

NREL NEWS NOTES

NATURAL RESOURCE ECOLOGY LABORATORY
Colorado State University

No. 11 February & March 1995

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Announcements

President Yates has announced that NREL has been selected a Program of Research and Scholarly Excellence of CSU. This is the second consecutive PRSE award. Congratulations NREL!!!

The NREL Brochure is in the first lay-out stage at the Publications Department here at CSU and our second proof is due for reviewing on March 10. It will be very carefully proofed and returned to Publications for the final formatted lay-out. We are planning on a final publication date of April 1.

Mike Coughenour chanced flying in and out of the new Denver International Airport on its first day, Feb. 28, to give a talk in Grand Junction to the Habitat Partnership Program, for the Colorado Wildlife Commission. We are sure it was an exciting and memorable experience for Mike.

Kathy Galvin was on an NSF panel to review graduate fellowship applications in Anthropology in Washington, DC, Feb. 6-8.

Tom Hobbs taught a short course on Conservation Biology for Planners and Citizens in Summit County on February 24. The course covered ecological principles relevant to land use planning and biotic conservation.

Tom Stohlgren completed a four-month assignment to write a chapter, "The Rocky Mountains" for the National Biological Service's "National Status and Trends Report" due out in early 1996. The report was requested by the Secretary of the Interior to synthesize the status and trends of ecosystems and biotic resources. Lisa Schell did a lion's share of the library research with help from Colleen Orth and Krista Alper.

Krista Alper, Colleen Orth and April Owen have added the collections of three Rocky Mountain Region parks to the natural resource bibliographic database. When completed, this database will contain natural resource bibliographies from 22 National Parks, Monuments, and Recreation Areas. If you are interested in accessing park information, published and unpublished, please see Krista Alper. Bring chocolate!!

Meetings

The following papers were presented at the Fall AGU meeting in San Francisco on Dec 4-9 in the Special Session on Continental-Scale Hydrology- Climate Interaction: □□Chase, T.N., R.A. Pielke, and T.G.F. Kittel. 1994. Actual vs. potential vegetation: Does it affect climate□□2□Copeland, J.H., R.A. Pielke, T.G.F. Kittel. 1994. Impacts of vegetation and soil moisture distribution on regional summertime climate as revealed by a regional climate model.□□□Rosenbloom, N.A., T.G.F. Kittel, T.H. Painter, D.S. Schimel, and VEMAP Modeling Participants. 1994. A physically-consistent database for simulation of U.S. ecosystem/vegetation responses to global change: The VEMAP dataset □Poster□□4□Walko, R.L., R.A. Pielke, L.E. Band, R. Lammers, C. Tague, J. Baron, and T.G.F. Kittel. 1994. Coupled ecosystem models for simulating the transport of groundwater.

The Second Annual Central Plains Experimental Range Symposium was held Jan. 1□ at the Marriott Hotel in Fort Collins. The Symposium, co- sponsored by the CPER-LTER and the USDA-ARS, consisted of several talks and □4 posters describing research being conducted at the CPER. □9 scientists, grad students and technicians representing local, state and federal agencies, and numerous departments from □universities □CSU, UNC and UC□attended.

Dennis Olīma, Jim Detling, and Maurya Falkner hosted a National Biological Service Central Grasslands Global Change Research Project □CEGR□meeting, Jan. 12-1□ Those attending included: Roger Pielke, Jeff Copeland, Glen Liston, Tim Kittel, Tom Stohlgren, Ron Neilson □USFS-Corvallis□ Chris Daly and Jim Lenihan □OR State U□ Bill Reiners and Steve Ogle □U of WY□ Pete Comanor and Sam Williamson □NBS□ and Glenn Plumb □NPS□

On Jan. 9-10, Frank Singer, Jim Detling and Mike Coughenour traveled to Bighorn Canyon National Recreation Area to participate in the Pryor Mountain Wild Horse Range Studies Coordination meeting.

