links will also be provided to websites in other nations that have active invasive species programs, particularly those cooperating with the Global Invasive Species Programme. The Council will develop and implement a memorandum of understanding among appropriate Federal Departments to establish an invasive species assessment and monitoring network comprised of on-the-ground managers of Federal invasive species programs.

The integrated network system will provide the Council and member departments' information regarding invasive alien species. It is a great way to communicate data to different agencies. The website will allow the Council to organize all

known invasive species data into a single system. Presenting the data in a unified form will allow for easier understanding by users, which is essential as this system not only benefits federal agencies, but also the general public. As access is provided to the general public, it is likely that the public's awareness and knowledge of invasive species will increase.

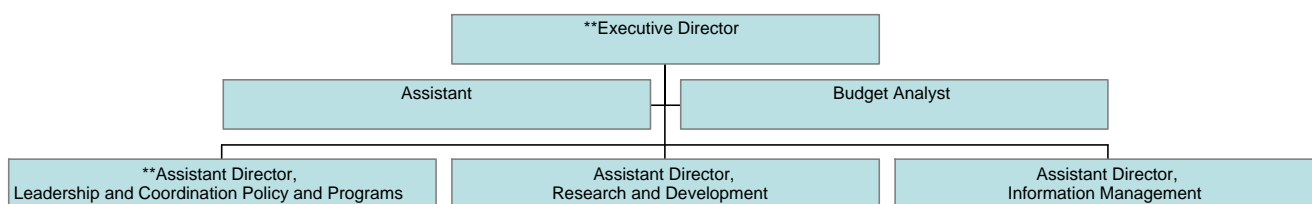
Organization and Staffing of the Council

In order to best accomplish the Program Design goals within the first year, the Council Staff will be reorganized along functional pillars. The reorganization will consist of three Sub-Offices dedicated to achieving each of the program objectives. These sub-offices are 1) Leadership and Coordination, 2) Research, and 3) Information Management. Three Assistant Directors will manage each of these sub-offices. These Assistant Directors will report to the existing Executive Director, and will be responsible for achieving the goals set forth by the Management Plan. Subordinate to the Assistant Directors will be line Managers who are responsible for various supervisory duties and specific performance targets. Finally, Coordinators will perform specific duties related to the goals of the sub-office and will report to the line Managers. In order to perform the goals set for the Council in the first year, the Alien Species Group proposes that a total of 12 full-time-equivalents (FTE's) be used. By the end of 2004, there will be a total of 24 staff members in the Council; additionally there will be two contracted positions.

To gain a better understanding of how the Council will function; the duties of the Executive Director, and Assistant Directors of each sub-office are outlined below. Additionally, an organizational structure is provided beneath the job descriptions.

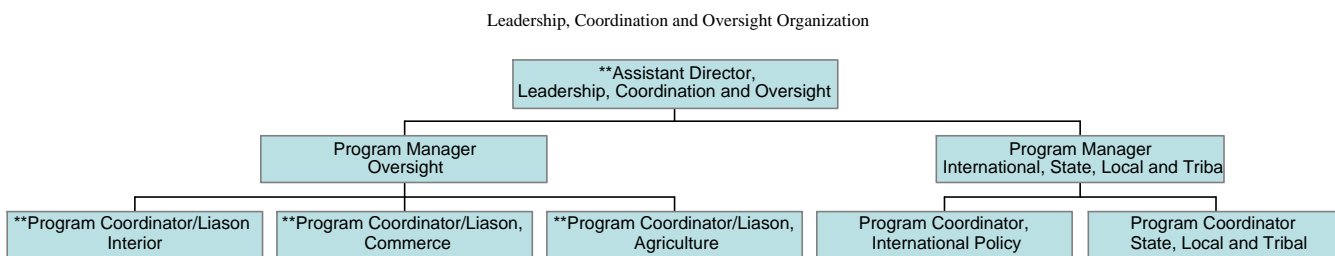
Executive Director, National Invasive Species Council

The Executive Director provides overall direction on national and international invasive species policy development and serves as the principle Council contact at the national level to Congress. The Director will provide an administrative overview for all affiliated Federal agencies, non-governmental organizations, States and local governments, and tribes. The Director supervises the Council staff, gives final reviews and recommends legislative proposals, and briefs top Federal officials regarding invasive species issues. The Director will also oversee the three Assistant Directors who will be coordinating and directing all Program Managers from the areas of Leadership & Coordination, Research, and Information Management. The present focus is on improving coordination and building partnerships with State and local governments.



