PROGRESS REPORT ON THE NATIONAL INVASIVE SPECIES MANAGEMENT PLAN

OCTOBER 2003

THE NATIONAL INVASIVE SPECIES COUNCIL

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I. INTRODUCTION & OVERVIEW

a. Overview of the National Invasive Species Council

In February of 1999, Executive Order 13112 on Invasive Species (Order) was issued in response to increasing harm caused by invasive species to the environment, economy, and animal and human health, as well as the need for coordination among diverse invasive species programs in multiple federal agencies. The Order established the National Invasive Species Council (Council) to coordinate federal invasive species efforts and improve their efficiency and effectiveness. The Council is co-chaired by the Secretaries of the Departments of Agriculture, Commerce and the Interior and includes the Secretaries of Defense, State, Treasury, Health and Human Services, Homeland Security, Transportation and the Administrators of the Environmental Protection Agency and the US Agency for International Development.

The Order also calls on the Secretary of the Interior to establish the Invasive Species Advisory Committee (ISAC). ISAC includes 29 nonfederal stakeholders and subject matter experts and is chartered under the Federal Advisory Committee Act to provide recommendations and advice to the Council. As provided in the Order, the Secretary of the Interior provides staff support for the Council and for the Council's advisory committee. In the past six months, a staffing plan was developed, approved and has been almost entirely implemented. By filling several critical staff vacancies, upgrading key staff positions and clarifying staff roles and responsibilities, the staffing plan has significantly augmented the Council's coordination capacity and expertise. Currently, the Council staff consists of seven incumbents, including: Executive Director, Assistant Director for International Policy and Prevention, Assistant Director for Domestic Policy, a Program Analyst, a Program Assistant, Secretary, and a Director of Outreach and Partnerships. In addition to Council staff, Policy Liaisons from the three co-chair departments are co-located with Council staff. The Council also receives assistance from member department detailees and interns that may be housed with the Council.

Overview of the Structure and Operation of the Council

Under the Order, the Council is charged with a long list of duties including: providing leadership and coordination on national invasive species issues; ensuring that the Order is implemented; encouraging planning and cooperative action at the state, local and regional levels; developing recommendations for international cooperation; developing, in consultation with the Council on Environmental Policy (CEQ), guidance to federal agencies, pursuant to the National Environmental Policy Act (NEPA), on prevention and control of invasive species; and facilitating the gathering and exchange of information on invasive species. One of the most important objectives of the Council is to draft and revise the coordinated blueprint or strategy to prevent and control invasive species, referred to as the National Invasive Species Management Plan (Plan). The Council issued the first version of this plan in January of 2001.

The members of the Council are the Secretaries (or Administrators) of the member departments and agencies. This high-level membership helps to ensure coordination and

cooperation at the highest levels of government. The Council meets at least twice each year to approve major policy decisions and discuss current invasive species issues. In 2003, the Council will meet three times. The third meeting scheduled for October 30, 2003, will be a joint meeting with the Invasive Species Advisory Committee (ISAC) to facilitate direct nonfederal stakeholder and expert interaction with the Council.

The three Council Co-chairs have each designated a "Principal" [Dr. James Tate for the Department of the Interior (DOI); Dr. Charles Lambert for U.S. Department of Agriculture (USDA), and Mr. Timothy Keeney for the Department of Commerce (DOC)] to prepare and lead the discussion for major policy issues that will be brought before the Council. The three Co-chair Policy Liaisons are co-located with Council staff and meet on a bi-weekly basis to plan Council activities and deal with daily Council operations. Each of the other Council member departments has designated a departmental representative, called a Policy Liaison, to serve as a liaison to the Council and provide coordination among the agencies and programs that deal with invasive species within their respective departments. The Council staff hosts meetings of all the Policy Liaisons about every six weeks. Representatives of other invasive species coordinating bodies also attend these meetings, including the Aquatic Nuisance Species Task Force (ANSTF) and the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW). The Order calls on the Council to coordinate and cooperate with these organizations.

Plan implementation activities are often, but not always, assigned to subcommittees or task teams, depending upon the nature and scope of the Plan action item under consideration. These groups include members of ISAC, representatives of Council member departments, and subject matter experts. The teams/subcommittees meet and share information, as needed, and membership may change frequently. Ten implementation teams have been established under ISAC to advise Council agencies on implementation of Plan action items. The total federal and nonfederal membership of these teams (including reviewers) is approximately 290. Often additional reviewers and information is sought in the drafting of work products (see Table III). Work products produced by the teams are presented in draft form to the full ISAC for review and recommendations to the Council. The Council seeks to ensure that all Council work products are scientifically sound, rigorously reviewed by a wide range of stakeholders and subject matter experts, and advance efforts to minimize the negative impacts of invasive species. The Council also hosts other meetings on specific invasive issues, including international invasive species issues, at the request of, or to inform, Council members.

Although complex, this multi-layered coordination structure allows the Council to conduct both routine coordination tasks and deal with higher-level national policy matters at the appropriate level. Invasive species issues are crosscutting among departments, programs, agencies, and geographic areas. Extensive coordination is essential and requires a commitment of human and financial resources. Agency and departmental staff within the Council member departments have demonstrated a commitment and support for coordinated invasive species efforts both at the staff and policy-making levels. The

continued success of the Council is dependent on the continued support and contribution of Council agencies and staff; and it is critical that these efforts be recognized and rewarded.

b. Overview of the first National Invasive Species Management Plan (Plan)
The purpose of the National Invasive Species Plan (Plan) as stated in the Plan … "is to provide a blueprint for federal action (in coordination with other nations, States, local and private programs) to prevent the introduction of invasive species, provide for their control, and minimize their economic, environmental, and human health impacts." The Plan was not intended to encompass every useful agency program or activity dealing with invasive species, but to emphasize the most important actions that could be taken building upon and enhancing existing programs.

The Council drafted the Plan with extensive input from ISAC and other stakeholders after the general public comment period. The Plan includes a list of 57 action items with 86 different subparts in nine different categories. Council staff estimates that of the 86 total action items and subparts, about 25 have been completed or established, 47 are in progress, and 12 have not yet been started. It should be noted that 51 of the 86 action items and subparts call for on-going coordination efforts and only 35 action items call for discrete actions that once completed will require little ongoing coordination. These results are summarized in this report and detailed in Tables I and II.

Most of the action items include specific deadlines that set an ambitious agenda for completing the Plan. The Council believes that the Plan's deadlines, although laudable, were overly optimistic given budgetary resources, administrative requirements, and planning and coordination called for to work across agencies and departments on complex issues. Despite these obstacles, significant and important progress toward implementing the Plan has been made thanks to the efforts of the Council, ISAC and many other stakeholders and federal, state and local officials who have contributed to the activities of the Council.

II. PROGRESS REPORT ON THE NATIONAL INVASIVE SPECIES MANAGEMNET PLAN

a. BRIEF SUMMARY OF PROGRESS

1. LEADERSHIP AND COORDINATION

Leadership and coordination is central to the mission of the Council and critical to the role that the Council plays in providing policy guidance, coordination and strategic planning. The Plan includes specific steps designed to strengthen leadership and coordination efforts. These steps are considered a critical part of any comprehensive plan to address invasive species issues. The Plan identifies 12 action items under this section (items 1-12, see Table I.). ISAC has monitored progress on these items with particular interest and requested regular progress reports on many of these items. Action Item 8 of

this section calls (in part) for the completion of a report on the success in achieving the goals of the management plan, by January 2003. The completion of this report fulfills this requirement. This section also deals with reporting requirements and measuring success under the Order and the Plan in order to track progress and ensure accountability.

The Council is in the final stages of adopting an oversight mechanism for use by federal agencies in complying with the Order and reporting on implementation as called for in the Plan. This mechanism is based on the procedure that has been used by the U.S. Coral Reef Task Force for the past several years. It calls for Council member departments to report on their plans to ensure that the Order is implemented and provides for a process for the public or other members to raise a concern about actions that may lead to the introduction or spread of an invasive species.

The Council prepared and submitted to the Office of Management and Budget (OMB) the first, performance-based invasive species crosscut budget for Fiscal Year 2004 in October of 2002, and is in the process of completing the same for FY 2005 as called for in the Plan. This was the first example of an inter-departmental performance-based budget proposal. ISAC members provided input and recommendations about their views on overall budget priorities. 20 federal agencies participated in the crosscut effort. The FY 2004 crosscut focused on three areas of the Management Plan, including: Prevention (pathways), Early Detection and Rapid Response, and Control and Management). The crosscut has been an important coordination and planning tool as well as a budgetary initiative. Council staff learned from the FY04 crosscut and worked with agency officials to improve the crosscut process for FY 2005 and broaden participation. Approximately 60 federal agency staff members have participated in the FY 2005 crosscut formulation process thus far. Although the Council missed the original deadline set in the Plan of FY 2003 for the completion of the first invasive species crosscut, the crosscut effort is an important leadership and coordination tool that is being enhanced and refined over time. Completion of the crosscut does require significant staff effort across all Council member agencies and programs and must be flexible enough to deal with multiple budget processes and deadlines.

This section also calls on each Council member department to submit annual written reports summarizing their invasive species activities. Council staff has worked with Council members to collect progress reports, budget information and updates on invasive species activities on a regular basis. To reduce the time and effort needed for compiling and issuing 10 or 11 separate reports, Council staff has put together program tables and progress report tables so that agency staff can submit information as part of a consolidated table. The Council, after consultation with ISAC, should consider whether these consolidated reports are adequate, or if individual, more comprehensive reports as called for in the Plan should be required. (See Table I./action item 4).

Both the Order and the Plan call for the Council, in cooperation with the Council on Environmental Quality (CEQ), to draft guidance to federal agencies based on the National Environmental Policy Act (NEPA) on prevention and control of invasive species. Council staff, with the assistance of Horst Greczmiel at CEQ and an informal

task team of policy and NEPA experts from Council member agencies, has prepared draft NEPA guidance that will be forwarded to the entire Council for additional input and review on November 1, 2003 (See Table I/ action item 12).

The Council is in the process of finalizing a proposal to complete a comprehensive evaluation of current legal authorities and regulations and how they can be better utilized relevant to invasive species. The Council expects to complete the evaluation before the end of 2004. The Department of Agriculture is providing support for the first stage of this effort. The Council has also held preliminary discussions about developing a process to assist with resolving jurisdictional and other disputes regarding invasive species issues, utilizing, to the extent practicable, existing dispute resolution processes and procedures. Staff resources have not been adequate to undertake a number of other items included in this section of the Plan, including the identification of barriers to coordinated and joint actions among federal agencies. Action Item 10 dealing with international coordination will be discussed in the International section of this report.

Both the Order and action item 8 of the Plan call for the Plan to be revised by January 2003. ISAC recommended during their meeting in March of 2002 that the Council delay beginning the process of revising the Plan until further progress could be made in implementing the current Plan and a report prepared summarizing progress under that Plan. The Council concurred with this advice. A timetable for revision of the Plan has not been set and will be discussed at the joint meeting of NISC and ISAC, October 30, 2003.

2. PREVENTION

An ounce of prevention is worth a pound of cure. This old saying could not be more applicable than for invasive species. The global movement of non-native organisms intentionally and unintentionally via people, commodities, and their conveyances provides a challenging backdrop for addressing prevention against the establishment of new invasive species. The Plan recognizes that no single approach will, in itself, be successful. It also recognizes that much of the movement of non-native organisms is an important component of trade and commerce. Successful approaches to prevention will need the support not only of many federal agencies but states, tribes and local entities as well as industry and other interests. Access to a variety of flexible tools is critical. Best management plans, codes-of-conduct, federal/state regulations, education and outreach efforts will all be part of a comprehensive and equitable strategy to prevent the introduction and spread of invasive species.

