

# GISIN

Global Invasive Species Information Network



## Sharing IAS Data Globally



2nd meeting of IUFRO Working Unit 7.03.12  
Alien invasive species and international trade  
May 26-30, 2008, Shepherdstown, WV, USA

**GISIN SYSTEM SEARCHES IAS  
DATABASES ON THE WEB**



# A PILOT SYSTEM TO SHARE IAS CHECKLIST INFORMATION GLOBALLY THROUGH THE GLOBAL INVASIVE SPECIES INFORMATION NETWORK

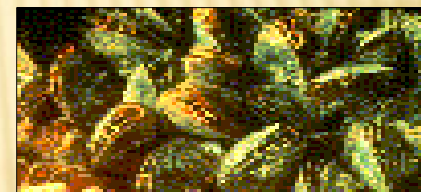
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# ECONOMIC IMPACT OF INVASIVE SPECIES

- ✘ International problem that respects no borders.
- ✘ Pimentel et al. (2002) estimate IAS damage at 5% of the World Economy, or
- ✘ **US\$1,400,000,000,000 each year.**
- ✘ This equals the value of China's gross domestic product for 2003.



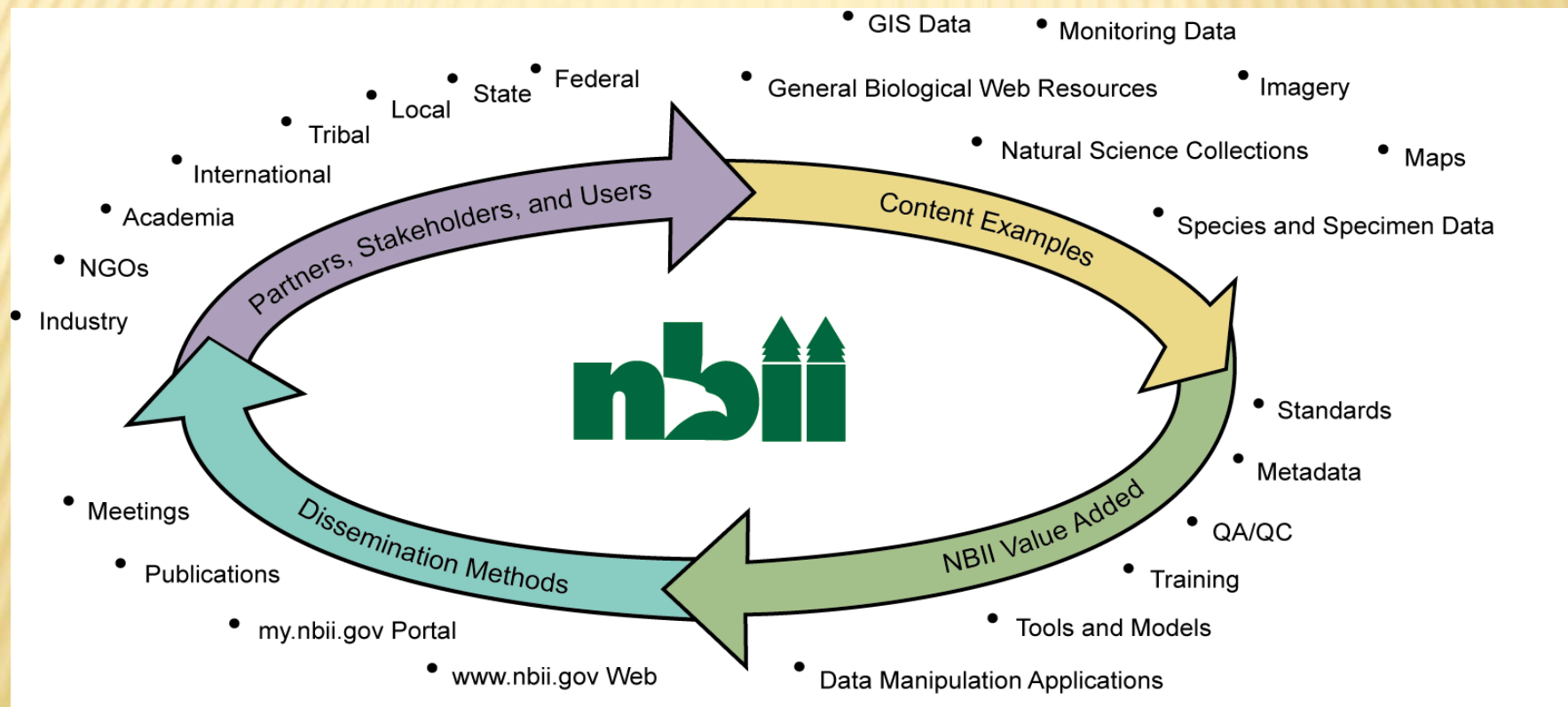
- ✘ A broad, collaborative program to increase access to data and information on the Nation's biological resources and to tools for integration and analysis.