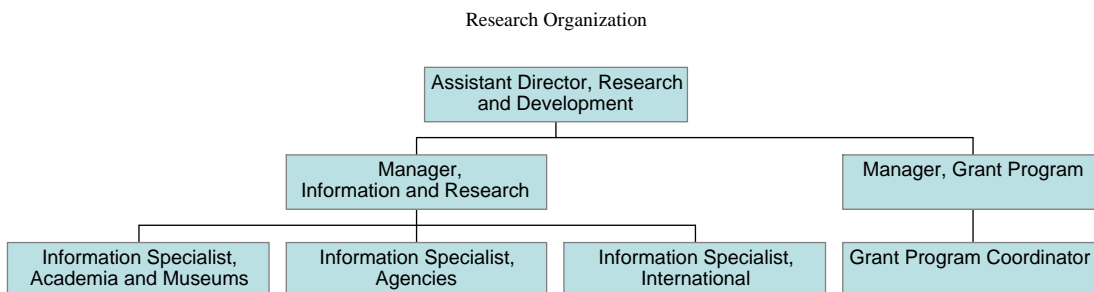
Assistant Director, Leadership, Coordination and Oversight

Under the general direction of the Executive Director, the Assistant Director will develop, coordinate, monitor and analyze all functions of the Leadership, Coordination and Oversight Sub-Office. The Assistant Director directly oversees the Program Manager of Oversight and the Program Manager of International, State, Local and Tribal Authorities. The Assistant Director will serve as an inter-departmental liaison between the Executive Director and the Leadership, Coordination and Oversight Sub-Office at large, ensuring oversight is both efficient and effective.



Assistant Director, Research

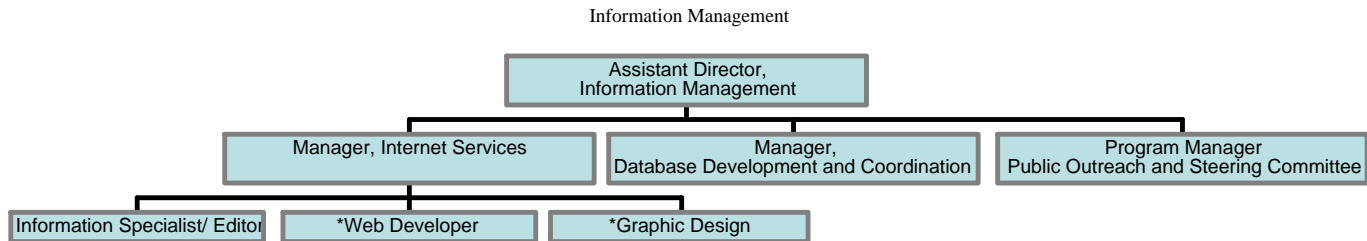
Under the general direction of the Executive Director, the Assistant Director will develop, coordinate, monitor and analyze all functions of the Research Sub-Office. The Assistant Director oversees the Information and Research Manager, as well as the Grant Program Manager. The Assistant Director will serve as an inter-departmental liaison between the Executive Director and the research branch at large, ensuring research is both efficient and effective.



Assistant Director, Information Management

The Assistant Director will report directly to the Executive Director. The Assistant Director is responsible for meeting the goals set forth by the Management Plan regarding Information Management. The Assistant Director will develop, coordinate, monitor and analyze all functions of the Information Management Sub-office. The Assistant Director oversees the Manager of Internet

Services, the Manager of Database Development and Coordination, and the Program Manager for Public Outreach.



Budget

Studies have shown that invasive species cause negative economic impacts in the order of \$137 billion per year. To meet the mission of the Council, especially to lessen the economic burden of invasive species, the Alien Species Group developed a reorganization plan that requires a minimal financial expenditure.

Council Administration

First, before discussing the new sub offices, let us discuss the expanded role of the NISC administration. Two new positions will be designated which will assist the Executive Director with the coordination of the Councils efforts. These new positions are the Assistant to the Executive Director and the Budget Analyst. The duties of the administration are management of the NISC, development of yearly budgets to be submitted to the Office of Budget and Management, and the drafting of quarterly “State of the NISC” reports to the political directors of the NISC. To this end, the Administration has a first year budget of **\$300,904**, which amounts to 20% of the NISC budget.

Leadership and Coordination

This sub office servers many of the functions that are managed by the current NISC organizational structure, however, we have stream-lined the structure to maximize efficiency and minimize waste. There are many current positions, such as the Assistant Director of Leadership and Coordination and the Departmental Liaisons whose duties are being slightly modified to suit the needs of the reorganization. In addition, four new positions are being created, including Program Managers for Oversight and International, State, Local, and Tribal Coordination (ISLT Coordination), and Program Coordinators for International and State, Local, and Tribal efforts. This sub office oversees and coordinates invasive species efforts at the international, federal, state, local, and tribal level through departmental liaisons and program coordinators. Also, it is responsible for the development of a transparent oversight mechanism by coordinating an oversight committee that reports quarterly. Being the top priority of the NISC, the Leadership and Coordination sub office has been budgeted 31% of the first year budget: **\$459,484**.

