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BIODIVERSITY AND NREL

GLOBAL LITTER INVERTEBRATE DECOMPOSITION EXPERIMENT (GLIDE)



The Global Litter Invertebrate Decomposition Experiment (GLIDE) is a Core Network Project of the International Biodiversity Observation Year and a multi-site experiment funded by the National Science Foundation and the Soil Science Society of America (SSSA). The GLIDE will assess and examine the relationship of biogeographical patterns of soil litter biodiversity and

decomposition rates.

The GLIDE Steering Committee is chaired by Diana Wall and co-chaired by David Bignell of the University of London, Queen Mary College, UK, and Mark Dangerfield of BioTrack and Macquarie University, Australia. This Steering Committee, along with Jim Gosz of the International Long-Term Ecological Research (ILTER) Network, has been instrumental in identifying 28 GLIDE sites globally, such as Namibia, Russia, Venezuela, Canada, Burkina Faso, Australia, Mongolia, and Taiwan. Due to limited funding, sites represent biomes across latitudes. These collaborators will examine invertebrate species involved in decomposition of a litter source. Each site has four plots of six fiberglass mesh (1.0mm) bags/plot of 10g of *Agropyron cristatum*. Half of the bags in a plot will be treated with mothballs to eliminate decomposition by invertebrates. Bags will be collected three times at intervals dependent on each site's environment. After collection, fauna will be extracted from the litterbags by the Tullgren Funnel method, preserved in ethanol, and shipped to BioTrack in Australia. Specimens will be sorted to morphospecies, photographed, and returned to the host country.



The GLIDE team has designed a website, <http://www.nrel.colostate.edu/projects/glide> (funded by the Soil Science Society of America) to educate the public and scientists on the importance of soil biodiversity and the critical ecosystem services soil fauna provide. The website's primary goal is outreach, but it will also be instrumental in establishing protocols and coordinating sampling times for site collaborators. For information, contact GLIDE at glidenrel.colostate.edu.

INTERNATIONAL BIODIVERSITY OBSERVATION YEAR (IBOY)



January 2001 saw the launch of the International Biodiversity Observation Year 2001-2002. IBOY is chaired by Diana Wall, administered by Program Director, Gina Adams and staffed by Lily Huddleson and Stella Salvo at NREL. IBOY is an initiative of Diversitas, the international program of biodiversity science. Nearly 100 biodiversity research and education projects are participating in this year for biodiversity. IBOY is drawing them together in a coalition-building and outreach campaign to (1) network and integrate research to advance a holistic understanding of biodiversity and (2) increase communication of science-based biodiversity information to a broad audience.

The launch of IBOY in January 2001 was marked by a special issue of *Trends in Ecology and Evolution* (Vol. 16, No. 1). A press release issued simultaneously by the IBOY secretariat resulted in at least 16 articles in the scientific, environmental and popular press in Argentina, Austria, Brazil, Mexico, Peru, The Philippines, Switzerland, The United Kingdom, and USA. On March 2, 2001, the IBOY Secretariat and the National Research Council's US National Committee on Diversitas sponsored a symposium and panel on "Human Dimensions of Biodiversity" at the Annual Meeting of the American Institute of Biological Sciences in Washington DC, which was reported as the lead story of the May 1, 2001 Issue of *The Scientist* (Vol. 1. No. 10). AIBS also celebrated the IBOY by screening the IMA film "Ocean Oasis" at the Smithsonian Institution's National Museum of Natural History.

Throughout 2001 and 2002, IBOY is sponsoring a series of meetings with the goals of: (1) developing research recommendations for international biodiversity challenges in need of integrated research and (2) training biodiversity scientists on communicating their findings to the media. The first meeting took place on June 1-1, 2001 at the US Fish and Wildlife Service, National Wildlife Visitors Center, Patuxent, MD. Over 100 IBOY scientists and educators from around the world shared information on the latest advances in their fields, identified international biodiversity challenges in need of integrated research, and received professional training on communicating with the media. The international radio program on science and the environment, *Pulse of the Planet*, interviewed leaders of IBOY's research projects at the meeting, for programs on IBOY and biodiversity research to be broadcast in Fall 2001. In September 2001, the IBOY Secretariat will host a meeting at NREL, sponsored by the National Academy of Science, to coordinate US-wide celebration of biodiversity and biodiversity research in 2002. Also at that time, a show will be broadcast by EarthWatch Radio, and a feature article published in French Magazine *GEO* on IBOY. Visit our website at <http://www.nrel.colostate.edu/iboy> for more information.