[www.nbii.gov](http://www.nbii.gov)



The NBII uses the capabilities of the World Wide Web and other advanced technologies to establish a distributed system.



# PYRAMID OF DATA AVAILABILITY

- ✘ Most IAS data exists only in resource manager's heads or on paper
- ✘ There are over 300 IAS databases in US alone but only about 100 of those are public

*Perna viridis*

Photo courtesy of Dayne Buddo



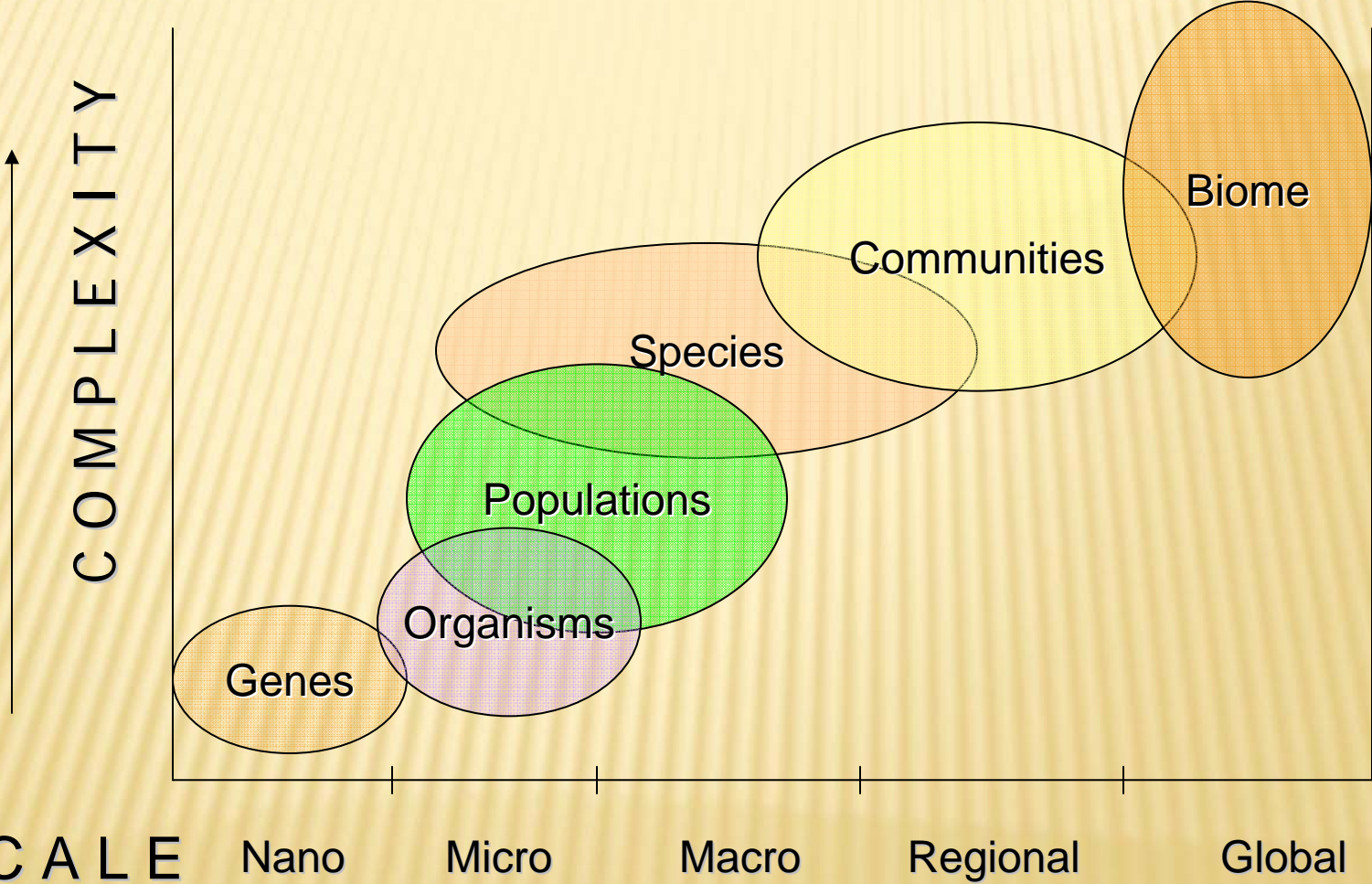
© Dayne Buddo, 2004

# IAS Database Purpose can Vary Widely

- ✘ Visualize existing invasions
- ✘ Early detection
- ✘ Track treatments
- ✘ Occurrences only
- ✘ Advertise successes
- ✘ Highlight problem areas
- ✘ Different taxonomic groups
- ✘ Different habitat types



# Biological Levels of Organization



SCALE

Nano

Micro

Macro

Regional

Global

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# INVASIVE SPECIES INFORMATION SHARING

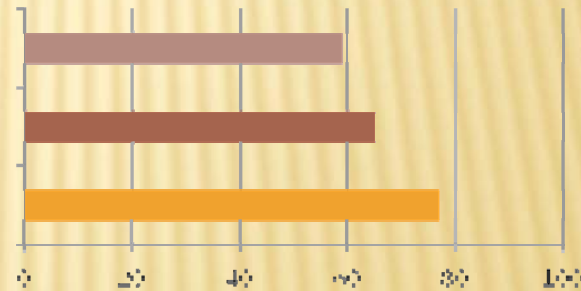
- ✘ Critical for effective control so that
  - + Resource managers can minimize spread
  - + Decision makers may better allocate resources
  - + Scientists can accurately model invasion scenarios



Purple loosestrife and nutria

# GISIN NEEDS ASSESSMENT SURVEY

- ✘ 137 respondents from 41 countries
- ✘ Most are both providers & consumers of data
- ✘ Willing to share:
  - + Checklist info (59%)
  - + Profiles/species pages (65%)
  - + Spatial/temporal info (77%)



# GISIN NEEDS ASSESSMENT SURVEY

## Technology knowledge gaps

- ✘ Level of web services their organization provides and/or uses (50% don't know)
- ✘ What existing protocols are appropriate for IAS info management (80% don't know)
- ✘ What schemas or grammars are acceptable to copy or extend for the proposed system (75% don't know)

# A brief history of GISIN <http://www.gisinetwork.org>

2002: CBD designates GISP as an International Thematic Focal Point on IAS under the Clearing-House Mechanism; regional meetings follow

2004: Global Experts Meeting to implement GISIN (Baltimore)



