

nbii Access

NBII Digital Image Library Unveiled at All-Nodes Meeting

The 2004 NBII All-Nodes Meeting, held in Big Sky, MT, June 21-25, was the setting for the introduction of the NBII Digital Image Library, a new resource available to NBII partners and the general public.

This Web-based digital library offers biological photographic images dynamically linked to associated metadata and can be found at <http://images.nbio.gov>.

While a diverse range of images related to nature and the environment

are offered in this new collection, the library continues to expand. Images focus mainly on plants and animals of the United States. Currently, NBII Digital Image Library categories include amphibians, birds, crustaceans, environments, insects, landscapes, mammals, Paraguay, plants, reptiles, trees, and wildlife management. New image categories will be added in the months and years ahead as appropriate.

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Gene Morris, Digital Image Library project lead, discusses the image library with Nichole Kallas by his poster at the All-Nodes Meeting.

Nodes in the News

The creation of regional, thematic, and infrastructure nodes has been a major NBII development. These newsmaking nodes are interconnected entry points that, taken together, are forming the NBII. The nodes are being developed in coordination with various partners around the country. Access has devoted several issues to reporting on specific nodes. In this issue, we continue profiling another new NBII node.

NBII Northeast Information Node

Are you interested in the spread of *Elaeagnus umbellata* (an invasive weed) in the forests of Vermont? Do you need information on urban wildlife populations in the Greater New York metropolitan area? The recent creation of the NBII Northeast Information Node (NIN) <http://nin.nbio.gov> adds a new geographic perspective to the NBII Program that will help you find the answers to these questions and many more. With a

regional focus on the states of New Jersey, New York, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine, NIN extends and complements the existing NBII regional nodes. Key issues it will address are the protection of drinking water supplies; the conservation of natural landscapes critical as wildlife habitat and important to the long-term environmental health of the region;

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NBII Participates in Ecoinformatics Initiative

The NBII has joined the U.S. Environmental Protection Agency (EPA), the European Environment Agency (EEA), the United Nations Environment Programme, the European Commission's Joint Research Centre, the Global Biodiversity Information Facility, and other organizations to advance ecoinformatics. Ecoinformatics is the application of information science and information technology to the environment. The goal of the Ecoinformatics Initiative <<http://ecoinfo.eionet.eu.int>> is to facilitate sharing between organizations and support for the individual missions of the organizations – at local to global levels – through the stimulation of information science and information technology advances. This will integrate environmental, biodiversity, health, and other related information; enable the integration of diverse information types and data sets, especially georeferenced sources; reduce the cost of creating and reporting ecological information; and improve the

accessibility, sharing, comparability, and integration of existing data.

The Ecoinformatics Initiative draws together many projects that are researching, developing, demonstrating, piloting, and deploying environmental information technologies. By working together and sharing information, the benefits of these activities can be expanded by also sharing the costs and benefits of developing and

the Initiative have planned sessions and given presentations at several national and international meetings including the EPA Science Forum, the National Conference on Digital Government Research, and the upcoming EnviroInfo2004 <www.enviroinfo2004.org>, which will be held in October.

The principals, including Gladys Cotter, USGS Associate Chief



implementing knowledge and information systems internationally. The Initiative's current projects focus on sharing experiences and results; cooperating on emerging technologies; and developing key elements for interoperability, including data standards and terminologies. The Initiative is also interested in fostering an ecoinformatics marketplace by encouraging other environmental organizations, researchers, and technology vendors in addressing the challenges. Members of

Biologist for Information, meet twice annually to discuss issues, plan activities, and share concerns.

"The Ecoinformatics Initiative is vital for the future of biological informatics," Ms. Cotter says. "It is building a community across federal and nonfederal organizations throughout the world to address the challenging data, information, and technology issues that ecological data and information present to today's researchers, managers, and practitioners."

