

## Teaming With Life: White House Views on the “Next Generation NBII”

A distinguished panel of biologists and information scientists has recommended to the President that the federal government significantly strengthen its commitment to developing the National Biological Information Infrastructure (NBII) as a means through which data and information from many different sources can be used to support an improved understanding and management of the nation’s biological resources.

In the Executive Summary of its report, *Teaming with Life: Investing in Science to Understand and Use America’s Living Capital*, the Biodiversity and Ecosystems Panel of the President’s Committee of Advisors on Science and Technology recommended that “The federal government should push forward to the ‘next generation NBII.’” The panel noted that this next generation NBII would continue to build on the network of biological data and information that has been developed by greatly enhancing the NBII’s capacities to make it possible to automatically integrate and synthesize many different databases, to analyze information in new ways, and to answer questions and present results that can be readily used by resource managers, policy makers, and educators.

To enable development of this new NBII, the panel says the federal government should invest a minimum of \$40 million per year for the next

five years. While the next generation NBII is being constructed, direct support to the NBII should increase at least five-fold to promote work on needed data exchange standards and to help increase the information content of the NBII in its current form. The panel also emphasized that development of the next generation NBII is “fundamentally important to the accomplishment of the research, management, and education recommendations” that form the remainder of its report.

“We welcome the encouraging recommendations of the President’s Biodiversity and Ecosystems Panel regarding the NBII,” said Mark Schaefer, Deputy Assistant Secretary

for Water and Science for the Department of the



Interior. “The challenge of the future is to build on the work we’ve done with many partner agencies and organizations to make it easier to find and use biological information, and to integrate it with data from the physical and social sciences.”

The complete *Teaming with Life* report, which was distributed in June, is also available at <<http://www.whitehouse.gov/WH/EOP/OSTP/Environment/html/teamingcover.html>>. 

### NBII Recognized by Renew America

The NBII has received a Certificate of Environmental Achievement from Renew America. The program will also be recognized in Renew America’s *1998 Environmental Success Index*.

Each year, Renew America, a national nonprofit organization, conducts a nationwide search for programs that provide innovative solutions to today’s tough environmental challenges. Each qualifying program has passed through a three-stage review process: reference checks and evaluations from independent local organizations,

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## What is the NBII?

The National Biological Information Infrastructure can be viewed from a variety of perspectives.

It brings people and information together through the use of technology. It is the biological component of the Administration's effort to develop a National Information Infrastructure. It is a library of the nation's biological data and information that helps

people solve problems — and many of those problems are related to managing biological resources.

The 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. The NBII uses the Web as the backbone of a distributed network to make biological data and information more accessible to resource managers and planners, scientists, teachers, and the general public. The U.S. Geological Survey supports the NBII National Program Office.

Finally, what is the NBII? We invite you to “Surf the wild side” (see page 5), visit us at <<http://www.nbii.gov>>, and then see for yourself! 

*The NBII is being developed in cooperation with a variety of partners...*



The redesigned NBII Home Page

## How To Become an NBII Partner

If you are interested in exploring how you might become an NBII partner, or if you would simply like to learn more about the program, just contact the NBII National Program Office. If you have biological information you would like to make accessible to others, we can provide guidance on the considerations and requirements for documenting and serving information as part of the NBII.

Please remember that while NBII funding to directly assist individual projects in such matters is limited, we can help you identify other possible opportunities for support and partnerships. We can also offer you training or technical assistance in such areas as:

- \* Metadata development, and
- \* The application of selected software tools or techniques for serving, accessing, retrieving, and applying biological information.

The NBII is a work in progress. And while we have come a long way in a short period of time, there is still much work to do. We invite you to join us in this exciting undertaking. For more information, please contact Anne Frondorf (see address at left).

## nbii Access

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

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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:

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

## Partners in the Spotlight

*"Partners in the Spotlight" is a regular Access column that highlights the activities of our NBII partners. We are pleased to inaugurate this series with an article by Richard Warner, Executive Director of the Association for Biodiversity Information, a Washington, D.C., based organization. If you would like to write an article about your organization, please e-mail Ron Sepic, Access Editor, at [ron\\_sepik@usgs.gov](mailto:ron_sepik@usgs.gov).*

### Increasing Electronic Access to Biodiversity Information

Natural Heritage Programs and Conservation Data Centres are well-known throughout much of the Western Hemisphere. Collectively, they represent one of the largest ongoing efforts to gather standardized data and provide information products about the plants, animals, and ecosystems of conservation interest.

