President’s FY 2004 Budget Includes Funding for New Nodes

In FY 2004, Congress fulfilled the President’s budget request for the National Biological Information Infrastructure (NBII) to begin work in two new areas of the country where the NBII does not yet have a presence. In response to this budget increase, the NBII will initiate new nodes in the Northeast and the Mid-Atlantic regions.

In a further show of support, Congress also approved additional funds for the NBII Southern Appalachian Information Node (SAIN), one of several regional NBII nodes established in 2001. SAIN expects to use these funds to build on its accomplishments in the fields of ecosystems informatics and biodiversity information analysis and evaluation.

The NBII will initiate new nodes in the Northeast and the Mid-Atlantic regions.

NBII Supports FRAMES Program

The Joint Fire Science Program (JFSP) and the National Fire Plan (NFP) provide millions of dollars each year to organizations to help reduce fire hazards across the United States. Technology and information transfer comprises an important aspect of JFSP and NFP scientific activities. Research projects and other activities share their results in various formats such as publications, data sets, models, and tools; however, while the results are valuable, the information resides across multiple systems in different organizations.

To address this issue, the NBII has teamed up with the Pacific Wildland Fire Sciences Laboratory (PWFSL) of the USDA Forest Service Pacific Northwest Research Station, the University of Washington, the North Cascades National Park, and the Fire Research And Management Exchange System (FRAMES) Program. This partnership is developing the FRAMES Northwest Portal to provide “one-stop shopping” for resource managers, decision-makers, scientists, students, and communities who want to examine the results of efforts to understand and manage fuels on public lands in the region. The Portal will assist fire research programs in rapidly making data and associated information available.

The FRAMES Program facilitates the organization of the information, tools, and technologies that are the subjects and products of wildland fire management and research. FRAMES, with technical support and expertise from the NBII, will provide the infrastructure to aggregate the most up-to-date information and tools relevant for wildland fire and fuels (continued on page 4)

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BIO to Co-Sponsor Two AAAS Symposia

The U.S. Geological Survey's (USGS) Biological Informatics Office (BIO) will co-sponsor two symposia at the 2004 Annual Meeting of the American Association for the Advancement of Science (AAAS) this February, in Seattle, WA. Gladys Cotter, USGS Associate Chief Biologist for Information, is taking an active lead in both symposia. USGS coordinates the NBII. Cotter heads BIO, which serves as the NBII National Program Office.

The meeting’s theme is “Science at the Leading Edge.” In line with the AAAS conference theme, the two symposia are, “Virtual Science Museum Development: Technology, Interoperability, and Collaboration,” and “Preserving Our Scientific Knowledge: Scientific Data Curation from Museums to Mars.”

“Virtual Science Museum Development: Technology, Interoperability, and Collaboration” will address the latest developments in natural history collections; more specifically, it will deal with the creation of virtual museums, which have been made possible by advances in information technology. Now, more than ever, natural history museums can share data, enhance educational opportunities, and work out issues of data expatriation and ownership.

“The symposium will provide a platform for dialog among museum managers, information scientists, taxonomists, and information technologists, so they can address some of the issues related to virtual museum development of biological collections,” said Annie Simpson, co-organizer of the symposium. “Specific areas of interest are museum management, taxonomy, database interoperability, and biological information management.”

Main speakers and their presentation titles are Larry Spears, Program Officer from the Global Biodiversity Information Facility: “Building a Global Infrastructure”; Terry Yates, Vice President of the Natural Science Collections Alliance: “How Information Technology Affects the Changing Dynamics of Science Collections”; and Tom Moritz, Director of the Library at the American Museum of Natural History: “Integrating Libraries and Science Collections.”

The second symposium, “Preserving Our Scientific Knowledge: Scientific Data Curation from Museums to Mars,” is co-sponsored with Bonnie C. Carroll, senior consultant to the USGS and President of Information International Associates, Inc., a scientific and technical information management company doing work for many of the federal science mission agencies. Data curation in science is a fundamental part of the preservation of our scientific knowledge base. From museum specimens to data sets to earth images, the effective management of our data assets has allowed use and reuse of unique raw materials of science. With the advances in information technology, new opportunities have developed in the methods of managing this knowledge base. It has brought new challenges, new opportunities, and new visibility to what was once a back room profession.

