

NBII Metadata “Profile” Moves To Final Stage

As many *Access* readers know, the National Biological Information Infrastructure (NBII) is being developed in cooperation with a variety of partners, including federal, state, and local government agencies; nongovernment institutions; and private sector organizations in the United States and around the world.

A key part of this effort to develop a widely distributed federation of biological data from many different sources is the adoption of a standardized way to describe or document all these different data sets (and information products) so that users may locate the data set(s) that

best meet their needs.

To help achieve this goal, the NBII program has worked with many partners to develop a metadata content standard for documenting biological data (metadata, data elements that describe other data, serve as the NBII’s “card catalog”). This standard functions as a biological “profile” of the Federal Geographic Data Committee’s (FGDC) Content Standard for Digital Geospatial Metadata. Chaired by the Secretary of the Interior, the FGDC is the interagency group responsible for developing standards to support increased exchange and dissemination

of geospatial (geographically referenced) data among federal agencies and their nonfederal cooperators and partners.

In August 1998, the NBII program — working through the FGDC’s Biological Data Working Group — released a proposed “Biological Data Profile” of the FGDC geospatial metadata standard for public review. The comment period closed on October 30, 1998. The intent of the

(continued on page 5)

NBII Plays Important Role in Digital Earth Initiative

The Second Joint Interagency Digital Earth Workshop was held in September 1998 at the University of Maryland University College Inn and Conference Center, College Park, Maryland. Participants at the two-day workshop included senior managers and experts in information science and geospatial technologies from the Executive Office of the President, the National Aeronautics and Space Administration (NASA), the National Oceanographic and Atmospheric Administration, the Environmental Protection Agency, the National Science Foundation, the Army Corps of Engineers, the Intelligence Community, and the U.S. Geological Survey (USGS).

The main goals of this USGS-

sponsored event included stimulating thinking on what the Digital Earth is and developing strategies for reaching program goals. Many of the insights generated from the workshop built on concepts advanced at the First Joint Interagency Digital Earth Workshop, which was sponsored by NASA in June 1998 and held at their Goddard Space Flight Center in Greenbelt, Maryland.

Participants at the September workshop explored a range of issues, including the role of the National Biological Information Infrastructure (NBII) as the Digital Earth’s biological layer. As the Digital Earth evolves, it was noted, the NBII’s role will be keyed to recommendations on the

(continued on page 2)

In This Issue

Experts Offer Goals for CHM	2
Partners in the Spotlight	3
NBII Clearinghouse Offers	
Practical Benefits	4
North American Biodiversity Information	
Network: A Subregional Slice of the	
Biodiversity Information Pie	4
Indonesian Scientists Visit NBII	
National Program Office	5
NBII FrogWeb Unveiled	6
Inside IABIN	7
Biological Informatics News	8
Science Information System With	
Biological Focus Inspired by CRIS	9
Upcoming Events of NBII Interest	9
Metadata Training Update	10
Biological Metadata “Profile” and	
Compliance	11
Legacy Data Set Documentation	11
Third IEEE Metadata Conference	11
NBII Metadata Training Schedule	12

Experts Offer Goals for CHM

Biodiversity information experts from four continents met in Florence, Italy, in July 1998 to take a critical look at the progress to date in establishing the Clearing-House Mechanism (CHM) of the Convention on Biological Diversity. The Conference of the Parties to the Convention on Biological Diversity has designated the CHM as a mechanism to promote and facilitate the scientific, technical, and technological cooperation necessary to meet the objectives of the Convention. The Florence meeting was the second time CHM experts met. The First International Experts Meeting on Building the Clearing-House Mechanism was held in Bonn, Germany, in June 1997.

The experts meet in order to make constructive recommendations for furthering the CHM work and its strategic vision. The Florence meeting participants suggested six goals for the

CHM: Build national focal points; coordinate focal points and networks; develop appropriate biodiversity-related networks, activities, and focal points at the international level; develop a monitoring and evaluation system to determine the effectiveness of the CHM; and maximize use of the CHM.

The United States, while not a party to the Convention, is a partner in the establishment of the CHM. USGS and the Smithsonian Institution, together with other government and nongovernment partners, are collaborating to develop the U.S. node of the Clearing-House Mechanism. The CHM node will be integrated with the National Biological Information Infrastructure and will be closely aligned with other national and international networking initiatives, such as the Inter-American Biodiversity Information Network. 

“next-generation NBII” outlined in *Teaming With Life*, a report issued in June 1998 by the Biodiversity and Ecosystems Panel of the President’s Committee of Advisors on Science and Technology (see *Access*, September 1998).

