Newsletter of the National Biological Information Infrastructure

nbii Access

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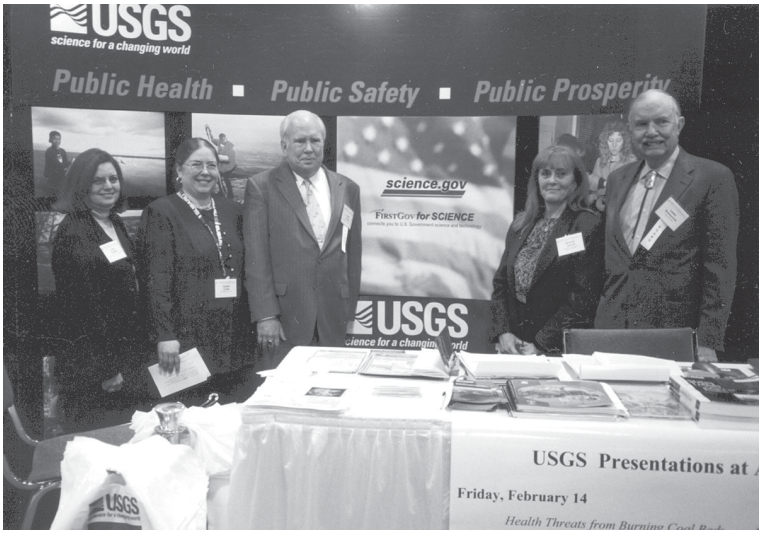
Science.gov Debuts at AAAS

On February 15, 2003, the National Biological Information Infrastructure (NBII) and the U.S. Geological Survey (USGS) hosted the official rollout of Science.gov to the scientific community at the American Association for the Advancement of Science (AAAS) Annual Meeting in Denver, CO (see photo at right). Science.gov <www.science.gov> is a gateway to the rich array of information resources offered by U.S. government science agencies, including Web sites, databases, technical reports, charts, and photographs. Science.gov has been designated "FirstGov for Science."



(left to right) Jan Bornick Griffith, National Library of Medicine; Gladys Cotter, NBII; Dr. Peter Raven, Missouri Botanical Garden; Bonnie Carroll, CENDI; Dr. Lewis Branscomb, Harvard University.

Science.gov has been designated "FirstGov for Science."

In introducing the demonstration – which was attended by scientists and members of the press – Dr. Peter Raven, Chair of the AAAS Board of Directors and Director of the Missouri Botanical Garden, stated, "We need to invest in an infrastructure that can capitalize on the increasing volumes of data and make effective access a reality. We have a biocomplex world, and sciences are interrelated. Our understanding must extend beyond biodiversity to environmental factors including hydrology, climate, geology, and

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NBII Provides Strategic Growth Modeling for the National Wildlife Refuge System

The U.S. Fish and Wildlife Service (USFWS) and the USGS Biological Resources Discipline have agreed to provide technical assistance for strategic growth planning in the National Wildlife Refuge System through collaboration between the NBII and the USFWS. Under the terms of the interagency agreement, Rob Dietz from the NBII is assisting the Division of Conservation Planning and Policy (DCPP), National Wildlife Refuge System Headquarters, on the following:

- Application of Gap Analysis Program (GAP) data to help establish scientifically sound priorities for the strategic growth of the National Wildlife Refuge System.
- Development of geospatial data and capabilities to conduct analyses on Refuge System growth.

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others. Because relevant information is generated across sectors and across federal agencies, a gateway such as Science.gov is a necessary part of our infrastructure."

Science.gov contains about 2,000 government science resources, including two major types of information – selected authoritative science Web sites and databases of technical reports, journal articles, and other published materials. The site allows users to search across both types of information by topic rather than by agency.

Science.gov was developed through a voluntary effort among 15 major federal research and technology agencies, which make up the Science.gov Alliance. Major support was provided by CENDI <www.dtic.mil/cendi>, an interagency committee of senior managers of federal science and technology and related information programs, of which the USGS Biological Resources Discipline is a member.

Science.gov was developed through a voluntary effort among 15 major federal research and technology agencies, which make up the Science.gov Alliance.