Jill Baron attended an NSF workshop on carbon dynamics and CO₂ fluxes from freshwater ecosystems at Woods Hole, MA, Feb. 9- 12. The workshop was the second held as part of an LTER intersite comparison study in which questions of methods of CO₂ collection were addressed, as well as questions on controls of CO₂ fluxes from lakes, streams, rivers, wetlands, and groundwaters.

Mike Coughenour traveled to Woods Hole, MA to participate in an IPCC Working Group 1 workshop on interactions among terrestrial H₂O and C fluxes, Feb. 22-24.

Tom Hobbs presented "Using Biological Information Systems to Support Conservation Decisions" to the Great Outdoors Colorado Board of Trustees at their quarterly meeting on Feb. 2□ He discussed the role of databases, geographical information systems and ecological models in supporting decisions on how to best invest human and fiscal resources in conservation initiatives.

On Nov. 29 and again on Jan. □1, Dave Bigelow, Bill Davis and Becky Olson conducted an outreach program to introduce K-12 students to the internet using Mosaic. The workshop was conducted for Poudre-R1, Cache la Poudre Jr. High students and for Thompson Valley R□ Bill Reed Middle School students.

In March, Dan Binkley is attending the strategic planning meeting for the North Carolina State Forest Nutrition Cooperative. This cooperative involves several universities and many companies with a mission to understand the role of nutrition management in forest productivity. Dan will also attend a workshop in Bogor, Indonesia, sponsored by CSIRO and CIFOR on management of water and nutrition in tropical forest plantations. He and Christian Giardina □a DU Ph.D. student with Buck Sanford□are responsible for covering N- fixing trees.

Ted Elliott presented a seminar for the Soil and Crop Sciences Department on Mar. 2 titled "Analysis

of Soil Organic Matter Data from Long-Term Agricultural Experiments in North America." The reported work was done in collaboration with K. Paustian, E.A. Paul, C.V. Cole, H.P. Collins, I.C. Burke, C.A. Monz, S.D. Frey and a host of collaborators from the sites in the site network.

Jill Baron participated in a panel discussion sponsored by the CSU Women in Science Program on Mar. 4. The panel discussion was on "The Gift Exchange: Networking, Role Models, and Mentoring."

The 4th Periodic Loch Vale Watershed/Water, Energy, and Biogeochemical Budgets meeting was held at NREL on Mar. 9. Researchers from the USGS, NREL, NBS, and Niwot Ridge Shared their new findings and plans, and discussed collaboration.

The Soil Ecology Meetings are being held at CSU on March 12- 15, 1995. John Moore, President of SES, was aided in arranging this meeting by Bob Niles (Local Arrangements Chair), Diana Freckman and Carol Jacobs-Carre. Symposia speakers are: Dr. David Tillman, University of Minnesota; Dr. R.W. Parmelee, Ohio State University; Dr. H.M. Setälä, University of Jyväskylä, Finland; Dr. D.R. Strong, University of California-Davis; Dr. S. Visser, University of Calgary, Canada; Dr. V.K. Brown, Imperial College at Silwood Park, UK; Dr. J.A. Trofymow, Canadian Forest Service, Canada; Dr. V.V.S.R. Gupta, CSIRO, Australia; Dr. R. Niles, Colorado State University; Dr. L. Brussaard, Wageningen Agricultural University, The Netherlands. A reception will be held at NREL, sponsored by the College of Natural Resources.

Andy Parsons will be attending the British Ecological Society Special Symposium on the "Ecology of Arctic Environments" to be held at the University of Aberdeen on Mar. 23-24, 1995.

NREL Seminars

February 3. Tom Stohlgren presented "Old Nested Designs are for the Birds: Building a Better Plant Trap."

February 10. Michael Bashkin, Masters, Grad Student, Forest Sciences Dept. presented "Continental Divide Trek from Mexico to Montana."

February 14. Special seminar presentation by Dr. Don Mead, Reader in Forestry, Lincoln University, New Zealand titled "Agroforestry in New Zealand and Australia."

February 17. Dennis Ojima, Bill Parton and Becky McKeown presented "Vegetation Ecosystem Modeling and Analysis Project."