Vice President Gore introduced the Digital Earth concept in an address he made in January 1998 titled, *The Digital Earth: Understanding Our Planet in the 21st Century*. At that time, Gore proclaimed the need for a “Digital Earth” — a multi-resolution, three-dimensional representation of the planet, into which we can embed vast quantities of geo-referenced information. He suggested that preserving biodiversity was one of the Digital Earth’s key potential applications.

The robust discussions at the September Joint Interagency Workshop produced a range of action items, including the preparation of a paper that discusses the current state of the systems and technology developments at individual agencies. The purpose of this paper is to give us an idea about where the project now stands. A Reference Model paper will outline the proposed architecture for the Digital Earth and where cooperators want it to go. These two papers will allow us to identify gaps, or what is missing that is needed, to get the project to where it needs to go. This “gap” information will then be used to prepare a Cooperative Announcement, which will be sent out to private industry and academia for comment, review, and submission of proposals to help implement the Digital Earth.

As participants handle their respective actions, plans are also expected to evolve for the third Inter-Agency Workshop, which will be held after the first of January 1999. 



Access, the newsletter of the National Biological Information Infrastructure, is published by the NBII National Program Office.

Ron Sepic, Editor
Donna Foulke, Production Specialist
Michelle Ryman, List Specialist
Vince Wilding, Web Wrangler

Contributors:

Barbara Bauldock
Jim Beach
Bonnie Carroll
Gladys Cotter
Terry D'Erchia
Anne Frondorf
Jennifer Gaines
Catherine Haecker
Karen Kaye
Scott Peterson
Sharon Shin

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 Division
302 National Center
Reston, VA 20192
Phone: 703/648-4218
Fax: 703/648-4224
E-mail: ron_seplic@usgs.gov

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

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

Anne Frondorf, Manager
NBII National Program Office
302 National Center
Reston, VA 20192
Phone: 703/648-4205
Fax: 703/648-4224
E-mail: nbii_program@nbii.gov

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

Partners in the Spotlight

“Partners in the Spotlight” highlights the activities and contributions of a wide range of NBII partners. We are pleased to welcome Scott Peterson and the National Plant Data Center as this issue's Partner in the Spotlight. If you're interested in producing a similar article about your organization, please contact Ron Sepic, Access Editor, at: ron_sepik@usgs.gov.

NBII Partner Plants the Seeds of Success

Typically, when one thinks of Baton Rouge, Louisiana, and its environs, images of moss-draped oaks, fragrant honeysuckle, and formal gardens spring to mind. Yes, plants of various types have always been associated with this area that, for many, epitomizes Southern charm and hospitality.

But in recent years, U.S. Department of Agriculture (USDA) scientists based on the campus of Southern University in Baton Rouge and associated with the National Plant Data Center (NPDC) have brought a high-tech dimension to the study of the aforementioned botanical subjects — and countless others. Their activities also help to explain the increasing breadth and depth of information resources available through the National Biological Information Infrastructure (NBII).

The NPDC focuses resources on the acquisition, development, integration, quality control, dissemination, and access of plant information. The group works with myriad cooperators nationwide to acquire and disseminate plant information to the USDA's Natural Resources Conservation Service, its customers, partners, and the public.

At the same time, the NPDC is responsible for the PLANTS database, which provides a single source of standardized information about plants. This database focuses primarily on plants of the United States and its territories and includes checklists, distributional data, crop information, plants symbols, plant growth data, references, and an incredibly wide



Visit the U.S. Department of Agriculture Natural Resources Conservation Service PLANTS Web site at <http://plants.usda.gov/plants>.

variety of other plant information.

PLANTS reduces costs by preventing the duplication of efforts and by making information exchange possible across agencies and disciplines. Visitors to the NPDC Web pages <http://plants.usda.gov> can query the PLANTS database, download information, and view an enormous range of plant images. Clearly, many Web surfers find these activities useful — 35,000 users visit the PLANTS database each month.

PLANTS originated as an outgrowth of the National List of Scientific Plant Names (SCS 1982), which was produced in cooperation with the Smithsonian Institution. Key cooperators on today's foundation list include Drs. John Kartesz, Marshall Crosby, Ray Stotler, and Robert Egan. In fact, the contributions and support of many other individuals in the botanical and related plant science communities are critical to data development and dissemination through the PLANTS database.

As designed, PLANTS now contains information on taxonomy, plant growth, species abstracts, images,

distribution, plant characters, sources of plant materials, common names, plant symbols, weeds, state threatened species, and other data. The data are integrated so that they can be recycled into new products to meet a range of customer needs.