The NBII and the USGS are major contributors to Science.gov. Tom Lahr, Chief, Information Management of the Biological Resources Discipline, is the co-chair of the Alliance, along with Eleanor Frierson of the National Agricultural Library. Annie Simpson is responsible for selecting and maintaining the NBII contributions to Science.gov. The USGS creates the index to Science.gov's selected Web sites.

The NBII <www.nbii.gov> is a Web-based system coordinated by the U.S. Geological Survey that provides access to biological data and information on the nation's biological resources. Through the NBII, information from government agencies, universities, natural history museums, and many others is made available to NBII users, who include resource managers at public agencies, scientists in the public and private sectors, educators at all levels, and the general public. For more information on the NBII's participation in this initiative or for general information, please contact Kate Kase by e-mail at <kate_kase@usgs.gov>.

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Ron Sepic, Editor
Wendy Wicks, Associate Editor
Cheryl Williams Levey, Production Specialist

Contributors:
Franciel Azpurua
Edd Barrows
Doug Beard
Gladys Cotter
Rob Dietz
Ella Elman
Jake Faibisch
Gail Hodge
Vivian Hutchison

Just send your comments, article ideas, and requests to be added to our mailing list (as well as address corrections) to:

Ron Sepic, *Access* Editor
USGS-Biological Resources Discipline
302 National Center
Reston, VA 20192
Phone: 703/648-4218
Fax: 703/648-4224
E-mail: ron_sepic@usgs.gov

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

Please direct your general questions about the NBII, including partnership opportunities, to:

Program Manager
NBII National Program Office
302 National Center
Reston, VA 20192
Phone: 703/648-NBII (6244)
Fax: 703/648-4224
E-mail: nbii@nbii.gov

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

Photo Update

The *Access* editorial office recently received a message from Edd Barrows, Professor, Laboratory of Entomology and Biodiversity, Georgetown University, who pointed out that our photo on page 10 of the Winter 2003 *Access* in fact was not garlic mustard, as noted. He was kind enough to offer a photo of garlic mustard (*Alliaria officinalis*), which we reproduce here. Thanks to Professor Barrows for calling this matter to our attention!

ITIS and NBII Produce Taxonomic Metadata Tool

Creating metadata may not be your idea of a good time. It is a tedious and time-consuming process, but a necessary one. The folks at the NBII Pacific Northwest Information Node (PNWIN) are familiar with the problems of metadata creation. Over the past six years, they have created over 800 records for federal and state agencies as well as academic researchers and institutions. One of the major roadblocks in creating biological metadata has been finding an efficient way to generate and enter reliable taxonomic data for large numbers of species.

Several months ago, PNWIN approached the Integrated Taxonomic Information System (ITIS) with an idea for a tool that would address this issue and make "taxonomy anxiety syndrome" a thing of the past. Since that time, ITIS and PNWIN have been collaborating to create a simple online tool that takes a list of scientific names and outputs a complete list of taxonomic hierarchy in SGML (Standard Generalized Markup Language) format. SGML was selected since this format can be imported into any metadata software and integrated with a metadata record. The SGML created is compatible with the FGDC Biological Data Profile (FGDC-STD.001.1-1999).

ITIS <www.itis.usda.gov>, a vital NBII component, is the first comprehensive, standardized reference for the scientific names of the flora and fauna of North America; the system also focuses on worldwide treatment of many groups of birds, fishes, reptiles, mollusks, corals, and others.

The ITIS Taxonomic Metadata Tool is now available online as an option of the ITIS Compare Taxonomy/Nomenclature capability at <http://www.itis.usda.gov/taxmatch_ftp.html>. Complete instructions for the tool can be accessed as a link off the Web site, or directly at: <http://www.itis.usda.gov/tax_tool_guidlines.html>. A summary of the functionality is outlined below:

Step 1: Create a text document (file ending in .txt) with a list of scientific names with one name per line, and a category heading titled "name" at the top of the page. At the ITIS Web page for the Tool, upload the file you have created. Once the file is uploaded, proceed to Step 2.

Step 2: If you want to be sure your file is being read properly, hit the "view data file" button and you can see whether your names are in the right category.