In 1994, a coalition of more than 70 provincial, state, and national Natural Heritage Programs and Conservation Data Centres in the Western Hemisphere established the Association for Biodiversity Information (ABI). The ABI is an international organization dedicated to fostering the success of Natural Heritage Programs, Conservation Data Centres, and similar institutions worldwide. As a grassroots organization, the ABI is governed by a Board of Directors selected by the member data centers from among their own staff.

We work to achieve our mission by:

- Helping to build the capacity of local and national data centers to collect and disseminate high quality data and information products related to the sustainable use and conservation of biological resources.
- Building collaboration among our member data centers and with other biodiversity data providers and information users worldwide.
- Providing a neutral venue and organizational structure for the development, analysis, and

dissemination of multi-jurisdictional data sets and information products dealing with sustainable use and conservation of biological resources.

In May 1998, the ABI entered into a Cooperative Agreement with the NBII National Program Office. We are pleased to participate in the NBII through this partnership, which is designed to increase electronic access to biodiversity information from the ABI and its member programs.

Our partnership with the NBII is being conducted in three phases:

- Development of the ABI Home Page describing the Network of Natural Heritage Programs and Conservation Data Centres and providing access to products of the Network. The new ABI Web site will be accessible in October, providing access to reports from the ABI Data Sharing Committee, the ABI Data Standards Committee, and links to Network partners.
- Development of searchable Web databases containing information aggregated from the Network of Natural Heritage Programs. The first data set available will be species conservation status information ("S-ranks" in Heritage jargon) from U.S. Natural Heritage Programs. Future efforts will provide access to distribution information about species and natural communities of conservation interest.
- Demonstration of NBII biological metadata standard

application by Natural Heritage Programs. We are excited by the opportunities for increased data accessibility and usability that can result by use of standard metadata.

We're delighted that the ABI's new Web site is being created in cooperation with the NBII. The expanding ABI-NBII partnership will facilitate and simplify data sharing between the Network of Natural Heritage Programs and U.S. federal agencies, and will greatly increase the public's access to important sources of biodiversity information. 

#### CHM Connection

#### Global Biodiversity Forum Supports Clearing-House Mechanism

The Clearing-House Mechanism (CHM) <<http://www.biodiv.org/chm.html>> is an international initiative supporting the Convention on Biological Diversity (1992). The CHM is being designed to promote and facilitate technical and scientific cooperation among countries. Its goal is to provide global access to and exchange of information on biological diversity and its sustainable use.

The U.S. CHM node is expected to contain information on national biodiversity priorities and programs

*(continued on back cover)*

## ITIS Named Hammer Award Winner

On April 21, in a special ceremony held in Washington, D.C., six federal agencies were co-recipients of Vice President Gore's Hammer Award for governmental reinvention for their work in bringing the Integrated Taxonomic Information System (ITIS) from concept to reality. Interior Secretary Babbitt presided at the ceremony.

ITIS is the first comprehensive, standardized reference for the scientific names of the flora and fauna of North America and surrounding oceans. The system, a vital NBII component, is accessible at <http://www.itis.usda.gov/itis>.

The importance of ITIS to the NBII is fundamental. Taxonomy — the science of describing, naming, and classifying plants and animals — provides the foundation for understanding and integrating the similarities and differences among the world's organisms, both living and extinct. In short, scientific names of organisms are the framework that connects biological information. By providing a common vocabulary of species names, ITIS helps link all the biological data in the NBII.

The Hammer Award is the Vice President's special recognition for teams who have made significant contributions toward improving government service to the American people. The six federal agencies that worked together to develop ITIS are the U.S. Geological Survey (USGS), the Environmental Protection Agency, the National Oceanic and Atmospheric Administration (including the National Marine Fisheries Service and the National Oceanographic Data Center), the Natural Resources Conservation Service, the Agricultural Research Service, and the Smithsonian Institution's National Museum of Natural History.