PLANTS information is utilized by the Integrated Taxonomic Information System (see *Access*, September 1998), the International Organization for Plant Information— Global Plant Checklist, and, in turn, by the Species 2000 project, indexing the world's known species. Core data within PLANTS are being used as a Federal Geographic Data Committee standard for plant-related data exchange.

We encourage others to participate in the NBII so we can all share in the vital effort to make data and information about our biological resources more widely available. 🌱



Last August, Scott Peterson (left) demonstrated the PLANTS database as a member of the NBII exhibit team at the annual meeting of the Ecological Society of America in Baltimore, Maryland. Peterson was one of several demonstrators at the conference who explained their organizations' contributions to the NBII.

NBII Clearinghouse Offers Practical Benefits

In late 1997, the NBII initiated an Internet-based clearinghouse — the NBII Clearinghouse <<http://www.nbii.gov/clearinghouse.html>> — to help individuals easily search for, and locate, biological data and information from a variety of sources. Today, users continue to access the Clearinghouse to search through an assortment of standardized descriptions (metadata) of different biological databases or information products (such as technical reports or publications) to identify those that meet their needs.

The requirements of some researchers have included data on specific research topics or data from studies in specific geographic locations. Others use this service to compile background information before beginning new studies or to better design new research or inventory studies. Still others use the Clearinghouse to help identify organizations and scientists who have done or are doing work on specific resource issues, as a source of possible future interactions or collaborations.

What's more, many scientists who have contributed metadata descriptions of their data sets or information products to the Clearinghouse are finding that, by doing so, the time they spend responding to ad hoc requests about data they may or may not have has been significantly reduced.

For just one example of how the Clearinghouse helps NBII users . . . soon after the NBII Metadata Clearinghouse began operation, a university scientist contacted the NBII Web site for suggestions about where to find data on U.S. distributions of certain bat species that roost in underground mines. The scientist was pointed to the Clearinghouse, where he was quickly able to locate a complete metadata description of, and online

The requirements of some researchers have included data on specific research topics or data from studies in specific geographic locations.

link to, a database that met his needs. The database in question — a geospatial database on the distributions

North American Biodiversity Information Network: A Subregional Slice of the Biodiversity Information Pie

The North American Biodiversity Information Network (NABIN) is a project of the Commission for Environmental Cooperation (CEC), which is part of the implementation of the North American Free Trade Agreement. Participating nations are the United States, Canada, and Mexico. NABIN's objective is to assist institutions and agencies that collect, manage, or use biodiversity data to collaborate on providing broader access to information across North America by using a distributed electronic federation model similar to the NBII. The goal is to develop a holistic perspective of North American species, emphasizing the development of standards and protocols for the exchange of biodiversity information.

Early in NABIN's history, it was decided that the utility and effectiveness of the project would best be demonstrated through a pilot study that would interconnect taxonomic databases on the birds of North America. A base system was developed and, in 1998, cooperating researchers for NABIN received a \$500,000 grant from the National Science Foundation to upgrade the pilot to "design, implement, and optimize a system enabling taxonomists, conservation biologists, and decision-makers to access large

of sensitive mine-roosting bat species — was produced through a USGS-funded study conducted by the U.S. Bureau of Mines and Bat Conservation International. Because this database had been documented with metadata and made accessible through the NBII Clearinghouse, an interested user was able to easily find and view the data he needed. 

quantities of data regarding the distribution and diversity of birds, based on data from systematic collections and observational data sets." The University of Kansas and the San Diego Supercomputer Center are key institutional partners in this grant.

Plans for further NABIN development include continued development of the technical infrastructure, adding to the content and tool set available, and expanding its coverage to the Western Hemisphere through cooperation with the developing Inter-American Biodiversity Information Network <<http://www.nbii.gov/iabin>>.

NABIN is managed by a Project Director located at the CEC in Montreal. He has a Steering Committee representing all sectors from across the three cooperating countries. Anne Frondorf, manager of the NBII National Program Office, is an active member of this Committee. A NABIN Home Page is under development and should be accessible in the near future. The next NABIN meeting will be held in January 1999.

For more information, contact Bonnie C. Carroll (also a Steering Committee member) at bcarroll@infointl.com (e-mail) or 423/481-0388 (phone). 

Indonesian Scientists Visit NBII National Program Office

On September 24, a team of scientists from Indonesia who are overseeing the development of that nation's National Biodiversity Information Network (NBIN) visited the National Biological Information Infrastructure (NBII) National Program Office in Reston, Virginia. During their visit, the Indonesian group explored a variety of topics with NBII experts regarding the NBII and related programs.