NREL IN THE LIMELIGHT

NREL SCIENTIST NAMED TO PRESTIGIOUS ALDO LEOPOLD LEADERSHIP PROGRAM

Kathleen Galvin, a senior research scientist at NREL and an associate professor, Dept. of Anthropology, has been chosen as one of the nation's leading environmental scientists to participate in the Aldo Leopold Leadership (ALLP) Program. CSU leads the nation with four ALLP Fellows (Diana Wall and Dennis Ojima, NREL and Richard Knight, Fisheries and Wildlife Biology). As an ALLP Fellow, Kathy will attend programs designed to teach top scientists to effectively communicate complex scientific research.

The Aldo Leopold Leadership Program, which began in 1998, is operated by Oregon State University

on behalf of the Ecological Society of America. Scientists are trained to work with the private sector, news media, policy makers and non-governmental organizations concerning critical environmental issues.

Galvin, an anthropologist, has been conducting human ecological research in Africa for the past 1 years. Her expertise includes African livestock agricultural land use, human adaptation, health, nutrition and strategies for coping with climate variability. Galvin's current research explores the effects of drought on land use in southern Africa.

Special Publications

The Scientific Committee on Problems of the Environment, Committee on Soil and Sediment Biodiversity and Ecosystem Functioning, chaired by Diana Wall, published a special issue of *BioScience*, Vol. 0, No.12, December 2000, on linkages above and below the surface of soils and sediments.

A Special Issue of *Restoration Ecology* Volume 8(S), the *Journal of the Society for Ecological Restoration*, was published in December 2000 with articles written by Francis Singer, John Gross and Dave Swift. This publication was funded by the National Park Service and U.S. Geological Survey in cooperation with NREL.

Jill Baron will edit a book (Island Press, publisher) on *Rocky Mountain Futures: an ecological perspective*. The book will be for non-scientists and will include contributions by NREL scientists Baron, Dave Theobald, Tom Hobbs, Tom Stohlgren, and Heather Rueth. Publication is expected in 2002, the UNESCO International Year of Mountains.

Appointments

Jim Ellis was recently appointed to a six-year term as a member of the National Research Council, US National Committee for the International Union of Biological Sciences (USNC/IUBS). The committee focuses on soil biology, including conservation of biodiversity in human-dominated ecosystems.

Jill Baron was elected secretary of the Ecological Society of America for a three-year term beginning August 2001. She was recently appointed to the Grand Canyon Monitoring and Research Center Science Advisory Board.

Keith Paustian is serving on the Planning Committee for the Terrestrial Ecosystem Research Facility, a major initiative being considered by DOE to establish ecosystem research facilities to support significant advances in fundamental understanding of ecosystem dynamics.

AWARDS

Jason Neff received a Mendenhall Post Doctoral Fellowship from the USGS and will work part-time in Denver and at NREL. Jason was also named Biogeosciences editor of *EOS* - the weekly newspaper of the American Geophysical Union.

In June, 2001, Marlen Eve was the recipient of the USDA Secretary of Agriculture Honor Award for significant contributions to improving the Kyoto Protocol through the consideration of forest, crop and grazing land management.

HAPPENINGS

Carbon Sequestration-Africa

Bill Parton and Dennis Ojima, NREL, along with Larry Tieszen, EROS Data Center, and Paul Wooster, Nairobi, Kenya, organized the Modeling Agricultural Carbon Sequestration workshop in

Senegal, Africa in February, 2001, to further understand issues related to carbon sequestration in Senegal ecosystems. Stephen DelGrosso, NREL graduate student, participated in the workshop and shared his expertise in ecosystem modeling. Scientists from Senegal and other African countries participated. In-depth analysis of various agricultural systems in Senegal and Kenya were conducted using the Century ecosystem model.

Soil Ecology Meetings

NREL had a strong showing at the Soil Ecology Society meeting at Pine Mountain, GA (May 2001). Former student (soon at Creighton Univ. as Asst. Professor) Amy Treonis, and NRELians, Nicole DeCrappeo, Dorota Porazinska, Mark St. John, Todd Wojtowicz, Johan Six and Diana Wall attended or gave presentations. Karolien Denef received an award for Best Student Graduate Poster.

Jill Baron Testified at U.S. House of Representatives Hearing

On May 3, 2001, Jill Baron testified before the U.S. House of Representatives Committee on Science at a hearing to examine the latest findings on how acid rain affects sensitive ecosystems throughout the country and the adequacy of Federal research and monitoring programs for improving our understanding of acid rain and ecosystem health. Jill testified that the USGS has actively studied the ecological and biogeochemical influences of airborne pollutants throughout the United States, and has produced cutting-edge science from her long-term watershed research and monitoring efforts. Her testimony focused on the western United States (beyond the 100th Meridian), describing the differences between atmospheric deposition in the west versus the east, and explaining how the best evidence for effects of nitrogen deposition occur in southern California and the Colorado Front Range. (Quoted from Federal Communicator.)