This symposium will explore the challenges and opportunities for better data curation for the sciences through three types of data collections: natural history museum collections, scientific data sets managed by World Data Centers, and satellite imagery collections and other higher level data products. The participants in this symposium and titles of their presentations are Anna Weitzman, Director for Informatics at the National Museum of Natural History: “Natural History Collections, Natural History Data: Unlocking Our History”; Ferris Webster, Professor in Marine Studies at the University of Delaware: “Challenges Facing the World Data Centers”; and Francis Lindsay, Senior Scientist at the Office of Earth Science of NASA: “The NASA ESDIS Project: Managing Earth Science.”

For more information, see the AAAS Web site at <http://www.aaas.org/meetings/index.html>.
Langs joins Sage Grouse Conservation and Data Management Project

The partnership between the NBII, the International Association of Fish and Wildlife Agencies (IAFWA), SAGEMAP, and Utah State University in Logan, UT, supports the identification, aggregation, and integration of sage grouse and sage habitat data from western states to complete a Conservation Assessment and Strategy. This project will provide baseline information to ensure coordinated development and implementation of conservation plans.

This project supports the Multistate Conservation Grants Program proposal funded jointly by the NBII and IAFWA. The results will feed into the U.S. Fish and Wildlife Service’s range-wide two-phase Conservation Assessment process for greater sage grouse and sage grouse habitat. Both Phase 1, an assessment of sage grouse populations and habitat status throughout their range across eleven western states, and Phase 2, a range-wide plan for the conservation of sage grouse and sage grouse habitats, will be completed in 2004.

Currently, each state collects and maintains these data separately, but they need consistent and range-wide information about sage grouse lek locations, seasonal distribution, harvest records, and radio telemetry as well as habitat data to prioritize and plan habitat restoration projects. Additional partners in the project include the Interagency Sage Grouse Conservation Framework Committee and the Western Association of Fish and Wildlife Agencies Sage Grouse and Columbian Sharp-tailed Grouse Technical Committee.

This effort is central to the immediate future of sage grouse management. While it is generally agreed that sage grouse populations are declining due, in large part, to loss of sagebrush habitat, there is debate over what to do about it. Partners in the project hope to see declines reversed, ideally without having the sage grouse listed as a threatened species under the Federal Endangered Species Act.

Lisa Langs joined the Sage Grouse Conservation and Data Management Project as GIS Data Technician and liaison in December 2003, funded by $48,000 in matching funds from the NBII and the IAFWA Multistate Conservation Grants Program.

Langs will work with the state agencies to identify and compile data sets on sage grouse populations, distribution, and harvests. She will integrate these data with the sagebrush habitat map layers already supported by SAGEMAP, a geographic information system (GIS) project led by the Snake River Field Station of the USGS Forest and Rangeland Ecosystem Science Center. She will also provide information and technical support to the scientists developing the Conservation Assessment including Steve Knick, USGS Forest and Rangeland Ecosystem Science Center, the lead for the habitat assessment; and Jack Connelly, Idaho Department of Fish and Game, and Mike Schroeder, Washington Department of Fish and Wildlife, the leads for the population assessment.

Langs will work with state agency data to ensure they conform to Federal Geographic Data Committee and NBII metadata standards and to make public information accessible through the SAGEMAP Web site. However, sensitive data such as lek coordinates, will only be available to state agencies and other conservation planners. States will maintain ownership of all the data and determine acceptable use and public accessibility to the data.

Langs is a great addition to the Sage Grouse Conservation and Data Management project. She is highly qualified for the challenges ahead. A graduate of Utah State University in Rangeland Resources, her Masters of Science research investigated the use of remotely-sensed data to determine plant cover and shrub size-vigor classes in ecological communities dominated by sagebrush.

Langs will work out of the Remote Sensing/GIS Laboratory of Utah State University in Logan, UT, and coordinate with all partners involved in the project.
NBII Supports FRAMES Program (continued from page 1)

management and research, as well as a mechanism for easy access, analysis, comparison, distribution, integration, and storage of the information and tools used and created by the wildland fire community.

Currently under development, the FRAMES Web site <http://www.frames.gov/nw/> will provide online access to:
- Researchers’ primary data,
- Metadata,
- Online publications,
- Bibliographic information, proposals, and study plans, and
- Links to other sources of fire information.

Each project and management tool will include a section devoted to technology transfer and applications in resource management, as well as an educational component that uses common language and graphics to explain important findings. In cooperation with investigators, one or more synthesis products will also be developed through analysis and meta-analysis of multiple data sets.

