

## President's FY 2001 Budget Includes \$8 Million for the NBII and Gap Analysis

For FY 2001, the U.S. Geological Survey (USGS) has requested increased funding—\$30 million—for the Community/Federal Information Partnership (C/FIP) initiative for projects across the country aimed at developing local solutions to integrating and delivering geologic, biologic, hydrologic, soils, and land cover information. Of this amount, \$8 million will be allocated to improve biological information management and delivery.

The \$8 million will support two key USGS programs specifically—the National Biological Information Infrastructure (NBII) and the Gap Analysis Program (GAP). These two programs provide a variety of broad-scale biological information to users nationwide for help in making natural resource management decisions.

The NBII increase will be used to expand the current program by establishing information nodes for

providing access to information on high priority topics such as invasive species, Pacific salmon, and amphibians. NBII funding will also support increased data holdings from local partnering groups. Communities will benefit by having better access to a variety of biological data for a selected species, topical area, or geographic location. The GAP increase will be used to expand the current program to include invertebrate species and freshwater aquatic environments.

## Schaefer Now President and CEO at Association for Biodiversity Information

Dr. Mark Schaefer, who had been Acting Assistant Secretary for Water and Science, has left his post at the Department of Interior to head up a new nonprofit that is associated with The Nature Conservancy. Starting in early April 2000, Dr. Schaefer became President and CEO of the Association for Biodiversity Information—a network of the heritage programs and the conservation data centers throughout the United States, Canada, Latin America, and the Caribbean. Its mission is to ensure consistency in storing and preserving data and to aid in the transfer and delivery of information about biodiversity and habitat in the Western Hemisphere.

Previously, Dr. Schaefer worked for the Department of the Interior for more than four years. Prior to January 2000, Dr. Schaefer was the Deputy Assistant Secretary for Water and Science. In January, he became Acting Assistant Secretary for Water and Science. He explains that the

office of Water and Science provides policy guidance to the USGS and the Bureau of Reclamation.

During his tenure at Water and Science, Dr. Schaefer played a significant role in supporting the development of the National Biological Information Infrastructure (NBII). As Chair of the National Science and Technology Council's Subcommittee on Ecological Systems (an interagency program), he focused on bioinformatics issues. He worked with the Office of Science and Technology Policy and the Office of Management and Budget to obtain additional resources to support ecosystems science, including the NBII. Dr. Schaefer also administered the Federal Geographic Data Committee (FGDC) for Secretary Babbitt, where he worked to connect activities at the FGDC with NBII activities.

"High-quality biological information, along with related

information about the physical environment, is critical to making a wide range of national resources decisions. I believe the NBII has worked very hard in recent years to be on the cutting edge in the information development, storage, and retrieval areas," says Dr. Schaefer. "I hope that the USGS and the other agencies will continue to make the advancement of the NBII a high priority."

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## 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 Lori Hidinger and the Ecological Society of America as this issue's Partner. If you're interested in producing a similar article about your organization, please contact Ron Sepic, Access Editor, at [ron\\_sepik@usgs.gov](mailto:ron_sepik@usgs.gov).*

### The Ecological Information Network: A Database of Experts

What do you do when you have a question or need information on a topic outside your area of expertise? You can conduct your own research, go to the library and read other people's research, or ask the people who do know—the experts. But how do you find these experts?

To facilitate the quest for ecological expertise, the Ecological Society of America (ESA) is teaming with the NBII to develop the Ecological Information Network (EIN). Once complete, the EIN will be an online, electronic directory designed to provide rapid contact with ecologists. Listing in the EIN database is open to scientists

with expertise in all areas relevant to the field of ecology, both ESA members and non-members alike. The keyword-searchable database will be available to anyone with access to the Web.

*ESA and the NBII are cooperating on the design and development of the EIN to ensure it is a fully capable information database that can meet user demands while providing a user-friendly service.*

Experts will have the opportunity to answer questions or provide input on scientific issues for several



different target audiences. Listing in the EIN could indicate a willingness to:

- Answer questions from or give presentations to the general public and/or media;
- Give expert testimony to Congress;
- Help to develop educational materials or to train teachers;
- Serve as co-investigators on research projects; or
- Serve as technical, expert reviewers for proposals, articles, reports, and so forth.

ESA and the NBII are cooperating on the design and development of the EIN to ensure it is a fully capable information database that can meet user demands while providing a user-friendly service. The EIN will be a searchable, comprehensive database of ecological experts, their affiliations, contact information, and areas of expertise. The EIN will be accessible from both the NBII and ESA Web sites.