The Plan addresses intentional and unintentional introductions of invasive species in separate subsections. In the case of intentional introductions, the Plan calls for the careful development and testing of risk-based, screening (evaluation) processes involving relevant stakeholders in the development process. In addressing unintentional introductions the Plan calls for actions to identify, rank, and analyze pathways by which invasive species may be introduced.

Because of the potential for redundant prevention committees under the Council and the Aquatic Nuisance Species Task Force (ANSTF), it was decided to initiate joint committees to address screening, pathways, and risk analysis. The new prevention structure is composed of one prevention committee that will have five working groups (Pathways, Risk Analysis, Screening-Hawaii, Screening-Plants and Screening-Aquatics) under its auspices. Specific agency driven activities have already addressed parts of action items 14 and 15 dealing with setting up a screening process and identifying other methods to reduce the risk of intentional introductions. Progress has also been made on action item 17, calling for a process to identify high priority invasive species likely to be introduced into the U.S. One example of such progress was the joint Animal Plant Health Inspection Service (APHIS) /Department of Homeland Security (DHS) identification of joint organisms of concern. (See Table I./action item 17) Excellent progress has also been done on Action Item 20 by the NISC/ISAC pathways task team led by Faith Campbell of ISAC and Penny Kriesch of APHIS. The report called for in Action Item 20, identifying and ranking significant pathways for the introduction of invasive species, is nearly complete. The products and ongoing activities of these groups will be provided to the new working groups for evaluation or additional work if appropriate.

Since the writing of the Plan the Department of Homeland Security has taken over many of the ports-of-entry activities. The Council is already in communication with DHS but formal contacts have yet to be identified. Fish and Wildlife Service inspectors (DOI) are still separate as are Plant Inspection Station personnel (USDA-APHIS).

Progress has been made in implementing a number of items relating to ballast water. NOAA and the U.S. Fish and Wildlife Service have funded research on a variety of new technologies including filtration, thermal treatment, UV radiation, ozone injection, nitrogen injection, and other biocides. Some technologies already show promise and as part of a coordinated effort, the Maritime Administration of the Department of Transportation and US Geological Survey are providing testing platforms for full-scale tests.

The Coast Guard has initiated rulemaking on a ballast water discharge standard and recently announced development of a Programmatic Environmental Impact Statement with the opportunity for active public participation. Simultaneously, the International Maritime Organization is addressing a global ballast water standard. Finally, the Coast Guard has initiated rulemaking to make ballast water management mandatory nationwide.

The Animal and Plant Health Inspection Service has published its proposed rule for Solid Wood Packing Material (SWPM). Comments have been received and a final rule is expected before the end of 2003. The final EIS for the rule has been published and is currently available from APHIS. The International Plant Protection Convention global SWPM standard is currently in place.

Most future activities related to prevention will be assigned to the new working groups within the joint NISC/ANSTF structure. Some exceptions will occur when progress on more directed activities are better and more efficiently addressed by a specific agency within the federal government.

3. EARLY DETECTION AND RAPID RESPONSE

The recent discovery of the Northern Snakehead fish in a Maryland pond brought early detection and rapid response (EDRR) efforts to public's attention. By acting expeditiously to eradicate the voracious fish from an isolated pond, Maryland officials may have prevented the fish from spreading into the Chesapeake Bay. Federal officials within the Department of the Interior also acted quickly to ban the importation and transport of the Snakehead under their authorities. The costs associated with detecting, containing, and eradicating invasive populations, though substantial, are far less than those of long-term invasive species control and management programs and the greater economic and environmental costs of widespread invasions. The ISAC recognizes the importance of EDRR and has recommended that the Council emphasize advanced planning, preparedness, and decisive coordinated responses to invasions. The Council has assigned a high priority to EDRR efforts, and the implementation of this part of the Plan. Ensuring that species are identified early and responded to in a timely fashion poses a number of complex challenges for federal and state entities. Partnership efforts that include a wide range of governmental and nongovernmental organizations are considered critical to successful EDRR efforts.

The Plan emphasized a comprehensive and step-by-step approach to improving both early detection and rapid response capacity and readiness. During the last year, the Council examined and analyzed a wide range of existing and ongoing EDRR efforts, and working with a number of experts drafted a set of Early Detection and Rapid Response Guidelines. Rather than a definitive, one-size-fits all system, these guidelines build upon past work and extensive analysis of existing infrastructure. A key basis of the guidance was the analysis and report completed by Jim Worrell of the Forest Service. Mr. Worrell's report analyzed most of the major early detection and rapid response efforts to date and derived the key components of those systems. These efforts included draft and complete plans by ANSTF regional panels, including the Western Regional Panel's EDRR plan completed in early 2003. In addition, the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW) has completed a two-year effort to draft a conceptual design for an EDRR system for invasive plants.

The EDRR Subcommittee set up under ISAC included a number of federal and nonfederal experts and stakeholders. The Subcommittee analyzed and synthesized a large body of information -- including the efforts described above -- and drafted general guidelines to assist in the establishment or evaluation of EDRR systems. These guidelines identify the important and essential elements of EDRR systems, and apply to all taxa, habitat types, and geographic scales. By identifying the core elements of EDRR systems, the guidelines increase the efficiency and effectiveness of planning and contribute to consistency among EDRR plans. By increasing the coordination of

existing EDRR resources, the guidelines contribute to Plan action item 23 that calls for the development of a program for coordinated rapid response. The guidelines also provide a context to consider legislative proposals to address EDRR, including options to provide enhanced funding, as well as technical and administrative support for EDRR efforts. The guidelines were considered by the full ISAC, which recommended that the Council adopt them. The Council directed the Council staff and Policy Liaisons to make any additional minor modifications and edits as necessary and finalize the guidance. The guidance was finalized in June of 2003.

Significant progress has been made in identifying taxonomic expertise, establishing EDRR teams, invasive species reporting, and instituting systematic monitoring surveys of specific locations for certain taxa and locations (see Table I./action item 23). Ongoing work continues to augment monitoring data for additional taxa and locations. Furthermore, NOAA, USGS and other partners completed a pilot project to set up an early detection and rapid response system for marine species in Hawaii. This approach may be expanded to other areas and taxa.

The authority, responsibility, and capacity to detect and respond to infestations often reside with State and local officials. However, because the potential range of many invasive species is large, stakeholders and sources of assistance may be far from the infested area. There is a recognized need for regional coordination and resource sharing. Council staff members have begun to identify mechanisms, such as those used to share resources among States during natural and man-made disasters and state/federal partnership agreements, which potentially could be used to share resources to detect and respond to invasions.

4. CONTROL AND MANAGEMENT

Some invasive species are too widespread for eradication to be feasible. In such cases, the most effective action may be to slow their spread or mitigate their impacts within infested areas through control and management actions. Control and management objectives may include: elimination (eradication) within a local area; preventing reintroduction following local eradication efforts; invasive population suppression; limiting dispersal; reducing infestations; and other diverse objectives. Resource managers, scientists and others involved in control efforts site: lack of sufficient training, lack of effective control methodologies; lack of assistance in complying with complex legal requirements; and insufficient resources, especially to control invasive species on federal land, as barriers to more effective and efficient control and management programs. The Plan calls for actions to address a number of these deficiencies.

The Plan calls for Council member agencies and departments to propose additional funding to enhance efforts to control invasive species on federal lands and prevent the spread of invasive species from federal to state and private lands. The FY 2004 performance–based crosscut budget proposal included control actions as a key component and proposed increases for targeted efforts to control Nutria, Asian Carp, Tamarisk (Salt Cedar), Giant Salvinia, and several other species on federal lands. In

addition, the National Park Service has established a number of strike teams that have treated thousands of acres of invasive plants on Park Service lands. (See Table II.) Despite some progress, resource constraints continue to limit control and management efforts and resource managers warn that even brief interruptions in control activities can undermine years of progress, if the invasive species becomes re-established or spreads.

In most cases, states and local governments as well as private landowners have the responsibility and authority for controlling invasive species on their lands. In recognition of this fact, the Plan calls for the Council to propose legislation to authorize matching funds and other incentives to state programs to manage invasive species – which often include county and local government entities. A number of bills have been introduced in the Congress to provide matching funds for state and county invasive species control efforts. Council member departments have provided extensive comments and testimony regarding this legislation. Several of the bills have passed either the House or the Senate, but have yet to become law. The Council continues to provide technical assistance on these and other bills authorizing assistance for control efforts.

In addition, several components in the Farm Security and Rural Investment Act that passed in 2002 address invasive species control efforts on working lands and in "set-aside areas." The Act authorizes -- but does not mandate – the use of some of the farm bill program funds to be used to manage invasive species.

Significant progress has been made by the U.S. Army Corps of Engineers in the identification of interconnecting water ways and research is being conducted concerning the effectiveness of electric barrier systems that could be placed at strategic control points to prevent inter-watershed movement of invasive species (see Table I./action item 30). However, the available pesticides and other methods that can be used if barrier systems fail or invasive species are introduced beyond barriers are extremely limited (see Table I./Plan action item 23). There is an on-going need to establish and maintain pesticide product registrations (see Plan action item 29).

Often program needs are far greater than available resources. Managers conduct extensive prioritization efforts to maximize the effectiveness of their resources in controlling invasive species. Plan action item #32 calls for the development of guidelines to assist invasive species project prioritization. The Control and Management Subcommittee has analyzed and summarized information obtained from a workshop and input from a wide variety of subject matter experts. Currently, draft guidelines are under review. These guidelines will assist in the prioritization of invasive species control and management project in minimally managed "natural areas." Enhanced prioritization will help maximize the use of existing resources and provide support to requests for enhanced funding (see Table I./ action items 27 and 31).

Progress has been made in establishing sanitation and exclusion methods for preventing the spread of invasive species by FS, FWS, DOD and other agencies (see Table I./action item 26). In addition, States and local governments have been very effective at establishing weed-free forage certification and labeling programs. However, drought in

the intermountain west has increased demand for forage, which may be supplied by sources in the Midwest and East. Research is needed to understand the potential invasiveness of Eastern species that may be moved in forage to the West. Federal agencies' sanitation programs are augmented by public outreach programs, such as the 100th Meridian effort to limit the westward movement of aquatic invasive species (see Table I./action item 18). However, maintaining public awareness of the actions that might lead to the spread invasive species requires an on-going effort.

Progress is also being made in the training personnel in Integrated Pest Management (IPM) techniques. Council staff members contributed to joint IPM training for NPS and FWS resource managers in 2003. A proposal to provide federal government-wide IPM training and certification has been developed by CSREES (see Table I./action item 29), and an invasive species workshop on this topic to be led by CSREES has been scheduled for April 2004. In addition, the Invasive Plants in Natural and Managed Systems and 7th International Conference on the Ecology and Management of Alien Plant Invasions meeting will be held in November 2003 that will examine IPM and training related issues.

5. RESTORATION

Certain large scale environmental disturbances and pervasive invasive species impacts can so alter conditions that plant and animal communities may be unable to recover without significant restoration efforts. Left unaided, areas continue to be vulnerable to environmental and economic damage and repeated infestations. Executive Order 13112 directs federal agencies to "provide for restoration of ecosystems that have been invaded." The selection of restoration materials and techniques can have a profound influence on plant and animals communities for very long periods. Restoration costs in some instances can be equal to or greater than the cost of removing invasive species. Challenging questions such as: "Will the area recover without intervention?"; "What condition should an area be restored to and at what cost?": and "Should non-native "ecological-bridge" species be used?" often must be addressed. Decisions may be complex; therefore, restoration can be one of the most costly, profound, and controversial, but also essential, invasive species actions. Challenges associated with restoration underscore the importance of prevention, early detection and rapid response, and control and management efforts that preserve plant and animal communities and promote natural recovery processes.

