

## NREL NEWS NOTES

*NATURAL RESOURCE ECOLOGY LABORATORY*  
*Colorado State University*

*No. 9 October & November 1994*

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### Announcements

An exciting, informative new brochure is being prepared to exemplify the research achievements and scholarly excellence of NREL. Mardi Bowles from Woods Hole, MA has agreed to be the Managing Editor for this brochure. Mardi visited NREL Oct. 25-28 to organize the materials for publication of this brochure and considerable progress has been made.

Diana Freckman will be a leader of one of Dan Janzen's Costa Rican, All Taxa Biotic Inventory (ATBI), Taxonomic Working Groups (TWIGs). Norway provided \$350,000/6 mo. to Janzen to start five TWIGs. Diana will be the leader of the Nematode TWIG.

"Life in the Soil, Soil Biodiversity: Its Importance to Ecosystem Processes" has been edited by D. Freckman. The report has recommendations of the Anglo/USA NSF-sponsored workshop held at the Natural History Museum in Sep. 1994. Copies are available.

Mary Scholes departed for South Africa after spending about 6 mos. conducting research on N dynamics in semiarid ecosystems. She was hosted at NREL by Bill Parton, Dennis Ojima and Arvin Mosier at ARS. She worked most closely with Robin Martin who is working on her Masters and is now in South Africa conducting an intercalibration study with Mary. We miss you, Mary, and hope you can visit NREL again in the near future.

Jill Baron reviewed two Intergovernmental Panel on Climate Change chapters for the IPCC Second Assessment Report that will be released in 1995: Impact and Adaptations for Hydrology and Freshwater, and Impacts and Adaptations for Mountain Regions.

Tours of the NREL facilities have been conducted by Tom Stohlgren for 40 Min-Fors students (National meeting of Minorities in the Forest Sciences) on Oct. 2; Dave Swift for the Colorado Native Plant Society on Oct. 15; and Dean Al Dyer for the Alumni Association Board on Oct. 29.

CSU sponsored Environment Day on Nov. 3. NREL conducted tours of over 40 parents and

prospective students. Many thanks to our tour guides: Rich Alward, Dave Swift, Susan Smith, Ericha Courtright and John Gross.

The next NREL General Meeting is scheduled for Wed., Nov. 16 from 2-3 pm.

Diana Freckman will be on TV - LIVE FROM ANTARCTICA A PBS TV presentation of four live shows from the ice. Tentative schedule for Diana, will be Dec. 15 (the biology show). She will answer live questions from teachers, students ( - 12) about her work on the NSF Long Term Ecological Research (LTER) Dry Valley research project and the NSF soil ecology research project (co-PI, Ross Virginia, Dartmouth College). The LTER project has 8 investigators and numerous post docs, grad students and technicians. Phone number to sign up for the teaching materials and for updates on the show schedule 800-626-LIVE (800-626-5483). Tentative dates and times for the 4 shows: Dec. 13 15, Jan 19 20. Times are 3 pm Eastern (1 pm Mountain). Please check the times as they may change depending on satellite links.

rista Alper is making considerable progress preparing an automated bibliography of scientific information for 22 National Park units in the Rocky Mountain Region.

### Meetings

Tom Irchner attended a meeting of the National Council for Radiation Protection and Measurement subcommittee SC64-19 held at Grand Canyon National Park, Oct. 10-13. The committee is requesting that a Russian scientist familiar with the work being planned for dose reconstruction in Russia be added as a consultant.

Tom Irchner hosted a Technical Interchange Meeting on Pathways Analysis for the Interagency Nuclear Safety Review Panel on Oct. 18-19 in Fort Collins. The meeting focused on the potential pathways of exposure to plutonium from two upcoming space missions. Recent work from Rocky Flats and Savannah River Ecology Lab was discussed and earlier work on terrestrial, aquatic and marine systems was reviewed.

Indy Burke and Bill Lauenroth attended the LTER Coordinating Committee meeting, Oct. 19-21 at Cowetta, GA. Important news from the meeting: Jim Gosz, Director of the Division of Environmental Biology at NSF and a faculty member at the U. NM was elected the new chair of the LTER Coordinating Committee. Jerry Franklin will step down as chair and Jim will assume the duties Jan. 1, 1995. The network office will remain in Seattle, WA and a new administrative position will be opened to manage the operation.

Jill Baron was a working group participant in the Workshop on Freshwater Ecosystems and the Effects of Global Climate Change, sponsored by the Am. Soc. for Limnol. and Oceanogr. and the N.A. Benthological Soc. This workshop, funded by the EPA and the USGS, took a regional approach to the potential effects of climate change to freshwaters of N.A., and will culminate in a special issue of the journal Hydrologic Processes. The workshop was held in Leesburg, VA, Oct. 24- 26.

