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1. Overview

To help counter the threat posed by invasive plants, The Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW)¹ conducted a workshop to lay the groundwork and to obtain stakeholder input for creation of a National Early Warning and Rapid Response System for Invasive Plants in the United States. The ultimate goal is to ensure that new and emerging invasive plants in all U.S. ecosystems are reported, assessed, and addressed as soon as possible. Timely knowledge of new county, state, and national plant records will better enable officials and organizations on the local, state, and federal levels, as well as private land owners to take appropriate action against newly emerging invasive plants.

Building on three FICMNEW National Weed Summits in 1995 and 1996, the first FICMNEW Planning Retreat in Shepherdstown, WV, in 1998, and other subsequent related

¹ FICMNEW's primary goal is to facilitate the development of biologically sound strategies for prevention and management of invasive plants on public and private lands in the United States.

projects,² the Committee convened a workshop to begin the development of the proposed system.

The workshop was held at the U.S. Geological Survey, Midcontinent Ecological Science Center in Fort Collins, Colorado, on June 21-23, 2000. It was facilitated by Paul De Morgan, a Senior Mediator with RESOLVE, with assistance from Jeff Citrin, an Associate with RESOLVE. The workshop was sponsored by the U.S. Department of Agriculture and the U.S. Geological Survey in the Department of the Interior.



The goals of the workshop were to:

- ❖ Further develop the concept of a National Early Warning and Rapid Response System;
- ❖ Develop the functional elements of a National System; and
- ❖ Identify and discuss next steps in the development of a National System.

The workshop began with a series of presentations to provide context for early warning development effort. These presentations included consideration of various models of early warning and rapid response systems used for pests of agriculture, and diseases of wildlife, livestock, and humans. A draft early warning concept paper was then introduced and discussed.

On the second day of the workshop, participants broke into working groups related to the five functional elements³ of the proposed system. Guided by the objectives and special considerations identified by the Workshop Steering Committee, and building on issues emerging from the presentations on Wednesday, Working Group members were asked to flesh out the functional elements as components of a nationwide system. On the final meeting day, the working groups reported to the plenary and discussed next steps in developing and implementing a nationwide system.

Workshop organizers recognized the importance of cooperation with state and local partnerships to the successful implementation of a National Early Warning and Rapid Response Plan for Invasive Plants. Consequently invited participants at the meeting

² These projects include:

- The National Weed Strategy: (*Pulling Together: A National Strategy for Invasive Plant Management*);
- The FICMNEW/National Fish and Wildlife Foundation Challenge Grant Program (*Pulling Together: National Weed Management Challenge Grant Program*); and
- The Weed Fact Book (*Invasive Plants: Changing the Landscape of America*).

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1. Scientific Aspects of Early Warning (Co-Chairs: Bill Gregg and Les Mehrhoff)
2. Operational Aspects of Early Warning (Co-Chairs: Randy Westbrooks and Roy Reichenbach)
3. Rapid Assessment (Co-Chairs: Bob Doren and Sarah Reichard)
4. Rapid Response (Co-Chairs: Bob Eplee and George Beck)
5. Public Outreach and Access to Information (Co-Chairs: Deb Hayes and Barry Meyers-Rice)

included representatives of foreign, federal, state, and local agricultural and land management agencies, environmental groups, the private sector, academia, international intergovernmental organizations, and other federal agencies. A list of participants is included as section XII of the proceedings. [Top](#)

2. WELCOME AND BACKGROUND

Executive Committee members Deb Hayes (USDA), Randy Westbrooks, and Bill Gregg (both USGS), welcomed participants and noted the context and scope of discussion to be covered at the workshop. Dr. Hayes observed that the need for an early warning system for invasive plant species has been discussed for well over a decade. She stated that although some of the invited participants were unable to attend, they will be informed through the proceedings of the meeting and their input will be solicited. The importance of broader stakeholder consultation, which would take place at a later stage, was also mentioned. Dr. Westbrooks encouraged participants to be innovative and “think outside of the box” in their consideration of strategies for developing a national system. Mr. De Morgan then noted the considerable work done by many individuals – some of whom were in the room – on the issues to be addressed and that the workshop would build on these efforts. [Top](#)

3. Early Warning and Rapid Response System Models in other Fields

Following these introductory remarks, participants heard from invited speakers on existing and in-process models for early warning and rapid response to invasive species and diseases, on national, regional, and global scales.