Workshop on Integrated Assessment of Drought Responses, Climate Forecasting and Modeling for the Livestock Sector

A workshop on Integrated Assessment of Drought Responses, Climate Forecasting and Modeling for the Livestock Sector was held in Vryburg, South Africa, May 30-31, 2001, to present research results and obtain responses from commercial and communal livestock owners living in the drought-prone portions of western South Africa. The research, sponsored by NOAA through an NREL grant and headed by Kathy Galvin and Jim Ellis, was organized and run by Kathy and Randy Boone, with assistance from co-PIs Coleen Vogel, University of the Witwatersrand, Johannesburg, and Philip Thornton, International Livestock Research Institute, Nairobi, Kenya.

Stohlgren Leads National Parks and Conservation Association Project

Tom Stohlgren met with the Executive Board of the National Parks and Conservation Association (NPCA) to design an unbiased evaluation of the state of natural and cultural resources in all 38 U.S. National Park Service units. Tom, Dan Binkley, and a research team at NREL began developing the framework for the year project. They are working closely with the NPCA, National Trust, and National Park Service. This is the first comprehensive evaluation of the National Parks resources.

The Denver Museum Celebrates IBOY

A special celebration of IBOY is planned for September 21 at the Denver Museum of Science and Nature. The Museum will hold a free day to celebrate the IBOY, and coincide with a visiting exhibit *Voyages of Discovery* that explores historical biodiversity expeditions. As part of this celebration, IBOY and NREL will have displays, lectures and demonstrations at the museum.

GRAD STUDENT NEWS

Nichole Barger, a NREL PhD student of Dennis Ojima and Jane Belnap's (BLM), working in Canyonlands National Park, Utah received a three-year scholarship totaling ,000 from the Canon National Parks Science Scholars Program. Her research in Canyonlands will examine the impacts of biological soil crusts on ecosystem N cycling. The program, which is sponsored by Canon USA, Inc., National Park Service, National Park Foundation and AAAS, awards up to eight scholarships each year in the biological, physical, social and cultural sciences. Koren Nydick was a previous recipient.

Graduate

Michelle Lee successfully defended her MS thesis (Advisor, Jill Baron) in December and began working at the Smithsonian Institution in Washington, DC. as an ecologist. She is in Gabon in Central Africa managing a group working on a biodiversity assessment project.

Dave Barnett also successfully defended his MS thesis- A Nested-Intensity Sampling Design for Plant Diversity." Congratulations He will work on projects, such as evaluating invasive species in 09 U.S. Fish and Wildlife Service refuges, with NREL scientist and advisor, Tom Stohlgren.

Meg Walsh successfully defended her PhD thesis to her committee, Dennis Ojima, Dave Schimel, and Keith Paustian standing in for Roger Pielke, on May 11. She is a post-doc intern in Washington DC with the National Academy of Sciences.

Tamara Hochstrasser has successfully defended her PhD thesis entitled Pattern and process at a grassland-shrubland ecotone. She will be working with advisor, Deb Peters, at Jornada Experimental Range, Las Cruces, New Mexico.

PEOPLE - WELCOME TO NREL

Eldor Paul has recently joined NREL as a Senior Scientist. Paul is one of the foremost authorities in the world in the fields of soil microbiology and soil organic matter dynamics. Prior to coming to NREL, Eldor was department chair for Soil Sciences, University of California, Berkeley and for Michigan State University. At NREL, he is continuing his research on soil organic matter dynamics as affected by land use change, including radiocarbon dating of soils and use of stable carbon isotopes.

Jeff Welker, Senior Research Scientist, has returned to NREL from the University of Wyoming. He has brought his projects and two Post-Docs, Jace Fahnestock and Mark Lyford, as well as two graduate students.

hiqiang Gao from the Institute of Remote Sensing Applications, Chinese Academy of Sciences, began work at NREL September 1 as a Post-Doc working with Dennis Ojima. His research will investigate remote sensing analysis to retrieve land surface parameters for ecosystem and atmospheric modeling.

Laura Landrum, a new Post-Doc, is working with Jill Baron as a modeler with the Regional HydroEcological Simulation System (RHESys) a model which investigates possible effects of climate change on watershed and the ecosystem in Rocky Mountain National Park. Laura received her PhD from the University of Washington in oceanography.

Victoria Dreitz, a recent PhD from the University of Florida, has joined NREL as a Post-Doc to work on Tom Hobbs' project on chronic wasting disease in mule deer populations. She will work on field studies, model building, and model selection.

Kristen Howerton is working with Keith Paustian as a Research Associate in developing a database that may be used as a resource for studying soil carbon levels in various agroecosystems. She received a MS in Environmental Science - Natural Resource Management from the University of Tennessee at Chattanooga.

In March, 2001, Marlen Eve left his position at USDA-ARS and was appointed as a full-time Research Associate with NREL.
Leaving NREL

Melannie Hartman moved to Red Lodge, Montana in December 2000, and continues to work

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