The group's activities for the day included receiving a briefing and demonstration of the NBII, learning about the U.S. approach to the Clearing-House Mechanism, and exploring tools and techniques for developing a metadata standard.

At day's end, Dr. Asep Adhikerana, the NBIN Project Coordinator said, "We were pleased to receive much information that will help us determine what the NBIN can be. At the same time, we've established contacts for continuing this discussion as well as opportunities for cooperation in the future." 🌱



Front row (left to right): Tri Margono, Indonesian Institute of Sciences, Center for Scientific Documentation and Information; Suhatsjah Sjamsudin, Head of Business Development at P.T. Kimia Farma; Bambang Wahjoedi, Head of the Research Program Group on Traditional Drugs, National Institute of Health Research and Development; and Dr. Intan Ahmad, Head of the Department of Biology, Bandung Institute of Technology. Back row (left to right): Richard Fera and Bonnie Carroll, consultants to NBII international programs; Barbara Bauldock, Chief, International Biological Informatics, U.S. Geological Survey (USGS); Ana Maria Linares, NBIN Legal Specialist; Dr. Asep Adhikerana, NBIN Project Coordinator; and Gladys Cotter, Assistant Chief Biologist for Information, USGS.

NBII Metadata "Profile" Moves To Final Stage (continued from page 1)

biological data profile <http://www.fgdc.gov/standards/status/sub5_2.html> is to provide additional metadata elements ("fields") to the FGDC standard to meet the requirements of those interested in describing or locating biological data.

An example of this challenge can be found in the area of biological taxonomy and nomenclature — classifications and scientific names of species (or higher groups) represented in a given biological data set. This is a significant issue for biologists concerned with documenting their data sets or with locating and reviewing the potential suitability of other people's data sets, but it is not specifically

addressed within the "generic" FGDC metadata standard.

What's more, because biologists typically do not focus on a distinction between "spatial" and "nonspatial" biological data, the profile provides a single, common mechanism for documenting biological data sets that are explicitly geospatial as well as those that are not explicitly geospatial (such as data resulting from *in vitro* research). This approach answers the problem of having to refer biological data producers to two different metadata standards: one for spatial biological data and the other for biological data that are not spatial. Further, metadata produced using the profile are compliant with the NBII as well as with the National Spatial Data Infrastructure (NSDI) . . . and thus

with all associated tools and protocols for NBII/NSDI metadata creation, processing, indexing, searching, and exchange.

To solicit the involvement and input of the nonfederal biological sciences community in the development of the biological data profile, the NBII is cooperating with the American Institute of Biological Sciences, which will convene a national-level panel of biologists in January 1999 to provide a peer review of the profile and of the substantive comments received during the period of public review. The FGDC Biological Data Working Group will use these panel recommendations to revise the draft profile and to prepare it for final review and approval as a federal standard by the full FGDC. 🌱

NBII - FrogWeb - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Guide Print Security Stop

Bookmarks Location: <http://www.frogweb.gov/index.html>

BRD - USGS USGS Intranets Lookup New&Cool

nbi National Biological Information Infrastructure

We welcome you to join us and our partners:

Click here for information on NBII partnership opportunities

NBII Home

Search NBII

Metadata

Contact Us

FrogWeb

Focus on Amphibian Declines and Deformities

Scientists are closely tracking developments in the malformation and decline of amphibian populations in North America and elsewhere. Since the summer of 1995 when Minnesota middle-school students discovered large numbers of deformed frogs while on a field trip, scientists have been searching for possible causes of deformities and declines.

Finding the causes is critical, since they may have significant ecosystem implications. As reported on ABC's Nightline on June 20, 1997, "If frogs begin showing signs of distress, it could be only a matter of time before other species are affected, including humans."



Species that have been reported with malformations include northern leopard frogs, wood frogs, bullfrogs, green frogs, mink frogs, gray treefrogs, Pacific treefrogs, spring peepers, American toads, long-toed salamanders, tiger salamanders, and spotted salamanders. Recent reports show that many amphibian populations are undergoing declines and even extinctions.

Although habitat destruction is a major reason for these declines there may be additional factors such as chemical pollution, increased UV-B radiation, fungi, parasites and predation. Amphibians are an essential part of many ecosystems and may even constitute the highest percentage of vertebrate biomass. Thus, declines in amphibian populations could have important impacts on ecosystem health.



Boreal toad (*Bufo boreas boreas*) from Rocky Mountain National Park, Colorado (federal candidate species; listed as endangered by the state of Colorado; the species has undergone about an 80% decline in southern Rocky Mountains). Photo by Stephen Corn, USGS.