The Ecological Society of America <<http://esa.sdsc.edu>> is a non-partisan, nonprofit organization of scientists founded in 1915 to stimulate sound ecological research, clarify and communicate the science of ecology, and promote the responsible application of ecological knowledge to public issues.

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

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<<http://www.nbii.gov>>.

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*The Ecological Information Network  
(continued from page 2)*

ESA's 7,000+ members from 65 nations hail from academia, government, industry, and non-profit organizations. They conduct research, teach, and work to provide the ecological knowledge needed to solve environmental problems that include habitat alteration and destruction, natural resource management, species extinction and loss of biological diversity, ecosystem management, ozone depletion and global climate change, sustainable ecological systems, ecological restoration, and biotechnology.


ESA publishes the latest peer-reviewed ecological research in its publications: *Ecology*, *Ecological Monographs*, *Ecological Applications*, *The Bulletin of the Ecological Society of America*, the *ESA NewSource*, the *Issues in Ecology* series, and the ESA Electronic Journal Archive.

The Public Affairs Office and the Sustainable Biosphere Initiative Science Program Office tap into



*The EIN will provide access to experts in various ecosystems, including Antarctic soil (shown here, ESA member Diana Wall).*

ESA's membership expertise to provide timely, accurate, and easily accessible ecological information. In order to reinforce the vital role of ecological science in decision making, these two offices provide programmatic and communications activities that bring ecological knowledge to government agencies, non-governmental organizations, legislators, the media, and the general public.

ESA convenes a conference every summer which features the latest findings in ecological research and attracts over 3,000 scientists and students, as well as members of the press. The 2000 ESA Annual Meeting will be held August 6-10 in Snowbird, Utah, and will feature a workshop on Connecting Ecological Information: The National Biological Information Infrastructure and Ecologists. 

### Upcoming Events of NBII Interest

2000

National Online Meeting & IOLS 2000, New York, NY	May 16-18
American Society for Microbiology General Meeting, Los Angeles, CA	May 21-25
Global Environmental Issues in the 21st Century: Problems, Causes, and Solutions, Brighton, England	May 21-25
IDT/NET 2000 Meeting, Paris, France	May 23-25
Canadian Information Processing Society Annual Conference, Toronto, Ontario, Canada	May 28 - June 1
Society for Scholarly Publishing 22nd Annual Meeting, Baltimore, MD	June 1-3
Digital Libraries 2000, San Antonio, TX	June 2-6
Internet International 2000, The Hague, Netherlands	June 5-7
Society for Conservation Biology Annual Meeting, Missoula, MT	June 10-12
Special Libraries Association 91st Annual Meeting, Philadelphia, PA	June 10-15
Canadian Library Association, Edmonton, Alberta, Canada	June 21-25
International Society for Ecological Economics 6th Biennial Meeting, Canberra, Australia	July 5-8
American Library Association Annual Meeting, Chicago, IL	July 6-13
Society of Indexers Annual Conference, Cambridge, England	July 14-17

## Unveiling the NBII as a Teaching Resource

The newly revised NBII Education page made its official debut at the annual conference of the American Association for the Advancement of Science (AAAS), which was held in Washington, DC, February 17-22. Throughout the conference, the site was demonstrated live at the NBII booth, and proved a popular attraction for the many teachers (and many others) in attendance.



*The NBII exhibit at AAAS welcomed many visitors, including Zachery McCarty and his father (and transporter), Dr. John P. McCarty, AAAS/EPA Science Policy Fellow.*

The Education component of the NBII provides teachers, parents, and students of all ages with access to online biological resources that emphasize the teaching of biology, biodiversity, and ecology. Included are activities, lesson plans, experiments, projects, resources, and references for classroom and home use. Materials are included for grades K-12, as well as undergraduates. The goal of the NBII Education page is to assist teachers and parents in educating today's students and shaping the biologists, resource managers, and environmental stewards of tomorrow.

The site features expanded and updated content, as well as a new, topical interface that allows users to browse by biological theme and grade level. Included in the new design are annotations to each link, which define scope, content, and origin of the material.

The General Curriculum section links to sites that provide general introductions and lesson plans for a wide range of biological topics. Many offer a specifically scientific focus, while others incorporate multi-disciplinary approaches. This section offers a discipline-wide perspective for planning a curriculum.

The Human Biology area indexes available resources for teaching human genetics, anatomy, and physiology. Activities and lesson plans explore the senses, recent advances in genetics, neuroscience, and more.

