

## Global Invasive Species Information Network Pilot System

### Description

1. Completion, distribution, and analysis of the *Global Invasive Species Information Network (GISIN) Needs Assessment*

2. Completion of an alpha version of the *Global Invasive Species Information Network*, which is developing strategies for implementing cross search functionality among existing online invasive species information systems from around the globe (see figure at right).

3. Organization of a *GISIN data providers workshop* to code Web services for invasive species data sharing, to take place 13-16 November 2007. Participants are expected from Argentina, China, New Zealand, Philippines, Poland, United Kingdom, and the United States.



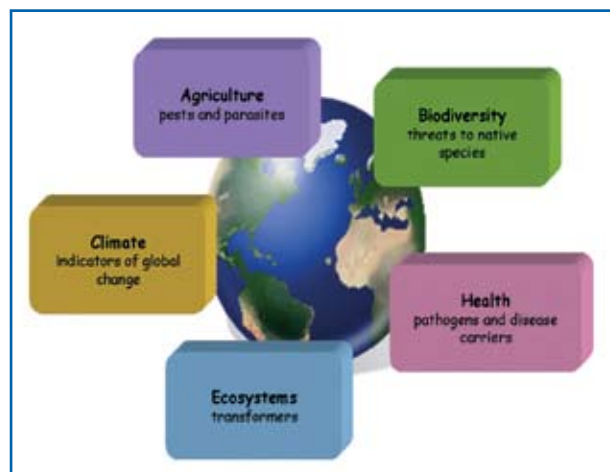
### Added value

GEO has been the one of the main drivers for achieving the standardization of the visual components of the GISIN. Related to the progress reported, GEO has:

- Provided the forum for advocating invasive species monitoring observations as a critical issue;
- Promoted a shared vision within the invasive species information management community and involved global actors;
- Advocated joint participation in ongoing invasive species global mapping activities, regional networking and capacity building in developing countries, by providing funding for the data providers workshop
- Helped to develop international partnership involving invasive species data providers and organizations consuming the data for modeling and other analyses, to better use existing datasets.

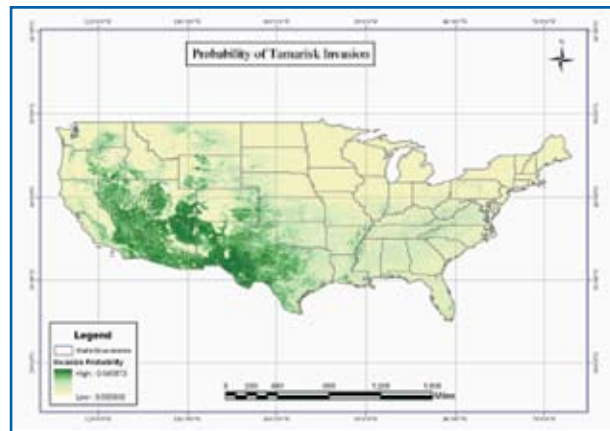
### Relevance to GEO

SBAIs and 10 year work plan The GEOSS 10-Year Plan, Section 4.1.7, states that GEOSS implementation will seek to ensure that methodologies and observations are available on a global basis to detect and predict changes in ecosystem condition and to define resource potentials and limits. Invasive species threaten biodiversity resources and exert a tremendous cost on society for prevention and eradication. It is therefore necessary to characterize, monitor and predict changes in the distribution of invasive species, which are a cross-cutting issue in today's changing world. The figure on the left states only a few examples of the effects of invasive species across five GEO SBAIs.



## Preliminary Visualizations by Two GISIN Participant Organizations

The United States Geological Survey (USGS) *National Institute of Invasive Species Science (NIISS)* (<http://www.niiss.org>) and Colorado State University have developed a Global Organism Monitoring System (GODM) which is a sophisticated, real-time, online mapping system designed to map, monitor, and predict known and likely locations of invasive species globally. NIISS/GODM also hosts the Tamarisk Cooperative Mapping Initiative (Tmap). To the left you can see a model based on this information predicting the probability of tamarisk invasion. Tamarisk is a riparian shrub native to Asia that consumes large quantities of water and secretes salt, thus causing a severe impact in the dry southwestern US, where it is an invader. This map is a predictive surface representing the probability of tamarisk invasion in 48 US states. It was created using presence and absence points obtained by the USGS NIISS and the Natural Resource Ecology Laboratory (NREL) at Colorado State University in conjunction with the NASA Invasive Species Forecasting Service (ISFS).



GISIN partner *Discover Life* (<http://www.discoverlife.org>) serves more than a million species pages and currently receives 8 million hits per month on its Web-based information system. Their Global Mapper image at right, created with a partnership from TopoZone.com, shows 1249 occurrence records on a global level for *Rosa multiflora* (invasive in North and Central America and native to Asia). Data points are from Plant Bug (1); Blogger Bioblitz (2); US Southeast Exotic Pest Plant Council (203); Invasive Plant Atlas of New England (451); Missouri Botanical Garden (59); Concord Public Works (523); Western Kentucky University (10).



## Main Participants in GEO task BI-07-02

Annie Simpson (US National Biological Information Infrastructure), Jeff Morisette (NASA), Jim Graham (Natural Resources Ecology Laboratory, Colorado State University), Michael Browne (IUCN Species Survival Commission's Invasive Species Specialist Group), Shawn Dalton and Pam Fuller (US Geological Survey's Florida Integrated Science Center), John Pickering (Discover Life), Brian Steves and Greg Ruiz (Smithsonian Institution).

## Current and Next Steps

- User testing of the pilot GISIN system
- Testing and utilization of the system by data providers is ongoing.
- Development and distribution of GISIN data provider toolkits
- Funding is anticipated for toolkit development during 2008.
- Recruitment and training of additional data providers
- There are more than 200 online systems that could be added to the system over the next ten years.
- Providing and drawing data layers from other task groups
- Georeferenced invasive species information is becoming available through several GEO task groups in Ecology, Biodiversity, and Agriculture SBAs. Protocols to exchange meaningful information in both directions via web services are being developed with significant breakthroughs anticipated within the next two years.