

SUMMARY REPORT
Global Invasive Species Information Network
Second Data Providers' Workshop (GISIN2)
08-12 August 2008
Elmira, New York

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Introduction

Societies all over the globe are discovering there are enormous impacts from invasive alien species (IAS) in this era of increasing globalization. Some scientists have estimated the global economic damage to be as much as US\$ 1.4 trillion¹, which is equivalent to China's foreign trade amount in 2005². Because of the negative impact of IAS, many organizations are working internationally to facilitate cooperative efforts to prevent their introduction and spread. A large group of information managers, the Global Invasive Species Information Network, has held two data providers' workshops in 2008 to set up web services and to agree on standards to share invasive species data among different online information systems.

The First Data Providers' Workshop of the Global Invasive Species Information Network (GISIN1) was held at the University of Georgia in Athens, USA from 02-05 June 2008. A separate summary report has been prepared about GISIN1 and is downloadable from the Web³.

The Second Workshop, GISIN2, was held at Elmira College in New York from 08-12 August 2008. At the four-day workshop, which was sponsored by the US National Biological Information Infrastructure and held in collaboration with Discover Life and Elmira College's Department of Biology, representatives from the Secretariat of the Convention on Biological Diversity, the Global Biodiversity Information Facility, the Invasive Species Specialist Group, and several invasive species information systems of global importance refined data standards to improve the GISIN system that provides for the simultaneous search of multiple distributed online invasive species databases.

The GISIN system to share invasive species data went online with a beta version in October 2007, and it was determined at the first GISIN data providers' workshop (4-6 June 2008, held at the University of Georgia in Athens, USA) that a small standards group to discuss the details of the models for sharing specific types of information would need to meet on an ongoing basis, or at least until the GISIN system becomes fully operable. GISIN3 is expected to take place, pending funding availability, in January 2009.

¹ Pimentel, David, S. McNair, J. Janecka, J. Wightman, C. Simmonds, C. O'Connell, E. Wong, L. Russel, J. Zern, T. Aquino and T. Tsomondo. 2001. Economic and environmental threats of alien plant, animal, and microbe invasions. **Agriculture, Ecosystems & Environment**. Volume 84, Issue 1, March 2001, Pages 1-20.

² Embassy of the People's Republic of China. 2006. <http://www.china-embassy.org/eng/xw/t230529.htm> [accessed 15 August 2008]

³ See <http://www.gisinet.org/Documents/GISINworkshopSummaryJune08.pdf> [accessed 15 August 2008]

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At GISIN2, a dozen invasive species scientists discussed data models that will be suggested as extensions to the Darwin Core to share biological information, and agreed on the parameters for three data models: to share occurrences, species status, and species resource URLs (URLs including information types such as species profile, image, video, experts, and references).

Presentations that will propose the three new data models as invasive species extensions to the Darwin Core are scheduled to be given at the annual Biodiversity Standards - TDWG meetings in Fremantle, Australia, in October 2008.

Future topics for discussion, at GISIN3 and beyond, will include: the discussion of GISIN Data Models for Management, Impact, Dispersal, and Citations; implementation of Life Science Identifiers (LSIDs) for data; specific products and markets for the GISIN; and general strategies for fundraising.

GISIN2 Agenda

The workshop was held over a period of four days from 08-12 August, 2008, in conjunction with DiscoverLife's "A Gathering of Naturalists: Ideas, field sampling, photography, and computers." Annie Simpson, Chair of the GISIN Steering Committee, and Jim Graham, GISIN Facilitator and Lead Developer, made brief presentations at the opening plenary session, describing GISIN's progress to date on invasive species data integration and sharing; and outlining the GISIN's history and the objectives of the workshop. In the afternoon of the 9th the meeting split into working groups. Participants ate meals together each day, but worked independently. GISIN participants started the breakout session by giving brief reports describing their progress in implementing the GISIN technologies and expectation for the meeting. In addition to full day sessions, GISIN participants also attended evening sessions to discuss in more detail the data models and strategies for expanding the system (see next page for detailed agenda).

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Agenda: Second Global Invasive Species Information Network Data Providers' Workshop 08-12 August 2008, Elmira, New York, USA