Each partnering agency has a mission to inventory, monitor, research, or manage biological resources. This reality created a need for a common taxonomic vocabulary. Prior to the development of ITIS, there was no standardized authority that provided the most accepted or scientifically credible name for a species as well as instantly related this accepted name with all its known scientific synonyms and with the common or vernacular names for the species.

Now the ITIS federal partners, working with the best taxonomic specialists around the world, are continually working to ensure the high scientific quality of the ITIS database by reviewing and updating existing data, and adding new data.

"ITIS is a grand new tool in the arsenal of environmental research," said Dennis B. Fenn, Chief Biologist for the USGS. "As such, it is a tremendous addition to the data and information available through the NBII." 



*Bruce Babbitt (left), Secretary, U.S. Department of the Interior, accepts Hammer Award on behalf of the ITIS team from Greg Woods, Deputy Director for the Vice President's National Partnership for Reinventing Government.*

### Upcoming Events of NBII Interest

	1998
Fifth Annual Conference of the Wildlife Society, Buffalo, NY	September 22–26
Society of Environmental Journalists Eighth National Conference, Chattanooga, TN	October 8–11
Land Trust Alliance National Land Trust Rally '98 Monona Terrace, Madison, WI	October 17–20
American Society of Information Science Annual Meeting, Pittsburgh, PA	October 26–29
Sixteenth International CODATA Conference, New Delhi, India	November 8–12
"Meta-Diversity — A Call to Action: Responding to the Grand Challenge for Biodiversity Information Management Through Metadata," an international symposium presented by the NBII in cooperation with the National Federation of Abstracting and Information Services, Natural Bridge, VA	November 9–12
Geographic Information Systems/Land Information Systems Annual Conference, Fort Worth, TX	November 10–12
Second Conference on Partnership Opportunities for Federally-Associated Collections, San Diego, CA	November 18–20

# The Vocabulary Project

In the Internet-based world of scientific resource discovery, scientists, policy makers, resource managers, and interested members of the public often find themselves overwhelmed by the amount and diversity of the information available. Initiatives like the NBII enhance the communication and reuse of scientific information by bringing order to the chaos through services, including access to key sites, documents, and resources in the area of biodiversity.

But as the resources made available through the NBII grow, the dilemma of locating the right resource begins again. The inherent problems stemming from the great expansion of Internet resources are compounded by the fact that many resources are non-textual. These maps, graphics, and other non-textual information sources require some textual metadata record to help the user determine their applicability. Even existing text resources use a variety of terminology to describe the same concept or object.

To provide better access to NBII

resources, including documents and data sets, the NBII is developing a vocabulary to aid researchers in describing resources and to help users locate those resources. This broad-based vocabulary will provide increased subject access to data sets, Web sites, publications, and library resources.

While many excellent biological and environmental vocabularies already exist, no single vocabulary covers the breadth as well as the specificity required for biodiversity topics. Therefore, the NBII decided to focus on bringing these vocabularies together, rather than on building a new vocabulary. The aim is to link vocabularies or pieces of vocabularies already being maintained by other organizations. The NBII will provide the browsing and searching tools needed to use these disparate vocabularies. It will also provide the high-level subjects from which the more specific vocabularies will be linked.

In the cooperative spirit of the NBII, the vocabulary is being built through a collaborative effort with the California Environmental

Resources Evaluation System (CERES) and other state and federal agencies, scientific organizations, and scientific information publishers and providers. The NBII is also working at the international level. Along with six other organizations within the International Council for Scientific and Technical Information of the International Council of Scientific Unions, the NBII is developing the conceptual design and high-level keyword groups that will allow users to discover and navigate the individual biological vocabularies of the organizations. At the local level, CERES is spearheading an effort within California to coordinate the development of keyword lists for use in metadata projects related to the environment and natural resources.

Over the next few months, this effort will culminate in several pilot projects. Products and services will be added to the NBII throughout late 1998 and 1999. One of the first products will be a registry of existing vocabularies that could be useful to others creating biological and environmental vocabularies, or to those creating metadata requiring subject keywords. 🐾

## A Few Words About Vocabularies

For readers who may not be completely familiar with the term “vocabulary,” it refers to a compilation of specialized terms that are tailored to a particular field of inquiry. Typically, an indexer assigns these terms to a document or data set to describe the resource’s content. The authorized list of these terms is referred to as a controlled vocabulary or thesaurus. Use of a vocabulary streamlines the searching process and makes it easier to locate resources and information that meet user needs.