<http://www.frogweb.gov/index.html>
Last Updated: September 18, 1998

- [FrogWeb Home](#)
- [Research](#)
- [News Releases](#)
- [Education](#)
- [News/Salamanders](#)
- [How You Can Help](#)
- [Adopt a Frog Pond](#)
- [Frog Fun](#)
- [Leap Frog](#)
- [TADD](#)



Amphibians are cold-blooded vertebrates that are most similar to fishes and reptiles. Like fishes, amphibians can live in the water. Like reptiles, many amphibians can also live on land. In fact, amphibians were the first vertebrate to move from a water habitat to a terrestrial one.

NBII FrogWeb Unveiled

Since the summer of 1995, when Minnesota middle-school students discovered large numbers of deformed frogs while on a local field trip, scientists nationwide have been searching for possible causes of amphibian deformities and declines.

Now, the Department of the Interior, the National Wildlife Federation, and a popular public television series called Kratt's Creatures have partnered to help grapple with this troubling, pervasive phenomenon. One result of their efforts is FrogWeb <<http://www.frogweb.gov/>>, a new interactive Web site that was made possible with the assistance of the NBII and the USGS Patuxent Wildlife Research Center.



Green frog

Photo by Bill Thruene



The FrogWeb gets some help from PBS Television's "Kratt's Creatures," featuring Chris and Martin Kratt. See FrogWeb's Education link for "A Message from the Kratt Brothers."

FrogWeb offers a broad range of information on amphibians, including updates on the progress scientists are making in amphibian research, access to a wide array of educational tools, and insights on the important role the public can play in frog research. Until the causes of these malformations are understood, scientists do not know whether amphibians are being affected by something that may also pose a risk to human health.

Inside IABIN

U.S. Experts Prepare for IABIN Launching in Brazil

FrogWeb provides an online reporting mechanism, FrogNotes, for observers across the country (including families, school groups, and volunteer organizations) to record and share observations about the status of frog populations. These accounts will help scientists gain a better understanding of the places and situations where frogs are in the greatest trouble — and may eventually help determine solutions to the problem of global amphibian declines.

Secretary of the Interior Bruce Babbitt has noted, “The real questions are ‘why now?’ and ‘why is this happening in so many different places around the world?’ When we consider that these creatures are hardy enough to have been on Earth for 350 million years, it is shocking to think that there could be a world without frogs. We must act quickly, first to understand the problems, and then to try to solve them.”



Houston toad silent and singing.

Photos by Dr. Robert Thomas, U.S. Fish and Wildlife Service

More than 100 scientists and information specialists from nations throughout the Western Hemisphere will gather in Brazil early this spring for the “Technical Meeting for the Establishment of the Inter-American Biodiversity Information Network.” This meeting is the official “kick-off” for IABIN, an intergovernmental initiative intended to promote greater coordination among Western Hemisphere countries in the collection, sharing, and use of environmental information. Participants from all sectors, including government, non-government organizations, academia, industry, and civil society, will attend the four-day event, which is sponsored by the Brazilian Environment Ministry.

To prepare for participation in this major event, experts from the United States met in Alexandria, Virginia, on October 15–16, 1998, to discuss their vision for IABIN, progress made to date on the network’s development, and guidance and recommendations the U.S. might offer at the international meeting in Brazil. This U.S. Consultative Meeting on the Establishment of IABIN was attended by over 60 biodiversity experts, information specialists, educators, technologists, and others interested in the exchange of biodiversity information to support decision-making and education.

Workshop attendees discussed issues related to the U.S. approach to IABIN; identified U.S. technical initiatives relevant to IABIN; concurred on a process to promote wide participation in IABIN throughout the U.S.; and explored issues of governance for an

international network (organization and coordination) and information exchange (legal, institutional and technical) as well as plans for IABIN pilot projects (the first pilot under U.S. leadership is on invasive species).

Brooks Yeager, Deputy Assistant Secretary of the Interior for Policy and International Affairs, delivered the keynote address

at the workshop’s opening session (see photo). During his remarks, Yeager noted, “You might call IABIN an open forum for developing common solutions to a broad range of problems in the biodiversity arena. Exotic invasive species and amphibian declines and deformities are just two serious concerns that come to mind.” He added, “Dealing effectively with these kind of issues is a high priority for the U.S. government.”

Information concerning the U.S. Consultative Meeting, as well as other information on IABIN, is available at <<http://www.nbii.gov/iabin>>.

“You might call IABIN an open forum for developing common solutions to a broad range of problems in the biodiversity arena . . .”



