

Invasive Plants - Coming to America.....

Overview of the U.S. National Early Detection and Rapid Response System for Invasive Plants.

By: Randy G. Westbrooks, Leslie J. Mehrhoff, and John D. Madsen.

July 7, 2009

Introduction. Throughout history, as people colonized the Earth, they brought cultivated plants and domesticated animals along with them. Since European settlement of North America began in the 1500s, over 50,000 types of plants and animals (species, varieties, and hybrids) have been introduced to the United States. While most of these species provide great benefits to human society, a small percentage of them have escaped from cultivation and pose a threat to food and fiber production, and/or natural areas. To date, about 4,200 species of introduced plants, or about 8.4% of total introductions, have escaped from cultivation and established free-living populations in the country.

Scientists at Cornell University estimate that losses to the American economy due to introduced invasive species are now over \$138 billion per year. Of this total, costs and losses due to invasive plants are now at least \$50 billion per year. Unlike chemical pollutants that can be eliminated from use and will eventually break down in the environment, invasive species can reproduce and spread, causing ever increasing harm. Our biggest challenge is to control invasive species faster than they can reproduce and spread.

Since only about 2% of the U.S. population is now engaged in agriculture or land management, there is less awareness of this issue than in generations past. Clearly, land owners and managers, gardeners and horticulturalists, and others who have a strong connection to the land, have a major role to play in ongoing efforts to deal with this ‘*silent ecological explosion*’.

Early Detection and Rapid Response – The Preferred Management Strategy for Addressing New Invasive Species.

Currently, there are numerous agencies as well as interagency groups involved with invasive plant management across the United States – including **State Invasive Species Councils** (e.g., the Maryland Invasive Species Council), and **Cooperative Weed Management Areas** (e.g., the South Fork WMA, Wyoming). Such agencies and groups routinely employ a number of strategies to manage widespread invasive plants through prevention, control,



Photo Caption: Beach Vitex (*Vitex rotundifolia*) a new invader from Asia - overrunning primary ocean dunes at DeBordieu Beach, Georgetown, South Carolina.

and public outreach. However, it is always a challenge to address new invasive plants - even though Early Detection and Rapid Response (EDRR) is clearly the preferred management strategy for preventing the establishment and spread of new and emerging species. Implementation of the principles and practices of EDRR for new invasive plants on a single land unit is a rather

straightforward process that aims to protect biodiversity and/or the production capacity of the land. This is accomplished by taking steps to *contain the infestation*, to *stop further seed production*, and to *exhaust the seed reserve in the soil*. However, efforts to address new invasive species that occur on multiple land units, and across multiple jurisdictions, typically require the cooperation of numerous agencies, as well as impacted and potential stakeholders, to be effective. By the mid-1990s, it was clear that a cooperative approach for weed prevention was needed – a **National EDRR System for Invasive Plants**.

Development of a National EDRR Framework. Development of a National EDRR System to address invasive plants on multiple land units was first adopted as a long range goal by the Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW) at its first bi-annual program planning retreat in Shepherdstown, WV, in 1998. Since that time, the U.S. Geological Survey (USGS), the Invasive Plant Atlas of New England (IPANE), and more recently, the Invasive Plant Atlas of the MidSouth (IPAMS), have been working with agencies and organizations across the nation to develop such a system.

Conceptually, the National EDRR System is a coordinated framework of interagency partner groups that are working together to increase EDRR capacity through:

- **Interagency Coordination** (by State Invasive Species Councils and State EDRR Committees);
- **Early Detection and Reporting** of suspected new plants to state officials (by trained volunteers, agency field personnel, conservationists, and scientists);
- **ID and Vouchering** of suspected new plants (by cooperating botanists and herbaria);

- **Archival** of new plant records in regional and national plant databases [e.g., the Invasive Plant Atlas of New England (UCONN), the Invasive Plant Atlas of the Mid-South (MSU), and the USDA Plants Database];
- **Rapid Assessment** of new plant species for invasiveness (by federal and state scientists); and,
- **Rapid Response** to confirmed new invaders [by Cooperative Weed Management Areas (eradication of weeds within a defined area); by Invasive Plant Task Forces (eradication of specific new weeds, (e.g., the Carolinas Beach Vitex Task Force); and by Single Agency-led Weed Eradication Programs (e.g., the USDA-Carolinas Witchweed Eradication Program, and the CA Dept. of Food and Agriculture)].

Once fully developed across the United States, the National EDRR System for Invasive Plants will provide an important second line of defense against invasive plants. It will also serve to complement federal efforts to prevent unwanted introductions at U.S. ports of entry. With both prevention and early detection systems in place, the nation will be more able to defend against “plants out of place”.

The Role of Land Managers and the Public in Addressing New Invasive Plants. Land managers and the public can greatly assist in the effort to prevent the introduction and spread of exotic invasive plants. Here’s how.

1. *Help Prevent the Problem.....* Use native or non-invasive exotic plants for landscaping and restoration projects.
2. *Take Action.....* Eradicate new invasive plants on lands that you own or manage.
3. *Get Involved.....* Report unknown plants to state and federal officials.
4. *Volunteer.....* Help remove invasive species from area parks and public lands.
5. *Tell Somebody.....* Help raise awareness of the problem.

Contact Information	
<p>Randy G. Westbrook, U.S. Geological Survey. 233 Border Belt Drive, Whiteville, NC 28472 Phone: 910-648-6762 E-mail: rwestbrooks@usgs.gov</p>	<p>Leslie J. Mehrhoff, Invasive Plant Atlas of New England, UCONN. 75 N. Eagleville Road, Storrs, CT 06269-3043 Phone: 860-486-5708 E-Mail: les.mehrhoff@uconn.edu</p>
<p>John D. Madsen, Invasive Plant Atlas of the Mid-South, Mississippi State University, GeoResources Institute 2 Research Blvd., Starkville, MS 39759. Phone: 662-325-2428; E-mail: jmadsen@gri.msstate.edu</p>	