Mike Frame, Director of NBII Technology — with support from the NBII's Gail Hodge, Vivian Hutchison, and Franciel Azpurua — is involved in the Technology Working Group. This group is particularly interested in the development of technologies to support ecoinformatics. The group has shared information about metadata registries, semantic Web technologies, and portal technologies.

Within the group, the NBII has been involved in data standards, semantics, and metadata management. Data standards provide the integration of meaning and definitions across heterogeneous data and information systems, thus allowing users of the data to understand the similarities and differences among terms and data system fields. This includes an investigation of environmental

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Access

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Be sure to check out Access on the Web at <<http://www.nbio.gov/about/pubs/news>>.

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Visit the NBII Home Page at <<http://www.nbio.gov>>.

Image Library (continued from page 1)

Visitors to the site may browse the library by broad subject categories. By clicking on an image category, a thumbnails page will appear displaying all the thumbnail images within that category. Then, by clicking on an individual thumbnail image, its metadata record and links to other resolutions will appear on a new page. Each image's metadata record contains valuable information about the image, including its scientific and common names, description, and location.

You may also search for specific images using the search tool to help narrow searches and quickly find what you need. You can search under common or scientific names, geography, filename, NBII node affiliation, photographer, or other keywords. Searches will display all the thumbnail images contained in the library related to the keywords you enter.

Each image is available in three file sizes: thumbnail (for previewing), medium-resolution (appropriate for PowerPoint presentations), and high-resolution (for print publications). Detailed directions for downloading images are provided on the site.

In addition to the images themselves, the site offers general information about the library, related resources, and contact information.

"This is a home-grown project," says Gene Morris of the NBII National Program Office and project lead. "The Web interface design, database structure, and search function have all been built and are being maintained by the NBII Program Office."

Quality control (QC) is a priority for the NBII Digital Image Library. To make sure each image and the metadata information related to each image are correct and follow NBII standards and guidelines, each image goes through a quality check and validation process. Every effort is made to assure that no image is made public without first being QC'd.

The nature of the image must be

identified by the submitter (i.e., photographer, project manager, partner organization, and so forth). All pertinent information, such as description and scientific/common names, needs to be provided. If identification is not given at the time of image submission, identification is coordinated through the image library project lead or partner and determined to the best of their ability *before* the image is uploaded to the server for public access.

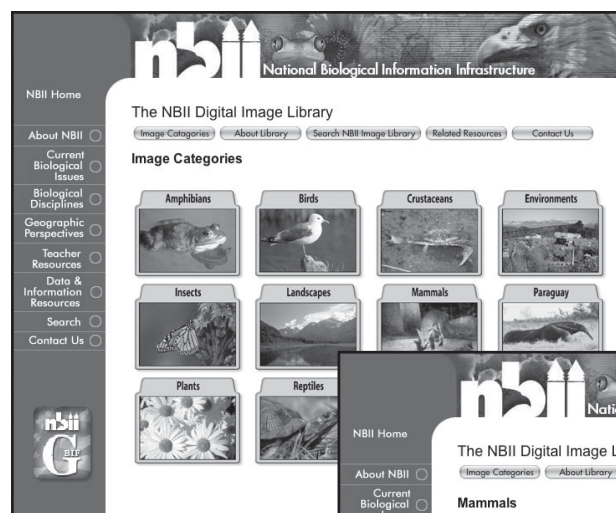
Gene Morris and the NBII Digital Image Library team have developed a document that provides minimum guidelines and standards for making

images digitally available. These guidelines describe image resolution and scanning considerations, file formats and naming conventions, and metadata standards. Adherence to these guidelines is required for all contributions to the NBII Digital Image Library.

"We're really excited about the new image library," says Gene Morris, "but we'd also be delighted to partner with other organizations who are providing a similar service."

For any questions or comments about the NBII Digital Image Library, or to explore partnership opportunities, please contact Gene

Morris by phone (703/648-4351) or e-mail <images@nbii.gov>.