Day	Time	Activity
Fri 08 Aug	4:00-6:00 PM	Registration: Kolker Lecture Hall Foyer; Rooms: Twin Towers Dormitory ; Parking: Kolker Lot 6th Street.
	6:00 PM	DINNER (on your own)
Sat 09 Aug	8:00-10:00 AM	BREAKFAST (continental); Kolker Lecture Hall foyer
	8:30-8:45	Welcome address to whole group (includes logistics) -- John Pickering and Dan Kjar
	8:45-11:15	Plenary Presentations: Ants, Ladybugs, Bees, Community-based Research
	11:15-11:30	BREAK
	11:30-12:00	Brief overview of GISIN system's progress and history -- Jim Graham and Annie Simpson
	12:00-1:00 PM	LUNCH (delivered; on your own) Barb's Soups on Cafe Send Dan Kjar (dkjar@elmira.edu) your selection.
	1:00-2:00	Data provider reports on issues and meeting expectations (5 min. each) (Watson 216)
	2:00-2:15	GBIF: brief overview of tools and standards -- Samy Gaiji
	2:15-2:45	Discussion of GISIN data models and terminology -- Jim Graham facilitates (Watson 216)
	2:45-3:00	BREAK
	3:00-5:00	Discussion of GISIN data models and terminology -- Jim Graham facilitates (Watson 216)
Sun 10 Aug	5:00-6:00	FREE
	6:00	DINNER (on your own) Corning Market Street
	9:30-11:30	GISIN evening session - Alumni Dorm Common Room
	8:00-10:00 AM	BREAKFAST (continental); Kolker Lecture Hall foyer
	8:30-10:45	Continue discussion of data models -- Jim Graham facilitates (Watson 216)
	10:45-11:00	BREAK
	11:00-12:00	Review data model progress (Watson 216)
	12:00-1:00 PM	LUNCH (Box lunch, Alumni Dorm Common Room)
	2:00-5:00	Field trip (to Treman State Park); ants, ladybugs, goldenrods.
	5:00-6:00	FREE
Mon 11 Aug	6:00	DINNER (on your own) Pietro's in Elmira.
	8:00-10:00	GISIN evening session - Alumni Dorm Common Room
	8:00-10:00 AM	BREAKFAST (continental); Kolker Lecture Hall foyer
	8:45-10:45	Continue discussion of data models -- Jim Graham facilitates (Watson 216)
	12:00-1:00 PM	LUNCH (on your own) Campus Center
	1:00-2:45	Continue discussion of data models -- Jim Graham facilitates (Watson 216)
	2:45-3:00	BREAK
Tue 12 Aug	3:00-5:00	Continue discussion of data models -- Jim Graham facilitates (Watson 216)
	5:00-6:00	FREE
	6:00	DINNER Banquet (\$22/person), 1855 Room, Campus Center ***
	8:00-10:00 AM	BREAKFAST (continental); Kolker Lecture Hall foyer
	8:45-12:30	GISIN synthesis & next steps (Watson 216)
	12:30 PM	LUNCH Adjourn / Depart
	1:00-4:00	Optional discussion of GISIN products, components, and how to market them

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Participants

Thirteen representatives from global and regional biodiversity information systems attended the workshop. All participants had a desire to share data and information and/or access data from other providers and were committed to reaching a consensus on complex data models for biodiversity information.

Each participant was asked to:

- Review the GISIN protocol specification document found online at <<http://www.niiss.org/gisin>>
- Read the GISIN toolkit support documents, also found online at <<http://www.niiss.org/gisin>>
- Familiarize (or re-familiarize) themselves with the software, standards (and their versions), and server technologies used to implement/serve their database
- Be prepared to discuss their organization and their work and explain their data sharing needs.

GISIN2 Data Providers' Workshop Participants

Name	Institution	E-mail	Phone
Eli Agbayani	FishBase, Philippines	e.agbayani@cgiar.org	+63-2 8450563
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Samy Gaiji [Sat/Sun only]	Global Biodiversity Information Facility	sgaiji@gbif.org	+45 35 32 14 85
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Philip Thomas	Pacific Island Ecosystems at Risk, Hawaiian Ecosystems at Risk	pt@hear.org	+1 808.891.1754

Workshop Accomplishments

During the workshop, the participants concentrated on the discussion of seven Data Models of the GISIN TAPIR lite⁴ protocol, that are now designated as: Occurrences, SpeciesStatus, SpeciesResourceURLs, ManagementStatus, ImpactStatus, DispersalStatus, and Citations. [The convention for database concepts joins words in a title, capitalizing the first letter of each word and maintaining the acronyms as capital letters. This document follows this convention from this paragraph onward.]

By the end of the workshop, agreement was reached on the concepts to be included within three GISIN Data Models: Occurrences, SpeciesStatus, and SpeciesResourceURLs (for URL lists of one of the following types: species profile, image, video, experts, or references). The other four Data Models were discussed in enough detail to assign working groups that will meet via teleconference and create proposals for consideration at GISIN3.

In addition, the group held discussions to plan for better success with proposals for funding the GISIN network, by scoping, creating prototypes, and promoting GISIN products. Ideas for potential donors included the European Union, and the non-profit foundations of successful industrial organizations in the areas of energy and information technology.

With the path now clear for stable implementation of the first three Data Models, over the next few months, php and asp toolkits will be created for GISIN data providers, announced via listserv, and distributed freely to all who request them.

As of August 2008, the prototype GISIN directory is online with five data providers and allows access to 1,390,397 occurrence records, 5,078 species status records, and 33,746 species profile URLs.

The workshop was concluded with a discussion of options for holding a small future GISIN Data Providers' workshop, GISIN3, in the January 2009 timeframe. Funding for GISIN3 and a location that will provide an inexpensive and non-distractive setting are being sought. Participants agreed to seek support from their organizations for their future participation in GISIN standards workshops and committed to contributing to the GISIN standard development process for the remaining data models.

⁴ TAPIR = TDWG Access Protocol for Information Retrieval. TDWG = Biodiversity Standards Taxonomic Databases Working Group. TAPIR lite is a non-relational and simplified protocol designed to be compatible with TAPIR.

Appendix 1: GISIN2 Data Providers' Workshop Group Photo 10 August 2008



GISIN2 Data Providers' Workshop participants: *Front row, left to right:* John Pickering, Miles Falck, Michael Browne, Annie Simpson, Eli Agbayani, Elizabeth Sellers. *Back row, left to right:* Samy Gaiji, Olivier de Munck, Philip Thomas, Renato De Giovanni, Jim Graham, Alejandro Moreno.
Not pictured: Brian Steves