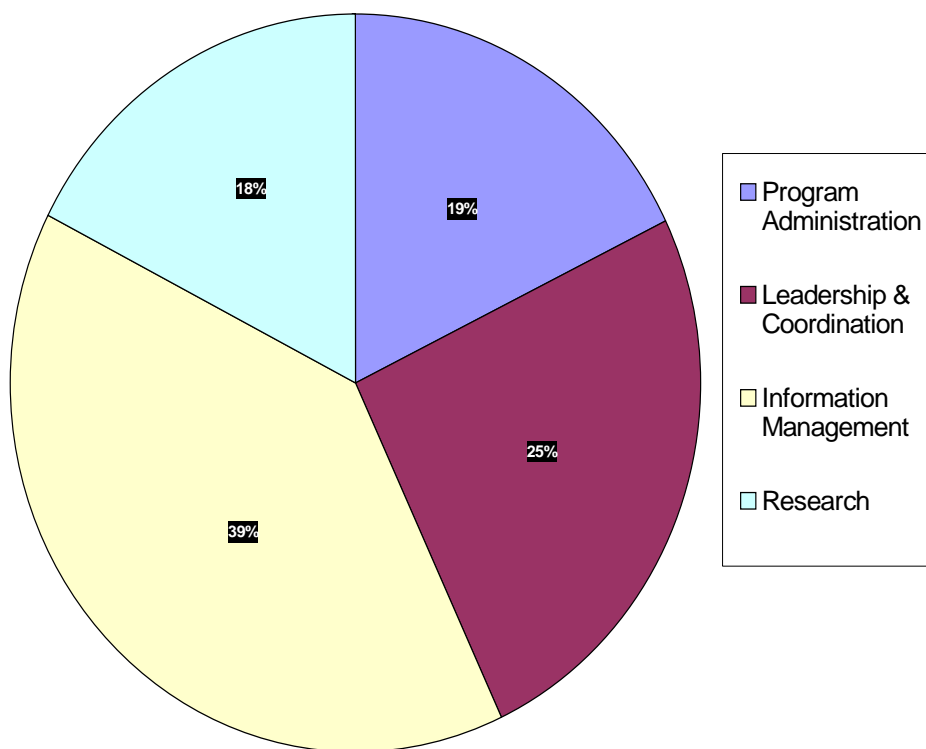
Research

This office will consist solely of seven new hires. The main objectives of the Research sub office is the development of a grant distribution program. To accomplish this task, the office will utilize Information Specialists to identify research priorities, a grant manager to design the grant program, and Program Managers to coordinate a research initiative committee to guide the tasks of the office. The Research sub office has been budgeted **\$362,883** which amounts to 24% of the budget.

Information Management

In this office we will create five new positions and outsource for Information Technology support. The goal of this office is to enhance and maintain the Council's primary public relations mechanism, their website. This will be accomplished through the development of a website steering committee and by adding examples of best practice, research findings, and coordinating the numerous invasive species databases. To this end, the Information Management sub office is allocated 25% of the budget at a cost of **\$381,861**.

Expenditures For the First Year



In total, the recommended reorganization will cost \$1.5 million dollars in the first year. This cost is miniscule compared to the \$137 billion that is spent in mitigation of invasive species within the United States per year. The majority of this cost is spent on increasing the staff of the NISC to adequately meet the goals of the Executive Order and the workplan. It is necessary to hire staff that is fluent in the areas of policy, science, and public management.

Performance Management

The overarching goal for NISC is to provide coordination between Federal, state, local and tribal authorities, to prevent negative impacts from invasive alien species on ecosystems and economies, through leadership, research, and information management. As the initial year of the program is devoted to the hiring of employees and development of the sub-offices, an incremental approach must be utilized when creating the performance indicators.

Criteria for performance measurement:

- Determine the capacity of the program to improve communication
- Determine the capacity of the program to provide funding for invasive species related research
- Determine the capacity of the program to improve the existing alien species database

Indicators

To assure the Council is achieving its goals, and moving forward in the fight against invasive species, indicators for success have been developed for each sub-office within four main categories (input indicators, output indicators, outcome indicators and impact indicators). Examples of indicators are listed below each sub-office.

- Input indicators which measure financial and non-financial resources; an example of an input indicator is the total expenditure for a sub-office
- Output indicators which measure the amount of product or services provided; an example of an output indicator is number of research project approved during a year
- Outcome indicators which measures the quantitative impact of the policy; an example of an outcome indicator is the number of hits on the Council's internet website during a month
- Impact indicators which will measure the impact of the policy on a broader picture; an example of an impact indicator is a survey to the database users.

