Newsletter of the National Biological Information Infrastructure

nbii Access

Winter 2011 www.nbii.gov Volume 14, Number 1

ITIS Updates and Expands Its Coverage on Grasses

The Integrated Taxonomic Information System (ITIS) is in the midst of a large and continuing effort to update all of its plant names. This may come as no surprise to many since the new ITIS director, Dr. Gerald "Stinger" Guala, arrived at his new post last year after spending several years with the National Plant Data Center (NPDC), most recently as its Acting Director. While at NPDC, Guala and his colleagues spent four years working with the Flora of North America Expertise Network to build a comprehensive update that never made it into production at NPDC, but the data are now being quality controlled and entered into ITIS.

The National Biological Information Infrastructure (NBII) hosts ITIS, which is the authoritative federal information source on the names and classification of plants, animals, fungi, and microbes of North America as well as many global treatments. It includes scientific and common names, hierarchical classifications, historical documentation, and expert citations for each name.

Photo credit: © Amir Arif Aqmal, used with permission

Cogon grass (Imperata cylindrica)

The Plants data in ITIS have been supplemented by data on grasses found in the Catalogue of New World Grasses (CNWG), a cooperative venture between the Smithsonian and the Missouri Botanical Garden. "We took their database and reformatted it and cleaned it up a bit for ITIS,"

(Continued on page 3)

Latest Enhancements to Butterfly and Moth Site Net Solid Gains for USGS

With the new butterfly and moth season poised to begin, Butterflies and Moths of North America (BAMONA) recently launched its re-tooled Web site at <www.butterfliesandmoths.org>, and it's now more helpful than ever to its broad range of users. The site was developed at Montana State University (MSU) under a cooperative agreement with the USGS National Biological Information Infrastructure (NBII).

Why should we care about butterflies and moths? There is a critical need for a comprehensive, high quality database for scientists utilizing data on North American species of butterflies and moths. In recent years, research has indicated that the geographic distributions of butterflies, like other species, may be shifting further north and to higher elevations in response to changes in the environment (Parmesan et al. 1999). Migratory butterflies may arrive only to find that the flowering plants they depend on for nectar have already finished flowering due to earlier, warmer temperatures; while earlier or unusually warmer temperatures or drier conditions may have profound impacts on the availability and health of plants that provide food for butterfly larvae. For example, populations of the Edith's checkerspot butterfly (*Euphydryas editha*) (a species federally listed as threatened) in southern California have declined as warming temperatures and droughts, extended rainy weather, and other weather extremes have negatively impacted the insect's larval host plants and subsequent larval survival (Abhat and Unger 2008; Murphy and Weiss 1992).

(Continued on page 4)

In This Issue

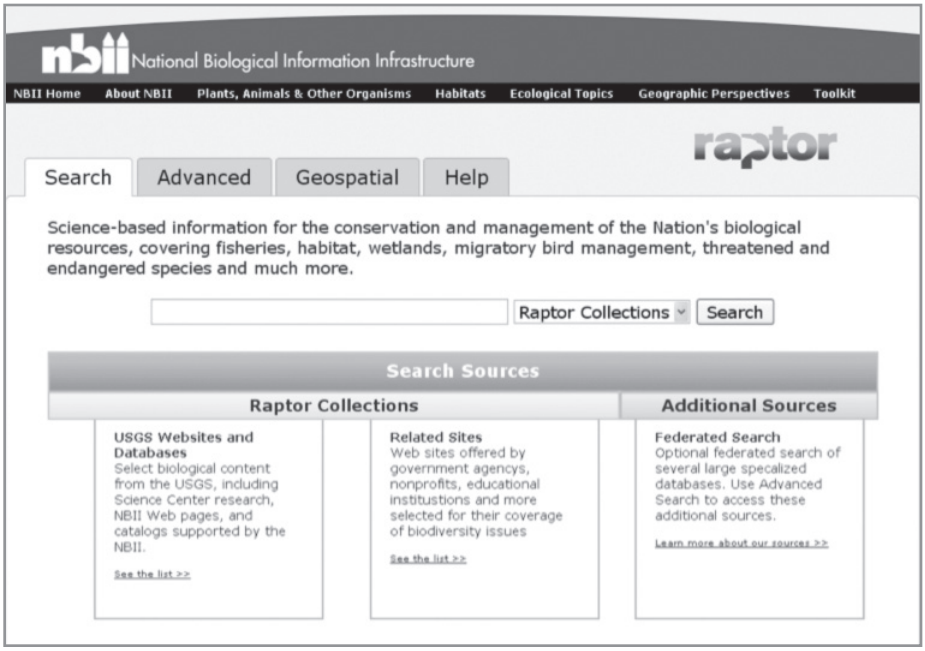
Raptor Search Has a New Home!