Step 3: Select your kingdom. Please note, you can only select one kingdom at a time. If your data set has more than one kingdom, you can generate a report for each kingdom and append them in the SGML file.

Step 4: Choose "Scientific Name (FGDC Biological Profile Report – Prototype)."

Step 5: Leave both boxes checked. Hit the "Taxonomy Compare" button.

Your match/non-match report consists of five possible sections:

a. Matches Between ITIS and Input Data – Valid/Accepted Names: This shows valid scientific names in your data that were successfully matched in ITIS, and shows the corresponding valid/accepted names in ITIS that match invalid/not accepted names in your data.

b. Matches Between ITIS and Input Data – Invalid/Not Accepted Names: This shows scientific names in your data and in ITIS that are invalid/not accepted with their associated TSNs (Taxonomic Serial Numbers), and shows the corresponding valid/accepted names in ITIS for them. *These invalid/not accepted names will be replaced by the accepted names in the SGML output.*

c. Non-matches from Input Data: These are names that are not matched at all, either due to misspelling (a common problem) or another cause.

d. Duplicates in Input Data: This identifies scientific names that are listed more than once in your input file.

e. Duplicates Existing in ITIS: This identifies scientific names that are listed more than once in the ITIS database. You can click on the TSN links to the left to explore what the duplicates represent, then return to make your decision of which record to use in each case. Place a check in the "use" box once you've decided which scientific names to use. Please see the instruction page <http://www.itis.usda.gov/tax_tool_guidlines.html> for complete information on what duplicate names in ITIS mean.

The report is your opportunity to check any problems with your data. You may have to go back and fix your initial file, and repeat the steps again.

When you are content with the report, hit the "FGDC Biological Profile SGML" button at the bottom of the page. You will be taken to another page that explains how to save your report.

You will then be able to take the SGML that is generated and import it into your metadata software application or append it to your metadata record. We hope you will benefit from this tool, and would like to hear your suggestions and comments about it. This tool is still in the prototype stages, and will be enhanced in the coming months. Please send comments about bugs or desired additional features to <Paula.Huddleston@OCIOFC.USDA.GOV>.

NBII Provides Strategic Growth Modeling for the National Wildlife Refuge System (continued from page 1)

- Collection of input from USGS and USFWS experts on the methods used.
- Facilitation of communication between agencies to uncover additional collaborative opportunities between the NBII and the USFWS.

His assignment is scheduled to end on November 2003. In the interim, Dietz is providing information to help make management decisions and prioritize strategic growth in the National Wildlife Refuge System. "I will combine USGS, USFWS, and other data and information products to analyze where the National Wildlife Refuge System has gaps in its protection of habitat, ecosystems, and biodiversity. This analysis will provide information on what lands the Refuge System could target for conservation," explains Dietz.

"I will also develop an effective program of communication to involve potential users and contributors of information and data on this project," he adds. Already, the USGS Center for Biological Informatics in Denver is involved in gathering and distributing GAP data sets. The USGS Fort Collins Science Center in Colorado will potentially be involved in hosting and participating in a joint meeting of GAP and the USFWS.

Nonprofit land conservation and information organizations (e.g., NatureServe and The Nature Conservancy) are receiving information on products and results, and will have the potential to use analyses for prioritizing conservation lands. The work that is being done for the National Wildlife Refuge System could also serve as a template for other land management agencies.

To date, Dietz has developed and integrated spatial data sets on refuges, ecoregions, conservation lands, land cover, and species; collected input from GAP employees and USFWS regions; and performed a preliminary analysis of habitat deficits on conservation lands.

The regional planning staff of the USFWS have expressed their appreciation for the interagency agreement. In responding to the draft work plan, most regional and field personnel communicated a desire to be involved, and some even proposed pilot projects within their areas. The USFWS welcomes the assistance from GAP and the NBII in setting national land conservation priorities.

Aerial photo of Pelican Island National Wildlife Refuge. (Photo courtesy of FWS National Image Library <http://images.fws.gov>.)