76 participants  
from  
26 countries

2006: Invasive Alien Species Profile Schema development funded by CBD

2007: GBIF funds implementation of data sharing protocol on GISIN portal

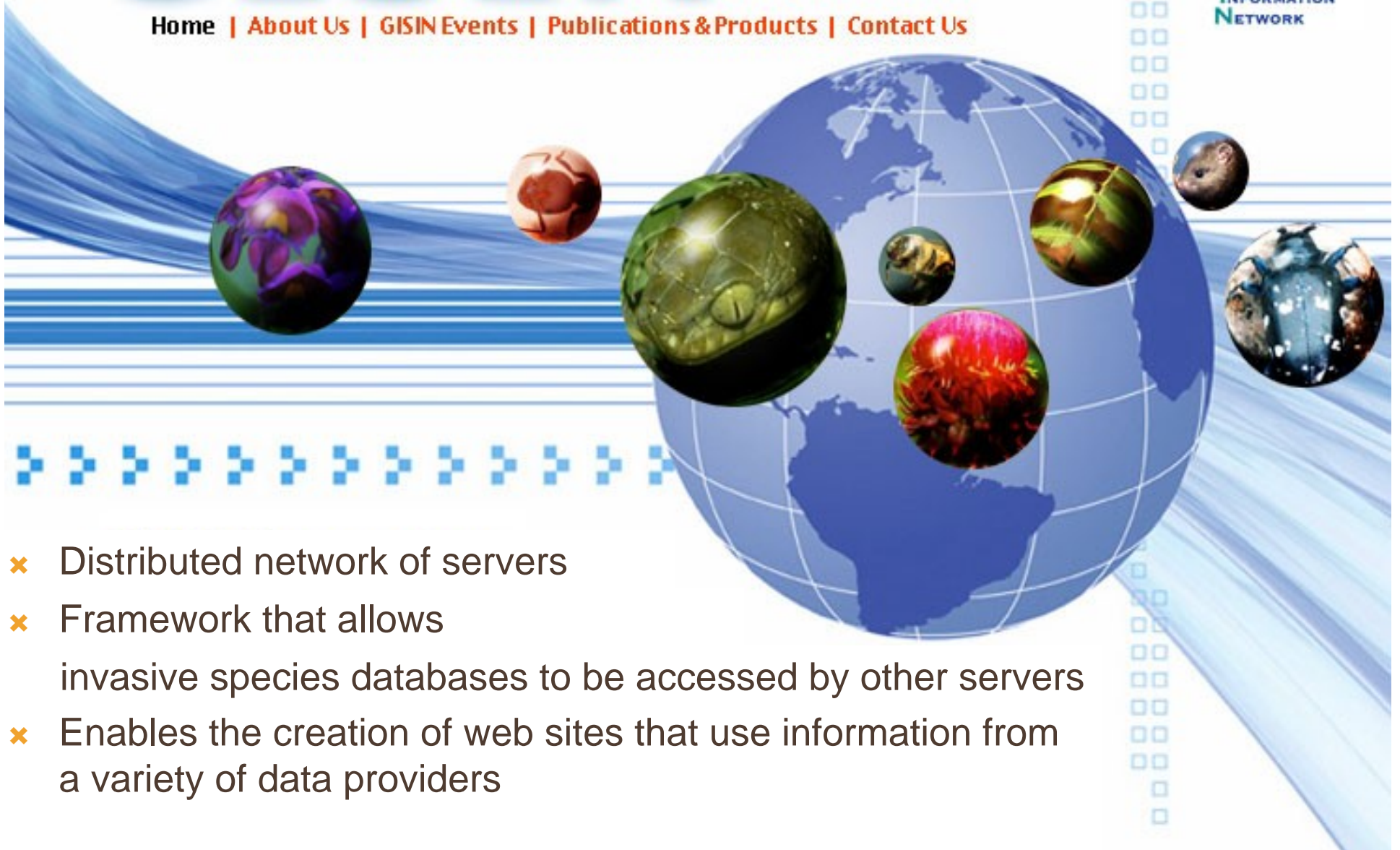
2008: 1<sup>st</sup> data providers workshop, June 2008, Athens, Georgia