Although neither ISAC or the Council has established a restoration subcommittee or task team, progress has been made on identifying sources of propagative materials that can be used in restoration efforts in the context of efforts to deal with the aftermath of fires in the western U.S. (see Table I./ action item 33). This information is available through the Council's website, www.invasivespecies.gov. In addition, support for restoration activities following terrestrial invasive plant control efforts is included in pending legislation and certain programs within the Farm Security and Rural Investment Act of 2002 could be used to support restoration actions (see Table I./action item 34).

Ensuring adequate supplies of restoration materials is critical. Restoration materials provide a greater profit if they are sold as "locally adapted" for specific areas rather than on a wider market as "common" varieties. However, demand for locally adapted materials, especially when local demand is driven by unpredictable large-scale disturbances, is difficult to forecast and markets can range from very small local needs to markets that are far greater than supplies. This uncertainty increases the risk of private sector investment in producing restoration materials. In addition, research and specific technical information to support restoration actions is often limited. Research conducted in research plots may not be fully applicable to other locations and conditions. At a workshop co-hosted by Council staff, managers identified a need for more technical assistance in restoration efforts and developed a draft proposal to add restoration experts to the CSREES partner Land Grant University systems (see Table I./ action item 35).

6. INTERNATIONAL COOPERATION

Invasive species issues are global in scope. The U.S. cannot succeed in dealing with domestic invasive species problems without engaging international partners to address the global movement of invasive species. The Management Plan recognizes that increased attention for invasive species problems in the international arena, as well as a well-orchestrated U.S. focus on international policy and standards is vital to preventing the introduction and spread of invasive species.

A number of the action items under the International Cooperation category have been addressed through two active NISC working groups. Many federal international activities have been directed towards strengthening and expanding the development of invasive species issues within international fora during the past several years (see Tables I and II for additional detail). Global awareness of invasive species has greatly increased over the past three to five years. The United States has been actively engaged with international invasive species issues on a number of fronts and has taken the lead in the development of a number of international standards involving invasive species (solid wood packing material standard, environmental risk analysis standard, ballast water standard, animal health standards, etc.). In addition, a number of activities have taken place in international meetings relating to invasive species including a joint meeting between the Convention on Biological Diversity (CBD) and the International Plant Protection (IPPC) Convention on environmental protection issues including invasive species.

The NISC's International Invasive Species Working Group under the leadership of Dana Roth (Department of State) has been active in reviewing and coordinating activities under the OECD, IMO, IPPC, CBD, Ramsar Convention on Wetlands, CITES, NAFTA-CEC, APEC/ASEAN, SPREP, GISP and others (see Table IV). The following two activities, which are, in part, outcomes of the working group, are good examples of what is currently taking place.

- At the third Asia Pacific Economic Cooperation (APEC) Senior Officials meeting, Senior Officials from 21 economies endorsed a U.S. proposal to hold a

workshop with the goal of developing an invasive alien species strategy for the APEC region. The workshop will be crosscutting and invite broad participation from various APEC's Marine Resources Conservation Working Group (WP), Fisheries WG, Agricultural Technical Cooperation WG, Transportation WG, and Tourism WG.

- The Department of State, Bureau of East Asian and Pacific Affairs, has provided a grant to the Network of Aquaculture Centres of Asia-Pacific (NACA) and other collaborators to hold a workshop for the ASEAN region (Association of Southeast Asian Nations) to address transboundary aquatic pathogens and diseases, focusing on aquaculture. NACA has implemented workshops in the past focusing on aquatic invasive species and building capacity to identify and prevent fish pathogens and diseases.

The working group addressing the North American Strategy, led by Dana Roth (Department of State), has been active in identifying a number of existing tripartite international forums. This working group is examining policy options required to protect all of North America from invasive species. Along these lines, a preliminary meeting was held with Canada, which is in the final stages of drafting its own national invasive species blueprint or plan, to discuss bilateral invasive species issues and set the stage for future discussions on the North American strategy with Canada, the U.S. and Mexico.

A number of federal agencies have provided funds and expertise to help address invasive species overseas. This has continued through the traditional plant and animal protection international activities but is starting to branch out to include a wider invasive species scope. Two examples from USAID are good examples of these types of actions:

- A million dollar project funded by USAID via the African Trade and Investment Program (ATRIP) was provided to Tuskegee University and USDA-APHIS to jointly work towards strengthening Sub-Saharan Africa's ability to address invasive species under the requirements of the WTO-SPS Agreement. Representation from 15 African countries have already been involved in formal risk assessment workshops in Ethiopia, Ghana, Botswana and Kenya.

- The U.S. Agency for International Development provided funds through a limited scope grant to help finance the needed technical assistance to eradicate the invasive tree frog Scinax quinquefaciata, from Isabela Island (Galapagos National Park).

The Plan also emphasizes the importance of building capacity in other nations to deal with invasive species issues and the importance of sharing information and data on invasive species and species that may become invasive. The Department of State and the Global Invasive Species Program with support from the Council and in cooperation with a number of countries held international (regional) invasive species workshops in Brazil (2001), Zambia (2001), Thailand (2002), and Hawaii (2002). A final workshop is planned for 2004 in Ghana that will be implemented by CABI-Africa. Jamie Reaser

(formerly with the Council staff) and Dana Roth (Department of State) have been leading this effort. A number of new country assessments for identifying invasive species and the initiation of region wide invasive species databases have resulted from these workshops. The workshop reports will be finalized and published in the next three to six months.

Alexis Gutierrez has taken the lead on a joint GISP/USAID project on the problem of invasive species inadvertently spread by well meaning international assistance (one of the Management Plan's action items). The focus was narrowed to "*Linkages between Development Assistance and Invasive Alien Species in Freshwater Systems in Southeast Asia*". Alexis has completed the majority of the project including extensive travel to Southeast Asia. A final report should be ready in a few months.

There is much more that needs to be done to fully accomplish the International Cooperation action items. Indeed, most of these will always be ongoing and dynamic. Emphasis must be placed on increasing the communication between the various international activities that are taking place between departments and agencies. Better coordination and stronger communication between those federal and non-federal individuals that participate in the global arena on invasive species is vital.

7. RESEARCH

Research is an integral component of each aspect of the Plan. Basic research needs include (but are not limited to):

- Gaining a more thorough understanding of the biological basis of invasiveness;
- Identifying which species possess invasive characteristics so those species can be targeted for management attention, including prevention/exclusion;
- Developing an understanding of the consequences of invasions on ecosystems, trade, social systems, agriculture, and animal, plant and human health;
- Developing and testing environmentally sound invasive species control; and
- Improving the ability to assess and monitor invasive species populations.

The Plan identifies four action items in the research section. To address these items, ISAC formed a research subcommittee consisting of governmental (Council agency staff) and nongovernmental members. After several initial meetings, participation on the research subcommittee was low. The Council does not believe the lack of participation is due to lack of interest by the federal scientists and ISAC in research, but reflects the conflicting demands for participants time and the difficulty in developing a clearly prioritized research agenda for invasive species given the diverse research topics and great need for research in many different areas relating to invasive species issues. Nevertheless, research initiatives are being discussed in the context of the FY 2005 invasive species performance-based crosscut budget. The general approach is to include

research components within a number of invasive species initiatives as appropriate. One advantage of this approach is it demonstrates that the benefits of particular research proposals are clearly linked to solving specific invasive problems.

The three major accomplishments in the research area are:

First, USDA's Economic Research Service (ERS) has announced a competitive grant and cooperative agreement program on studying the economics of invasive species management. ERS has discussed and updated the Council and ISAC on this program several times over the past year. ERS also held a workshop to discuss the focus of the cooperative agreement program and receive input from a number of stakeholders and federal agencies. Three research priority areas were identified:

- The Economics of Trade and Invasive Species – evaluation of tariff and non-tariff barriers to trade in international agricultural markets and analysis of international rules and governance frameworks for invasive species regulation.
- Resource Implications of Invasive Species Policy Alternatives – deriving economic implications of alternative approaches to invasive pest exclusion; surveillance, management, and/or compensation; illuminating tradeoffs and informing resource allocation options in the multi-program context; and exploring the political economy and welfare implications of invasive species regulation.
- Bio-economic Integration and Risk Assessment – advancing the art and science of bio-economic modeling; externalities, public goods and non-market valuation in relation to invasive species; and incorporating risk and uncertainty in economic decisions concerning invasive species.

Second, the crosscut budget proposal for FY 2005 (under review) has a significant research component (see Table I./action item 46). [As of the date of preparing this report, the Council cannot divulge the details of this initiative.]

Finally, the ISAC research subcommittee discussed and proposed three overarching research issues that need to be addressed and can provide a framework for prioritizing and evaluating invasive species research initiatives.

The first overarching issue is: What characteristics (traits) are critical for an organism to become invasive, which includes the basic understanding of invasive biology (the why and when). This question would assist with improving screening methodologies andproved detection methods, understanding ecosystem impacts, and identification of characteristics to determine which species deserves management priority.

The second overarching issue is: Why do we care about invasive organisms? This question involves understanding the socio-economic impacts of invasive species. Research on this question could lead to improved quantitative analysis and modeling of socio-economic impacts of invasive species (such as valuation of market and non-market ecosystem services) and the economic consequences of control actions and avoided costs.

The third overarching issue is: What are we going to do about invasive species? This involves improving detection and control measures for invasive species. Research in this area could lead to an improved ability to identify and control invasive species as well as development of enhanced, environmentally sound invasive species control and restoration methods.

Much can be gained by collaborating with international scientists on invasive species issues in many regions of the world. A number of agencies within the Council have met with and worked with international scientists on invasive species issues over the past several years, including collaborations and meetings with scientists from China, Canada, Brazil. These specific activities are summarized in Table II. Now that the Assistant Director for International Policy and Prevention position has been selected, these efforts can be coordinated and further progress can be made on action item 44 dealing with strengthening international research collaboration and scientific exchanges.

8. INFORMATION MANAGEMENT

Data are needed to understand the distribution, dispersal, population dynamics, biology, ecology, environmental impacts, and economic costs of invasive species. Data are used to evaluate the effectiveness of prevention, early detection and rapid response, control and management, and restoration actions. Private, Local, State, federal, and international agencies collect data concerning invasive species that range from microorganisms to plants and animals that may be found in habitats that range from forests to oceans. Information may concern the invasive species themselves, other species, lists of technical information and experts, and other useful information. Important information may be extracted from datasets that are not primarily focused on invasive species. The number of data sources is large, complex, and growing. There is widespread agreement that information should be gathered and analyzed to produce the needed information, rather than creating a new overall invasive species data system. Although significant data sources are available, the data are scattered, fragmented, incomplete, and occur in a wide range of formats. Extracting useful information and analysis represents a significant challenge. The approach that has been recommended is to link existing data sources together and identify and fill gaps.

One of the Council's most important tools to assist and enhance the quality and accessibility of information about invasive species is the Council's website, www.invasivespecies.gov. The website is also the Council's primary outreach and education tool and only immediate link to the general public. Currently, the website is linked to over 4,000 sites and contains more than 350 pages of information (see Table I./ action items 47 and 52). The National Agricultural Library within USDA provides for the day-to-day management, design, and continuing enhancement of the Council's website, with support by USGS and the Council. Last year, NAL established a full-time position for the coordinator of the website, which will further enhance the capacity of the website. A Website Steering Committee was formed to guide its development in its early stages. Recently, several website "users" workshops have been held for DOI and USDA.

In addition, a number of case studies on successful control and rapid response efforts are available online. (See Table I./ action item 49). State and county distribution data are available for certain taxa of invasive species and in some locations (see Table I./ action item 54).