Brooks Yeager, Deputy Assistant Secretary of the Interior for Policy and International Affairs, discussed the IABIN vision and underlined the network’s importance in helping solve a variety of environmental challenges.

Database Protocol to Usher in Open Access to Biodiversity Data

A National Science Foundation-funded project operating under the framework of the NBII is focused on testing an Internet search and retrieval protocol for biological collection and taxonomic databases. The project is being undertaken by the Z39.50 Biology Implementers Group (ZBIG), which is based at the University of Kansas. (For *Access* readers who aren't completely familiar with the term protocol, in this context it refers to the standard rules regulating data transmission between computers to ensure successful communication.)

Z39.50, or simply Z, is a communications standard used by scholarly and scientific communities, including libraries and the National Spatial Data Infrastructure, to provide Internet access to information in remote databases. The Z protocol is both a NISO and ISO standard and has been rapidly deployed with the support of a large international group of technical developers. (The National Information Standards Organization [NISO], a leader in shaping international standards, develops and promotes technical standards used in a wide variety of information. The International Organization for Standardization [ISO] is a worldwide federation of national standards bodies from approximately 100 countries.)

From the user's perspective, the value of Z39.50 is twofold. First, it allows desktop computer users to retrieve data from any number of remote databases with a single query. This distributed query architecture operates behind the scenes by simultaneously sending the user's request to multiple Z servers and managing the responses from those servers for use by the local application. A critical distinction between Z and Hypertext Transfer Protocol (HTTP)

— the basis for World Wide Web (WWW) communications — is that Z-based systems return data in structured formats. In turn, these formats are immediately utilizable as records for the creation of local databases, catalogs, or for desktop analysis or processing. This contrasts with the WWW, where data are formatted and intended for reading simply as a page or a document.

ZBIG will implement prototype Z client applications and database servers for natural history museum collection catalogs and for taxonomic classifications. At their core, collection data include the name of the species and the locality where and the date when the specimen was taken. As a result of 300 years of inventorying, biological collections contain an estimated three billion specimens. The Z protocol and its distributed query architecture nicely match the dispersed nature of specimens in museums and herbaria around the world. Further, Z architecture promises to mobilize the data held in those collections in integrative and highly useful ways, bringing the results of a 300-year investment to everyone's desktop!

Taxonomic classification data — the basis for naming, identifying, and managing organisms — are also a highly distributed resource. Systematists have partitioned the taxonomic name space among themselves as specialists from around the world create and publish taxonomies about their particular groups. The ZBIG is also attempting to bring taxonomic or classification data into a Z39.50 framework so that multiple point sources of taxonomic knowledge might be linked, queried, and utilized by all sectors of the Internet. For both collections and taxonomic data, the group will define

draft standards for the description of specimens and taxonomic names as well as develop guidelines for several related semantic and syntactical issues.

By building on the successes of other information communities, environmental biology may adopt Z39.50 as a key component of networked data communications within the NBII. For additional information on the Z39.50 standard and its implementation in various communities and commercial products, you may contact Jim Beach, an NBII consultant associated with the University of Kansas, at 785/864-4540 (phone) and jbeach@nbii.gov (e-mail).

UPDATE

See You At AAAS in Anaheim!

Are you going to the American Association for the Advancement of Science Annual Conference in Anaheim, California, this month? If so, please stop by the NBII exhibit and say hello. The NBII exhibit team looks forward to seeing you! Plus, we'll be featuring a variety of NBII handouts, demonstrations, and special prize drawings.

Science Information System With Biological Focus Inspired by CRIS

It's said that imitation is the sincerest form of flattery. One example of that adage has been available through the NBII since September 1998, when users first gained access to the new biologically oriented Science Information System (SIS) <<http://cristel.nal.usda.gov:8080/star/brd.html>>. (The SIS is also accessible by going to the "Federal Programs and Organizations" site <<http://www.nbii.gov/programs/fed.html>>, where you will see SIS under the U.S. Geological Survey—Biological Resources Division.)

The origin of this new NBII resource can be traced to the work of two NBII partners: the U.S. Department of Agriculture (USDA) and the U.S. Geological Survey (USGS). Since early 1996, the USDA has offered public access to its Current Research Information System (CRIS) Web site. CRIS is USDA's computer-based documentation and reporting system for ongoing agricultural, food and nutrition, biological, and forestry research. The site provides ready access to information about research conducted primarily within the USDA/state agricultural research system. Users access CRIS to plan research, avoid costly duplication, determine current areas of emphasis, or establish valuable contacts.