◀ Home Page: browse the thematic image categories available

▶ Thumbnails Page: browse all the thumbnails within a category



◀ Metadata Page: view image metadata record and links to other resolutions

and the retention of a working landscape providing farmland and forest products, green space for outdoor recreation, and important buffer lands between urbanizing areas.

To create and manage this node, the NBII has partnered with the Center for International Earth Science Information Network (CIESIN) <www.ciesin.columbia.edu>, a component of the Earth Institute at Columbia University. This partnership builds on previous work CIESIN has done assisting the NBII in building Web resources for the Fisheries and Aquatic Resources Node.

A prime example of the new node's planned activities is the work NIN has begun in New York with the National Park Service to create an online searchable guide to research conducted at the Jamaica Bay complex within the Gateway National Park. This urban estuary provides critical habitat for migratory birds alongside upland areas that are part of the John F. Kennedy International Airport. Its waters, uplands, and barrier beaches also provide invaluable respite and recreational opportunities for the New York City metropolitan community. The bay is the frequent subject of research for improved management of its wildlife, fisheries, waters, and marshes. This searchable database makes accessible the myriad of management and research activities occurring in the Bay including the latest research, descriptive information on the many Bay stakeholders, highlights on future activities, and links to other related sites.

Work with Hudsonia <<http://www.hudsonia.org/>> in Annandale, NY, is another example of how NIN is assisting partners to distribute information on biological diversity within the northeast. Since 1981, Hudsonia has conducted environmental research, education, training, and technical assistance to protect the Hudson River Valley's natural heritage. Their work includes education, basic

and applied research on Hudson River wetlands, habitat and rare species ecology, and the study of nonnative plants and other threats to biodiversity. NIN is working with Hudsonia to create a Geospatial Technologies


NIN will provide information about urban impacts on the environment and health...

appendix to their Biodiversity Manual. This assessment manual for the Hudson River estuary corridor helps local agencies, citizens, developers, and others with an interest in biological diversity to identify and protect ecologically significant habitats.

Among the node's planned partnerships is the Vermont Monitoring Cooperative (VMC) <<http://vmc.snr.uvm.edu/>>, a collaborative organization in which scientists collect and pool information and data for the purpose of improving our understanding, protection, and management of Vermont's forested ecosystems. The centerpiece of the VMC is the data

library and card catalogue system that allow data to be shared, archived, and accessed by scientists and other interested parties. NIN will also be working with the Invasive Plant Atlas of New England (IPANE) <<http://invasives.eeb.uconn.edu/ipane/>>, whose mission is to create a comprehensive, Web-accessible database of invasive and potentially invasive plants in New England.

"As NIN develops, it will have a special focus on the effects of growth on the nation's urban and suburban regions," says Mark Becker, the node's Technical Lead. "NIN will provide information about urban impacts on the environment and health to strengthen local capacity for making sound land-use decisions to retain the region's environmental qualities. The primary goal is to build effective partnerships between stakeholders, government agencies, and the research community and to elevate public awareness to ensure the economic viability and livability of the Northeast."

For additional information on NIN, please e-mail Node Manager Doug Beard at <db Beard@usgs.gov>. 

Three NBII Nodes Lead Data Collection Effort Supporting Eastern Brook Trout Initiative

The NBII Fisheries and Aquatic Resources Node has been working closely with the NBII Southern Appalachian Information Node and the NBII Mid-Atlantic Information Node to support an effort to determine the status of brook trout (*Salvelinus fontinalis*) within the eastern United States.

The U.S. Fish and Wildlife Service, U.S. Forest Service, the International Association of Fish and Wildlife Agencies, thirteen state fisheries agencies, Trout Unlimited, the Izaak Walton League, and the NBII have joined forces to develop a range-wide

management strategy for eastern brook trout that demonstrates a geographic model for implementing the National Fish Habitat Initiative.