For example, authors describing abnormalities in amphibians in the Great Lakes could use the terms “deformities,” “defects,” or “malformations” (among others). By using the controlled term “amphibian deformities,” the user can avoid searching for all these variations — and would not miss references that match the research topic.



*"Surf the wild side" is a new NBII theme appearing on buttons, mugs, and other NBII identity pieces.*

## NBII Recognized by Renew America (continued from page 1)

verification of program results by participating nonprofit organizations at the state level, and final review by the National Awards Council for Environmental Sustainability, a coalition of sixty organizations in the environment, government, and business sectors, including the National Audubon Society, Bank of America, the Nature Conservancy, AT&T, the National Geographic Society, 3M, and the Smithsonian.

"We are very pleased that the NBII program has been selected by Renew America and the National Awards Council for this recognition," said Dennis B. Fenn, Chief Biologist for the U.S. Geological Survey. "The primary objective of the NBII program is to help us all take more advantage of the wealth of information on the biological environment that does exist out there, so we better use this information to make sound environmental decisions."

Renew America's *Environmental Success Index* contains information on over 1,600 outstanding environmental programs across the nation. The *Index*, which is available both in print and on the Web <[http://www.crest.org/renew\\_america](http://www.crest.org/renew_america)>, includes programs under twenty-six categories. The NBII is being honored in the Telecommunications and New Information Tools category.

According to Anna Slafer, Renew America's Executive Director, "The *Environmental Success Index* provides businesses, local governments, and civic and environmental groups with practical proven models they can replicate. By recognizing the excellent work of these innovative programs, we help motivate the individuals involved to continue their efforts to improve the environmental quality of their communities and share their successes with others." 

## Metadata Training Update

### Metadata and the Need for Training

Advances in information technology are providing the scientific community with opportunities to exchange and share data as never before — and metadata are helping to make this possible.

Metadata are data elements that describe other data. Metadata, in fact, are the linchpin of the NBII Clearinghouse because they make it possible for users to search, retrieve, and integrate information from the NBII's vast network of biological databases and information products.

To provide 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 now offers metadata training workshops to ensure metadata creators are familiar with basic concepts related to these standards. The workshops provide an opportunity to create metadata through hands-on exercises, prepare metadata files to be served on the Clearinghouse, and retrieve metadata records from the Clearinghouse.

NBII metadata training workshops use the NBII Biological Metadata Profile, which incorporates all elements of the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and adds elements that specifically describe biological data. Training is provided in the use of MetaMaker, a Windows application

## Inside IABIN

### Progress Noted Toward Information Exchange in the Americas

The Inter-American Biodiversity Information Network (IABIN) <<http://www.nbio.gov/iabin>> is an intergovernmental initiative intended to promote greater coordination among Western Hemisphere countries in the collection, sharing, and use of environmental information.

The proposal to develop the IABIN was an element of the final "Hemispheric Plan of Action" adopted by the leaders of South, Central, and North American nations in Santa Cruz de la Sierra, Bolivia, in December 1996 at the Summit on Sustainable Development. National networks, such as the United States, will contribute to and benefit from efforts to build this regional

information network in the Americas.

In recent months, activities moved forward to establish the IABIN. The second meeting of Inter-American experts concluded in January 1998. The report, published by the Organization of American States, will be on the Internet soon.

Experts at the meeting discussed model configurations for the IABIN and exchanged views on joint project ideas. Meeting participants developed five Terms of References designed to guide efforts to launch the IABIN. The studies will examine organizational models for the IABIN, information exchange issues, and pilot projects on alien invasive species in the Americas.

designed to aid in the capture of metadata information into a standardized format. MetaMaker is available at no cost through the NBII <<http://www.nbii.gov/metamaker/metamaker.html>>.