The annual NADP Tech. Meeting was held Oct. 24-2 in Anapolis, MD. Those attending were: Gary Lear, Cathy Copeland, Sandy Pletschett, Bob Gilpin, Molly Welker, Mark Wotawa, Jim Gibson, and Linda Bandhauer.

On Oct. 24-25, Tom Irchner participated in a workshop on Developing Distributions sponsored by the Society for Risk Analysis. The workshop was a follow-up to written reviews of a document on the subject being prepared for publication.

Diana Freckman gave the plenary address to the "Ecological Research at CSU and the Conservation of Biological Diversity" meeting on Oct. 28.

Jill Baron presented a seminar and briefing to the Director and Assoc. Directors of the National Biological Survey in Washington, DC on Oct. 28. Issues discussed included long-term research, the research agenda for NBS, and the relative roles of climate change versus human-caused change in ecosystems.

Tim ittel attended the EPRI Workshop on Estimating Impacts from Climate Change in Washington, DC on Nov. 3 and presented a paper titled "Intercomparison of the Climate and CO2 Sensitivity of Ecosystem Physiological Models and Biome Distribution Models: Results from VEMAP."

As Past President of AIBS, Diana Freckman attended her last AIBS Board and Council meeting in Washington, DC on Nov. 5-6. She also attended the US National Committee for SCOPE NRC Workshop on Wild Living Resources: Sustainable Management in Uncertain Environments.

Diana Freckman will attend the Board meeting of The Association of Ecosystem Research Centers on Nov. 13-14 and on Nov. 15 will attend the Advisory Planning Board for the National Biodiversity Information Center in Washington, DC.

Serita Frey will attend the ASA meeting in Seattle, Nov. 13-18 and will present a paper for the Peru Project titled: "Soil pH and Organic Carbon Dynamics in Tropical Forest Soils with Different Mineralogies". Authors are: P.P. Motavalli, C.A. Palm, W.J. Parton, E.T. Elliott, and S.D. Frey.

The CPER-LTER group of scientists, post docs, grad students, and technicians have been meeting regularly to discuss new approaches to a conceptual framework for the LTER. The meetings are an extension of several retreats held last year, and will provide us with a good framework for writing the next proposal in late 1995 and early 1996. The meetings have been very successful with a lot of exciting science being discussed.

On Nov. 14-1, Tim ittel will attend the VEMAP Results Workshop in Lund, Sweden.

Glenn Haas, Department Head, Natural Resource Recreation and Tourism presented a seminar titled "What is a NRRT" He discussed how NREL can interact with the Dept. of Nat. Res. Rec. Tourism. They have some really nice programs which include the Environmental Learning Center here in Ft. Collins.

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Dr. Sandor Bartha of the Institute of Ecology and Botany, Hungarian Academy of Sciences, was a visiting scientist with the CPER-LTER from Sep. 19-23.

A group of 16 Hungarian scientists visited NREL and CPER- LTER on Sep. 13 as part of a tour of five U.S. LTER sites funded by an NSF grant to Diana Freckman and Debra Coffin to promote collaborative research on biodiversity and ecosystem function.

Dr. Ron Pulliam, Director of the National Biological Survey met with NBS members of the NREL (Jill Baron, Tom Stohlgren and Frank Singer) and Diana Freckman on Oct. 6. He later visited with several GDPE faculty and students to discuss the new agency and its goals.

Amy Treonis, a graduate student of Dr. John Lussenhop, U. of Chicago spent 2 weeks working in Diana Freckman's lab. Mr. Jim Schultz, one of 5 high school teachers selected by NSF to go to Antarctica, spent two weeks in the lab preparing for his trip to the ice.

Dr. Ross Virginia and grad students Melody Brown and Lisa Marlies from Dartmouth visited to help plan the Antarctic field season. Laura Powers left for 3 months in Antarctica on Sat., Nov. 5. Diana Freckman will leave for the ice on Nov. 26.

S. Lkhagvasuren, research scientist from the Institute of Botany, Mongolian Academy of Sciences, Vlaanbaatar, Mongolia visited with D. Ojima and T. Chuluun, Oct 2 -28, to discuss research results and future joint studies in grassland ecosystems.

Jim Giraytys from Winchester, VA, a consultant on an international computer based training project sponsored by the German government visited Bill Davis on Oct. 2. The purpose of the visit was a demonstration of Internet capabilities and potential use in computer based training applications. Jim also visited The Globe and Comet Programs in Boulder.

David Tongway from CSIRO Wildlife and Ecology, presented a seminar on "Pattern, Process and Function in Australian Rangelands: The Ecology of the Supply Side" on Nov. 3. He was hosted by Dennis Ojima and his purpose was to discuss rangeland ecosystem dynamics and resource management in Australia and how to use various models to do this.