- Focus areas of this project include:
- Collecting and integrating data on the status and trends of brook trout populations and identifying the main threats to existing populations and restoring impaired populations;
 - Using that data as the basis to develop a range-wide management strategy for eastern brook trout; and
 - Implementing management actions

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NBII: Making Metadata Fun

Have you ever played a game of Metadata Jeopardy? Participants in the NBII metadata workshop presented in Seattle last April have...and the competition was fierce. Answers were presented on the board, and teams competed to be the first to be given the opportunity to provide the questions.

Now you can try your skill at Metadata Jeopardy (see "TVs" above, right; the answers are on page 7).

"The Standard" for 500

An extension to the standard that includes elements describing taxonomy, methods, and analytical tools

"Metadata" for 400

A federation of metadata nodes that are queried through a gateway

"Sections" for 500

Where to find projection parameters

How did you do? Interested in organizing a metadata workshop in your area? Contact Viv Hutchison at <vhutchison@usgs.gov>. Workshops can be 1 or 2 days and, depending on

computer availability, can be held for groups of up to 25.

The NBII Metadata Program has presented workshops in regions across the United States including Virginia, Colorado, Washington, and Wisconsin in the last 6 months. Participants learn about what metadata is, how the Federal Geographic Data Committee (FGDC) Content Standard is organized, how the Biological Data Profile is organized, how to write quality metadata, which tools to use, methods to quality control a record,

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George Lienkaemper, shown here, taught the NBII metadata workshop for participants in Seattle, WA, last April.



Ecoinformatics (continued from page 2)

terminologies through a subgroup activity known as Ecoterm (see related article on page 6).

Semantics and metadata management are increasingly important as new advanced computer science and search techniques. They are based on semantic Web technologies and make accessing heterogeneous data system holdings more feasible with less need for the wholesale redesign of distributed data systems. Advances rely on the International Organization for Standardization (ISO), the World Wide Web Consortium (W3C), and other voluntary standards development activities. Specifically, the EPA and the EEA are developing metadata registries that describe data elements, definitions, and technical attributes of data. The EEA has recently released open source software for metadata registries. The NBII is planning to register the

Biological Data Profile of the FGDC and the Darwin Core Metadata element set in the metadata registry to test the registry's ability to aid in the comparison of metadata element sets.

The Technology Working Group is also interested in messaging and data exchange protocols, particularly XML designs, formats, and structures for environmental data exchange. Aspects include the geo-location of data for better understanding and utility and descriptive metadata for conveying the meaning of data. Advanced networking technologies, such as computer grids, are being investigated to allow the transfer of massive amounts of data and the use of tools and technologies in virtual, collaborative environments. Additionally, the need to increasingly provide public access to spatial data at local and regional levels introduces new technology challenges.

All of these activities come together under the larger umbrella of knowledge management, where techniques and agreements reached in the other aspects of ecoinformatics merge to support the development, management, and use of knowledge and information to help protect the environment, biodiversity, and human health. Indicators, a current focus of this work by members of the Ecoinformatics Initiative, represent one way to express and explore the knowledge to be used by policymakers, researchers, environmental decision-makers in the field, and the public to assess environmental conditions, to design or participate in effective and efficient interventions, and, finally, to measure their progress and success.

For additional information, please contact the NBII's Mike Frame <mike_frame@usgs.gov> or Gail Hodge <ghodge@infointl.com>. 

Ecoterm Participants Discuss Environmental Terminology

Through a subgroup of the Ecoinformatics Initiative (see related article on page 2), the NBII is working with other organizations to make environmental terminologies more interoperable and generally useful. Standards regarding terminology will provide the integration of meaning and definitions across heterogeneous data and information systems allowing users of the data to understand the similarities and differences among terms and data system fields.