Typically, NBII metadata training workshops cover:

- *Metadata and Clearinghouse Concepts*: Provides basic information about metadata and clearinghouses, how they are used, and their benefits. Also introduces the NBII Biological Metadata Profile and the FGDC Metadata Standard.
- *NBII/FGDC Metadata Structure*: Introduces the ten sections of the NBII/FGDC metadata standard; templates; elements and hierarchical structure; domain information; and mandatory, mandatory if applicable, and optional elements.
- *MetaMaker Operation*: Familiarizes attendees with MetaMaker software, including the main menu and general MetaMaker functions such as pick lists, data entry, and navigation.
- *NBII/FGDC Metadata Content*: Provides an in-depth look at each section of the NBII/FGDC metadata standard using sample data sets and entering metadata information into MetaMaker.
- *CNS (Chew-N-Spit) Operation*: Covers processing metadata, reading associated error files, making corrections, and verifying a clean metadata record (the CNS metadata verification program formats metadata record for processing through Metadata Parser [MP]).
- *MP Operation*: Describes how

to run MP, read the error file, and use the output files (MP processes metadata in preparation to being served in a clearinghouse).

- *Clearinghouse Use*: Describes the NBII Clearinghouse and the National Spatial Data Infrastructure Clearinghouse. Participants gain insights on serving, locating, and retrieving clearinghouse metadata records.
- *Metadata Development and Consistency*: Participants refine and strengthen their newly acquired skills. Case study approach provides key concepts that help ensure the quality of an organization's metadata.

NBII metadata training workshops are open to all federal, state, and local agencies, museums, universities, private organizations, and other potential data sharers. The workshops are conducted at locations across the country, based on participant interests and requirements. Session usually take two days, but condensed workshops are also possible.

The host site normally provides local logistical assistance, including

confirming the training room and computers, and assisting with participant recruitment and workshop registration. Typically, participants are not charged for attending the workshop or any materials distributed during the class.

Interested participants are encouraged to contact the NBII metadata training workshop coordinator (see below) 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:

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## NBII Metadata Training Schedule

NOTE: For the latest information regarding location and dates of metadata training classes, just check the online edition of *Access* <<http://www.nbii.gov/news/>> or contact the NBII Metadata Training Coordinator (see above).

National Wetlands Research Center, Lafayette, LA	1998 September 23–24
Columbia River Research Laboratory, Cook River, WA	October 20–21
Northern Prairie Wildlife Research Center, Jamestown, ND	November 3–4
Florida Caribbean Science Center, Gainesville, FL	December 15–17

## CHM Connection

(continued from page 3)

as well as links to other data and information of interest to the global biodiversity community. Initial plans for standards and search mechanisms are consistent with the approaches of the National Biological Information Infrastructure and the Inter-American Biodiversity Information Network. The U.S. CHM node will also provide linkages to each of these programs.

In May, NBII staff attended a series of meetings in Bratislava, Slovakia, that were convened to help guide the development of the CHM. The meetings included a three-day Global Biodiversity Forum, where representatives of biodiversity initiatives worldwide described their programs and discussed how they, as a community, could collaborate to further the objectives of the international initiatives.



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## Access Makes Headlines

Welcome to *Access*, the new publication of the National Biological Information Infrastructure. We in the NBII National Program Office felt it was time to develop a publication whose main goal is to keep NBII partners and users better acquainted with the progress we're making in increasing our resources. . . and making sure everyone has access to them. To ensure readers have access to our pages, this publication is being distributed in both print and electronic formats.

Each issue of *Access* will be a combination of news, news features, and regular columns. The regular columns cover topics in which we know readers have an ongoing interest: partnerships ("Partners in the Spotlight"), metadata training ("Metadata Training Update" and "Metadata Training Calendar"), Biological Informatics News, the Clearing-House Mechanism ("CHM Connection"), the Inter-American Biodiversity Information Network ("Inside IABIN"), and a calendar of events ("Upcoming Events of NBII Interest").

Finally, just as the NBII is an interactive system, this is an interactive publication. The writers and editors are excited about *Access*, and we hope our readers will be, too. So let us know how we're doing and if you want to write an article for us. Whether you're a partner, a prospective partner, a user, or a leader in biological informatics, we'd like to hear from you. You can see the *Access* publication box on page 2 for contact information. With your help, it will be obvious why nothing succeeds like *Access*.