Other Mammals examines the non-human members of Class Mammalia, who inhabit the three major life-zones: air, land, and water. The

resources in this section offer teachers and students a host of activities, references, and materials for exploring the amazing diversity of mammals on our planet.

Birds are a popular and accessible taxa, making them an ideal topic for classroom study. This area points to many rich sites on the Web offering information about migration, development and life cycles, species identification, and more.

Reptiles & Amphibians examines frogs, salamanders, turtles, lizards, and snakes—creatures often misunderstood and undervalued for their critical roles in ecosystem health. Many species are now threatened or endangered by forces not completely understood to researchers. The section links provide resources for exploring anatomies, life cycles, habitats, and common misunderstandings about these animals.

Children are often drawn to the fascinating world of creepy, crawly creatures; teachers know that these organisms are engaging and low-maintenance classroom “pets.” Insects, Arachnids & Annelids provides materials to learn more about bugs, spiders, and worms.

Though generally invisible to the naked eye, Microbes play an important role in the natural world. Linked sites explore the wonders and the dangers of these often forgotten organisms.

The Aquatic Biology section offers resources that uncover the astounding diversity of life within freshwater, estuarine, and marine ecosystems on our planet. Included are links to information about coral reefs, aquatic invertebrates and mammals, intertidal zones, fishes, and aquatic plant life.

Plants often prove ideal as subjects for study in the classroom, as they are easy to raise and to observe. The Botany area includes curriculum ideas to supplement studies of plant anatomy, life cycles, identification, and species diversity.

In teaching students today about Biodiversity & the Environment, educators help to ensure that the future caretakers of the planet will make wise and responsible decisions. The materials indexed in this section provide teachers with the tools to explain and illuminate such concepts as biodiversity, ecosystems, habitats, endangered species, ecology, and food webs.

Looking for new and different Educational Opportunities inside and outside the classroom? Invite a ranger to your school; take the kids on a guided tour of a local park, zoo, aquarium, or nature center; order a discovery trunk and explore the outdoors in your classroom; or visit a virtual nature exhibit on your computer. All of these and more are possible through the myriad opportunities offered through the Web sites in this section, indexed by state. 🌍

## Two New NBII Nodes Debut

The NBII Metadata Clearinghouse <[http://www.umesc.usgs.gov/http\\_data/meta\\_isite/nbiigateway.html](http://www.umesc.usgs.gov/http_data/meta_isite/nbiigateway.html)> now features a node dedicated to serving metadata descriptions of environmental science data sets from across the Western United States. The new “Forest, Aquatic, and Rangeland Ecosystems in the Western United States” node encompasses the research interests and geographic breadth of the U.S. Geological Survey (USGS) Forest and Rangeland Ecosystem Science Center, the USGS Western Fisheries Research Center, and their research partners. The centers’ research capabilities include forests, aquatic ecosystems and wetlands, arid and semi-arid rangelands, and deserts.

This new NBII node provides searchable online access to a growing set of metadata descriptions of both tabular and geospatial data sets on topics including the structure, function, and dynamics of native and non-native plant and animal populations;

community ecology; nutrient cycles; and plant and animal genetics. It will feature descriptions of data sets from projects such as studies examining the



*The river basin of the Clark Fork River in Montana was the focus of a large-scale study about the metals remaining in the surface waters and the sediments, a legacy from past mining practices. One of the databases served on the CERC node is from this project.*


distribution of amphibians in Olympic National Park.

The NBII has also introduced the USGS Columbia Environmental Research Center (CERC) Clearinghouse node. CERC encompasses the research interests

and geographic breadth of CERC, the Missouri River InfoLINK, and their research partners. CERC conducts environmental research throughout the

United States with its primary focus on environmental toxicology and chemistry, including research on ecology, biochemistry, physiology, environmental chemistry, hydrology, biometry, and information technology. The CERC node provides searchable online access to metadata descriptions of both tabular and geospatial data sets on themes such as national and international environmental contaminant issues, and assessing effects of habitat alterations on aquatic and terrestrial

ecosystems. It features descriptions of data sets from projects such as Missouri River InfoLINK and CERC’s historical studies of chemical toxicity.

The NBII <[www.nbii.gov](http://www.nbii.gov)> is a broad, collaborative program to provide increased access to data and information on the nation’s biological resources. The NBII links diverse, high-quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and private industry. NBII partners and collaborators also work on new standards, tools, and technologies that make it easier to find, integrate, and apply biological resources information. Resource managers, scientists, educators, and the general public use the NBII to answer a wide range of questions related to the management, use, or conservation of this nation’s biological resources. 