Leadership & Coordination

The Council-appointed Task Force will develop an oversight mechanism in the form of an oversight policy, and prepare and compose monthly, quarterly and annual reports.

Input Indicators include:

- Total expenditures – personnel, travel, supplies, committee amenities
- Total task force hours devoted to information exchange, technical assistance, coordinating and monitoring consistency with the Order’s priorities.
- Total task force and staff hours dedicated to preparation and composition of annual report
- Total hours devoted to interagency meetings

Program Coordinators will collect data and report on a monthly basis to their Program Managers. Program Managers are responsible for drafting monthly progress reports to the Executive Director. In addition, the Executive Director is responsible for drafting quarterly progress reports on the progress of the National Invasive Species Council

Output Indicators include:

- Finalized and approved Oversight Policy by the Council and stakeholders. The oversight policy describes the actions the Task Force will initiate to implement appropriate sections of the management plan, areas that will be covered in the annual report and how actions taken by the task force will be identified and responded to by outside stakeholders.
- Completed quarterly reports
- Annual report submitted to the Task Force by members and stakeholders detailing the status on how members are fulfilling the management plan duties
- Complete set of measurable goals for the upcoming year identified and approved by the Council

Program Coordinators will collect data and report on a monthly basis to their Program Managers. Program Managers are responsible for drafting monthly progress reports to the Executive Director. In addition, the Executive Director is responsible for drafting quarterly progress reports on the progress of the National Invasive Species Council.

Impact Indicators

- A reduction in the number of redundant invasive species programs at the agency level

The Assistant Director, through the Agency Liaisons, will conduct an audit on the priorities of invasive species programs at the agency level. The Assistant Director will then recommend the redeployment of resources to the National Invasive Specie Council in order to avoid redundancy among the agencies.

Research

The Council along with appropriate stakeholders will convene and put together a proposal for an initiative to fund Federal invasive species research programs. These programs will align with programs identified to be priorities in the National Management Plan.

Input Indicators

- Total expenditures – personnel, travel, supplies, committee amenities
- Total committee hours devoted to grant initiative development
- Total staff hours devoted to organizing and communicating committee status

Program Coordinators will collect data and report on a monthly basis to their Program Managers. Program Managers are responsible for drafting monthly progress reports to the Executive Director. In addition, the Executive Director is responsible for drafting quarterly progress reports on the progress of the National Invasive Species Council.

Output Indicators

- Completed and approved research initiative fund

The Assistant Director, with the assistance of the Research Initiative Committee, have one year to complete a final draft of the research initiative. This will be submitted to the Executive Director and the National Invasive Species Council for approval.

Impact Indicator

- Proportion of relevant research projects evaluated and accepted as part of the initiative compared to total number of research projects submitted

Data will be collected by the Grant Division of the Research Sub-office. The Grant Program Manager will forward the data to the Research Initiative Committee.

Outcome Indicators include:

- Number of research priorities identified and their alignment with the management plan research goals
- Estimation of the total research fund amount
- Estimation of the number of grants that need to be written

Each Information Specialist will collect the data and forward it up the chain to Program Managers. Then the data will be reported to the Assistant director who will report to the Research Initiative Committee and the Budget Analyst.

Information management

A steering committee will convene quarterly to set and measure ongoing yearly objectives and goals for the maintenance and enhancements of the website.

Input Indicators include:

- Total expenditures – steering committee, travel, supplies, consulting personnel
- Total committee hours devoted to website enhancement
- Total staff hours devoted to website enhancement and maintenance

Program Coordinators will collect data and report on a monthly basis to their Program Managers. Program Managers are responsible for drafting monthly progress reports to the Executive Director. The Assistant Director is responsible for drafting quarterly reports on the status of the steering committee. In addition, the Assistant Director drafts budget requests to the budget analyst. With this data, the Executive Director is responsible for drafting quarterly progress reports on the progress of the National Invasive Species Council.

Output Indicators include:

- Number of case studies added to the website
- Number of links to relevant databases
- Number of links to State information networks
- Number of links to relevant global websites
- Number of internationally relevant agreements added to the website

This data will be collected by the Program Managers, based on changes made to the website by the Steering Committee, and implemented by the Website Designer and the Graphic Designer. These results will be sent to the Executive Director, who will generate reports on a quarterly basis.

Impact Indicators

- Online survey to collect feedback on enhancements to the website and to measure effectiveness by the users
- Number of responses from policy makers, scientists, teachers, etc. on enhancements to the website
- Comparison of the website from the baseline (beginning of the year) to the end of the year, in respect to the achievement of the website goals.