The National Wildlife Refuge System Turns 100

On March 14, 2003, the National Wildlife Refuge System celebrated its 100th anniversary. Secretary of the Interior Gale Norton presided over a special ceremony at Pelican Island National Wildlife Refuge in Indian River County, FL (home of the first National Wildlife Refuge).

The event was aimed at honoring the entire Wildlife Refuge System by installing the final plank in the Centennial Boardwalk, leading to a new viewing tower overlooking Pelican Island. Each plank in the boardwalk is inscribed with the name of a wildlife refuge created in the past 100 years — 540 in all. The site was rededicated as a national historic landmark. Centennial celebrations occurred simultaneously at wildlife refuges across America and will continue throughout the year.

The Southern Appalachian Information Node and Visualization Tools: Bringing Virtual Appalachia to the World!

Picture this for a moment: A meandering creek running in front of you, the soothing sounds of rippling waters, and the heavenly vision of trees adorned in their fall foliage. You look up and see blue sky peeking between the tops of tall trees guarding the living things that call them home. You gaze around and imagine what kind of frogs or salamanders you might find, and then you glance down and see … a green circle that reads SAIN NBII! You could be picturing all of this while sitting in front of your computer monitor at 3 a.m. on the other side of the world.

Impossible? It's not only possible, it's here. The Southern Appalachian Information Node (SAIN) <sain.nbii.gov> has designed and created the first of five prototypes using immersive technologies developed in Oak Ridge, TN, to create spherical views of special places in Southern Appalachia.

These spherical views combine the beauty of the Southern Appalachians and the science behind them through pictures, images, and text to provide a complete picture of how the different habitats and ecosystems inter-relate. There are two primary uses of this visualization tool.

First, Internet search users looking for Appalachian environments, ecosystems, or habitats will benefit from the views and the data contained in the views since the "bubbles" will link not only to sounds but also to pictures and textual information telling the stories about the specific site and why it is important.

Second, the immersive technology tools will serve as a source of information to put in context other tools and applications developed by SAIN. Essentially, the node is combining these spherical views with Internet map viewers and other visualization tools such as 3-D models of sites in the Southern Appalachian Mountains.

The SAIN's first prototype of these immersive technology tools (The Appalachian Ecosystem) can be observed in action by accessing <sain.nbii.gov/ipix/app_eco_tour/index.shtml>. Currently, the tool presents the spherical view with a link to informational Web pages, pictures, and sounds of the most common living things found in the typical Appalachian Ecosystem and its different habitats. As this issue of *Access* went to press, the following views were nearly complete:

In the virtual tour, you can double-click on or near the targets to see details about the typical Southern Appalachian ecosystem.

1) The Tennessee River Gorge immersive tool: A spherical picture features two different "bubbles" with diverse sites in the River Gorge, pictures, and sounds, as well as complete information about the different species found at this site. Jim Brown, the Executive Director of the Tennessee River Gorge, provides historical information. This view is part of the Tennessee River Gorge tool set SAIN is providing, including an Internet Map Viewer, inventory and monitoring data, and a 3-D visualization model of the Tennessee River Gorge.

2) The Little Tennessee: This spherical view was taken from the banks of the Little Tennessee River and features information and pictures of living things that can be found in the habitats of the river's ecosystem. It includes a fish list and other information provided by Dr. Bill McLarney as a result of his volunteers' aquatic study project. The complete tool package created by SAIN for the Little TN River Project includes an Internet map viewer, several PDF maps, and data layers.

3) The Hemlock View at Albright Grove in the Great Smoky Mountains National Park: The hemlocks of Albright Grove are fiercely attacked by the woolly adelgids. As part of the Hemlock Woolly Adelgid Project, SAIN is designing a spherical view of how the hemlocks of Albright Grove look and the devastation the woolly adelgids have wrought. As part of the tool set, the node is building a 3-D model of how Albright Grove looks now — and how it will look if it is devastated by the killer woolly adelgid. We are also providing a home page for the Hemlock Woolly Adelgid Strike Force.

Part of the SAIN Annual Plan for FY 2003 is to bring these immersive technologies to the other nodes and partners. The use of an immersive technology that is both useful and pleasant will increase the overall visibility of SAIN and NBII applications. For more information about the immersive technologies, please contact Franciel Azpurua by e-mail at <fazpurua@infointl.com> or phone 865/481-0388, x116.