*Amphibians are just one example of the innumerable subjects addressed in the data and information available through the new NBII node that covers ecosystems throughout the Western United States.*

## Metadata Training Update

### Introducing Train the Metadata Trainer

In 1999, the NBII and the USGS Biological Resources Division were awarded a Federal Geographic Data Committee (FGDC) "Don't Duck Metadata" grant to develop, plan, and instruct a week-long Train the Metadata Trainer workshop. The course was designed for anyone interested in learning how to teach a metadata training workshop and was open to any organization. The first course was offered in Denver, Colorado, from February 28 to March 3, 2000.

The class focused on introducing participants to basic teaching principles and having the students apply the methods and techniques discussed in the course to create and deliver their own instruction on a metadata topic. Each metadata presentation was recorded on videotape for the participants to use and refer back to when developing their own metadata training workshops.

Eighteen people are now trained to provide metadata workshops for their own organizations and to outside organizations depending on their availability and funding as potentially requested by the FGDC. Also, the final metadata presentations will be available for anyone to use in creating their own metadata training curriculum through the Train the Metadata Trainer Web site by June 2000.



*Train the Trainer students interact during their recent session in Denver.*



*The Train the Trainer attendees were able to take a short break from their extensive classroom activities to gather for a group photo.*

The organizations represented include:

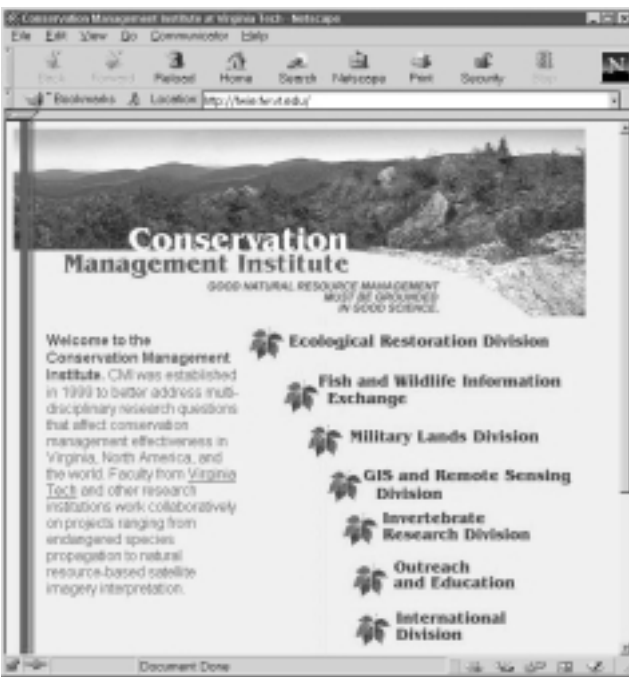
- The Academy of Natural Sciences, Philadelphia, PA
- Confederated Salish and Kootenai Tribes of the Flathead Nation
- Indiana University/Purdue University Watershed Research
- New Jersey Department of Environmental Protection - Office OIRM/BGIA
- Northeastern Illinois Planning Commission
- Raytheon Information Technology and Scientific Services
- South West Data Center, Colorado
- Southern Utah University
- Texas Department of Information Resources
- University of Idaho Library - INSIDE Project
- University of Louisiana at Lafayette
- U.S. Bureau of Reclamation
- USGS National Wetlands Research Center
- USGS Water Resources
- U.S. Army Corps of Engineers, Navigation Data Center
- Wyoming State Engineer's Office

### Trainers Go Forth

Course attendees have already begun to apply the metadata skills acquired through attending Train the Metadata Trainer. John Bocchino from the New Jersey Department of Environmental Protection, who attended the Denver course, is scheduled to host three one-day metadata workshops over the next four to six months for employees of the New Jersey Department of Environmental Protection. He has already updated his curriculum with information he obtained through the course.

## From Metadata Trainee to Trainer: Sheryl Soborowski's Journey

If you are looking for the “metadata expert” at the Fish and Wildlife Information Exchange (FWIE) division of the Conservation Management Institute (CMI) <<http://fwie.fw.vt.edu>> (home page shown below), you will likely end up at the desk of Sheryl Soborowski. Sheryl became the metadata guru at FWIE mostly as a matter of necessity. “I taught myself MetaMaker [the NBII metadata data entry tool] to complete a specific database project,” she says.



The FWIE is a technical assistance center and information clearinghouse for fish, wildlife, and land management agencies and organizations. The FWIE also assists with the planning, development, implementation, and maintenance of information management and delivery systems. Sheryl's responsibilities involve database development for a variety of projects involving fish and wildlife data, as well as regulatory and administrative online systems.