Global Early Warning System for Invasive Species

Laurie Neville (Stanford University) briefed participants on the Global Invasive Species Programme (GISP) now under development by an international consortium of organizations and individuals of diverse expertise. She explained that the GISP effort includes a global invasive species database (that covers all taxa) and an early warning system to facilitate prevention as well as control and eradication of such species. She noted that the GISP consortium seeks to establish additional partnerships to assist expanding the scope of the Programme and obtain additional resources to move forward. In response to a participant’s question, Dr. Neville cited the value of donated data and stated that the database will be shared. For more information, she recommended participants explore: <http://jasper.stanford.edu/gisp>. [Top](#)

North American/Inter-American Biodiversity Information Network

Jim Quinn (University of California, Davis) discussed several initiatives designed to integrate environmental data for use in public policy decision-making. The Inter-American Biodiversity Information Network (IABIN) is a pilot project to assist in the identification, assessment, and control of invasive species in the Americas. He explained that developers discovered that because several types of registries are available, a common structure and

language are needed for consistent reference. Dr. Quinn also provided information on the North American Biodiversity Information Network (NABIN), a parallel system under the North American Free Trade Act (NAFTA). He introduced *The Species Analyst* – Web address <http://chipolte.nhm.ukans.edu/nabin>, a distributed database for biodiversity information, linking institutions, and serving data to all potential users, which is a feature of the NABIN. This feature makes use of organism census figures and, based on environmental conditions, models where the organism may be expected to occur. [Top](#)

Infectious Human Diseases: Tracking Invaders in Public Health

Chet Moore (U.S. Centers for Disease Control and Prevention) reviewed his agency's approach to identifying, tracking, and preventing/controlling emerging and re-emerging disease infections. He cited domestic and international partnerships and enhancing the capacity of these partners as vital to these efforts. GIS and satellite imagery are among the tools used to identify risk factors. Dr. Moore suggested participants consult the CDC's *Preventing Emerging Infectious Diseases: Strategy for the 21st Century* – <http://www.cdc.gov/ncidod/emergplan> – as a resource for further information. [Top](#)

Livestock Pests and Diseases: Veterinary Services Activities Regarding Foreign or Emerging Infectious Animal Diseases

Vickie Bridges (Animal and Plant Health Inspection Service – Veterinary Services) discussed her agency's approach to early detection, reporting, rapid assessment, and rapid response of foreign and emerging infectious animal diseases. APHIS tracks and responds to veterinarians' reports of rare diseases. She explained that multi-disciplinary teams for Emergency Management Leadership and for Early Response as well as a Regional Emergency Animal Disease Eradication Organization are in place and available to rapidly assess and respond to outbreaks. These teams are supported by response plans, available for a variety of situations, that contain prepared, off-the-shelf response strategies. These plans include tools such as draft press releases and draft memos to be sent to the Secretary of Agriculture. For more information, Dr. Bridges suggested participants examine www.aphis.usda.gov/vs and in particular the section on emergency programs and the Center for Emerging Programs at www.aphis.usda.gov/vs/ceah/cei. [Top](#)

Agricultural Plant Pests

Al Tasker (Animal and Plant Health Inspection Service - Plant Protection and Quarantine) explained that that PPQ has many systems for surveillance, assessment, and response of crop pests. Dr. Tasker provided the example of *Caulerpa*, which, despite being identified in San Francisco Bay only days earlier, was already under study by a state led task force working to delimit the infestation and determine a proper course of action for addressing it. [Top](#)

Wildlife Pests and Diseases

Chris Franson (USGS) briefed participants on the work of the National Wildlife Health Center in Madison, Wisconsin, which conducts experimental study research as well as

diagnostic testing for infectious agents on wildlife, both in the field and laboratory. As an example, he described the effort surrounding the West Nile Virus in New York, and discussed the state/federal interagency surveillance group in which the Center participates. For more information, Dr. Franson suggested participants check the National Wildlife Health Center's web page: <www.usgs.gov/nwhc.html>. [Top](#)

Discussion of Presentations

In the discussion that followed these presentations, it was noted that:

- ❖ The experience with the West Nile Virus has helped to clarify roles, allowing for information sharing, and forging informal linkages between CDC, APHIS, USGS, and other agencies in some of their early warning/ surveillance activities.
- ❖ The use of regulated pesticides is often an important option in emergency situations where invasive species have been observed. Potential needs for the use of such materials should be documented before emergencies occur (e.g., in response plans) and therefore, improve coordination with the EPA in such situations.
- ❖ Surveillance and early warning Web sites and listservs should be archived (e.g., with an archiving program such as PathFinder) so that postings can be consulted when needed at later dates.
- ❖ Additional web pages identified as potentially useful to participants included: APHIS Weeds – www.aphis.usda.gov/ppq/weeds; and the Hawaiian Ecosystems at Risk Project – www.hear.org.

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4. Vision for a National Early Warning and Rapid Response System

In this session, Dr. Hayes discussed the need for a National Early Warning and Rapid Response System in terms of the national policy context. She noted that Executive Order #13112 specifically mentions the need for early warning and rapid response abilities. Similarly, the Invasive Species Council, the Invasive Species Advisory Committee, and FICMNEW all cite early warning and rapid response abilities as priorities. She pointed out that the Plant Protection Act includes both environmental (e.g., natural resource) and agricultural issues, so a variety of interests and agencies are likely to be involved. Dr. Hayes also noted that the ornamental plants and pet animal species are big loopholes that remain to be addressed in the control of invasive exotic species.

Dr. Bill Gregg spoke on the science framework of a National Early Warning and Rapid Response System for Invasive Plants. He noted that while there are many programs doing work related to identify and combat invasive species, the resources available to develop new technologies for early detection (e.g., remote sensing of new infestations) are insufficient.