# GISIN

Global Invasive Species Information Network

**IN A NUTSHELL**

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- ✘ Distributed network of servers
- ✘ Framework that allows invasive species databases to be accessed by other servers
- ✘ Enables the creation of web sites that use information from a variety of data providers

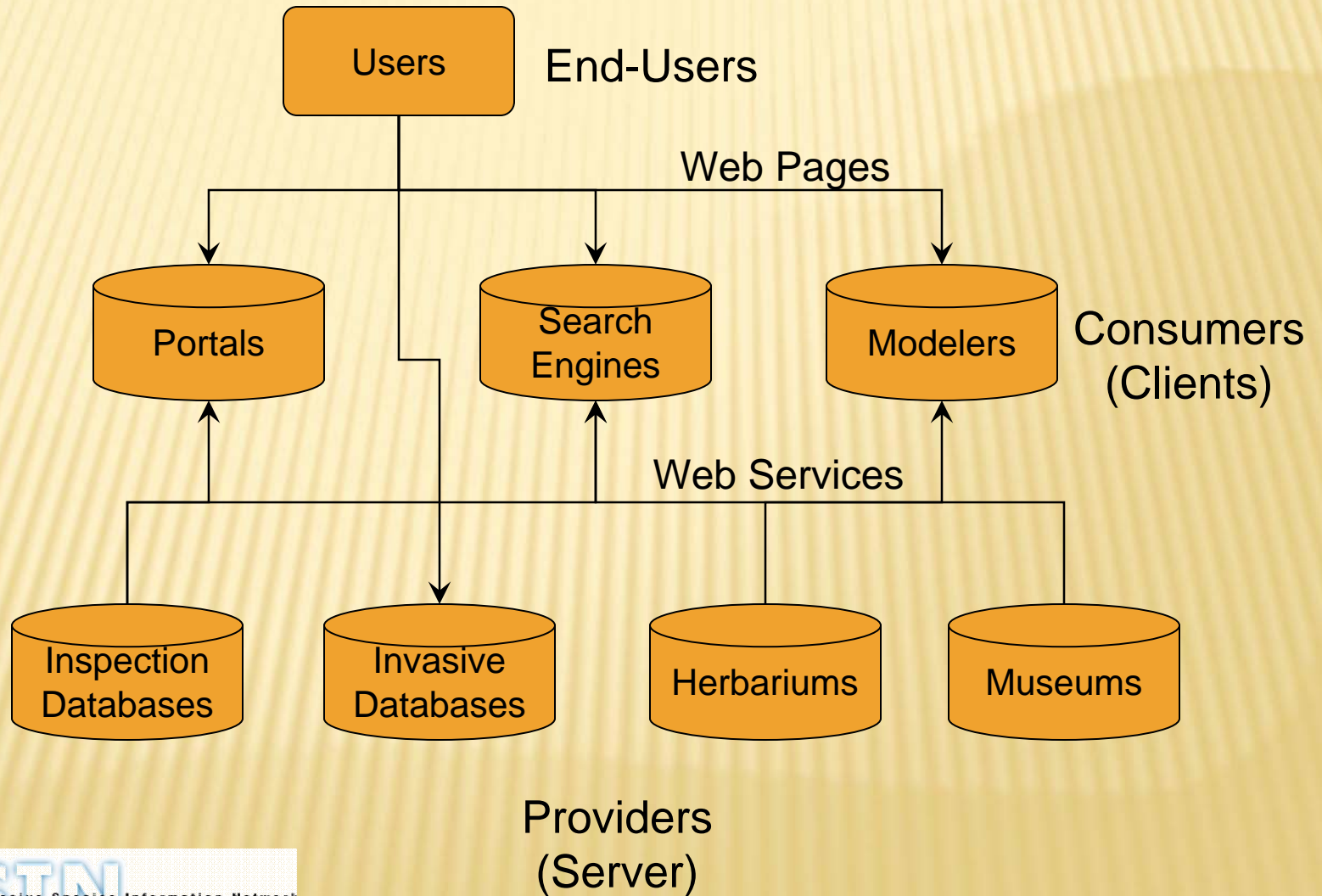
# Issues of GISIN System's Data Quality

- ✘ Avoid garbage in garbage out
- ✘ Consolidating data means some details are lost
- ✘ Consolidators must keep data ownership visible
- ✘ Ideally, links to original data source should be provided