Monitoring standards that help standardize core data collected have been developed and are being used by many Council agencies (see Table I./ action item 50). However, the use of these standards may need to be strengthened by a MOU as called for in the Plan. In addition, the development of thesauri, such as those being developed by UC Davis, augments data integration. Cleary, the collection, storage, analysis, and dissemination of the significant amount of data required to deal with invasive species data requires sustained support.

Council staff members participated in DOI information quality policy development as mandated in Section 515(a) of (Public Law 106-554). Information quality processes that have been developed by each of the Council's agencies and bureaus will contribute to the development of guidance for managing information (see action item 51).

In addition, the National Institute of Invasive Species Science, led by USGS, will work to consolidate, coordinate, and analyze invasive species data. To encourage private-sector participation, data must be presented in a form that is consistent with confidentiality, security, and proprietary considerations. Information concerning the complex and growing amount of data concerning invasive species control methods, biology, ecology and distribution information is needed (see Plan action item 53). Information for certain taxa has been developed and is available. However, the data have not been compiled into a compendium. Work by CABI and others to develop comprehensive compendia of invasive species information continues, subject to the availability of funding.

Groups that could contribute to a larger integrated invasive species data system need support for their individual and collaborative efforts and to receive benefits for their participation. Benefits may include: additional funding, more extensive analysis of their data, greater recognition for their efforts, infrastructure support, such as website and data backups, and additional content and technical support. Without additional support there is little incentive for data managers to participate in integrated networks, and managers may become concerned about a loss of control over their data resources. The Council has a significant opportunity to help provide additional support and recognition for integrated invasive species data systems.

9. EDUCATION AND PUBLIC AWARENESS

Education and public awareness is identified as a critical component of the Management Plan due to several factors. First, a successful plan to address invasive species is dependent on the public's understanding and acceptance of the actions needed to address

the problem. Although awareness about particularly problematic species was considered high in the area these invasive species are found, general, overall public awareness about the scope of the invasive species problem was considered low. Secondly, the public's actions play a role in the introduction and spread of invasive species. Finally, the public is also critical to efforts to prevent, detect new species quickly, respond rapidly, and effectively control invasive species. Thus, both broad, comprehensive efforts to educate the public, as well as targeted messages designed to communicate to particular stakeholder groups and geographic areas are important components of education and outreach efforts on invasive species. The Plan also clearly recognized that the federal efforts are only one piece in a large puzzle of education and outreach efforts. Many of the outreach and education programs as well as educational materials are produced at the local, state and county level.

The Plan called for the development and coordination of a national public awareness campaign about invasive species. In order to ensure this campaign is successful the Plan called for an evaluation of existing public surveys about the awareness of invasive species and for a survey to fill in any gaps. In 2001, the Education and Public Awareness Task Team (EPATT) completed an analysis of existing attitudes and understanding on invasive species. The Team found that existing surveys were inadequate and called for a comprehensive survey to be done by an outside contractor with extensive public survey experience. The Team also drafted a work plan for identifying the contractor and conducting the survey. Efforts to identify funding for the national survey are ongoing.

It is known that federal, state, local and private entities have produced extensive and high quality materials on a variety of invasive species. The Plan called on the Council to catalogue and briefly describes initially invasive species educational materials, initially produced by federal agencies, so that more of these materials could be listed and accessed through the Council's website or other means. EPATT called on Council members to provide a detailee to complete this catalogue. A part-time detailee (Sea Grant Fellow) provided by the Commerce Department made extensive progress on cataloguing the materials available on marine (and aquatic) species. Additional staff resources are being identified to complete this important effort for both aquatic and terrestrial species.

In recognition of the importance of more targeted, directed public awareness efforts that involved state and local area officials, the Plan called for the development of a model public awareness program that included a mechanism to monitor success of the program. Although no single model program has been developed, several recent efforts may serve as effective models. The Aquatic Nuisance Species Task Force has developed a "Stop Aquatic Hitchhikers" campaign in partnership with the Sea Grant Program and several states targeting recreational boaters to reduce the spread of zebra mussels and other hull fowling organisms between bodies of water. On the terrestrial side, the U.S. Fish and Wildlife Service is working with the National Refuge Association on a pilot effort to marshal the efforts of volunteers in National Wildlife Refuge friends groups for invasive species early detection and control efforts. In addition, USDA's CSREES has created a pilot program to train Master Gardeners to educate gardeners about invasive species in their areas. Thus, there are a number of targeted education and outreach programs that,

once evaluated, may be able to serve as effective models for targeted education and outreach programs.

The ISAC Education and Outreach Subcommittee have made a number of recommendations to the Council to enhance outreach efforts. It has recommended that the Council complete and make available a series of case studies on the economic impact of a number of high-profile invasive species to better communicate the importance of the issue regarding species with which the public is familiar. The Forest Service is providing staffing assistance to complete the first case study, which will focus on Tamarisk (Salt Cedar). The Committee has also recommended featuring an "invasive species of the month" on the Council web site and through other means as an educational and outreach tool.

Invasive species is a global issue that must be addressed on a global scale. The Plan also calls for the Council to work with the Global Invasive Species Program and other entities to improve international education efforts (see Table I/ Plan action Item 57). Progress on this action item is addressed in the International section of this report.

Although all of the Council members consider education and awareness a critical area for the Council, lack of staffing expertise and resources was quickly recognized as hampering, accelerating progress in this area. Therefore, the Council's staffing plan included the new position of Director of Outreach and Partnerships to enhance the Council's efforts in this critical area. The Council hopes to advertise and fill this position before the end of 2003.

Table 1. Current status of the Management Plan implementation. The 57 Plan action items and action item sub-parts are listed individually in numerical order with a brief title. Plan action items and action items and sub-parts total 86. Of the 86 action items and subparts, 35 are characterized as "discrete" and 51 are characterized as "on-going". Discrete action items are those that require little on-going coordination and revision once completed. For example, action item #12 that calls for the development of NEPA guidance. Once completed, it is anticipated that this NEPA guidance will require little additional coordination. However, implementation of the guidance will be on-going. Discrete action items are characterized as either: Completed, Being Planned, or Not Begun Yet. On-going action items require continuing coordination. For example, action item #52 that calls for the Council's website to be linked to U.S. databases and websites. This will require an on-going coordination. On-going action items are characterized as either: Established, Being Planned, or Not Begun Yet.

Action Item #	Plan Section	Action Item Brief	Duration	Completed	Established	In Progress	Not Begun Yet	Products & Outcomes
1	Leadership	Oversight Mechanism for Federal agencies complying with the Order that engages public	Discrete			X		Potential model oversight mechanisms have been identified, model mechanism drafted & under review.
2	Leadership	Jurisdictional dispute resolution process defined & process in place.	Discrete			X		Potential dispute resolution mechanisms have been identified, including the Alternative Dispute Resolution which is already used by several Council members.
3	Leadership	Evaluation of current legal authorities & possible recommendations	On-going		X			Environmental Law Institute Study provided a review of state law, with recommendations. Funds are being sought for an up-date of Federal legal authorities currently in the Plan. Pending Federal & State Legislation is monitored.
4	Leadership	Each member submit Departmental IS Report & crosscut budget	On-going		X			Currently, departments report on Plan Action Item progress. Crosscut budget for FY04 Completed, Cross-cut of FY 05 in draft.
5	Leadership	Analysis of legal barriers & Federal interagency funds sharing MOU	On-going				X	Possible mechanisms for sharing resources between states has been identified.

6	Leadership	At least two Major Invasive species issues identified & addressed.	On-going		**X**			Cold tolerant bufflegrass research analysis completed. Analysis of the "Talent Decision" concerning the court interpretations of the Clean Water Act & pesticide labeling laws on invasive species actions completed. Additional issues being identified.
7	Leadership	Invasive species cross-cut budget submitted to OMB	On-going		**X**			FY04 Performance-based cross-cut budget completed. Categorical accounting of Federal spending on invasive species & FY05 cross-cut budget underway.
8	Leadership	Report every two years on the success in achieving goals of the Plan.	On-going			**X**		Systematic tracking & reporting mechanism identified & report is being drafted
9	Leadership	Assessment of EO 13122, pro	Discrete			**X**		A draft EO has been submitted to OMB & the membership of the Council has been up-dated.
10	Leadership	Convene an international agreements working group	On-going		**X**			Working Group has been active in reviewing and guiding I.S. activities in a number of international fora
11	Leadership	Prepare a joint invasive species work plan	Discrete			**X**		Nine Sub-committees or Task Teams have been established & are working on targeted action items projects. Some priorities for the two-year work plan have been identified.
12	Leadership	Provide NEPA guidance concerning invasive species actions	Discrete			**X**		NEPA Guidance has been drafted & is in review.
13	Prevention	Additional APHIS & FWS resources for port inspection.	On-going		**X**			Some port inspection duties of APHIS have been transferred to DHS, impact on port inspection for invasive species being determined. Port inspectors continue to be added.
14	Prevention	Develop a risk-based screening for first time introductions & also species already in trade.	On-going			**X**		Workshops in Maryland & St. Louis have made good progress. Joint NISC/ANSTF Prevention Committee has been approved and will continue work on this action item.

15a	Prevention	Recommendations for intentional introductions for animal biocontrol agents	On-going				**X**	
15b	Prevention	Recommendations for Intentional introductions to islands	On-going			**X**		International meetings concerning invasive species issues for the islands have taken place. Approval for a joint NISC/ANSTF screening working group for Hawaii has been established.
15c	Prevention	Recommendations for Intentional introductions plant propagative materials	On-going			**X**		Outcomes from workshops in Maryland & St. Louis have takien place. USDA-APHIS has continued work on the restructuring of Q-37 (Propagative Plant Quarantine). Approval for a joint NISC/ ANSTF screening working group for propagative plants has been established.
15d	Prevention	Recommendations for Intentional introductions of land animals.	On-going				**X**	
15e	Prevention	Recommendations for Intentional introductions of aquatic organisms.	On-going		**X**			Initial screening work occuring under an ANSTF committee. Approval for a joint NISC/ANSTF screening working group for aquaic organisms has been established.
16a	Prevention	Pathway Interdiction -Ballast-Research	On-going			**X**		Ballast water treatment research proposals funded & work being conducted.
16b	Prevention	Pathway Interdiction - ballast water treatment standards	Discrete		**X**			Rulemaking process has been initiated by USCG
16c	Prevention	Pathway Interdiction - Solid wood packing materials.	Discrete		**X**			May 03, APHIS published proposed rule to adopt the IPPC standards for SWPM. Standards approved March 15, 2002. Final EIS for the rule published.
17	Prevention	Process to identify high priority species	Discrete			**X**		Processes for plants & some other taxa established. Approval for a joint NISC/ANSTF risk working group for meeting this goal has been established

18	Prevention	Campaign for travelers to reduced risks	On-going				**X**	Work on action item #18 being done within work on action item # 56. APHIS currently conducts traveler information campaigns.
19	Prevention	Risk assessments for international assistance programs.	On-going				**X**	Work on screening will be relevant to international assistance programs.
20	Prevention	Implement a system to rank pathways	Discrete			**X**		A comprehensive set of pathways have been identified & criteria for pathway evaluations drafted. Approval for a joint NISC/ANSTF risk working group for meeting this goal has been established.
21a	ED&RR	Detection - Taxonomy Experts Lists	On-going		**X**			TRED database available on web. See:www.nbii.gov/datainfo/syscollect/tred/
21b	ED&RR	Detection - New parasites & pathogen detections methods	On-going			**X**		Promed & other databases identified. Plant & Animal Diagnostic Labs network developed by CSREES with Land Grant U. Diagnostic Centers have been established at key U.S. locations.
21c	ED&RR	Detection - Systematic Monitoring	On-going			**X**		Monitoring standards for terrestrial plants have been developed. Modeling efforts underway. Systematic monitoring efforts conducted in some locations & for certain taxa e.g., work by NOAA, USGS, & SERC
21d	ED&RR	Detection - More user friendly to report species & mapping high-priority species.	On-going			**X**		See ITIS Taxonomic Workbench for “user friendly” taxonomic data input. USGS has mapped West Nile Virus distribution in the US. Toll-free telephone number to report sightings of aquatic invasives to the NNASIS established.
21e	ED&RR	Early Detection Module	On-going		**X**			Collaborative NRCS & APHIS project; see <plants.usda.gov> Noxious & Invasive & Distribution Update modules
22	ED&RR	Global ED&RR expand regional networks	On-going			**X**		See:www.iabin-us.org. See: Promed for diseases