At a meeting organized by the United Nations Environment Programme, representatives from the NBII, EPA, EEA, and over 20 other organizations discussed environmental and related terminologies. Terminology developers (experts on content and structure), IT professionals interested in putting terminologies on the Web, and others interested in multilinguality populated the four types of organizations that attended — governments, intergovernmental organizations (especially UN agencies), scientific institutions, and corporations, including software vendors. The organizations ranged from the Food and Agriculture Organization and the International Nuclear Information System to CAB International.

On the first day of the meeting, each organization described the current status, function, and future plans for its terminology. The terminologies described ranged from authority files to classification schemes, to structured thesauri and ontologies. Lisa Zolly, NBII Knowledge Manager, described the Biocomplexity Thesaurus; and Janet Gomon of the Smithsonian Institution

...the NBII is working with other organizations to make environmental terminologies more interoperable and generally useful.

described the Integrated Taxonomic Information System, an NBII component. Use cases for the sharing of terminology across organizations, disciplines, and systems were discussed.

The NBII <www.nbii.gov> is a broad, collaborative program to provide increased access to data and information on the nation's biological resources. Coordinated by the U.S. Geological Survey, the NBII links diverse, high-quality biological databases, information products, and


analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and private industry.

As an example of how terminology Web services could be used, the National Agricultural Library (NAL) of the U.S. Department of Agriculture demonstrated the terminology Web service it developed for the Agriculture Thesaurus. The goal of this Web service is to provide a tool for searching NAL products, such as Agricola, that other organizations could use to incorporate an agricultural knowledge organization system for indexing or searching into their applications. Dr. Timothy Lynch, Principal Investigator on this NAL project, also demonstrated how multiple terminology services could be linked using Web service technologies. An English-language term was entered in the search box; next the term and its synonyms were located and captured from the Agriculture Thesaurus. These terms were then also submitted to GEMET, a multilingual thesaurus from the EEA, to capture the translations in other languages. The combination of these terms provides a

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Brook Trout (continued from page 4)

and educational efforts on the importance of eastern brook trout and their habitats.

The NBII has taken the lead collecting and integrating data on brook trout. Specifically the NBII is creating an ArcIMS interface that will allow users access to data provided by state and federal agencies through a map-based stream hydrography layer. Working closely with state, federal, and NGO partners, a workshop will be held this fall to identify the status of brook trout within streams of the eastern United States. Eventually, the plan is for data held by state and federal partners on brook trout to be made available through the Brook Trout ArcIMS interface. Ultimately, this project will be used as an example of how the National Fish Habitat Initiative could proceed nationwide. 



Credit: Timothy Knepp/USFWS

International Connections

IABIN Receives Grant, Seeks Secretariat Staff

With support from countries throughout the Americas and pledges of participation and co-financing from over 70 institutions hemisphere-wide, the Inter-American Biodiversity Information Network (IABIN) has been awarded a Global Environment Facility (GEF) grant through the World Bank. This award is the culmination of a four-year effort, beginning in 2000 with a proposal to GEF seeking project development funds. This effort defined the vision for IABIN, planned its implementation, and sought participants committed to sharing biodiversity information to support decision-making and education, the mandate for IABIN as included in the Summit of the Americas Santa Cruz Plan of Action, December 1996.

The World Bank's Board approved the "GEF Trust Fund Grant to the Organization of American States – Building the Inter-American Biodiversity Information Network (IABIN)" on June 29, 2004. It was previously approved by the GEF Chief Executive Officer after consideration and comment by the GEF Council as a whole. IABIN will receive \$6 million from the GEF towards the \$35-million, 5-year implementation project. (The Project Implementation Plan for this

effort is at <www.iabin.net>.) Co-financing of about \$29 million has been identified from 76 regional or national institutions and programs. Agreements with the primary biodiversity informatics institutions throughout the Americas were forged based on data-sharing priorities of these institutions and mandates from the first three IABIN Council Meetings.