The Program Manager for Public Outreach is responsible for collecting this data, which will be measured in the form of an online survey. The survey will seek website-user responses to improve the service of the website. This data will be collected by the Web Designer and forwarded to the Steering Committee. These results will be sent to the Executive Director, who will generate quarterly reports.

Outcome Indicators

- Number of website hits to each of the categories listed in the outcome measures

This data is collected, via server software, by the Website designer. This data is then forwarded to the Steering Committee. These results will be sent to the Executive Director, who will make reports on a quarterly basis.

Reporting

During the first year of the program, there will be four required reporting methods; two monthly reports, quarterly status reports and an annual report. The monthly reports will be written as electronic documentation. The quarterly status reports will be written as electronic documentation that coincides with scheduled Council meetings. The annual report will be compiled at the end of the year and will include a written document and a presentation to the Council. These reports are described in further detail below:

Monthly project report: Monthly report will be developed using the data collected. The report will be sent to the program managers by the project coordinators. The report will analyze the data and make suggestions for long term and short term changes.

Monthly status report: Monthly report will be developed by the program managers, combining the reports sent by the project directors with their own data. The report will be submitted to the Executive directors. It will analyze the data and make suggestions for long term and short term changes.

Quarterly status reports: Quarterly status reports will be compiled by the Executive Director for presentation to the Council. Each sub-office must make one report every quarter. The purpose of the quarterly report is to provide an ongoing update on the attainment of goals set forth by the Organization and Staffing Plan, and the Master Calendar. Each manager will be responsible for reporting relevant data to the Executive Director. The Executive Director, with the help of his Assistant, will develop the report based on designated outcomes and performance measures.

Annual report: The Annual report must be made once per year and includes a written document and an oral presentation. It is the responsibility of the Executive Director to present the annual report to the Council. The purpose of this report is to provide an overview of performance data related to the attainment of first year goals and objectives. This report will be based on data collected throughout the year from each of the three sub-offices, as well as the quarterly status reports. When necessary, the annual report will include a discussion of obstacles that contributed to missed objectives and suggestions for future improvements.

Feedback

During the year, each report will require an evaluation and a reorientation of each aspect of the program, and will allow for minor changes in the management of the program made at each level of the hierarchy. This process should show some flexibility, which will allow for fast improvement of the program implementation management.

A more formal evaluation will occur quarterly, and at the same time as the Council's meetings. Each specific area of development will require evaluation and input from participating agencies and stakeholders, for instance, the evaluation of leadership and coordination activities will be made by the Council. Research objectives will be made by the Council and the research projects stakeholders. The information management evaluation will be subject to review by the website steering committee under the supervision of the Council. The fourth quarter evaluation will act as a comprehensive year-end report. The final evaluation will provide major policy enhancements for the program as a whole. The major modifications will be approved by the Council, based on suggestions from the Executive Director.

Timeline for Accomplishments in the Initial Year

The main initiatives that the Council will address within the first year revolve around completing the reorganization of the Council and associated staff members, initiating the documentary and performance management procedures, and completion of outlined goals for each newly created sub-office. Incrementally the appropriate staff will be hired into the Council and appropriate sub-offices. Initially, the Assistant Directors of each sub-office will be hired by March 22, 2004. The Assistant Directors will aid in the hiring process for the Project Managers, which will be hired by June 1, 2004; and the supporting staff will be integrated into each sub-office by October 1, 2004.

The reporting system and meetings schedule will begin in coordination with hiring of appropriate staff. The Leadership and Coordination sub-office will develop the Task Force and full implementation of the Oversight Mechanism by November 15, 2004; though the development of the Oversight Mechanism and creation of the Task Force will be occurring throughout the year. Additionally, the Leadership and Coordination sub-office will ensure that the reporting system is implemented and ongoing. The Research sub-office will continuously identify program initiatives in need of endorsement and funding. The Information Management sub-office will initially collect successful case-studies (though this too will be ongoing) and the enhancement and maintenance of the current website will begin June 7, 2004 and be continuously updated throughout the life of the Council.

Conclusion

Invasive species are one of the largest global challenges of the 21st century. This universal predicament does not recognize political boundaries and affects all ecosystems of the world. Invasive species cause harm to the environment by affecting genetic, biological and ecosystem diversity. Additionally, invasive species cause economic harm through impacting crops, the overall landscape and Gross National Product. Furthermore, they affect our health as direct disease vectors and by affecting the quality of our food and water.

In 1998, 500 scientists approached the U.S. government, imploring government to act; stating: *“We are losing the war against invasive exotic species, and their economic impacts are soaring. We simply cannot allow this unacceptable degradation of our Nation’s public and agricultural lands to continue.”* This statement encouraged the creation of Executive Order 13112, signed by President Bill Clinton 1998. The Executive Order outlined a national coordinated effort to reduce the negative environmental, economic and health impacts caused by invasive species.