By institutionalizing the prompt reporting of data and metadata in standard formats and making them publicly available on the Web, FRAMES Northwest will enhance the value of research and other scientific activities supported by the JFSP and NFP. The information available through this project will help fuel management programs to meet their resource management goals.

Initially, FRAMES Northwest will function as the key access point for all JFSP and NFP data and information resources regionally and intends to provide the infrastructure for other regions to add their data and information, such as the southeastern United States, where discussions are already underway to begin the process. Through information and tools aggregation, a national system will emerge that eliminates redundancies, reduces costs, and promotes increased productivity and efficiency.

FRAMES and the NBII are working to bring it all together in a system that:
- Provides data and tool integration within an operational and business framework to increase accountability and reduce duplication of effort,
- Offers comprehensive project reporting, thereby facilitating rapid dissemination of results to resource managers, decision-makers, and the general public,
- Facilitates a decentralized system to ensure data and information quality, and
- Features an intuitive interface with a dynamic system to ensure users can navigate easily and receive up-to-date information from providers.

For more information, contact Greg Gollberg, FRAMES Project Manager, University of Idaho, by phone (208/885-9756) or e-mail <gollberg@uidaho.edu>; or Jennifer Gaines, FRAMES Northwest Project Coordinator, NBII Program, by phone (303/202-4260) or e-mail: <jennifer_gaines@usgs.gov>.

NBII Science Committee Holds Inaugural Meeting

The NBII Science Committee held its first meeting at the W. Alton Jones Conference Center of the University of Rhode Island in West Greenwich, RI, on September 23-24, 2003. The Committee serves in a scientific guidance capacity to ensure the Program’s continued responsiveness to user and stakeholder needs. The Committee is made up of nationally and internationally known experts from the fields of biology, information, and computer science, and includes representatives from the USGS, the Environmental Protection Agency, NASA, the National Science Foundation, as well as the museum and university communities.

At its first meeting, the Committee heard presentations by NBII Steering Team members Kate Kase, John Mosesso, and Mike Frame about the history, structure, and technical implementation of the NBII. The Team also led lengthy discussions on a number of scientific and procedural issues.

Outputs for the meeting include White Papers prepared by Committee members on the following topics: NBII Scope, Content, and Priority; NBII Balance; Scientific Quality; World Data Center; Scientific Leadership; and the NBII Scientific Review Process.

Committee members include:
- Michael Ruggiero (Co-Chair) – USGS, Headquarters
- John Schnase (Co-Chair) – NASA, Goddard Space Flight Center
- John Mosesso (Executive Secretary) – USGS, Headquarters
- Lois Blaine – American Type Culture Collection
- Geoffrey Bowker – University of California, San Diego
- Lawrence Brandt – National Science Foundation
- Paul Dressler – USGS, Headquarters
- Sara James Graves – University of Alabama, Huntsville
- Jack Hill (ex officio) – World Data Center for Biodiversity and Ecology
- Thomas Loveland – USGS, EROS Data Center
- Michael Mac – USGS, Columbia Environmental Research Center
- Thomas Daniel Moritz – American Museum of Natural History
- James Quinn – University of California, Davis
- Denice Shaw – U.S. Environmental Protection Agency, Headquarters

The Science Committee will next meet at the 2004 NBII All Nodes Meeting, which will be held in Big Sky, MT, in June 2004.
NBII Metadata Workshops Fall Wrap-up

In fall 2003, the NBII brought metadata training to several different groups. Each year the Federal Geographic Data Committee (FGDC) offers a competitive grant program called the Cooperative Agreements Program to promote partnerships that enhance the National Spatial Data Infrastructure effort. Through this grant, the NBII trained over 75 participants in metadata topics this fall, with more workshops planned for the coming calendar year.

In November, the NBII partnered with NatureServe to bring training in the basics of metadata to 13 participants. The training was held in Pine Mountain, GA. A diverse participant group included representatives from Heritage Programs in Arkansas and Alabama, the North Carolina NatureServe office, U.S. Fish and Wildlife Service, Louisiana Department of Wildlife and Fisheries, Florida Natural Areas Inventory, and the NBII Southern Appalachian Information Node.