In 1996, when scientists and systems analysts at the USGS were looking for a system to display the work of USGS—Biological Resources Division (BRD) scientists, CRIS served as the model. "The SIS is the result of a cooperative effort between the USDA and the USGS to develop a system similar to CRIS," said Karen Kaye, one of the SIS project leads for USGS. "Like CRIS, the SIS focuses on providing access to ongoing and recently completed projects."

The Science Information System was also designed against the backdrop

of the BRD mission, which is *to work with others to provide the scientific understanding and technologies needed to support the sound management and conservation of our nation's biological resources*. Now, those seeking information on practical applications of the BRD mission can readily access project descriptions and

other information. The new current projects database — available over the Internet to users with a forms-capable Web browser — provides a window on the world of BRD science.

The SIS became available to the public at large after several months of testing and refinement. The automated information system provides rapid

(continued on page 10)

Upcoming Events of NBII Interest

	1999
American Association for the Advancement of Science Annual Conference, Anaheim, CA	January 22–25
Annual Southeast Regional Gap Analysis Program Meeting, Athens, GA	February 9–10
National Federation of Abstracting & Information Services Annual Meeting, Philadelphia, PA	February 21–24
Wisconsin Land Information Association Conference, Madison, WI	March 10–11
American Congress on Surveying and Mapping 1999 Conference, Portland, OR	March 14–17
Inter-American Biodiversity Information Network Kick-off Meeting, Salvador de Bahia, Brazil	March 23–26
1999 Association of American Geographers Annual Meeting, Honolulu, HI	March 23–27
Coastal GeoTools '99, Charleston, SC	April 5–7
Third IEEE Metadata Conference, Bethesda, MD	April 6–7
Geospatial Information and Technology Association Conference, Charlotte, NC	April 25–28
International Council for Scientific and Technical Information General Assembly Meeting, Taipei, Taiwan	May 6–10
American Society for Information Science Mid-Year Conference, "Evaluating and Using Networked Information Resources and Services," Pasadena, CA	May 24–26

access to the division's scientific areas and programs data at the project level. Not surprisingly, the breadth of SIS offerings reflects the breadth of BRD projects, which cover such diverse concerns as the status and trends of the nation's flora, fauna, and ecosystems; contaminants; fisheries and aquatic resources; wildlife; ecosystems; the application of science information to management; endangered and at-risk species; exotic species; and biological information management and delivery.

All research sponsored or conducted by BRD must be documented in the SIS database. That's why the SIS can help anyone who needs swift access to specific information about BRD projects, such as who is working on a particular project, its objective(s), location, scope, client(s), funding sources and amounts, duration, progress, and anticipated results.

The SIS can be used to extract summaries of BRD project work, such as how many projects are being conducted in a particular research area. Project-level summaries are available in a variety of report formats designed to meet the requirements of the system's range of information seekers, who typically include the general public as well as scientists and resource managers (including those within BRD in addition to partner organizations, client agencies, and special interest groups).

SIS users need not be experienced information seekers. They may search the system using either an Assisted User Interface (based on a simple query form that is readily usable without any training) or an Expert User Interface (requires specific query syntax). Both interfaces include extensive online help. 

Metadata Training Update

NBII National Program Office Offers Metadata Training

Metadata are data elements that describe other data. Metadata, in fact, are the linchpin of the NBII

*For the most effective
searching and retrieval of
information from the
Clearinghouse, its metadata
must be created in
accordance with the proper
standards.*

Clearinghouse since they make it possible for users to search, retrieve, and integrate information from the NBII's vast network of biological databases and information products (see page 4, "NBII Clearinghouse Offers Practical Benefits").

For the most effective searching and retrieval of information from the Clearinghouse, its metadata must be created in accordance with the proper

standards. The NBII National Program Office offers metadata training workshops to ensure that metadata creators are familiar with basic concepts related to these standards (see *Access*, September 1998, for more information on training workshops).

Interested? Just contact the NBII metadata training workshop coordinator for information about upcoming NBII workshops in your area or possibilities for tailoring a workshop to your office or agency needs.

For more information, please contact:

Sharon Shin
NBII Metadata Training
Workshop Coordinator
USGS Center for Biological
Informatics
P.O. Box 25406, MS 302
Denver, CO 80225
phone: 303/202-4230
fax: 303/202-4219
e-mail: sshin@nbii.gov 



At training workshops, metadata creators learn the basic concepts related to generating metadata. The workshops include numerous opportunities to create metadata through hands-on exercises, such as those shown here. Preparing metadata files to be served on the Clearinghouse and retrieving metadata records from the Clearinghouse are just two typical workshop activities.