The component of the Executive Order most pertinent is the creation of a National Invasive Species Council (NISC), which was tasked with developing and administering a National Invasive Species Management Plan. The core objectives of the Council are to prevent the introduction of invasive alien species, to control existing invasive populations, and to minimize economic, environmental, and human health impacts. To accomplish these core objectives it is imperative that the Council take key steps in leadership and coordination, research, and information management within the first year, and into the future. Providing a foundation for continuous implementation of invasive species programs, the Alien Species Group developed a mission statement.

Mission Statement: *To provide coordination between Federal, state, local and tribal authorities to prevent negative impacts from invasive alien species on ecosystems, health and economies, through leadership, research and information management.*

Guided by the mission statement, the National Invasive Species Council will reduce the threat posed by invasive species. By providing a unified and cooperative approach through the development of three sub-offices (Leadership and Coordination, Research and Information Management) the reorganization plan will minimize the spread and impact of invasive species throughout the U.S., and throughout the world. At a cost of \$1.7 million, the Council will mitigate the \$137 billion of negative economic impact caused by invasive species every year. The plan will not only lessen the economic losses, but will also aid in protecting our natural environments and the health of inhabitants of the United States of America.

APPENDIX

Contents of the Management Plan

- A review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species.
- Identification of the personnel, other resources, and additional levels of coordination needed to achieve the Management Plan's identified goals and objectives.
- Biannual updates and concurrent evaluation of success in achieving the goals and objectives set forth in the Management Plan.

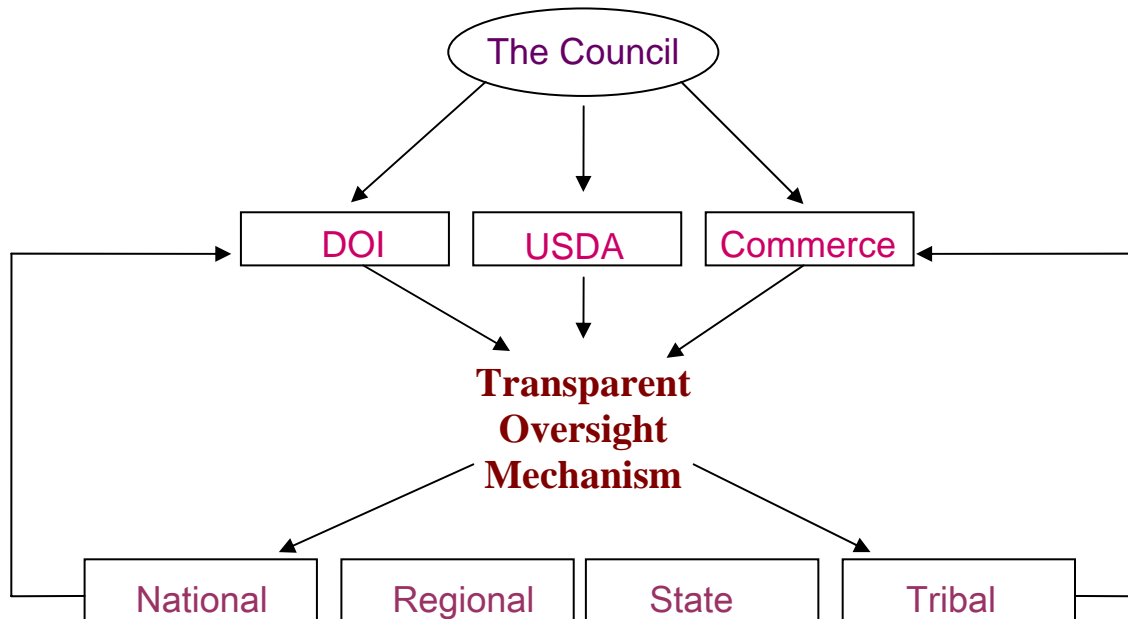
The Executive Order specifically calls for reliance on the following existing agencies:

- The Aquatic Nuisance Species Task Force
- The Committee on Environment and Natural Resources
- The Federal Interagency Committee for the Management of Noxious and Exotic Weeds.

Responsibilities of affected federal agencies

- Within 18 months of measures being issued by the Council, agencies must implement such actions or issue explanations why actions are not feasible.
- Identify agency actions that may affect the status of invasive species
- Prevent the introduction of invasive species
- Detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner
- Monitor invasive species populations accurately and reliably
- Provide for restoration of native species and habitat conditions in ecosystems that have been invaded
- Conduct research on invasive species.
- Develop technologies to prevent introduction
- Provide for environmentally sound control of invasive species
- Promote public education on invasive species and the means to address them
- 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 or elsewhere unless: pursuant to guidelines that it has prescribed, the agency has determined and made public its determination and that the benefits of such actions clearly outweigh the potential harm caused by invasive species.
- Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate.
- When Federal agencies are working with international organizations and foreign nations actions must be approved by the Department of State.