Raptor, the search engine of the USGS National Biological Information Infrastructure (NBII), has a new home … home page, that is.

The new search home page answers several needs, serving as an introduction to Raptor and providing access to the Help file, a tutorial Webinar, and a full list of Raptor's sources. Although the home page performs multiple functions, it still satisfies its primary duty: providing a simple interface for searching Raptor's authoritative sources.

We designed the page to answer the question, "What is Raptor?" At the top of the page is a statement describing Raptor's topical coverage: "Science-based information for the conservation and management of the Nation's biological resources, covering fisheries, habitat, wetlands, migratory bird management, threatened and endangered species, and much more."

In addition to Raptor's topical coverage, the home page also gives a brief introduction to the types of sources included in a search of Raptor. For those who want to know more, there are links to the full list of search sources. The full list includes a description of each source, along with a link to each source's respective Web site. Including this information helps to indicate to users that Raptor is a source of authoritative, curated information, setting it apart from other search engines.



Raptor's new home page

The page is also designed to provide an easy-to-navigate interface to all of Raptor's searching options. The new home page uses tabs to accomplish this. Advanced Search and Geospatial Search are fully integrated into the new home page via tabs, providing one access point for the different ways to search for biological information. Users can easily click back and forth between tabs, making the process of choosing the appropriate search interface a little less intimidating.

An additional searching option, exercised from the search box in the central part of the page, is the ability to specify a search of either the Raptor collections generally or the NBII Web site only. This option is available through the Advanced Search function, but is more easily used through this simple drop-down box option.

Perhaps the most important part of the new home page, the Help tab

(Continued on page 5)

Access

USGS

Access, the quarterly newsletter of the National Biological Information Infrastructure, is published by the NBII National Program Office.
Ron Sepic, Editor
Linda Lincoln, Associate Editor
Vicky Quick, Production Specialist

Contributors:
Jen Carlino
Gerald "Stinger" Guala
Viv Hutchison
Kelly Lotts
Hugh O'Connor
Elizabeth Sellers
Annie Simpson
Sarah Wright

Guest reviewers:
Mark Fornwall
Henry Wolter

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

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 Informatics Program
Core Science Systems
302 National Center
Reston, VA 20192
Phone: 703/648-4218
Fax: 703/648-4224
E-mail: ron_sepic@usgs.gov

Be sure to check out *Access* online at <www.nbii.gov>→ Publications Library.

Please direct your general questions about the NBII, including partnership opportunities, to:
Program Manager
U.S. Geological Survey
NBII National Program Office
302 National Center
Reston, VA 20192
Phone: 703/648-NBII (6244)
Fax: 703/648-4224
E-mail: nbii@nbii.gov

ITIS Updates and Expands Its Coverage on Grasses (continued from page 1)

says Guala. "Now we have all of the grasses in North, Central, and South America … more than 28,000 names. Because Central and South America are included, most of the pan-tropical weeds – a large group of invasives – are also there."

"Dr. Rob Soreng and the CNWG team deserve a special thanks for providing most of the base data and answering the many questions that arose during the processing and quality control," says Guala. "We look forward to the continued cooperation of the CNWG in helping us maintain the data for this enormously important family of plants."

For those who are not familiar with grasses, they are the most important family of all land plants, accounting for *two-thirds* of our food directly or indirectly; examples include, rice, wheat, corn, sugar cane, and pasture grasses (Heiser 1990).

At the same time, we spend millions of dollars annually in the United States getting rid of invasive grasses. In the Southeast, cogon grass (*Imperata cylindrica*) has become a major problem for landowners, land managers, foresters, and governmental agencies. Among its negative traits, it can make farmland un-farmable. Johnson grass (*Sorghum halepense*), an invasive grass native to the Mediterranean region, harbors many diseases that affect corn. Many areas are being taken over by invasive plants (including grasses), and this is causing damage to the environment, economy, and health.

How can ITIS and its latest additions on plants and grasses help alleviate these problems? Conservation tactics often begin with a search of the literature to find out what others are doing and how much success they are enjoying.

