

Developing a National Framework for Invasive Species Early Detection, Rapid Assessment, and Rapid Response

Success in this formidable undertaking requires input from the entire invasive species science community.

Background

Invasive species are plants, animals, or microorganisms that are not native to an ecosystem, and whose introduction can cause profound harm to the economy, the environment, and even human health.

Executive Order 13112, issued in 1999, mandated the establishment of the National Invasive Species Council (NISC), a U.S. federal inter-Departmental council to help ensure a coordinated, cost-efficient, and effective federal response to invasive species.

NISC member agencies and bureaus have emphasized EDRR — invasive species early detection, rapid assessment, and rapid response — since this approach minimizes costs and maximizes results by seeking to halt the establishment of invasive species *at the earliest possible moment*.

Today, a federal team of invasive species scientists is working to create a national framework for managing invasive species based on EDRR. But success in this formidable undertaking requires input from the entire invasive species science community.

A National EDRR Needs Assessment

To better understand and coordinate EDRR efforts in the United States, the NISC — with assistance from the U.S.

Early Detection, Rapid Response (EDRR) Home About Contributors Results Analysis A. Identification B. Reporting C. Expertise D. Occurrences E. Assessment F. Planning G. Response	<p style="text-align: center;">National Framework for Early Detection, Rapid Assessment, and Rapid Response to Invasive Species</p> <p>Welcome to the National Early Detection, Rapid Assessment, and Rapid Response Framework prototype developed and hosted by the National Biological Information Infrastructure (NBII) Invasive Species Information Node.</p> <p>This Framework prototype consists of six main components:</p> <ul style="list-style-type: none"> ■ A. Identification and Validation ■ B. Reporting ■ C. Expert Verification ■ D. Occurrence Databases ■ E. Rapid Assessment ■ F. Planning ■ G. Rapid Response <p>Each component of the National ED/RA/RR Framework prototype describes an activity associated with addressing the invasive species issue and provides access to resources reported in the National EDRR Needs Assessment Survey initiated in 2006. Additional resources cataloged by the NBII are also supplied.</p>
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Geological Survey (USGS) National Biological Information Infrastructure (NBII) and representatives from the departments of Interior, Agriculture, Commerce, and Defense — conducted a needs assessment that was sent to a range of EDRR experts.

Data from this needs assessment are being used to create an inventory of existing invasive species EDRR efforts that are currently in place across the United States. This information will help identify components of a framework for a national EDRR system as well as identify gaps in the current invasive species EDRR infrastructure. Prioritized needs (i.e. gaps) may be strengthened or addressed in the future by linking existing components, augmenting human and economic resources components, and/or establishing new components.

The preliminary results of the survey were collated and consisted of lists of invasive species experts and invasive species resources. The USGS-NBII is developing metadata records compliant with the Dublin Core Metadata Schema for the online invasive species resources

collected through the needs assessment survey, which is ongoing. All those who wish to submit information are encouraged to do so by contacting the NBII's Annie Simpson for details at <asimpson@usgs.gov>.

Catalog of Online Invasive Species Resources

Metadata records are served from the database on the new prototype Web site for the National EDRR Framework at <<http://edrr.nbii.gov>>. This prototype Web site, launched in August 2006, is a searchable catalog of online invasive species resources, arranged according to the seven components of the EDRR concept: Identification, Reporting, Expertise, Occurrences, Assessment, Planning, and Response. Each component of the framework describes an activity associated with the process of addressing the invasive species issue. Metadata records for additional resources cataloged by the NBII are also served through the Web site.

What Can You Do?

A national framework about our response to incipient invasions is

EDRR Framework: Components at a Glance

Identification

Checklists and identification guides

Represents a public interface to a group of tools that will assist users in identifying suspected invasive species. It serves as a filter to help minimize false reporting.

Reporting

Hotlines and other reporting mechanisms

Provides an interface to a suite of tools and resources for reporting invasive species sightings or identification of suspected invasive species. Some tools may overlap with those listed in the Identification component of the Framework.

Expertise

Expert registries and other contact groups willing to assist in EDRR

Offers a set of tools that supports verification of submitted specimens by participating science experts and others. Some tools may overlap with the Identification component.

Occurrences

Occurrence databases and field observation data sets

Lists repositories for verified reports of invaders and their current distribution for long-term monitoring, modeling, and prediction of future invasions.

Assessment

Risk assessments and predictive modeling tools

Provides access to monitoring, modeling, and forecasting tools to perform rapid assessment of the threat of new invaders, including invasive or introduced species assessments, ranking systems, protocols, and forecasting tools (e.g., maps and models).

Planning

Laws and regulations, management plans, K-12 curricula

Includes activities and resources involved in preparing to address and manage invasive species, such as management plans, training courses and curricula, best practices, site conservation plans, and standards and guidelines.

Response

Regulatory agencies and community/citizen science groups

Provides access to resources that support the process of notifying appropriate authorities and first responders to new invasions, using expertise databases and jurisdictional and authority information. Provides technical support for optimal response action.

only as good as the sum of its parts. The first step to effective invasive species EDRR is communicating to all who are interested what projects exist, and the components of each. If you are involved in an invasive species EDRR program, please let us know. We also encourage you to respond to the needs assessment questionnaire (contact <asimpson@usgs.gov>). You can refer to the Web site at <<http://edrr.nbii.gov>> for helpful information about EDRR projects in your area.

At a more basic level, become aware of the causes of invasive species invasions and avoid contributing to the problem. For example: do not release unwanted pets or aquarium plants; plant native species in your garden and take care that potentially invasive plants do not escape from it; clean off your boat and trailer before transporting them to a new launch site; and wash seed-carrying soil off your hiking boots and camping equipment.

Finally, effective invasive species EDRR will require valuable input from many volunteer citizen scientists. Join a group that is collecting information about invasive species in your area, and look into ways of sharing that information with others. For some more ideas on how you can get involved, see <<http://invasivespecies.nbii.gov/outreach.html>>.

Looking to the Future

In addition to providing a catalog of resources, the EDRR National Framework may provide enhanced query capacity, standardized database structure, impact ranking, and Geographic Information System visualization (mapping).

There has also been a call for the creation of an interactive tool consisting of a decision tree to assist users in planning an effective response to potentially invasive species.

The NBII will continue to communicate with the invasive species science community to determine future development of the invasive species EDRR national framework, and to provide the information necessary to make sound decisions in response to incipient invasions.

For More Information

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