Transparent Oversight Structure



Master Calendar Here

ID	Task Name	Duration	Start	Finish
1	1.1 Arrangement of Office	66 days?	Mon 11/3/03	Mon 2/2/04
2	1.1.1 Office Space Assignment	66 days?	Mon 11/3/03	Mon 2/2/04
3	1.1.2 Furnish Office	66 days?	Mon 11/3/03	Mon 2/2/04
4	1.1.3 Buy Office Equipment	66 days?	Mon 11/3/03	Mon 2/2/04
5	1.1.4 Set Up and Install Equipment	66 days?	Mon 11/3/03	Mon 2/2/04
6	1.1.5 Phone/Ethernet Installation	66 days?	Mon 11/3/03	Mon 2/2/04
7	1.1.6 Arrange for all publications and s	66 days?	Mon 11/3/03	Mon 2/2/04
8	1.1.7 Purchase Office and Cleaning Sr	66 days?	Mon 11/3/03	Mon 2/2/04
9	1.1.8 Purchase Insurance	66 days?	Mon 11/3/03	Mon 2/2/04
10	Executive Meetings	266 days	Mon 12/1/03	Mon 12/6/04
24	Quarterly Meetings	136 days	Wed 1/7/04	Wed 10/6/04
29	3.1 Hire Staff	56 days?	Mon 1/5/04	Mon 3/22/04
30	3.1.1 Hire Assistant and Budget Analy	56 days?	Mon 1/5/04	Mon 3/22/04
31	3.1.2 Hire 2 Assistant Directors	56 days	Mon 1/5/04	Mon 3/22/04
32	3.2 Hire Staff	67 days?	Mon 3/1/04	Tue 6/1/04
33	3.2.1 Hire Program Manager Oversight	67 days?	Mon 3/1/04	Tue 6/1/04
34	3.2.2 Hire Program Manager Internatic	67 days?	Tue 6/1/04	Wed 9/1/04
35	3.2.3 Hire Manager Information and Re	67 days	Mon 3/1/04	Tue 6/1/04
36	3.2.4 Hire Manager Grant Program	67 days	Mon 3/1/04	Tue 6/1/04
37	3.2.5 Hire Manager Internet Service	67 days	Mon 3/1/04	Tue 6/1/04
38	3.2.6 Hire Manager Database Develop	67 days	Mon 3/1/04	Tue 6/1/04
39	3.2.7 Hire Program Manager Public O	67 days	Mon 3/1/04	Tue 6/1/04
40	4.1 Coordinate Liaison	61 days	Tue 1/6/04	Tue 3/30/04
41	4.1.1 Coordinate Liaison Environment	61 days	Tue 1/6/04	Tue 3/30/04
42	4.1.2 Coordinate Liaison Department o	61 days	Tue 1/6/04	Tue 3/30/04
43	4.1.3 Coordinate Liaison Department c	61 days	Tue 1/6/04	Tue 3/30/04
44	4.1.4 Coordinate Liaison Department c	61 days	Tue 1/6/04	Tue 3/30/04
45	4.1.5 Coordinate Liaison Department o	61 days	Tue 1/6/04	Tue 3/30/04
46	4.2.1 Assemble Liaison	12 days	Tue 6/15/04	Wed 6/30/04
47	5.1.1 Submit Progress Reports	131 days	Mon 6/14/04	Mon 12/13/04
52	5.1.2 Submit Quarterly Report	132 days	Tue 6/1/04	Wed 12/1/04
56	5.2.1 Submit Monthly Progress Repc	110 days	Thu 7/1/04	Wed 12/1/04
63	5.2.2 Submit Monthly Progress Repo	110 days	Thu 7/1/04	Wed 12/1/04
70	5.2.3 Submit Monthly Progress Repc	26 days	Mon 10/25/04	Mon 11/29/04
73	5.2.4 Submit Monthly Progress Repc	46 days	Mon 10/4/04	Mon 12/6/04
77	5.2.5 Submit Monthly Progress Repc	46 days	Mon 10/4/04	Mon 12/6/04
81	5.3.1 Submit Monthly Progress Repc	110 days	Thu 7/8/04	Wed 12/8/04
88	5.3.2 Submit Monthly Progress Repc	110 days	Thu 7/8/04	Wed 12/8/04
95	5.3.3 Submit Monthly Progress Repc	44 days	Fri 10/8/04	Wed 12/8/04
99	5.3.4 Submit Monthly Progress Repc	44 days	Fri 10/8/04	Wed 12/8/04
103	5.4.1 Submit Annual Progress Report	1 day	Wed 12/15/04	Wed 12/15/04
104	5.4.2 Submit Annual Report to Execult	1 day	Wed 12/15/04	Wed 12/15/04
105	5.5.1 Submit Annual Report to Council	1 day	Thu 12/30/04	Thu 12/30/04
106	6.1.1 Begin Development of Initiative to	1 day	Mon 6/7/04	Mon 6/7/04
107	6.1.2 Begin Maintaining the Council's	1 day	Mon 6/7/04	Mon 6/7/04