"There are perhaps 300 years of literature sitting on shelves and tons of literature online that tells folks, 'I got rid of this grass this way,'" says Guala. "The trick is finding the right literature since, over the years, many of the names of these grasses have changed. So you can't just go to a library and type them into a card catalog to find the answer."

ITIS tells you the preferred name, but also the other names that have been applied to any given species, including invasive grasses. In so doing, ITIS gives you basic information you need to do a comprehensive search of the literature. "If you have ITIS hooked to your library catalog," says Guala, "as many libraries do, then it's automatic!"

ITIS is accessible through the NBII home page <www.nbii.gov> under Standards (third item). You can reach ITIS directly at <www.itis.gov/>.

Reference:

Heiser, C.B. 1990. *Seed to Civilization*: *The Story of Food*. Cambridge: Harvard University Press. 61, 64

The Inouye Database: An Interactive Bibliography of Pollination Publications

A new resource for pollinator and pollination research will soon be available online at <www.nbii.gov/inouye> in the form of the Inouye Database. The database contains almost 10,000 bibliographic citations from articles and books published from 1793 to the present. It includes some obscure works on pollination biology, flowering phenology, plant demography, and plant-animal interactions such as ant-plant mutualisms, nectar robbing, and animal-mediated pollination.

A survey conducted by the Pollinator Thematic Network of the Inter-American Biodiversity Information Network (IABIN) in winter 2006 and spring 2007 confirmed that the type of information most valuable to pollination researchers in the Americas – and where it does exist, the most difficult to access – was plant-pollinator interaction information. The historical record of plant-pollinator interactions is largely contained in publications that we reference using citations and then mine (to date by human eyes) for important observations of particular species or groups of animals mediating the pollination of flowering plants.

The Inouye Database had its beginnings in the 1970s when, while studying bumblebees for his dissertation research, Dr. David W. Inouye, an internationally respected scientist and Professor of Biology with the University of Maryland, began collecting reprints and photocopies of papers related to bees and pollination. In the 1980s it became apparent that there was a need for a source book of techniques for use by pollination biologists. Dr. Inouye began to broaden his reading and reprint collection to prepare for writing such a book. He also converted his collection to an electronic bibliographic database. Dr. Inouye continued to collect pollination-related references after the successful publication of *Techniques for Pollination Biologists* in 1993. Today he continues to maintain and update the database.

Recognizing the value of the

(Continued on page 7)

Above: The new home page of the Butterflies and Moths of North America Web site. [Image: Big Sky Institute, Montana State University]. *Right: Users can now submit photographs to be contributed to the searchable BAMONA image gallery.* [Photo inset: *Pink-striped oakworm moth*] Photo credit: © Bob Ash, used with permission

With more than 280,000 verified sighting records and 3,180 images that describe 4,623 species, BAMONA is committed to collecting and providing access to quality-controlled data about butterflies and moths of North America. Its goal is to meet the needs of scientists and nature observers by bringing verified occurrence and life history data into one accessible location.

The site's latest innovations are aligned with that goal and aimed at improving BAMONA's technologies for both data collection and data dissemination. As for the former, users can now submit records – which typically include a photograph – via the site's new user submission form. Users key in such information as the address or location where they saw a butterfly or moth. Once this information is entered, the creature's location (latitude and longitude) is set automatically. Now, just a photo upload and a few mouse clicks from logged-in users replace an outdated submission process that required multiple e-mails with spreadsheet attachments.

New submissions are often made by citizen scientists, while verification is handled by BAMONA's dedicated volunteer coordinators, including nationally and internationally recognized Lepidoptera experts. The site's army of coordinators rigorously reviews submissions to ensure BAMONA provides data of the highest possible quality. The coordinator is always a respected lepidopterist (generally speaking, a specialist in butterfly or moths).

As for data dissemination, now verified records are immediately available on the site's home page, species pages, and a "What's New?" section. New, interactive Google-based maps enable the display of any verified sighting, including Canadian data (absent on the previous site). Visitors can now zoom in or out and click on dots pinpointing sighting locations on interactive maps, and see the details of each sighting record – all features not available previously. Those with user accounts can also track the progress of their sightings and view their contributed photos through new tools for logged-in users. New users are signing up to contribute to BAMONA every day. So far, 449 users have established accounts and submitted more than 2,900 individual sightings since the site was released on January 10. Harvested data from BAMONA can be incorporated into other datasets, models, Web sites, research, and so forth.