The Organization of American States (OAS), as Executing Agency of the GEF grant, is completing arrangements with the World Bank. Once those details have been satisfactorily addressed, the Bank will make the first disbursement to the OAS and the project will officially begin. The OAS is currently recruiting key personnel for the IABIN Secretariat, which will be established at the City of Knowledge in Panama. Information on Secretariat positions is available on the IABIN Web site



Douglas Graham, World Bank Task Team Leader for IABIN, and Andrea Grosse, representing Gladys Cotter, Chair of IABIN, celebrate the award of the grant and the culmination of their organizations' collaboration in seeking GEF funds.

<www.iabin.net>. The Secretariat is expected to be staffed and operational by late 2004. Information on IABIN, as well as the GEF IABIN Implementation Program, can also be found on the NBII-supported U.S. Node for IABIN at <www.iabin-us.org>.

IABIN is an initiative of the countries of the Americas to promote compatible means of collection, communication, and exchange of biodiversity information relevant to decision-making and education using the Internet. 🌿

Making Metadata Fun (continued from page 5)

and how to upload a record to the Clearinghouse. Hands-on computer exercises let participants create their own data set to take back to the office.

George Lienkaemper of the U.S. Geological Survey (USGS) Forest and Rangeland Ecosystem Science Center in Corvallis, OR, is a veteran trainer for the FGDC Standard and the Biological Data Profile. Participants enjoy his thorough approach to teaching metadata, which is

complemented by his ability to make a tough subject fun. George revived the Metadata Jeopardy game for the Seattle training session as a means of allowing participants to review the metadata standard. Other great trainers are available as well. Terry Giles of the USGS Fort Collins Science Center in Fort Collins, CO, takes his workshop participants through the metadata standard by first teaching a section and then practicing it on metadata creation software. At the conclusion of the workshop, participants have

completed a record to take back to their organization.

The NBII will continue to offer metadata training workshops throughout the United States. Let us know if you are interested in hosting one in your organization... and remember: "Don't Duck Metadata!" 🌿


- Answers:
- "The Standard" for 500: "What is the Biological Data Profile?"
 - "Metadata" for 400: "What is a Clearinghouse?"
 - "Sections" for 500: "What is Section 4: Spatial Reference Information?"

Environmental Terminology (continued from page 6)

rich, multilingual set for a more complete search that retrieves not only English language documents but those in other languages as well.

Other innovative projects were presented. SWAD-Europe has developed a standard for the expression of knowledge organization systems and the conversion of thesauri to richer structures such as ontologies. The UN Environment Programme identified its own particular needs for enhancing the management of terminology by advancing not only GEMET but more specific vocabularies from its related programs, while acknowledging the legacy resources.

At the end of the meeting, the group established a special subgroup under the Ecoinformatics Initiative called "Ecoterm." Future activities of Ecoterm may include the development of a demonstration or reference system for terminology Web services, a distributed terminology maintenance system based on wiki technology, relationships with other groups interested in the semantic Web, and a discussion list to promote the sharing of information.

The materials and presentations from the workshop are available from the Ecoinformatics Initiative's Web site <<http://ecoinfo.eionet.eu.int/>>. For additional information, please contact the NBII's Lisa Zolly <lisa_zolly@usgs.gov> or Gail Hodge <ghodge@infointl.com>. 

Upcoming Events of NBII Interest

89th Annual Meeting of the Ecological Society of America, Portland, OR.	August 1-6
24th Annual ESRI International User Conference, San Diego, CA.	August 1-6
Electronic Resources and Electronic Publishing, Tilburg University, The Netherlands.	August 10-13
122nd Stated Meeting of the American Ornithologists' Union, Quebec City, Quebec, Canada.	August 16-21
Scholarly Publishing: Perspectives on Open Access, Philadelphia, PA.	August 22
Society for Ecological Restoration International 2004 Annual Conference, Victoria, British Columbia, Canada.	August 23-27
2004 Fall Specialty Conference of the American Society for Photogrammetry and Remote Sensing (ASPRS), Kansas City, MO.	September 11-16
WebSearch University, Washington, DC.	September 27-28



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