23a	ED&RR	Rapid Response - Interagency RR Teams	On-going			**X**		NPS's EMPT's established & expanding, & FWS Refuge System proposed strike teams for FY04. NRCS ED&RR policy drafted.
23b	ED&RR	Rapid Response - Testing RR methods	On-going		**X**			Council ED&RR guidelines identify effective rapid response elements finished. Analysis of Snakehead rapid response in MD published.
23c	ED&RR	Rapid Response - Policy & procedure revision.	On-going		**X**			Model ED&RR system analysis completed. ANSTF's, WRP completed ED&RR plan, other regional panels working on ED&RR plans. Council ED&RR guidelines completed. NEPA guidance drafted. Clean Water Act & FIFRA summary completed.
23d	ED&RR	Guide for RR teams	Discrete			**X**		Guidelines approved by the Council & released.
24	ED&RR	Draft Legislation for rapid response, permanent funding.	Discrete			**X**		Process started, ED&RR provisions in legislation before Congress. The FS implemented ED&RR funding mechanism for invasive plants in 2003
25	Control	International Information, technology, & technical capacity sharing.	On-going		**X**			Ongoing activity, carried out through regional workshops & international events. Barriers to international scientific exchange identified. Interactive database to share information on forest invasive species being developed, with the Chinese taking the lead.
26	Control	Adopt sanitation measures.	On-going		**X**			Methods for sanitation have been identified & adopted by Forest Service, DOD, NPS, FWS, & others.
27	Control	Legislation, for matching funds for State programs.	On-going			**X**		Legislation on noxious weeds, tamarisk, nutria, & other species have been introduced. ANSTF
28	Control	Accelerated biocontrol process	Discrete			**X**		Process for more rapid approval of biocontrol agents being drafted, elements have been submitted to FWS concerning threatened & endangered species.

29	Control	Pesticide personnel training, testing & maintaining registrations.	On-going		**X**			CSREES proposal for pesticide safety & education completed, model for Fed IPM training & certificaiton developed by CSREES. Sec. 18 permits obtained for brown tree snake control & other species.
30	Control	List of inter-connecting waterways & strategy for preventing inter-watershed movement.	Discrete			**X**		Mississippi River Basin data completed. Barrier system between Great Lakes & Mississippi River basins being tested. Proposal for second barrier being developed.
31	Control	Additional funding for control efforts requested, using volunteers wherever possible.	On-going		**X**			FY04 Performance-based cross-cut budget completed. Categorical accounting of Federal spending on invasive species & FY05 cross-cut budget underway. Analysis of volunteer efforts in early detection efforts completed.
32	Control	Guidelines for ranking & prioritizing control efforts	Discrete			**X**		Subcommittee has met & drafted project prioritization guidelines which are under review.
33	Restoration	Identify sources of propagative materials for native species	On-going		**X**			Website established plant materials see:http://nativeplants.for.uidaho.edu/network/search.asp Also see:http://plant-materials.nrcs.usda.gov/; 500 NRCS Plant Guides & Fact Sheets on-line see: www.plants.usda.gov
34	Restoration	Draft legislation for tax incentives for landowners to participate in restoration projects.	Discrete				**X**	Restoration mentioned as a component of management actions in pending legislation for Federal & State projects.
35a	Restoration	Guidelines & monitoring procedures - mandated by law- e.g., natural disasters.	Discrete			**X**		Guidelines for core monitoring data standards finalized for terrestrial systems.

35b	Restoration	Guidelines & monitoring procedures - appropriate use for native materials encourage management practices.	On-going			**X**		Terrestrial restoration extension specialist called for see:www.weedcenter.org/help/results.pdf. NRCS Plant Materials Centers are improving their capacity to support restoration.
35c	Restoration	Guidelines for restoring habitats, e.g., arid, & highly eroded, identify research needs.	On-going			**X**		Research needs identified see:www.weedcenter.org/help/results.pdf
36	Restoration	Overseas restoration project criteria	Discrete				**X**	
37a	International Cooperation	Agreements - strengthen & expand U.S. participation in standards & codes of conduct develop coordinated policies.	On-going		**X**			Council has been represented at regional international fora. A number of international standards relating to I.S. have been developed and adopted. Working group has been active in reviewing and guiding I.S. activities in a number of international fora.
37b	International Cooperation	agreements - analysis of limitations & strengths of existing international agreements	On-going		**X**			GISP conducted analysis, agencies primarily developing program of cooperation through GISP & other partners. DOS revised IPPC & furthered work on IMO, CBD and CEC. A working group has been active in reviewing and guiding I.S. activities in a number of international fora.
38	International Cooperation	Outline an approach for a North American strategy	Discrete		**X**			Strategy drafted & under review. A summary of international organizations that actively address invasive species is available. US postion on strat drafted & under consideration by Mexico & Canada.
39	International Cooperation	Establish process for USTR to include invasive species during trade agreement development	On-going		**X**			A working group has been active in reviewing and guiding I.S. activities in a number of international fora.

40	International Cooperation	Three technical assistance seminars in Africa.	Discrete				**X**	No agency has taken the lead to initiate this action item.
41	International Cooperation	International meeting technical & financial support	Discrete				**X**	This has been occuring within the activities of various agencies but no formal working group exists.
42	International Cooperation	Study international assistance as a pathway for invasive species inititated.	On-going		**X**			Action item near completion. USAID funding through GISP for report. Expected completion by 2004
43a	Research	Control catalog of existing control methods validation methods	Discrete			**X**		Interim monitoring standards established. Monitoring standards established. CAST IPM report finished.
43b	Research	Control catalog of treatment effectiveness protocols	Discrete				**X**	CSREES has planned a workshop to determine status & needs for invasives control & management.
43c	Research	Control catalog of adaptive management measures	Discrete			**X**		Control project prioritization guidelines drafted
44a	Research	Plan to strengthen international research collaboration	Discrete			**X**		Certain barriers to international scientific exchanges identified. Scientific specimen importation permitting requirements identified.
44b	Research	Plan to identify & strengthen training in technologies in U.S. & other countries.	Discrete			**X**		International exchange of scientist & maintenance of overseas laboratories continues. Sea Grant
45a	Research	Improve federal core research capabilities	On-going			**X**		Draft Council research portfolio started. Research components in the FY05 Cross-cut. NOAA established center of Aquatic Invasive Species research.
45b	Research	Enhance current competitive grants	On-going				**X**	Competitive grants programs in Council agencies continue. CSREES NRI & Critical Issues Grant Program received increases in FY03. Sea Grant & GLERL.
46a	Research	Cross-cut budget proposal to study invasive abilities of species	On-going			**X**		National Research Council report supported by APHIS

46b	Research	Cross-cut budget proposal for lag phase research	Discrete				**X**	
46c	Research	Cross-cut budget proposal to study invasive species effects on T&E species.	Discrete			**X**		Estimates concerning the proportion of T&E species impacted by invasive species have been developed
46d	Research	Cross-cut budget proposal to study invasive species effects ecosystem function.	Discrete			**X**		Estimates of fire frequency, water use, & other ecosystem effects have been conducted for certain species. NRCS Plant Materials Centers are evaluating the ability of native species to compete with invasive species in rangeland, riparian, & wetland systems.
46e	Research	Cross-cut budget proposal for monitoring protocols & impacts of management activities	Discrete			**X**		Monitoring protocols developed, tests of management action impacts being conducted for certain taxa.
47	Information Management	Maintain website & Steering committee	On-going		**X**			Website established & maintained. USDA workshop held. Full time coordinator hired, DOI workshop planned.
48	Information Management	Up-date on international agreements	On-going		**X**			see:http://www.invasivespecies.gov/laws/intllegal.shtml
49	Information Management	Case studies highlighting invasive species efforts	On-going		**X**			see:http:www.invasivespecies.gov/community/detexsum.shtml
50	Information Management	MOU for assessment & monitoring	Discrete			**X**		Monitoring standards established, MOU being drafted.
51a	Information Management	Information Management guidance concerning emerging technologies for information collection.	On-going			**X**		A focus area for the recently established National Institute of Invasive Species Science see:kiowa.colostate.edu/cwis438/niiss/index.html
51b	Information Management	Information Management guidance concerning standard protocols for information collection & sharing.	On-going		**X**			Systems for certain taxa have been established & monitoring standards for terrestrial systems established. For example, see:www.itis.usda.gov for taxonomy; www.ars-grin.gov/npgs/tax/ for plant data; http://www.gbif.org/links/taxo for international databases.

51c	Information Management	Information Management guidance concerning cost-effective means for sharing information & contacts.	On-going		**X**			Website redesign phase one completed. State weed contacts added. USDA website review completed, DOI website review scheduled.
52	Information Management	Website will be linked to invasive species sites.	On-going		**X**			Council's website has over 400 pages & 5000 links that are up-dated continually.
53	Information Management	Compendium of North American invasive species.	Discrete			**X**		USACE aquatic plants compendium completed. Information for several taxa available on the Council's website.
54	Information Management	Occurrence of invasive species by county.	On-going			**X**		Data for some taxa available in some states. New species & data continue to be added. NRCS has plant data by county for 37 states. Currently, data for 45 states on-line & updated module for new county record submissions.
55	Information Management	Profiles of currently regulated invasive species.	On-going		**X**			Over 50 profiles available, currently. Additional profiles are added to the Council's website, when data are available.
56a	Education & Public Awareness	National public awareness Campaigns identified & evaluated	Discrete	**X**				Existing national-scale surveys identified.
56b	Education & Public Awareness	National Campaigns existing public awareness information comprehensive assessment.	On-going			**X**		ANSTF portion done
56c	Education & Public Awareness	National Public Awareness Campaign model program	Discrete		**X**			Drafted, needing funding
57a	Education & Public Awareness	Develop series of educational materials	On-going			**X**		Written materials initiated for horticulture & pet industry, digital video conferences held through DOS. Seagrant materials available.
57b	Education & Public Awareness	Hold a series of regional international workshops	Discrete		**X**			Six of seven planned workshops to forge cooperation and raise awareness on invasive species have been conducted. The final workshop to be held in Accra, Ghana in February 04.

Totals				**1**	**32**	**41**	**12**	34 = Number of Discrete Action Items
% of total				**1**	**37**	**48**	**14**	52 = Number of On-goinig Action Items

Table 2. Efforts to implement actions called for in the National Invasive Species Management Plan. The 57 Plan action items and action item sub-parts are listed individually by number with a brief title. This format is used to systematically list efforts associated with the implementation of Plan action items.