Dennis Hansen

# GISIN MODEL



International  
Collaboration

# Group on Earth Observations, GEO

THE GLOBAL EARTH OBSERVATION  
SYSTEM OF SYSTEMS



## Status

- ✘ Beta version online and being tested
- ✘ Toolkit implemented for seven info systems so far
- ✘ Data providers' workshop to be held for 2-5 June 2008 with 20 participants and 10 new info systems to be added
- ✘ Seeking funding for additional workshops and data provider toolkit development

# GLOBAL INVASIVE SPECIES INFO NETWORK



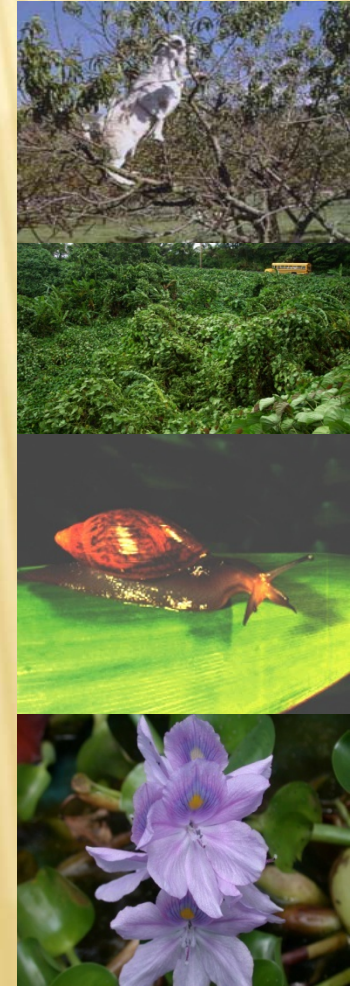
Photo: National Geographic

## × GISIN Purpose:

- + Make access to data easier
- + Standardize/integrate different data types
- + Facilitate creation of value-added services
- + Enable information services based on available data

# POLICY-MAKER & OTHER END-USER NEEDS

- ✘ The GISIN system will help users find relevant information on invasive species
  - + Check lists – what is invasive “here”
  - + Profile URLs – general info on a species, also called species pages or factsheets
  - + Species occurrences – recorded locations for a species; i.e. current range
  - + Species potential range – determined by modeling and based on climate, soil, other environmental factors



## GISIN Reference Documents

- ✘ Results of Needs Assessment Survey:  
<http://www.gisinetwork.org/Survey/SurveyResultsFinal.htm>
- ✘ Technical documentation:  
<http://www.niiss.org/gisin>
- ✘ Wiki to discuss GISIN technical docs:  
<http://wiki.tdwg.org/InvasiveSpecies>

# The Tire Swing



What marketing suggested



What management approved



What was designed



What was delivered



What the customer needed

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Alan Chapman, <http://www.businessballs.com/treeswing.htm>

# GISIN PARTNERS & CONTRIBUTORS

- × CBD Secretariat
- × IUCN's Invasive Species Specialist Group
- × Global Invasive Species Programme
- × Global Biodiversity Information Facility
- × Invasives Information Network (I3N) of the Inter-American Biodiversity Information Network
- × BioNET-INTERNATIONAL
- × CABI
- × The Nature Conservancy
- × Biodiversity Information Standards (TDWG)
- × Group on Earth Observations
- × US National Biological Information Infrastructure
- × Chinese Academy of Sciences
- × Chinese Ministry of Agriculture
- × Moroccan Ministry of Agriculture
- × Association of SouthEast Asian Nations
- × Federal Biological Research Centre, Germany
- × Universidad Nacional del Sur, Argentina
- × US Geological Survey