Upcoming Events of NBII Interest

2003 Congress on In Vitro Biology, Portland, OR.	May 31-June 4
44th Annual Meeting of the Society for Economic Botany, Tucson, AZ.	June 2-5
ECOSUD 2003: 4th International Conference on Ecosystems and Sustainable Development, Siena, Italy.	June 4-6
Natural Science Collections Alliance 2003 Annual Meeting, Berkeley, CA.	June 5-6
Special Libraries Association 94th Annual Meeting, New York, NY.	June 7-12
Society of Wetland Scientists 24th Annual Meeting, New Orleans, LA.	June 8-13
International Association for Impact Assessment 2003 Annual Conference, Marrakech, Morocco.	June 14-20
18th Annual Meeting of the Society for the Preservation of Natural History Collections, Lubbock, TX.	June 15-21
6th Virtual Communities Conference, London, England.	June 16-17
2003 World Conference on Natural Resource Modeling, Beaufort, NC.	June 16-19
American Society of Indexers 34th Annual Conference, Vancouver, BC, Canada.	June 19-22
American Library Association/Canadian Library Association Annual Meeting, Toronto, Canada.	June 21-24
International Association for Great Lakes Research 46th Annual Conference: Global Threats to Large Lakes, Chicago, IL.	June 22-26
Plant Canada, Nova Scotia, Canada.	June 25-29
American Society of Ichthyologists and Herpetologists 2003 Annual Meeting, Manaus, Brazil.	June 26-July 1
Society for Conservation Biology 2003 Annual Meeting, Duluth, MN.	June 28-July 2
American Water Resources Association 2003 International Water Congress on Watershed Management for Water Supply Systems, New York, NY.	June 29-July 2
National Educational Computing Conference, Seattle, WA.	June 30-July 2
Association for Tropical Biology and Conservation 2003 Annual Meeting, Aberdeen, Scotland.	July 7-10
Coastal Zone 2003: Coastal Zone Management Through Time, Baltimore, MD.	July 13-17
International Association for Landscape Ecology 2003 World Congress, Darwin, Australia.	July 13-17

NBII in American Fisheries Society Publication

The May 2003 issue of *Fisheries*, the monthly magazine of the American Fisheries Society (AFS), features an article by Doug Beard, the new Node Manager of the NBII Fisheries and Aquatic Resources Node (FAR) and the president of the AFS Computer Users Section. In his *Fisheries* article, Doug explores the recent development of the NBII as well as the opportunities for collaboration and partnerships it presents to the AFS, the oldest and largest professional society representing fisheries scientists. The following *Access* piece is based on that article.

"As I said to the *Fisheries* readers," Beard says, "the formation of collaborative partnerships is the cornerstone of the NBII. The Program's motto of 'Building Knowledge Through Partnerships' applies to the fisheries and aquatic resources folks as it does to all of the many NBII partners, of course. I would like to see those in the fisheries community participating in the NBII in an even larger way than they have in the past. It's something that could be mutually beneficial."

Beard sees his node as one of the best settings for that enhanced participation: "Since its beginning in 2001, the FAR Node has focused on inland freshwater fisheries resources and developed the tools necessary for future growth: online mapping and database capabilities, methods for Web-enabling management tools, and a process for cataloguing existing online fisheries resources. As the node continues to grow, we're seeking other partners and collaborators interested in sharing their information broadly."

Beard believes that is where the AFS can play an important role by

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NBII in American Fisheries Society Publication (continued from page 6)

providing access to partners and collaborators interested in sharing data and information beyond their traditional sphere of influence. In addition, the AFS should continue its leadership role in developing fisheries data standards, such as taxonomic names of fishes, for use in structuring many of the data sets accessed by the NBII and fisheries professionals.

The AFS, through its books and publications program, can provide the NBII guidance in the development of bibliographic databases and references searchable via the Web. Moreover, the AFS can provide direction and support for the continued growth of the NBII Fisheries and Aquatic Resources Node by serving on the node's advisory committee.