In June 1999, Jennifer Gaines and Sharon Shin, NBII Metadata Training Coordinators, asked Sheryl to become a

trainer for the NBII Metadata Training program. Sheryl agreed, and in August 1999, attended her first metadata training workshop to see how the metadata training is conducted, and how the trainers explain the FGDC's metadata standard, NBII's MetaMaker, and the NBII Clearinghouse. Since then, Sheryl has taught two metadata training workshops.

Sheryl says that the metadata training helped her answer many of the questions she had about FGDC/NBII metadata compliance. Speaking of her training experience, she says, “It provided helpful descriptions and definitions for me to use as a trainer.” Although Sheryl had taught herself MetaMaker, she says that there would have been less of a learning curve if she had attended the course first. She is convinced that MetaMaker is a good interface choice, among the many tools available, to enter metadata.

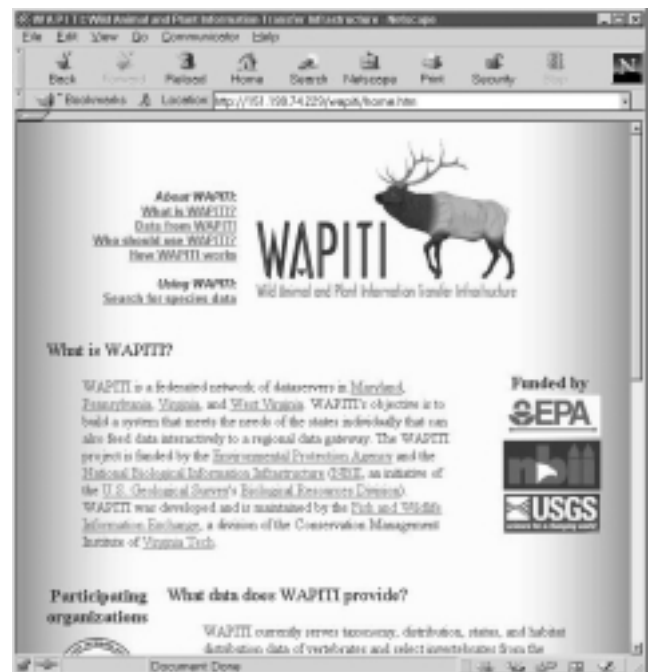
“One of the highlights of training was learning about the wide range of projects that brought everyone to the workshop,” she says.

Sheryl applies her metadata skills in her work every day. For instance, one of the projects she is working on is the metadata for WAPITI (Wild Animal and Plant Information Transfer Infrastructure, see at right)—a federated network of dataservers in Maryland, Pennsylvania,

Virginia, and West Virginia. WAPITI is being developed by the Conservation Management Institute in partnership with the NBII and the Environmental Protection Agency. Sheryl explains that WAPITI currently serves taxonomy, distribution, status, and habitat distribution data of vertebrates from the wildlife databases of the four states mentioned above.

Sheryl's metadata knowledge has begun to spread to other divisions of the CMI. She has helped staff in CMI's Geographic Information Systems (GIS) and Remote Sensing division, who have started learning and using MetaMaker for entering their GIS metadata.

To Sheryl, the most important lesson related to working with metadata is “don't procrastinate!” Too often, she says, writing the metadata is left as the last phase of a project, which involves extra work in researching and identifying the metadata. She advises: “The best way to work with metadata is to track the metadata information as you go along, and then take the time to enter it regularly.”



## NBII Metadata Training

A metadata training workshop is typically a full two-day course in which participants engage in in-depth discussion, and receive hands-on training, on metadata activities related to the FGDC's metadata standard and the NBII biological metadata profile, MetaMaker, and the NBII Clearinghouse.

For the latest information on metadata training classes, just check <<http://www.nbii.gov/metadata/training/index.html>>, or contact the NBII Metadata Training Coordinator:

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### Training Schedule

2000

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USGS Leetown Science Center, Leetown, WV. 1 day workshop.	April 7
USGS Great Lakes Science Center, Ann Arbor, MI. 2 day workshop.	April 17-18
USGS Lake Superior Field Station, Ashland, MI. 2 day workshop.	April 20-21
Elgin Air Force Base, Niceville, FL. 1 day workshop	May 16
National Park Service and U.S. Geological Survey, Denver Federal Center, CO. 2 day workshop.	July 18-19
Ecological Society of America Annual Meeting, Snowbird, UT. 1 day workshop.	August 5

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