Training was team taught by Terry Giles (NBII) and Lynn Kutner (NatureServe), both graduates of the NBII Train the Trainer series. The agenda included an overview of metadata and its importance, the seven sections of the FGDC standard, the Biological Data Profile, and a demonstration of metadata software (Spatial Metadata Management Systems [SMMS] from Intergraph). Each participant was encouraged to create a metadata record on computers provided for the session. Feedback from the participants indicated that the session met their needs and was a success. Several have uploaded records to the NBII Clearinghouse as a result!

A different kind of metadata training was conducted in Halifax, Nova Scotia, in late November. The NBII partnered with Environment Canada to bring “EcoInstruct,” a Train the Trainer workshop, to 65 participants. EcoInstruct was a tri-lateral session lasting three days, complete with French and Spanish interpreters. The size of the group for this training session was a new experience for the NBII, as in the past there had been a limit of 12 participants for this type of workshop. Instructional materials were modified to accommodate the size of the group, and copies of presentations were translated into French and Spanish. Each participant received a training binder and a box of supplies meant to assist in future individual training efforts. Mike Moeller of the National Oceanic and Atmospheric Administration and Lynda Wayne of the FGDC team provided this training.

The first two days of training were comprised of learning the basics of training methods, then applying that new knowledge to a group presentation. Participants were divided into interest area groups and asked to create and present a training module to the other groups, which were then critiqued by the trainers. The groups tried many different creative teaching approaches. One group developed a metadata game show. On the third training day, participants signed up for further training in several different interest areas, one of which was metadata. Mike Moeller taught the basics of metadata, including the FGDC standard, to a group of 25. There are now 65 new trainers ready to apply their new skills!

The next “Basics of Metadata” training session will take place February 23-24, 2004, in Arlington, VA. To attend, please contact Viv Hutchison by e-mail <vhutchison@usgs.gov> or phone (703/648-4311).

Vivian Nolan and John Mosesso represented the NBII and the Gap Analysis Program at the 4-day Joint Ventures: Partners in Stewardship Conference in Los Angeles in November 2003. The conference provided a forum to explore partnerships and forge connections between people and organizations to protect our natural and cultural resources. See <www.partnerships2003.org> for more information.
International Connections

GBIF’s DiGIR Network Passes 6 Million Record Mark

At their meeting in London in early 2003, the Global Biodiversity Information Facility (GBIF) NODES Committee set its goal to have a DiGIR (Distributed Generic Information Retrieval) network operational by the end of 2003. GBIF announced in December that over 6 million records were now available through the network.

DiGIR, a protocol for single point access to distributed data sources, was selected by GBIF (<www.gbif.org>) to implement its system to access species data. The GBIF DiGIR network is designed to serve primary data on species occurrences derived from museum specimens and observational records.

To meet its 2003 target, GBIF offered five regional workshops — in Sweden, Canada, Japan, Portugal, and Costa Rica — on “Becoming a GBIF Data Provider.” Two more workshops, in France and South Africa, are slated for early 2004. The training is designed to facilitate the development of a network of DiGIR providers serving primary data. In most instances, these servers are hosted by natural history collections or other institutions that hold this type of data. Over 100 people were trained in the first five workshops.

By mid-December 2003, the GBIF network was serving 6,166,800 records. The largest single data providers as of that date were Costa Rica (over 2.8 million records), Austria (1,250,000 records), Canada (430,000 records), and Australia (321,000 records). The United States had the largest number of distributed data sources, with 12 registered providers (data nodes) serving together over 980,000 records. Other GBIF participants with registered DiGIR data providers were Sweden, Spain, the Netherlands, Belgium, Denmark, Japan, India, and the GBIF demonstration project at the University of Turku, Finland.

At the same time, GBIF has been developing its central services to index these data and to assist users to retrieve information on different taxa. An early version of a data portal is running on the GBIF Web site at <www.gbif.org/taxa/taxabrowser>.

The NBII is coordinating U.S. participation in the DiGIR network. For more information on how to be a U.S. contributor to GBIF, contact Mike Frame, the NBII Technology Coordinator and U.S. GBIF Node Manager, by e-mail at <mike_frame@usgs.gov>. Through GBIF’s network of biodiversity databases and information technology tools, users can put to use the world’s vast quantities of biodiversity information to produce national economic, environmental, and social benefits.