Finally, Dr. Westbrook introduced the five functional elements of a National Early

Warning and Rapid Response System, as envisioned in the concept paper,⁴ and briefly reviewed two case studies involving related to Common Crupina (*Crupina vulgaris*) in Idaho and Giant Salvinia (*Salvinia molesta*) being spread as a contaminant in aquatic ornamental plants.

In the discussion of overarching issues and reaction to the concept paper that followed, participants agreed that long-established horticultural plants now being found growing out of control should be included in discussion of the National Early Warning and Rapid Response System. Funding issues were also of concern to many participants. It was noted that programs seeking funds from the federal government should remember that agencies are now planning budgets for Fiscal Years 2002 and 2003. Although the potential lag in funding is an important consideration, some agency funds are more flexible than others, especially those assigned to *emergency management*. Participants were instructed that financial issues should not constrain workshop discussion. [Top](#)

5. Working Groups

Participants were divided into five Working Groups, each of which was assigned to flesh out the key components of one of the functional elements. Participants spent the majority of the second day meeting in their Working Groups. In the middle of the afternoon, participants reconvened in two large groups to present draft report outs and receive feedback. After this session, participants reconvened in their Working Groups to prepare short written reports and presentations to be given to the plenary the following morning.

Scientific Aspects of Early Warning (Early Detection, Reporting, Identification, Vouchering, Notification, and Information Management)

The Working Group emphasized the importance of networking with organizations that influence the spread and control of invasive plants and/or have useful information resources to offer. They noted that in order to achieve high quality early warning capacity it is important to build a functional, distributed early detection system that receives reports and information from many sources and then takes action quickly. [Top](#)

Rapid Assessment

The Rapid Assessment Working Group focussed on defining considerations to guide the design of activities necessary for carrying out quality rapid assessment. They noted the need for the development of a nationwide rapid assessment tool, which would be available for states, counties, and others to adapt to their specific, local needs. The Working Group called for the establishment of a Statewide Weed Coordinator – though not necessarily a state employee – in every state. To facilitate data sharing and cross-linking of databases, they noted that a unified, common nomenclature must be adopted and implemented in these databases. The Working Group also called for conducting exotic outbreak exercises to

⁴ See footnote 3.

better ensure that the infrastructure is prepared to deal with outbreaks when they arise. [Top](#)

Rapid Response

The Rapid Response Working Group outlined an infrastructure for containing or eradicating outbreaks after they are identified. Activity would be coordinated within each state by a Statewide Invasive Species Committee, which would share information and work closely with a National Group of State Committees. They called for modeling rapid response teams on the processes used by fire response teams and by the Federal Emergency Management Agency (FEMA). In addition, the Working Group called for all decisions and actions to be made at the most appropriate local level. Public outreach considerations, funding issues, and potential barriers were also addressed. [Top](#)

Public Outreach and Access to Information

This Working Group called for the use of partnerships that can be used to both leverage experience and resources and also engage key target constituencies. Other themes included the development of educational resources and of channels for their dissemination. In addition, the Working Group noted the importance of providing two-way communication between the public and agencies running invasive species networks (e.g., through the use of volunteer programs, etc.). [Top](#)

Operational Aspects of Early Warning

This Working Group designed a National/State Operational Framework for an early warning system, including a discussion of the local, state, and national components. The framework defines some of the key actors and functions required and also lays out additional issues and considerations. This Working Group called for the establishment of a National Interagency Weed Coordinator to run the National Early Warning System, in close cooperation with FICMNEW and the ANS Task Force. They also called for the establishment of a single point of contact (Statewide Weed Coordinator), to work closely with the State Weed Team in developing and coordinating the Early Detection System within each state. The group also identified the barriers and opportunities to establishing and maintaining an early warning system. Where possible, they identified solutions to the identified barriers. [Top](#)

Observations and Additional Comments on the Working Group Presentations

Following the Working Group presentations, participants made the following observations and additional comments:

- ❖ Early warning and rapid response happens at the local level and is handled differently in various states and localities.
- ❖ Prevention and exclusion (P&E) are just as important as early warning. It is important that this group engage in a discussion of P&E.
- ❖ The Florida Exotic Pest Plant Council (EPPC) created a list of invasive species to exclude. Although nurseries do not like it, it is a useful tool for consumers. Other states may wish to

- create such lists for their area.
- ❖ A nationally accepted risk assessment tool that produces science-based, objective, and defensible assessments is needed. This tool should not include economic considerations.
 - ❖ National and international standards for early detection, rapid assessment, and rapid response are needed. A special expert workshop could be convened with the goal of producing these standards.
 - ❖ It is important to develop a realistic budget for weed control as Congress will not take weed issues seriously until the budget is substantial and their constituents speak with a united voice in raising this as a high priority for the nation. This will facilitate lobbying for additional funding.
 - ❖ Other public groups must be brought into the planning and implementation processes. We must each go beyond our usual groups to engage others. The challenge is how do we engage those who are not *at the table* to join us in discussing these issues. [Top](#)

6. Next Steps and Action Items

Participants ended the workshop by identifying a variety of next steps and action items to be taken to move forward in the design and implementation of a National Early Warning and Rapid Response System for invasive plant species in the U.S. (see Next Steps and Action Items).

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