Action Item #	Plan Section	Action Item Brief	Implementation Efforts
1	Leadership	Oversight Mechanism for Federal agencies complying with the Order that engages public	
2	Leadership	Jurisdictional dispute resolution process defined & process in place.	Symposium held on dispute resolution held. A Federal leadership team has met.
3	Leadership	Evaluation of current legal authorities & possible recommendations	USDA provided partial funding for an analysis to be prepared by the Environmental Law Institute.
4	Leadership	Each member submit Departmental invasive specie report & crosscut budget	
5	Leadership	Analysis of legal barriers & Federal interagency funds sharing MOU	
6	Leadership	At least two Major Invasive species issues identified & addressed.	
7	Leadership	Invasive species cross-cut budget submitted to OMB	Crosscut budget work for FY 04, 05, & 06 on-going. ARS has participated FY '05 Crosscut Budget initiatives for: Emerald Ash Borer, ED&RR, Innovative Control.
8	Leadership	Report every two years on the success in achieving goals of the Plan.	
9	Leadership	Assessment of EO 13122, propose legislation to expand authorities.	

10	Leadership	Convene an international agreements working group	DOS coordinated inter-agency working group to address invasive species within the CBD for the SBSTTA 6 in 01. Inter-agency delegation discussed invasive species at the conference of the parties in 02. NRCS hosted international visitors from Brazil & from CAB International's Southeast Asia Regional Centre (Indonesia) to discuss invasive species. APHIS works with the OIE on animal heath i.e.. BSE & CWD. The goal is to develop international standards to approach invasive species issues.
11	Leadership	Prepare a joint invasive species work plan	FS completed a National Invasive Species Management Strategy tiers to the Plan. FS Chief has identified Invasive Species as one of the four major threats facing the FS. FS conducted a joint State & Private Forestry & National Forest System review of the invasive plant program in Region 1 & 4 (Idaho & Montana) being that the FS provided $25 million in funding, the FS has rotated the leadership within the FS Invasive Species Issue Team. FHP & Vegetation Management & Protection Research now sponsor the issue team. FS is conducting a review of it's invasive species research program.
12	Leadership	Provide NEPA guidance concerning invasive species actions	BLM is prepared a national programmatic EIS for all vegetation treatments including invasive weeds. FS is working with the Council to develop NEPA guidance for Federal agencies for invasive species.
13	Prevention	Additional APHIS & FWS resources for port inspection.	APHIS collects user fees for the AQI program which declined following 01. APHIS received an additional $30 milion in the FY 02 homeland security supplemental for various inspection related activities. In March 03, APHIS transferred approximately 2,500 inspectors to CBP in DHS. FWS did not hire new inspectors in 03, but will do so as resources allow.
14	Prevention	Develop a risk-based screening for first time introductions & also species already in trade.	Risk Assessment & Management Committee of the ANSTF is developing a screening mechanism for aquatics, committees now combined with Council Prevention WG. ANS in BWr Discharges: Issues & Options draft report 01, public comment period ended Jan. 02; Development of screening system-exotic arthropod biological control introductions; In 01, USDA & Council hosted a workshop at the U. MD to explore movement of plant propagation material. A paper for evaluating the invasiveness of non-native intentional introductions (screening process) being developed.
15a	Prevention	Recommendations for intentional introductions for animal biocontrol agents	
15b	Prevention	Recommendations for Intentional introductions to islands	Concepts & policies paper for evaluating the invasiveness of non-native intentional introductions (screening process) being developed & will refer to islands.

15c	Prevention	Recommendations for intentional introductions plant propagative materials	Implementation of the Safeguarding Review includes the revision of current APHIS regulatory & operating procedures, including CFR Part 319.37 that is related propagative material quarantines. PPQ WG overseeing tasks, including preparation of a work plan for an Advance Notice of Proposed Rulemaking. In 01 USDA & NISC hosted a workshop at the U. of MD re: int'l movement of plant propagation materials.
15d	Prevention	Recommendations for Intentional introductions of land animals.	
15e	Prevention	Recommendations for Intentional introductions of aquatic organisms.	ANSTF uses its 96 report "Generic Nonindigenous Aquatic Organisms Risk Analysis Review Process" for estimating risk associated with the introduction of nonindigenous aquatic organisms & determining options to manage for that risk. This report remains applicable.
16a	Prevention	Pathway Interdiction -Ballast-Research	Risks associated with NOBOB vessels being assessed by EPA. USGS Western Fisheries Research Center has established partnerships with west coast states, ports, other federal agencies, & Canadian institutions to initiate scientific studies in BW research. NOAA's Sea Grant program & the FWS have jointly conducted a competition on development of new BW technologies. USCG has identified development of alternative BW treatment technologies a priority for 01. FWS continues to work with NOAA & MARAD to administer the BW Demonstration Program. The 03 competition was cancelled due to a lack of adequate funding from partner agencies. FWS funded 3 projects in FY03 to further proposals submitted as part of the 02 competition. The 3 agency partners have planned a 04 competition. FWS participated in a NSF-sponsored workshop to engage water treatment engineers in BW technology development.
16b	Prevention	Pathway Interdiction - ballast water treatment standards	The USCG has the authority to set treatment standards. USCG is leading efforts calling for mid-ocean exchange of BW. USCG issued a notice of proposed rulemaking re: BW standards, & NOAA is providing technical assistance to the USCG to develop a discharge standard. USCG is leading a coordinated effort to evaluate BW treatment technologies through the EPA's Environmental Technology Verification Program. Furthering the necessary effort toward the development of a BW treatment standard, the USCG has begun an EIS for the BW discharg standard. EPA, NOAA & FWS have agreed to be cooperating agencies for the effort. Regional public scoping meetings to be held in late Oct. & early Nov. of 03. FWS continues to work with NOAA and MARAD to administer the BW Demonstration Program. The 03 competition was cancelled due to a lack of adequate funding from partner agencies. FWS works with NOAA and MARAD to administer the Ballast Water Demonstration Program.

16c	Prevention	Pathway Interdiction - Solid wood packing materials.	APHIS developed comprehensive regulations for importation of SWPM. ARS is working to develop monitoring traps for insects that may be transported on SWPM & work on fumigation technologies. APHIS is working closely with the int'l community in the development of 3 int'l standards (under IPPC) related to invasive species, the EIS, the SWPM standard & the regulated non-quarantine pest standard.
17	Prevention	Process to identify high priority species	International meetings have been held to id possible aquatic invaders from eastern Europe. APHIS contracted with professional societies to provide lists of the most harmful insect, weeds, & plant diseases that are not yet present in the U.S. APHIS's PRA procedure identifies pests that may be introduced. ARS has systematists id potential invasives & pathways. FWS uses Bait Import Analysis to understand & document the risk of harmful introductions possible through the bait industry & live passage of the New Zealand Mud Snail in trout stocking, ducks, & fish-eating birds. ARS conducts risk assessments for all biological control agents proposed for introduction & release in the US. FS through the FHP & IP are conducting pest risk assessments in China for all identified pathways. To prevent the introduction of species associated with research activities, ANSTF developed a research protocol to review research proposals. FWS reviews petitions under the Lacy Act.
18	Prevention	Campaign for travelers to reduced risks	To combat the spread of zebra mussels, FWS initiated (with ANSTF) a cooperative program for 1) a boat inspections & boater survey, 2) focus on boats hauled commercially & for professional fishing tournaments, 3) establishment of a monitoring network, 4) development of rapid response strategies, 5) & comprehensive evaluation of the effort; The APHIS's PRA procedure identifies pests that may be introduced with a particular commodity & estimates the probability is that a pest would be introduced & estimate what consequences. ARS has systematists that id potential invasives, chemists who develop insect monitoring traps; scientists who take part in action teams & import biological control agents; & int'l scientists who work on pathway identification. To reduce the live bait pathway, NOAA Sea Grant has developed a training curriculum & instruction manual using HACCP for use by wild bait harvesters & fish farmers. FWS expanded Stop Aquatic Hitchhikers public awareness campaign for boaters. FWS also uses its 100th Meridian Initiative to help prevent the spread of ANS & 100th Meridian Initiative is also targeting effort associated with Lewis & Clark Commemoration activities.

19	Prevention	Risk assessments for international assistance programs.	USAID's $150K grant provided funding for 2 regional workshops entitled "Prevention & Management of Invasive alien Species: Forging Cooperation throughout South & South East Asia" Aug. 02 in Bangkok, Thailand & Prevention and Management of Invasive alien Species: Forging Cooperation throughout the Austral Pacific Region was held Oct.02 in Honolulu, HI. It provided an unique opportunity to build upon existing regional programs & activities, such as the invasive species activities of the ASEAN's ARCBC & SPREP's Invasive Species Strategy, to develop a comprehensive approach to minimizing the spread & impact of IAS.
20	Prevention	Implement a system to rank pathways	NOAA conducting research to determine the level of risk associated with NOBOB ships entering the Great Lakes. Pathways subcommittee (joint ANSTF and Council) id pathways & developing ranking protocols.
21a	ED&RR	Detection - Taxonomy Experts Lists	ITIS addresses in part this action item. ARS has identified taxonomic experts who can help action agencies id specimens & has also identified gaps where there are no taxonomic experts in place. ARS conducted taxonomic research summit to help id taxonomic needs. TRED database available on web. ARS' USNPC is a definitive expertise source for parasites in NA ungulates. Globally, the USNPC provides systematics knowledge, predictive classifications, & information systems for animal health, food safety, & the environment. NOAA, USGS, & SERC started coastal monitoring system with uniform monitoring protocols, sites for baseline data collection, & monitoring.
21b	ED&RR	Detection - New parasites & pathogen detec-tions methods	USGS is monitoring the spread of WNV & conducting research on the role of migratory birds in disseminating WNV, methods can be used for other invasive agents like FMD, plague, & botulism. NOAA is working to develop a probe for Vibrio in water. ARS has developed a PCR-based method to detect SOD. ARS developed probe for pigs infected with CSFV isolate, Haiti-96. ARS developed a new citrus canker survey method that allows regulatory agencies to survey for disease & is being used to as a basis of International Phytosanitary Measures. ARS developed PCR assays for soybean rust. ARS scientists have screened horticultural species to evaluate their susceptibility to SOD. National Plant & Animal Diagnostic Lab network developed by CSREES with Land Grant U. established diagnostic centers in the U.S.

21c	ED&RR	Detection - Systematic Monitoring	DOT inventories State & Interstate road miles & shares data with TNC. EPA sampled benthos in estuaries of CA, OR, WA to determine if small estuaries are more invaded than large. USGS consolidates data, maps distributions, models spread, & develops web-based tools. NOAA held a workshop on data protocols. In FY 02, the IFAFS solicited proposals for volunteer monitoring surveys. AHPIS established Surveillance & Emergency Program Planning & Coordination group & it contains CAPS. NRCS is working to have 1400 invasive plant profiles on the web in 04. BLM & many other feds are implementing NAWMA standards to facilitate data sharing. In 01, FICMNEW convened a working group for ED&RR. APHIS provides data on likely invasion sites. Richmond U. assessed 16 volunteer ED efforts. BOR uses GIS/GPS to map, evaluate & analyze weed data. NOAA, USGS, & SERC establishing data for baselines, ED, & determine invasion processes, & they are devloping ED&RR systems for aquatics in HI in FY 04. NOAA works on monitoring in Nat. Estuarine Res. Reserves & has funded detection of decapods in reserves.
21d	ED&RR	Detection - More user friendly to report species.	APHIS has CAPS & NAPIS. ITIS provides a directory of common names & scientific names. NAS Database provides a central repository for spatially referenced biogeographic accounts of NAS & supports NNASIS. ARS, through the NAL, has developed the Council's website is linked to major invasive species databases. NOAA has developed a pilot project for monitoring & developing an ED&RR system in HI. BLM works with private, State, and Federal entities to establish CWMA in the West to id weed infestations. FWS supports NNASIS, operated by the Florida-Caribbean Science Center in Gainesville, FL, & the toll-free telephone number (800-8437-2744) to report sightings of aquatic invasives to the NNASIS. FWS supports a second toll-free number (800-786-7267) to report ANS sightings in western waters.
21e	ED&RR	Early Detection Module	Collaborative NRCS & APHIS project; see <plants.usda.gov> Noxious & Invasive and Distribution Update modules & and to provide an ED&RR mechanism for invasive plant species. The report function has been designed, but funding is needed to provide computer programming. The 100th Meridian Initiative has conducted numerous surveys of recreational boaters in the western States to facilitate ED&RR of aquatic invasive species.