BAMONA has its roots in U.S. county-level data collection efforts begun in 1995 by the USGS Northern Prairie Wildlife Research Center (NPWRC). In 2004, the USGS-NBII and USGS-NPWRC provided funding to the Big Sky Institute at MSU to transform the existing NPWRC data into a modern, interactive, and searchable online database – a technological metamorphosis from which BAMONA has emerged. Since 2006, the NBII has continued to support and enhance the BAMONA project's ongoing data collection and dissemination.

To learn more about BAMONA, contact Kelly Lotts, the Project Coordinator, at <lotts@montana.edu>.

References:

Abhat, D., and K. Unger. 2008. "Reining in the Impacts of Climate Change. Perspectives for wildlife professionals in a warming world." *Wildlife Professional* 2(3):33-39.

Murphy, D. D., and S. B. Weiss. 1992. "Effects of Climate Change on Biological Diversity in Western North America: Species Losses and Mechanisms." Chapter 26 in: Peters, R. L., and T. E. Lovejoy (eds), *Global Warming and Biological Diversity,* Castleton, NY: Hamilton Printing.

Parmesan, C., N. Ryrholm, C. Stefanescus, J.K. Hill, C. D. Thomas, D. Descimon, B. Huntley, L. Kaila, J. Kullberg, T. Tammaru, W. J. Tennent, J. A. Thomas, and M. Warren. 1999. "Polewards Shifts in Geographical Ranges of Butterfly Species Associated with Regional Warming." *Nature* 399:579-83.

NBII Provides Leadership for Data Management Working Group

A new Working Group has been established through the USGS Community for Data Integration called "Best Practices for Data Management." The Working Group, led by Viv Hutchison (USGS, Core Science Systems, Denver, CO) and Heather Henkel (USGS, St. Petersburg Coastal Marine Science Center), has over 50 participants across the USGS.

The group seeks to elevate the value and importance of data management throughout USGS. Although there are many programs currently doing excellent data management in the USGS, there are areas in which improvements could be addressed. Good data management is a prerequisite for data integration, and the Best Practices for Data Management Working Group will develop mechanisms for incorporating data management into USGS science and develop ways to educate scientists of its value. The group seeks to elevate the practice of data management such that it is seen as a critical partner in the pursuit of science in USGS.

The group has divided itself into three major subgroups: Best Practices Subgroup, Policy Development and Review Subgroup, and Data Management Meetings Subgroup. The Best Practices Subgroup will compile a suite of best practices, lessons learned, and learning opportunities regarding data management. The goal is to organize this information and make it available through a Web site or portal. The Policy Development and Review Subgroup will review existing USGS policies concerning data management, write new policies, and provide feedback to the Research Grade Scientist (RGS) and Equipment Development Grade Evaluation (EDGE) processes with regard to giving scientists credit for data management activities. The USGS Data Management Meeting Subgroup will look at details for planning a regularly occurring USGS Data Management Meeting.

The Best Practices for Data Management Working Group welcomes new members at any time.

Main meetings of the Best Practices for Data Management Working Group are held monthly. Each meeting begins by highlighting data management practices by programs and individual scientists throughout the USGS in a 30-minute presentation. The remainder of the meeting focuses on updates from subgroups, and discussion of data management issues.

A major accomplishment of the Data Management Working Group to date is the submission of a proposal to the John Wesley Powell Center for Analysis and Synthesis. Proposals were due at the end of January. A writing team was assembled from the Data Management Working Group by Viv Hutchison and Heather Henkel, which also included Sally Holl (USGS Austin Water Science Center), Jessica Thompson (USGS Center for Integrated Data Analytics), Steve Tessler (USGS New Jersey Water Science Center), and Lisa Zolly (USGS Core Science Systems, Reston). The team assembled a strong Working Group that will convene if the project is funded. The Working Group will examine internal and external existing data management policies, standards, and practices; evaluate cultural and institutional challenges inherent to implementation of these practices; evaluate standards and develop best practices; and investigate mechanisms for communicating data management policies and practices to the USGS community.

The Best Practices for Data Management Working Group welcomes new members at any time. Meetings are held the second Monday of each month from 2-3:30 p.m. ET. Please contact Viv Hutchison <vhutchison@usgs.gov > or Heather Henkel <hhenkel@usgs.gov> for more information.