Dennis Ojima hosted a delegation of 4 Chinese scientists from the Chinese Academy of Sciences Instituts of Botany visited CSU Nov. 3-4. These scientists were: Prof. Chen Lingzhi; plant ecologist with specialty in community and ecosystems conservation biology, and rehabilitation ecology; Han inguo, ecosystem scientist, biogeochemical cycles of forests, elevated CO<sub>2</sub> experiments; Lou hiping, biodiversity conservation, global change; and Cai inhua, aquatic ecologist, and ecological modeller. The purpose of their visit was to discuss issues related to conservation biology and global change, biogeochemistry, and ecological modeling. They visited with a number of scientists and saw research and teaching facilities around CSU Ft. Collins.

### **New Employees**

Amy Rupp was recently hired as a research associate to work on the EPA-E and Rocky Flats projects. She worked with Indy and Mark Linduist on the LTER project previously.

### **Grants Funded**

NASA Graduate Student Fellowship in Global Change Research to Rich Alward for a project titled "Alterations in Species Composition of Grassland Communities Resulting from Climate Change: Will Increased Temperatures Change the Nature of Plant-Herbivore Interactions" The research will be conducted at the CPER.

Dennis Ojima's TRAGNET proposal was funded by NSF. They propose to establish a database and model analyses to be used in determining general relationships of trace gas exchange across broad environmental gradients in climate, atmospheric deposition of N, and soils to better quantify fluxes of these biogenic radiatively active trace gases across North America.

A proposal titled "A Climatic Analysis of Long-Term Ecological Research Sites" by David Greenland, Tim ittel, Dave Schimel, and Bruce Hayden has been funded by NSF for 18 months.

John Gross received \$0,000 from the Colorado Div. of Wildlife to develop the criteria and a process to rank conservation priorities of vertebrates and their habitats in Colorado.

Frank Singer, John Gross and Mike Coughenour received funding from the NBS/NPS to develop a metapopulation model for evaluating bighorn sheep management options. This was funded for about \$15,000.

### **Proposals Submitted**

Tom Stohlgren and Mike Coughenour submitted a preproposal titled "Proactive Biodiversity Planning: Standardized NBS Field and Modeling Protocols" to NBS.

Tom Stohlgren and Mike Coughenour submitted a new proposal titled "National Park Resource Bibliographies" to NPS.

Tom irchner submitted and proposal titled "Development of a Modeling Toolkit for Human and Ecological Risk Assessment" to EPA.

eith Paustian submitted "An Assessment of the Impacts of CRP on Soil Carbon Seuestration" to USDA/SCS.

Ted Elliott submitted "Mitigation in Agriculture: IPCC Assessment" to USDA/SCS

Diana Freckman submitted "Achievement of Hungarian Access to US LTER Network to Enhance Joint Biodiversity Studies: to NATO.

Jeff Welker, Dave Valentine and Diana Freckman submitted "Responses to Anthropogenic and Natural Disturbances by Maritime Antarctic Terrestrial Ecosystems: Processes Controlling Recovery" to NSF.

Tom Hobbs submitted an amendment to "SCOP: A System for Conservation Planning" to Colorado DOW.

Dave Bigelow submitted a revision of "uality Assurance Support for the National Atmospheric Deposition Program/ National Trends Network Monitoring Program: 1993-1996" to U.S. EPA.

Tom Stohlgren submitted "Effects of Fire on Landscape-Scale Plant Biodiversity and Forest Fuels in Colorado" to U.S. DOI.

Ted Elliott submitted "Soil and Plant Cooperative Research" to USDA/ARS.

Dennis Ojima submitted a renewal proposal titled "Modeling the Effect of Global Change on Grassland Distribution and Productivity at Landscape to Regional Scales" to DOE/NIGEC- GPRC.

Dennis Ojima, Dave Schimel and Bill Parton submitted a continuation proposal titled "Using Multi-Sensor Data to Model Factors Limiting Carbon Balance in Global Arid and Semiarid Lands" to NASA.

Bill Parton and Dennis Ojima submitted "Modeling Impact of Changes in Atmospheric CO<sub>2</sub> and Climate on Chaparral Ecosystem Dynamics" to San Diego State Univ./NIGEC/Western Regional Center.

Diana Freckman submitted "Biodiversity of Nematodes in Habitats Stressed by Temperature and Drought" to NSF/DEB/Biotic Surveys and Inventories.

Bill Parton and athy Galvin submitted "Population and Environment in the U.S. Great Plains" to NIH/subcontract to Univ. of Texas.

Dave Valentine and Dave Schimel submitted a continuation proposal titled "An Integrated Investigation of Methane and Carbon Dioxide Fluxes in Mid-Latitude Prairie Wetlands: Micrometeorological Measurements, Process-Level Studies and Modeling" to DOE/NIGEC.

Tom Stohlgren and Mike Coughenour submitted "Status and Trends of the Rockies" to NBS.

Ted Elliott, Vern Cole and eith Paustian submitted Regional Projections of C Dynamics with Global Change in the Central United States" to DOE/NIGEC.

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