22	ED&RR	Global ED&RR expand regional networks	IABIN is forming the Invasives Information Network (I3N), which is an alliance of 11 countries creating a distributed network to provide Web-accessible information on IS; DOS provided a grant to USGS to expand regional networks of invasive species databases (e.g., IABIN); INVADERS database (Univ. of MT) is included on FS rangelands website & contains exotic plant names & weed distribution records for 5 states. The FS helped to sponsor a regional workshop on forest invasive species in the Asia-Pacific Region which included participants from more than 13 countries that endorsed the development of an information network for forest invasive species in the Asia-Pacific Region. NAFC has a WG on invasive species. The Global Pest & Disease Database project at APHIS serves several functions in global surveillance. FWS supported the development of NNASIS, operated by the Florida-Caribbean Science Center in Gainesville, FL & FWS supports the Gulf of Mexico Panel of the ANSTF that is integrating several existing databases.
23a	ED&RR	Rapid Response - Interagency RR Teams	Each Regional Panel of the ANSTF is evaluating rapid response processes to ensure effective rapid response efforts. Five panels currently exist - Great Lakes, Gulf of Mexico, WRP, Mississippi River Basin, & the NEANS. WRP has completed their ED&RR plan. Teams have been established in the NPS & proposed for the FWS. FWS provides financial support to the five Regional Panels as part of its efforts to administer the ANS program. PPQ has established a new organization, Surveillance & Emergency Program Planning & Coordination, to provide policy guidance, coordination of support needs, & long-term planning for exotic pest detection activities & emergency program operations in the field. CAPS program is housed in this new unit. ARS participates in teams dealing for glassy winged sharpshooter, ALB, emerald ash borer, C. taxifolia, & lobate lac scale. APHIS's teams have eradicated END in poultry from late 02 to mid 03 by applying the ICS Incident Command System. In 03, APHIS opend its Emergency Operations Center for animal & plant health emergencies.
23b	ED&RR	Rapid Response - Testing RR methods	Council ED&RR guidelines id effective ED&RR elements finished. Analysis of Northern Snakehead ED&RR effort published. ANSTF's regional panels work on rapid response includes testing rapid response methods.

23c	ED&RR	Rapid Response - Policy & procedure revision.	ANSTF Identified ED&RR as a priority issue in its 5-year Strategic Plan. ANSTF will ask each of its Regional Panels to develop a contingency plan for ED&RR. WRP finished their plan. NEPA guidance drafted. IPM training program (both biological and chemical control methods) proposed by CSREES. Council provided both formal & informal input on needed legislation, budget priorities, the possibility of permanent funding for rapid response efforts, & matching grants to States to encourage partnerships.
23d	ED&RR	Guide for RR teams	ED&RR guidance completed by the Council. ANSTF's WRP has developed a Model Rapid Response Plan. See 23a above.
24	ED&RR	Draft Legislation for rapid response, permanent funding.	APHIS provided advice to Congress re: AHPA. ARS has identified taxonomic experts who help action agencies id invasives & has also id gaps where no taxonomic experts are available. FS implemented & ED&RR funding mechanism for invasive plants in 03. AHPA, passed in 02, it updates & clarifies APHIS authorities for emergency action & funding, including protection of farm-raised aquatic animals. PPA for plant pests was passed in 00.
25	Control	International Information, technology, & technical capacity sharing.	NAL established & maintains invasivespecies.gov. NAL hired a web coordinator for the site, & organized an internal committee to ensure progress & accountability. This site shares information and is linked to the GISP website. FS in part sponsored a regional conference on forest invasive species & agreed to establish an interactive database to share information on forest invasive species, with the Chinese taking the lead. DOS funding control measures with GLFC ca. $12 million/year. CSREES purchased Crop Protection, Forestry, & Animal Health Compendia from CABI BioScience & it will be available to the Land Grant U. Development of an Invasive Species Compendium for North America is being explored by CABI. Galápagos Islands have been named an Ecuadorean National Park. In 97-98 a frog (Scinax quinquefaciata) invaded three of the islands. In 02 the USAID (USAID/Quito), provided $133K to GNP for technical assistance to eradicate the frog, project expected to conclude in Jan. 04. FWS suppors scientific conferences as funding permits. A Canadian representative is invited to all the ANSTF meetings, & Regional Panels include international representation.

26	Control	Adopt sanitation measures.	ANSTF has developed a set of voluntary guidelines for aquatic recreational users to prevent the spread of ANS. FS, FWS, DOD, have established sanitation protocols for equipment. BLM is providing training & identified BMP for seasonal fire fighters to reduce the introduction or spread of weeds & revised its IPM internal agency directives to encourage decontamination of equipment & prevention of seed transport between work areas.
27	Control	Legislation, for matching funds for State programs.	ANSTF is working with others on the reauthorization of NAISA, which includes FWS grants to States for ANS control. BLM provided comments on proposed invasive weeds legislation. ARS has commented on legislation &
28	Control	Accelerated biocontrol process	NOAA Sea Grant funds biocontrol research & participates on the TAG for the release biological control agents. Suggestions for a more efficient review of potential biocontrol efforts concerning their impact on T&E species provided to FWS. BOR tests & uses biocontrol agents. FWS & APHIS review proposals to release new biocontrols agents. ARS has developed protocols for weed biological control agent development. FS id Garlic Mustard & Japanese Knotweed as
29	Control	Pesticide personnel training, testing & maintaining registrations.	An IPM website is available to FWS, NPS, & USGS. CSREES hired a NPL to work with EPA to facilitate development, testing & training of personnel concerning proper use of environmentally sound pesticides. CSREES has hired, in conjunction with the DOD, a NPL to serve as a liaison between the land-grant university system & the Army. Council-wide IPM training & certification initiative for federal worker has been drafted by CSREES.
30	Control	List of inter-connecting waterways & strategy for preventing inter-watershed movement.	List of connecting waterways developed by USACE. Research on dispersal barrier in Chicago Sanitary & Ship Cannel effectiveness on-going. Proposal to expand the barrier being developed. NOAA has contracted for a feasibility study on a dispersal barrier in the Champlain Canal.

31	Control	Additional funding for control efforts requested, using volunteers wherever possible.	IPM plans have been executed in all 5 BOR regions; FWS' Partners & Coastal Program restores fed & non-federal degraded habitats & the FWS provides financial & technical assistance to private landowners who want to voluntarily restore or improve fish & wildlife habitat on their land. DOT use IPM & gives guidance & technical support to 50 State DOT's that manage over 12 million acres. FS requests funds control efforts in the NFS & incorporates invasive species control into management plans. NRCS recommends IPM to control invasive species. FS developed & issued a Guide to Noxious Weed Prevention Practices. BLM works with private, State, & fed entities to establish CWMA. BOR has executed agreements with local entities & governments to control weeds on lands adjacent to BOR lands. BLM provided funds to the ID Dept. of Ag's CWMA & provides grants to control weeds. BLM provides funding the CIPM at MT State U. for grants & for weed research & control.
32	Control	Guidelines for ranking & prioritizing control efforts	NSF will participate in U. of MD project to develop a spatial decision support system to assist managers of natural lands in deciding how to allocate limited treatment funds among sites infested with harmful invasive plant species. Draft guidelines developed by Control & Management Subcommittee.
33	Restoration	Identify sources of propagative materials for native species	BLM is developing a restoration seed collection course & is cooperation with Royal Botanic Garden's to collect & increase native seed for restoration projects. Interagency coordination is on-going with FS, BLM, NPS, & NRCS to provide sources for native species for emergency fire rehabilitation, post-weed-removal treatments, & other projects. NRCS's Plant Materials Centers develop plants for conservation projects & is focused primarily on native plants. DOT hosted a national conference on seed supplies & conducted research & restoration activities concerning regarding the restoration of saltcedar control areas. ARS operates labs that develop native seeds & ecosystem restoration technologies. CSREES administered several Special Research Grants focused on invasive species & restoration totaling over $8 million in FY01.
34	Restoration	Legislation for landowner incentives for restoration projects.	Restoration mentioned as a component of management actions in pending legislation for Federal & State projects.
35a	Restoration	Guidelines & monitoring procedures - mandated by law- e.g., natural disasters.	State DOT's continue to specify native seed, as does the FS.
35b	Restoration	Guidelines & monitoring procedures - appropriate use for native materials encourage management practices.	Conduct intensive research & restoration activities regarding the restoration of saltcedar control areas. ARS operates several research laboratories that develop native seeds & ecosystem restoration technologies.

35c	Restoration	Guidelines for restoring habitats, e.g., arid, & highly eroded, identify research needs.	Working on a draft comprehensive "weed-free" policy on BOR revegetation projects. NRCS & CSREES provide advice on restoration activities.
36	Restoration	Overseas restoration project criteria	NRCS Plant Materials Centers are improving their capacity to provide native seeds & plants for restoration. ARS operates several labs overseas & in the U.S. that develop germplasm for revegetation efforts.
37a	International Cooperation	Agreements - strengthen & expand U.S. participation in standards & codes of conduct develop of coordinated policies.	DOS is working USCG, NOAA & other agencies to develop an international treaty (under the IMO) for ballast water. The DOS & NOAA are working through the APEC Marine Conservation WG & Fisheries WG to address non-native fish pathogens & infectious agents in aquaculture. APEC Workshop on A Risk Management Framework for marine pests held in Australia in 01. DOS represents the Council at regional international forums.
37b	International Cooperation	agreements - analysis of limitations & strengths of existing international agreements	Since their 10th meeting in 96, CITES has had discussions & activities about the trade in alien species, centered around cooperation with the CBD & with the IUCN/SSC Invasive Species Specialist Group. Council's WG reviewed activities under the OECD, IMO, IPPC, CBD, Ramsar Convention on Wetlands, CITES, NAAFTA-CEC, APEC/ASEAN, SPREP, GISP & others. USAID's grant funded an assessment on the "Linkages between Development Assistance and Invasive Alien Species in Freshwater Systems in Southeast Asia" that included 8 countries: Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand & Vietnam & focused on international assistance as a pathway, IAS impacts on international assistance, & international assistance projects that mitigate the impacts of IAS. This assessment is expected to be available before the end of 03.
38	International Cooperation	Outline an approach for a North American strategy	NOAA funded a workshop on ANS in Montreal by the CEC which was set up under NAFTA. Participated (via NABIN) in the CEC's meeting on "Preventing the Introduction & Spread of ANS in NA in Montreal (01). BOR participates in Lower Rio Grande Valley Aquatic Weed Task Force. USGS' BioBot is now integrated with ITIS & connected to Canada & Mexico. World Bank, the OAS & the USGS provided funds to convene the Second IABIN meeting in 02. SOLEC process uses AIS indicators to determine the status of Great Lakes ecosystems. DOT hosted Weeds Across Borders conference in 02. GISP conducted analysis, agencies primarily developing program of cooperation through GISP & other partners. FWS participated in the development of the NA strategy & participated with Canada & Mexico in the development of a CEC-sponsored ANS pathways workshop.