In return for support from AFS, the NBII can provide AFS and its partners expertise in database and information systems development, limited financial support, expert help in the development of Web mapping capabilities, and a variety of other support functions. "The possibilities on how we can help each other are enormous," says Beard.

If you have any questions or comments for Doug Beard, he can be reached at <dbeard@usgs.gov>. For the full text of the column, please see *Fisheries* 28(5):27.

"Someday, when you're looking for the latest information on, let's say, cutthroat trout, the NBII will be your one-stop shopping site," says Beard.

What's New in the World of NBII Metadata

One major accomplishment of the NBII Clearinghouse this fall was the addition of the Baruch Coastal Monitoring Node to a growing list of metadata partner contributors. The Belle W. Baruch Institute for Marine Biology and Coastal Research was founded in 1969 and is an internationally recognized academic coastal monitoring research center. Located on the University of South Carolina campus in Columbia, the Institute conducts research in areas such as tidal freshwater, estuarine, and coastal ocean environments, including human impact studies of those areas. The staff at Oak Ridge National Laboratory (ORNL) successfully established the new node, and the metadata records are currently available on the NBII Clearinghouse.

The NBII and ORNL are working to further improve functionality of the Clearinghouse. Currently, the team is working with the existing Clearinghouse nodes to migrate from a distributed Z39.50 model to a harvesting model to access metadata records. The new system will allow Clearinghouse search improvements such as the creation of subject-oriented browse trees. Of the 17 nodes currently existing on the Clearinghouse, six are currently being administered by the harvesting method, and four more conversions are in progress.

The NBII Metadata Program was highlighted at the FORREX conference in Vancouver, BC, in February. A presentation was made entitled, "Making Your Data More Valuable," addressing the value of metadata, the history of the NBII Metadata Program, and ways to participate in the program. A positive response was received.

More interesting work is being done for the NBII Metadata Program. Look for updates on the Web site <http://www.nbii.gov/datainfo/metadata/>. Questions? Please contact:

Vivian (Viv) Hutchison
NBII Metadata
Program Coordinator
NBII National Program Office
302 National Center
Reston, VA 20192
Phone: 703/648-4311
Fax: 703/648-4224
E-mail: vhutchison@usgs.gov

UPDATE Electronic or Print *Access*?

We wanted to take a moment to remind readers that *Access* is available as both a printed publication and online as an electronic document. The location of the online version of *Access* is noted in the masthead (bottom of page 2) of each issue: <http://www.nbii.gov/about/pubs/news/>.

If you would prefer to read only the online version from now on, just send an e-mail stating that to <ron_sepic@usgs.gov>, and we'll remove your name from the standard *Access* mailing list. Next, we'll add you to our listserv for notifying *Access* readers when future online issues are ready – with a link to the online version — so you'll be able to stay up-to-date on NBII developments without adding to your incoming snail mail. It's your call!

NBII Seeks Metadata Partnerships

The NBII is interested in forming partnerships with State Fish and Wildlife Agencies with a goal of identifying their metadata needs, assisting in the progression of their metadata programs, and ultimately providing a common area for metadata to be accessed. The purpose is to provide support for states' metadata activities in exchange for the ability to provide access to the state's records for the biological community through the NBII Clearinghouse.

The NBII has been working with the Virginia Department of Game and Inland Fisheries (DGIF) to develop a NBII Metadata Clearinghouse node. The DGIF has identified data sets in need of metadata creation assistance, for which the NBII is providing creation support. Existing records at DGIF are being reviewed for compliance with current Federal Geospatial Data Committee (FGDC) standards. The node will be a registered FGDC/ National Spatial Data Infrastructure Clearinghouse node and will be clearly identified as DGIF metadata records.

The bald eagle is one of many threatened or endangered species found in Virginia.

State Fish and Wildlife Agencies interested in participating in this program or getting more details, should contact Vivian Hutchison, NBII Metadata Program Coordinator, at 703/648-4311 or <vhutchison@usgs.gov>; or, Jake Faibisch, IAFWA/NBII Coordinator, at 202/624-7744 or <jacobf@sso.org>.

National Biological Information Infrastructure

NBII National Program Office
U.S. Geological Survey, 302 National Center
Reston, VA 20192