Invasive Alien Species Discussion Group

Background

A growing number of plants, animals and pathogens are invading natural areas, inland waters, oceans, croplands and rangelands where they have advantages that allow them to out-compete native organisms. In some cases, these invasions pose risks to human health, native species, ecosystems and national economies. In fact, the invasion of natural systems by aggressive, non-native species has been identified as one of the most significant drivers of modern environmental change, second only to direct habitat conversion. When invasive alien species disrupt ecological processes, they can reduce the economic viability of local, resource-dependent economies leading to social instability and economic hardship.

The spread of invasive alien species has been accelerated by the increased mobility afforded through the globalization of trade, travel, and transportation. In addition, human-driven changes in land use (e.g., clearing of forests to create more edge habitats) and climate (e.g., longer growing seasons) have provided new and expanded habitats where "weedy" species can thrive.

Key Issues for Biodiversity Information Networks

Understanding Invasiveness

Not all non-native species are invasive. However, some species that have been introduced to areas outside of their natural ranges wreak havoc with fragile native species and ecosystems. This happens when the introduced species are unchecked by natural controls such as disease, resource limitations or predation. These become the invasive species that can harm native species by competing for food and space, changing the food web or physical environment, preying upon or even hybridizing with native species.

Economic Impact

Invasive alien species impact many sectors, resulting in economic costs to agriculture, ranching, forestry, infrastructure and natural areas. As just one example, NASA estimates that expenses associated with invasive alien species (control, management, loss of productivity) cost the U.S. economy as much as $137 billion USD each year. And that number is growing.

Monitoring and Documenting Spread of Invasive Species

Containing the problem of invasive alien species will require a number of coordinated strategies. The best and most cost-effective solution is to prevent additional introductions of potentially harmful species. Governments and industry need to cooperate in the monitoring of cross-border commerce to discover and halt potential new invasions. When this fails, early detection is essential. New outbreaks should be identified quickly, and aggressively treated with the goal of eradication during the earliest stages of an invasion.

Conservation and Restoration

If the invading alien species cannot be eradicated, or are already established, containing their spread and controlling their numbers can help minimize impacts on natural systems and economies. In most cases, control activities will need to be matched with restoration and protection activities that help bring back lost biological diversity and ecosystem services.

Sample of Existing Initiatives

Global Invasive Species Program

(http://globalecology.stanford.edu/DGE/Gisp/index.html)
This program was created by UNEP-Convention on Biological Diversity to support the global need for cooperation in addressing the invasive alien species problem. In particular, the program seeks to increase the speed, scope and coordination of national and international efforts to counter the increasing toll of

invasive alien species on natural resources, identify ways to increase scientific, technological and financial resources, and coordinate efforts among countries. In April 2002, the Conference of the Parties adopted recommendations for the creation of a Global Invasive Species Information Network that included specific recommendations for information formats, standards and protocols (UNEP/CBD/COP/6/INF/18), based on accepted international protocols such as XML, ISO standards, etc. The Network structure allows for membership at all levels of government and non-governmental organizations, with an emphasis on establishing regional hubs that build upon existing networks.

IABIN Invasives Information Network (I3N)

(http://www.iabin-us.org/projects/i3n/i3n_project.html)
This program was created by IABIN specifically to address the fact that most information about invasive alien species is scattered among a variety of databases and unpublished accounts, and thus unavailable for use in developing systems for predicting the spread and impact of these species. The I3N supports the creation of a regional network linking information on invasive alien species. The technological tool in use is the I3N Cataloguer for the creation of Web-accessible metadata about existing invasive alien species datasets was developed by the California Information Node of the U.S. NBII, and is distributed free of charge. The emphasis is on local ownership and building capacity within participating countries. Remaining concerns include the need for funding to keep the systems up to date, communication among participants, advancement of tools and technical strategies, and the maintenance of Web sites.

Invasive Species Partnership

A coalition including NatureServe, The Nature Conservancy and the U.S. Government has focused on developing methods for assessing the invasiveness of non-native species and establishing "early detection" systems where on-the-ground scientists identify and report new or expanding invasions (http://www.natureserve.org/conservation/invasivespecies.jsp). Members of NatureServe's Conservation Data Centre network play a leading role in "early detection and rapid response" by documenting the occurrence of invasive alien species in natural areas, and evaluating threats to ecological communities.

Guidance for the Discussion Group

Opportunities for IABIN / CHM Joint Work Plan

What would be the most urgent and highest impact activities that could be undertaken by the countries and non-governmental organizations of the Americas to address:

Scientific Cooperation

- More rapid evaluation of species for their invasiveness potential
- Development of early detection systems that involve scientists documenting and reporting new invasions rapidly

Technical Cooperation

- Databases and information sharing to address management and control of invasive alien species
- Databases and information sharing on best practices for restoring impacted natural systems
- Adoption of information formats, standards and protocols as recommended by the Global Invasive Species Program and NatureServe
- Expanded implementation and ongoing support for metadata clearinghouses such as I3N

Institutional Cooperation

- Collaboration between government and industry to detect and prevent new invasions