39	International Cooperation	Establish process for USTR to include invasive species during trade agreement development	No interagency consultations yet on establishing a process to consider invasive risks during the development of trade agreements. Potential for the spread of invasives is being considered during the ongoing environmental review for a Chile FTA. FWS provided technical & funds for the 12th International Conference on ANS & continues to participate in invasive species initiatives under CITES.
40	International Cooperation	Three technical assistance seminars in Africa.	No agency has taken the lead to initiate this action item. Funding needed.
41	International Cooperation	International meeting technical & financial support	DOT supported Weeds Across Borders conference in 02. FS helped to sponsor a Forest Invasives Conference in China in 03. 6 of 7 workshops to forge cooperation & raise awareness on invasives completed. Final workshop in Accra, Ghana in February 04 will bring African agricultural & environmental groups together. Previous workshops have been: Denmark (May 01), Coasta Rica (June 01), Brazil (October 01), Thailand (Aug. 02) & Hawaii (Oct. 02). ETC is working with TNC to followup on the Australia-Pacific workshop, a "Conservation Learning Partnership" to allow for natural resource managers to share their experience is planned. The 3rd APEC endorsed a workshop to developing an invasive species strategy for the APEC region hosted by China in 04 that will include participation from various APEC's Marine Resources Conservation WP, Fisheries WG, Agricultural Technical Cooperation WG, Transportation WG, & Tourism WG. NSF plans to contribute $100K to this workshop.
42	International Cooperation	Study international assistance as a pathway for invasive species	ARS conducts risk assessments so that the introduction of biological control agents is not a pathway for invasion into the U.S. ARS also operates several labs in the U.S. & overseas that contribute expertise to invasion pathway determination. A workshop to develop a cross sectoral strategy for the APEC region is planned for 04. China has recently offered to host this meeting. The NSF plans to contribute $100K to this workshop. Another $100K must be raised to hold the workshop. Further details will follow. (Also applicable to 57b).
43a	Research	Control catalog of existing control methods validation methods	IPM methods complied by CAST & now available. PMIS CD-ROM developed by USACE. 1000 weed CD developed by WSSA.

43b	Research	Control catalog of treatment effectiveness protocols	FS & others have adopted monitoring protocols that define "infested acre" & other units needed to collect standardized data concerning control effectiveness. Research on control methods effectiveness includes 1) the Coordinated Intermountain Restoration Project, which initiates studies with the BLM's Great Basin Restoration Initiative, & 2) Integrated Restoration Strategies Towards Weed Control on Western Rangelands, which examines prescribed fire, grazing, herbicides & plant competition. EPA research grants funded projects for Chinese Tallow Tree, Abiotic Controls on Invasive Species, Comparison of Forest & Shrub land, Ecology & Conservation Changes Due to Invasives, Green Mussel, invasions in forests of the eastern forests, Predicting the distribution & dominance of exotic species across landscapes of Southern Appalachia.
43c	Research	Control catalog of adaptive management measures	Control information for aquatic plants provided by USACE's PMIS. CSREES IPM adaptive management training & certification proposal being drafted. Workshop being planned by CSREES to determine the status & needs for the control & management of invasive species. Workshop is sponsored by USDA Invasive Species Coordinator's Budget Grant.
44a	Research	Plan to strengthen international research collaboration	ARS manages labs in China, Australia, Argentina, France, Italy, & Greece. ARS has many overseas colleagues & working relationships. USGS & IEE sponsored a U.S.-Russia Invasive Species workshop in Borok, Russia in 01.
44b	Research	Plan to identify & strengthen training in technologies in U.S. & other countries.	The USGS Great Lakes Science Center is signatory to the Program on Ecosystem Research & Management (PERM) with the Great Lakes Fishery Commission & Michigan State University. In FY2000 & FY2001, CSREES conducted a competitive grant program for invasive species within IFAFS.
45a	Research	Improve federal core research capabilities	CSREES's NRI annually funds approximately $2.5 million research on invasive species. USGS, EPA, FS, NOAA, & ARS have significant core research programs. USGS issued approximately $200K in grants for research projects in FY01. Project included: saltcedar control, identifying plants for revegetation projects, research on seed coatings, biocontrol demonstration projects, integrated methods for aquatic weed control, pest management techniques that reduce reliance on pesticides. NOAA's GERL conducts extensive studies of zebra mussel & other sp. impacts.

45b	Research	Enhance current competative grants	USGS held a program review in 00 & developed a 5-year plan for invasive species. NOAA Sea Grant conducts annual competitive research grant programs concerning ANS. In 99-00, 60 projects were funded on 34 species. DOT nominates & selects research for NCHRP Research & SBIR transportation research funding, many projects involve invasive species.
46a	Research	Cross-cut budget proposal to study invasive abilities of species	Crosscut budget work for FY 04, 05, & 06 on-going. Certain crosscut budgets contain research initiatives.
46b	Research	Cross-cut budget proposal for lag phase research	Crosscut budget work for FY 04, 05, & 06 on-going. Certain crosscut budgets contain research initiatives.
46c	Research	Cross-cut budet proposal to study invasive species effects on T&E species.	EPA funds projects concerning the impact of invasive plants on rare salamanders, hybridization between exotic & declining native amphibians, development of environmental indicators of coastal regions of the Great Lakes Basin, origins & hybridization of Tamarix, & variation in Phragmites.
46d	Research	Cross-cut budet proposal to study invasive species effects ecosytem function.	Crosscut budget work for FY 04, 05, & 06 on-going. Certain crosscut budgets contain research initiatives. NRCS is evaluating the impact of invasive species on native species in rangeland, riparian, & wetland systems; e.g., bluebunch wheatgrass on invading yellow star thistle, native grasses on cheatgrass, native species on purple loosestrife, Japanese knotweed, reed canarygrass, Russian olive, & hydrilla.
46e	Research	Cross-cut budget proposal for monitoring protocols & impacts of management activities	Crosscut budget work for FY 2004, 2005, & 2006 on-going. Certain crosscut budgets contain research initiatives.
47	Information Management	Maintain website & Steering committee	Steering committee established. FS maintains an invasive species websites & is funding the development of the Natural Inquiror on invasive species. ARS, through the NAL, has developed the Council's website & hired a web coordinator, & organized an internal committee to ensure progress & accountability. DOI & USDA user workshops held.
48	Information Management	Up-date on international agreements	Up-dates are posted when received.
49	Information Management	Case studies highlighting invasive species efforts	U. of Richmond early detection case studies posted.

50	Information Management	MOU for assement & monitoring	Monitoring standards (NAWMA standards) developed & are being used by BLM & many other Council agencies. Data standards for biological control agents being included in the NAWMA standards. NASIS reports of new species & sightings, & makes that information available. Protocols for inventory & monitoring of noxious weeds for the FS's NRIS database have been developed. The ITIS has assembled a directory of common names to accompany taxonomic names of invasive species, increasing standardization. NAS's website & database established as a central repository for accurate & spatially referenced biogeographic accounts of ANS. INVADERS databasecontains exotic plant names & weed distribution records for 5 states in the northwest US.
51a	Information Management	Information Management guidance concerning emerging technologies for information collection.	One if by Land, Two if by Sea" research & early detection initiative will integrate technologies. FWS supports development of the NNASIS, operated by the Florida-Caribbean Science Center (USGS) in Gainesville, Fl.
51b	Information Management	Information Management guidance concerning standard protocols for information collection & sharing.	Working with an interagency team to develop data standards for biological control, to be included as part of the NAWMA standards; Supports the NNASIS, operated by the Florida-Caribbean Science Center in Gainesville, FL, which gets reports of new species & sightings, & makes that information available; Several monitoring programs have been created, including: 1) the USGS Great Lakes Science Center, working with other agencies, states & tribes to develop an inter-agency Great Lakes Strategic Plan, & 2) "One if by Land, Two if by Sea" research & early detection initiative.
51c	Information Management	Information Management guidance concerning cost-effective means for sharing information & contacts.	Working with an interagency team to develop data standards for biological control, to be included as part of the NAWMA standards; Supports the NNASIS. ANSTF's Gulf of Mexico Panel is working to integrate numerous databases in such a way that one will be able to make one query & retrieve data on aquatic invasives from several databases.
52	Information Management	Website will be linked to invasive species sites.	Council's website contains ca. 400 pages & 7,000 dynamic links. One million hits in 03. Examples of links include: BLM's Weeds Website and the NRCS's NPDC's PLANTS database. PLANTS provides basic data and standards for most plant databases nationally. NRCS's NPDC is redesigning PLANTS to support the National Vegetation Classification & VegBank & is involved in the development of international botanical standards for information exchange. NAS, the website & database established as a central repository for accurate & spatially referenced biogeographic accounts of invasive species.

53	Information Management	Compendium of North American invasive species.	PMIS CD-ROM has been developed by the USACE. Subcommittee held workshop, Report in draft. CABI continues to explore compendium construction.
54	Information Management	Occurrence of invasive species by county.	Council's website is linked to the NBII. NAL will work with NRCS to develop links with PLANTS. Data for some taxa available in some States at a county level. New species & data continue to be added. NRCS has plant data by county for 45 states on-line and updated module for new county record submissions. State distribution maps are available for all states for all known vascular plants, county-level distribution is available for about 37 states.
55	Information Management	Profiles of currently requlated invasive species.	Over 50 profiles available, currently on the Council's website. Additional profiles are added when data are available.
56a	Education & Public Awareness	National public awareness Campaigns identifed & evaluated	Analysis indicated that no nation-wide surveys of public understanding of invasive species have been conducted. ANSTF continued to expand its "Stop Aquatic Hitchhikers" public awareness campaign targeting aquatic recreationists & also started the design of a second public awareness campaign targeting the pet & aquarium industry.
56b	Education & Public Awareness		NOAA's produceds PA materials for specific audiences & has catalogued their PA materials. Many agencies produced PA materials. For example, National Association of Counties & BLM have developed weed PA materials. BOR has developed PA materials for Giant salvinia, watermilfoil, hydrilla, & saltcedar & developed an IPM manual for BOR field staff. BLM has developed an PA website in with Florida State U. The BLM, FWS, FS, NPS, NRCS & NEETF together to mobilize communities to minimize the spread of invasive plants using both formal (k-12) & informal education. The BLM hosted a workshop for science teachers with the Partners in Resource Education (PRE) at the NSTA in 02. PRE is composed of education representatives from the BLM, FWS, FS, NRCS, NPS, the EPA & NEETF. PA materials have been made for the 100th Meridian Initiative. FS will publish the "Natural Inquiror" on Invasive Species with a broad circuation across the US. The FS published in 03: "The Weeds Report, Report on White Pine Blister Rust, & SOD: Protecting Americas Woodlands."

56c	Education & Public Awareness	National Public Awareness Campaign model program	Model program drafted by sumcommittee, but needs funding. Council's website provides PA. ANSTF is implementing a PA campaign. An Action Plan was developed to focus on PA. BLM partners with SCA Invasive Plant Teams that will develop & conduct community PA. A workshop on ANS & Aquatic Recreation was held during National Fishing & Boating Week to generate support for the guidelines developed by ANSTF & to gather input for NISA reauthorization. DOT conducts PA through a newsletter, Greener Roadsides. In November 00, CSREES committed $22K to develop a prototype web-based distance learning tool for weeds. In 01, CSREES & NRCS prioritized a series of goals & to developed action items for a Train Trainers for PA. USDA's exhibit showing the coordination of the diverse invasive species-related activities of USDA agencies for the Invasive Plants in Natural and Managed Systems conference in November 03.
57a	Education & Public Awareness	Develop series of educational materials	Materials have been written for the horticulture industry, digital video conferences held through DOS. NOAA's Sea Grant program has produced a wide range of educational materials.
57b	Education & Public Awareness	Hold a series of regional international workshops	DOS provided grants to the GISP to coordinate 7 regional invasive species workshops in 01-02 to address regional strategies for invasive species.