Program Budget for the First Year of Operation

National Invasive Species Council			
Program Budget	Time Used	Pay Plan	Cost/ Salary
<u>Program Administration</u>			
<u>Staff</u>			
Executive Director	100%	ES-0341-01/04	142,500.00
Assistant to the Executive Director	100%	GS-0301-10/1	44,098.00
Budget Analyst	100%	GS-0560-10/1	44,098.00
		Staff Base:	230,696.00
		Benefits (30%):	69,208.80
		<u>Staff Total:</u>	\$299,904.80
<u>OTPS</u>			
Office Supplies			1,000.00
		<u>OTPS Total:</u>	\$1,000.00
		<u>TOTAL:</u>	\$300,904.80
<u>Leadership & Coordination</u>			
<u>Staff</u>			
Program Manager: Oversight	100%	GS-0340-13/1	69,054.00
Program Manager: International, State, Local, & Tribal	100%	GS-0340-13/1	69,054.00
Program Coordinator: International	100%	GS-0301-11/1	48,451.00
Program Coordinator: State, Local, Tribal	100%	GS-0301-11/1	48,451.00
		Staff Base:	235,010.00
		Benefits (30%):	70,503.00
		<u>Staff Total:</u>	\$305,513.00
<u>OTPS</u>			
Office Supplies			1,500.00
Travel (15 people/Quarterly)			30,000.00
Committee Amenities			93,000.00
		<u>OTPS Total:</u>	\$124,500.00
		<u>TOTAL:</u>	\$430,013.00
<u>Information Management</u>			
<u>Staff</u>			
Assistant Director: Information Management	100%	ES-0340-ES-01/ES-04	129,874.00
Program Manager: Internet Services	100%	GS-0301-13/1	69,054.00

Program Manager: Database Development & Coordination	100%	GS-0301-13/1	69,054.00
Program Manager: Public Outreach & Steering Committee	100%	GS-0340-13/1	69,054.00
Information Specialist/ Editor	100%	GS-0301-11/1	48,451.00
Web Developer	100%	Outsource	32,819.00
Graphic Designer	100%	Outsource	32,819.00
Staff Base:			451,125.00
Benefits (30%):			135,337.50
Staff Total:			\$586,462.50
OTPS			
Office Supplies			1,500.00
Travel (10 people/quarterly)			20,000.00
Committee Amenities			62,000.00
OTPS Total:			\$83,500.00
TOTAL:			\$669,962.50
Research			
Staff			
Assistant Director: Research & Development	100%	ES-0340-ES-01/ES-04	129,874.00
Program Manager: Information & Research	100%	GS-0301-13/1	69,054.00
Program Manager: Grant Program	100%	GS-0301-13/1	69,054.00
Information Specialist: Academia	100%	GS-0301-11/1	48,451.00
Information Specialist: Agencies	100%	GS-0301-11/1	48,451.00
Information Specialist: International	100%	GS-0301-11/1	48,451.00
Grant Writer	100%	GS-0301-11/1	48,451.00
Staff Base:			165,956.00
Benefits (30%):			49,786.80
Staff Total:			\$215,742.80
OTPS			
Office Supplies			1,500.00
Travel (Info Gathering)			20,000.00
Committee Amenities			62,000.00
OTPS Total:			\$83,500.00
TOTAL:			\$299,242.80
Program Budget Summary			
		Total Salary:	\$1,082,787.00
		Total Benefits (30%):	\$324,836.10

		Total OTPS:	\$292,500.00
		TOTAL BUDGET:	\$1,700,123.10
Line- item Budget			
Personnel Services			
Salaries			\$1,082,787.00
Fringe Benefits (30% Base Salary)			\$324,836.10
Total Personnel Services:			\$1,407,623.10
Other Than Personnel Services			
Supplies			\$5,500.00
Travel			\$70,000.00
Committee Amenities			\$217,000.00
Total OTPS:			\$292,500.00
TOTAL BUDGET:			\$1,700,123.10

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