Raptor Search Has a New Home! (continued from page 2)

makes it easier to navigate what was previously a long document requiring lots of scrolling to reach a specific help topic. The new format includes a left-hand navigation area, and allows users to go directly to the topics with which they need help. It includes the section on Raptor's search sources, as well as sections that provide detailed information on performing a search and navigating the results. The Help tab also gives a more complete description of the scope and coverage of Raptor.

The new search page is useful on many levels. It provides a simple and memorable URL for users: <http://search.nbii.gov/>. It is easy to use, focusing on the search box while still making Raptor's advanced options clearly available. It provides documentation and help for the advanced or merely curious users.

We invite you to explore Raptor's new nest, and as always, welcome your feedback and suggestions for improvements. Comments should be sent to Hugh O'Connor at <hoconnor@usgs.gov>.

Invasive Species Toolbox

The Toolbox is a collection of useful items and highlights related to invasive species information management issues. Please send any suggestions you might have for Toolbox columns to <asimpson@usgs.gov> or <esellers@usgs.gov>.

In Memoriam: Dr. Les Mehrhoff, Co-founder of the Invasive Plant Atlas of New England (IPANE)

Dr. Leslie Mehrhoff, sharing sightings of invasive plants commonly found around the University of Connecticut campus, in Storrs,CT.

An amazingly knowledgeable botanist and naturalist; a champion of invasive species outreach; the originator of a contagious idea to use informed citizens to help with invasive species early detection; an enthusiastic speaker with incredible images to share; and a guy who loved "being in the field." All of these descriptors and more help paint a picture of our friend and colleague, Les Mehrhoff. His heart failed suddenly last December 22 while he was at home with his family. He will be sorely missed. This edition of the Invasive Species Toolbox is dedicated to his memory.

IPANE Shares Its Training Manual Online

Containing a wealth of information collected since its inception in 2001, more than 900 volunteers have become affiliated with IPANE and contributed to its mission: Create a comprehensive Web-accessible database of invasive and potentially invasive plants in New England that will be continually updated by a network of professionals and trained volunteers.

The IPANE Training Manual is the network's latest product to come online. The manual has grown to include a wide variety of information that is useful to its own volunteers: IPANE history, data forms, species lists, step-by-step instructions for data submission, and more. Access it at <http://nbii-nin.ciesin.columbia.edu/ipane/volunteers/training_materials/IPANEtraining_Manual.pdf >.

Explore and Provide Feedback on the Beta Version of the Alberta Risk Assessment Tool (RAT)

The Alberta Department of Agriculture has announced the beta version of its online RAT and requests that interested users provide feedback by June 1, 2011, for its improvement. The RAT is part of a pilot project undertaken by the Canadian Interdepartmental Invasive Alien Species Working Group (IASWG). IASWG's goal is to facilitate communication throughout the province of Alberta and thus better manage the risks of invasive species. You can read the supporting documentation and try out the tool at: <http://www.agriculture.alberta.ca/risktool>.

Join the Invasive Plant Atlas of the MidSouth Online

The Invasive Plant Atlas of the MidSouth (IPAMS) accepts online registration and submission of data from concerned citizens nationwide. IPAMS' purpose is to provide information on the biology, distribution, and best management practices for forty weedy plant species that are of particular interest in the region, but also posing problems elsewhere. The easiest way to join IPAMS is to receive training from the organizers at the Mississippi State University Geosystems Research Institute; but online registration is also open to the general public at <http://www.gri.msstate.edu/research/ipams/user_reg.php>.

Invasive Plant Atlas of the United States

A coalition has formed among those active in the invasive plant data collection community. The Web site, <http://www.invasiveplantatlas.org>, was developed by The University of Georgia's Center for Invasive Species and Ecosystem Health and the National Park Service, in cooperation with the Invasive Plant Atlas of New England, Invasive Plant Control, Inc., the USDA Forest Service, the USDA NRCS PLANTS Database, the Lady Bird Johnson Wildflower Center, the National Association of Exotic Pest Plant Councils, the Plant Conservation Alliance, and the Biota of North America Program. The Atlas' purpose is to assist users with identification, early detection, prevention, and management of invasive plants. For additional information, contact Jil Swearingen at <jil_swearingen@nps.gov>.