Biological Metadata “Profile” and Compliance

In 1994, the President issued Executive Order (EO) 12906, which states that “. . . each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC [Federal Geographic Data Committee], and make that standardized documentation electronically accessible . . .” The FGDC had been established in 1990 with high-level representation from each Department. The committee developed the Content Standard for Digital Geospatial Metadata, as noted in EO 12906, and released it in June 1994.

To comply with EO 12906, the NBII National Program Office has developed a biological metadata “profile” of the FGDC geospatial metadata standard that increases the utility of this standard for the biological community by including elements for documenting biological resources data and information (see “NBII Metadata ‘Profile’ Moves To Final Stage,” front page). Now, any metadata created according to this profile will function in harmony with metadata created with the “base” FGDC geospatial metadata standard — and with associated search, indexing, and exchange tools, formats, and protocols. 🌿



Third IEEE Metadata Conference

On April 6 and 7, the Third Institute of Electrical and Electronics Engineers (IEEE) Metadata Conference will be held at the National Institutes of Health in Bethesda, Maryland.

The main objective of this conference series is to help build a community within which efficient metadata-based solutions for the identification, exchange, and integration of relevant data can be created and shared.

These challenges are some of the key limitations that modern data management systems must face as the demands placed on them continue to grow in complexity and size.

Details on the technical program and the conference site can be found at http://www.llnl.gov/liv_comp/metadata/md99, as they become available. 🌿

Legacy Data Set Documentation

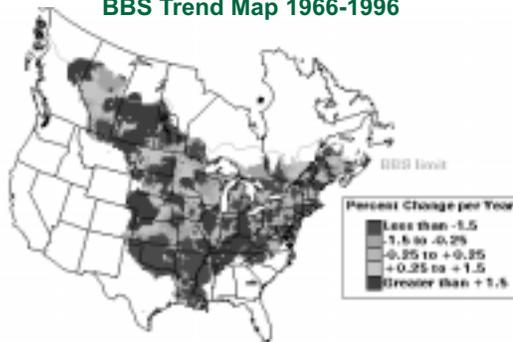
Today, much of the effort to create metadata focuses on documenting data sets developed since 1995. But many data sets collected before 1995 (“legacy” data sets) contain valuable information that should not be lost.

To help document legacy data sets, the NBII program has entered into an interagency partnership with NASA’s Global Change Master Directory program, which has extensive experience in the metadata field. As part of this agreement, metadata are created in compliance with the NBII/FGDC metadata standards and are documented using MetaMaker, the metadata software tool described earlier. This mutually beneficial partnership has enabled biological scientists to document more than 300 data sets and continues to provide support for metadata creation.

If you have legacy data sets that need to be documented, contact the NBII Legacy Data Set Coordinator (see below). When you call, please be prepared to discuss the data set and identify any suitable materials that can be used for metadata creation (such as published reports, grey literature, or other products).

For more information, just contact:
Jennifer Gaines
NBII Legacy Data Set
Coordinator
USGS-Biological Resources
Division
302 National Center
Reston, VA 20192
Phone: 703/648-4208
Fax: 703/648-4224
E-mail: jennifer_gaines@usgs.gov

**Baltimore Oriole: *Icterus galbula*
BBS Trend Map 1966-1996**



One example of data available through the NBII: the North American Breeding Bird Survey, of which data on the Baltimore Oriole (including this trend map) are just one component. Ensuring Breeding Bird data are documented according to the proper metadata standards helps NBII users unlock this wealth of data and information.

NBII Metadata Training Schedule

For the latest information regarding location and dates of metadata training classes, just check <http://www.nbii.gov/tools/tcalendar.html/> or phone Sharon Shin, NBII Metadata Training Coordinator, at 303/202-4230.

Please note that a metadata training *workshop* is usually a full two-day course in which participants engage in in-depth discussions, and receive hands-on training, on metadata activities related to the Federal Geographic Data Committee's metadata standard and the NBII biological metadata profile, MetaMaker, and the NBII Clearinghouse. A *demonstration* is provided at conferences and is usually available for a few hours. Typically, several computers are set up and individuals

receive an overview of the Federal Geographic Data Committee's metadata standard and the NBII

biological metadata profile, MetaMaker, and the NBII Clearinghouse.

Training Schedule

	1998
Canadian National Science Meeting, Victoria, British Columbia. Workshop.	January 18
American Association for the Advancement of Science Conference, Anaheim, California. Demonstration.	January 22–25
Western Ecological Research Center, Sacramento, California. Workshop.	February 9–12
USGS Midcontinent Ecological Science Center, Fort Collins, Colorado. Workshop.	March 16–18



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