ITIS Signs Agreement with Species 2000 and the Global Biodiversity Information Facility to Build Catalog of Life

On December 19, 2003 — in Washington, DC; Reading, United Kingdom; and Copenhagen, Denmark — the Integrated Taxonomic Information System (ITIS), Species 2000, and the Global Biodiversity Information Facility (GBIF), respectively, signed a Memorandum of Cooperation to build the Catalog of Life. The Memorandum provides a basis for mutual support, access, and use of the Catalog of Life, a collaborative effort to provide a coherent and authoritative view on the taxonomy of the 1.75 million known species of living organisms on Earth.

The unified catalog is fundamental to such important tasks as developing worldwide conservation strategies and understanding invasive species. With its planned coverage of plants, animals, fungi, and microorganisms, the program represents one of the more elusive goals of modern biology.

ITIS and Species 2000 will develop, review, improve, and maintain the Catalog of Life and provide it through electronic networks and on CD-ROM. GBIF will use the Catalog of Life as an index to make the world’s biodiversity data freely and universally available via the Internet and other international electronic networks. GBIF encourages, coordinates, and supports the development of worldwide capacity to access the vast amount of biodiversity data held in natural history museum collections, libraries, and biodiversity databases.

ITIS is a partnership of several federal agencies (including the USGS), the Smithsonian Institution, NatureServe, Mexico, and Canada and is a vital component of the National Biological Information Infrastructure (NBII).
SAIN Encourages Partnerships to Share Inventory and Monitoring Results

As its name suggests, the NBII Southern Appalachian Information Node (SAIN) <sain.nbii.gov> provides access to data and information on the biology and ecosystems of the Southern Appalachians. Using Internet media and techniques, SAIN partners with many providers to make knowledge of biota and ecosystems more accessible and understandable. SAIN also partners with users to help them translate and interpret data into meaningful information — and into knowledge upon which they can act.

Obtaining and disseminating data and information about the Southern Appalachians is an integral part of SAIN’s mission. Multiple agencies and organizations in the Southern Appalachians are already engaged in activities that inventory and monitor the region’s biota and habitat. SAIN invites these groups to pursue their work collaboratively.

This has already begun with the Appalachian Inventory and Monitoring Information Synthesis (AIMIS) project, a SAIN effort to synthesize, integrate, and disseminate information from multi-organizational inventory and monitoring activities conducted by numerous regional sources. AIMIS is bridging institutional and geographic boundaries and demonstrating the benefits of data sharing and integration. Necessarily, this involves activities in such varied areas of SAIN expertise as collaboration, technology support, analysis and synthesis tools, interoperability, data warehousing, data mining, training, and education.

Initially, AIMIS is focusing on invasive species data. Invasive species may be the number one environmental challenge of the twenty-first century (the current environmental, economic, and health-related costs of invasive species could exceed $138 billion per year nationwide). Native species with small populations or special habitat requirements could be forced into extinction by invasive outsiders. SAIN is able to leverage knowledge of invasive species in the Southern Appalachians through its affiliation with the NBII Invasive Species Information Node <http://invasivespecies.nbii.gov>, which is creating a central repository for information pertaining to the identification, management, and control of invasives nationally.

Another primary focus of AIMIS is pulling together fish and aquatic resource data for the region. Fish are the largest and most diverse group of vertebrates. By combining information such as their presence/absence and health, along with aquatic invertebrate information, SAIN can

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get a better assessment of water quality for an area. Currently, there is no known searchable database for data collected from all fish and benthic inventory and monitoring activities in the region. To begin to fulfill this need, SAIN has started a database with Web data entry forms and report generation for the Upper Little Tennessee River. The node is on a quest to provide access to such data from every organization for every watershed in the area. This will greatly enhance decision-making on water quality issues in the Southern Appalachians, as well as providing regional information for the NBII Fisheries and Aquatic Resources Node <http://far.nbii.gov>.

If your organization is involved with inventory and monitoring activities in Southern Appalachia, SAIN invites you to partner with them to create the largest possible impact for biodiversity conservation so that:

• Researchers and volunteers can have their data Web-enabled, thus making them more usable by others. This will increase their programs’ visibility and provide further credibility for continued funding.
• Natural resource managers can evaluate encroaching threats – such as possible seed-source areas – to better focus their efforts.
• Decision-makers can make better-informed decisions when they see and build an understanding of “The Big Picture.”
• Educators and students can enjoy a consolidated information base.

For more information on SAIN and AIMIS, please contact the NBII’s Pamela J. Nabors by e-mail <pjnabors@utk.edu> or phone (865/974-9218).