Other Contributions in Memory of Les Mehrhoff

Some of Les' colleagues are sharing photos and memories about him at <http://www.flickr.com/groups/lesmehrhoff/>. If you have

(Continued on page 8)

International Connections

Ocean Biogeographic Information System-USA (OBIS-USA) Passes 6.5 Million Records, Enables New Geospatial Data Tools

OBIS-USA, the U.S. node of the global Ocean Biogeographic Information System (OBIS), has made several technical and institutional advances in the past few months.

OBIS-USA surpassed a critical milestone of 6.5 million records representing 83,000 taxa from 145 datasets provided by 36 partners. The data span from invertebrates to fish to mammals and include federal, state, and educational institutions. In addition, OBIS-USA has improved its usability by adding spatial search capability to the already excellent taxonomic search. The system, completing beta testing, now allows for more rapid download of data and the database has integrated ERDAP, an application that allows the user to subset data, generate a URL to the subset, and then incorporate the data into analysis tools (e.g., R. Matlab, etc.) for analysis and forecasting.

Photo credit: Census of Marine Life Arctic Ocean Diversity project, © Kevin Raskoff

Clione limacina *(sea angel). The most common naked pteropod of arctic waters.*

In addition, OBIS has developed a data vocabulary that will help to improve interoperability between OBIS (and other biodiversity data) and the Integrated Ocean Observing System.

The U.S. Geological Survey (USGS) Coastal and Marine Geology Program, in collaboration with OBIS-USA, has been working with Unidata's Integrated Data Viewer (IDV) to combine data made available through OBIS-USA with resources from other institutions via Web services.

An initial test combines OBIS-USA biological data (right whales) with USGS seafloor and mid-water current data from the ECOHAB program and NOAA bathymetry, each data resource consumed directly via Web services into the IDV model. This test shows the technology and community benefit of Web service adoption, when data resources are increasingly available in reliable and accessible formats, and a growing range of tools are available to innovate new applications for the data.

Mark Fornwall, USGS Biological Informatics Program (BIP), was elected Chair of the ad hoc steering group for the OBIS. Dr. Fornwall will assist with the transition of OBIS into the Intergovernmental Oceanographic Commission, which will host the network.

OBIS-USA is available at <obisusa.nbii.gov>. For more information please contact Mark Fornwall at <mark_fornwall@usgs.gov>.

The Inouye Database: An Interactive Bibliography of Pollination Publications (continued from page 3)

database as a useful research tool for pollination biologists, Dr. Inouye began to advertise its availability and search for a place where it could be hosted and maintained online even after or in the event that he retired from professional research. In 2009, following up on a contact while participating in the North American Pollinator Protection Campaign's (NAPPC) Annual International Conference, Dr. Inouye sought the assistance of the National Biological Information Infrastructure (NBII), a program administered by the U. S. Geological Survey (USGS). The USGS-NBII agreed to Web enable the database and develop an administrative interface that would facilitate updates and maintenance.

As a living dataset that Dr. Inouye and other scientists will continue to contribute to, the Inouye Database will soon be accessible online and available for others to download in extensible markup language and tab delimited text–file formats. Visitors to the Web site will browse or search the database using tag clouds and sorted lists, keywords and author names, publication year, and publication type (e.g., journal article, book, and so forth). The MyLibrary feature on the Web site also allows users to save and download citations for articles of interest. Many of the citations in the database are also hyperlinked via a digital object identifier (DOI) and uniform resource locator (URL) directly to the article or to the publisher's Web site, where the article may be purchased and/or downloaded for free.

The Inouye Database can now also be integrated through Web services and other technologies into other long-term research programs and biological networks such as the U.S. National Phenology Network, the Butterflies and Moths of North America database, the IABIN, and the NAPPC Pollinator Conservation Digital Library. The USGS-NBII plans to continue collaborating with Dr. Inouye on improvements to the database and welcomes feedback on the Web site and ideas for other potential applications for this type of dataset.

Invasive Species Toolbox (continued from page 6)

a Flickr, Facebook, or Google account, you can contribute your images and memories, too. For more information, contact Elizabeth Sellers at <esellers@usgs.gov>.

The NBII Program blog remembers Les Mehrhoff:<http://nbii-info.blogspot.com/2011/01/nbii-programremembers-les-mehrhoff.html>.

"perform an act of kindness for the preservation of the environment"

Finally, we share his family's request that we all "perform an act of kindness for the preservation of the environment" to honor Les' memory. May our acts have a positive impact, as Les' own appreciation of the environment has had on us all.

National Biological Information Infrastructure

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