February 24. Mohammed Kalkahan presented "Statistical Properties of Accuracy Indices and Inverse Areal Estimators in Assessing the Accuracy of Remotely Sensed Data: Link to Sampling Designs."

March 3. Rob Kremer presented "Ground-Truthing Satellite Imagery in the Forest-Woodland Transition Zone of Central Africa."

The NREL Seminar Schedule for the rest of March, April and 1st week in May is as follows:

March 10. Dave Schimel (tentative) - "Extended Analyses of a Terrestrial Ecosystem Model Intercomparison: The Hidden Role of Population Dynamics in Modeling Biogeochemistry."

March 17. Dr. Lucas Bouwman, DLO Research Institute for Agrobiological Sciences and Soil Fertility, Haren, The Netherlands - "Effects of Bacterivorous Nematodes on C- and N-Mineralization as Measured in Microcosms with Arable Soil Under Absence and Presence of Competition for Food by Protozoa and Predation by Nematophagous Fungi."

March 24. Dave Valentine - "Methane Uptake and Nitrous Oxide Emissions at the CPER: A Four Year Data Series and One Year Modeling Effort."

March 31. Tom Hobbs - "A System for Conservation Planning."

April 7. Robin Reich - "A New Procedure for Analyzing the Spatial Relationship Between Two Independent Response Surfaces."

April 14. NO SEMINAR

April 21. Bill Lauenroth - "Effects of Climate Change on C₃ and C₄ Grasses."

April 28. Ericha Courtright - "Abundance and spatial Distribution of Nematodes in the Dry Valleys of Antarctica."

May 5. Dan Binkley - "How Do Tropical Trees Change Soil Chemistry? Tales from Hawaii."

Visitors

Dan Binkley hosted a visit from Don Mead, Feb. 1-11. Dr. Mead is a forest soils/ecology scientist from New Zealand and one of the pioneers in using ¹⁵N tracer techniques in forests.

Jonathan Scurlock, Kings College, London, sponsored by Bill Parton visited at NREL on January 1-21 to discuss plans on how to analyze global plant production data - a continuation of the EOS global plant production work.

Jim Raich, Iowa State, was sponsored by Bill Parton and came to NREL to work on modeling soil organic matter dynamics in Hawaii - a continuation of work sponsored by our NSF Hawaii project.

News and Recent Opportunities

The Women's Forum of Colorado Foundation, Inc. is offering five \$1000 scholarship grants for Fall of 1995 to women in graduate studies at a Colorado institution. Applications and supporting materials must be postmarked no later than May 10, 1995. Grant recipients will be notified no later than July 15, 1995. Information and applications are posted on Maurya B. Falkner's door, NESB A22.

Graduate Student News

Graduate Students of NREL hosted an Ice Cream Social on Feb. 24 for NREL Scientists and GDPE Faculty and Graduate Students. Over 60 faculty and graduate students attended. The event was sponsored by the NREL, the College of Natural Resources, and the Graduate Degree Program in Ecology. Many thanks to all!!

The Graduate Students of NREL have initiated a journal club entitled "Trends in Ecosystem Science", which meets every other Monday, to discuss key papers in ecosystem science.

The Graduate Students of NREL will meet with Dr. Ilkka Haski, Distinguished Ecologist Lecture Series guest, on Wed., March 8 at 2 pm.

Grants Funded

Jill Baron and Dan Binkley were funded on a proposal to the National Biological Service, "Effects of

Increased Nitrogen Deposition on Subalpine Forest Growth". The research is funded for four years.

Abstract. Eleven years of continuous monitoring and evaluation of precipitation chemistry, ecosystem processes, and surface water chemistry in the Loch Vale Watershed has led to the concern that excessive nitrogen (N) deposition has caused some Front Range high elevation ecosystems to pass the threshold of nitrogen saturation—others are very close to this threshold where plants no longer take up all N, causing some to leach into lakes and streams (Williams et al. submitted, Baron and Campbell, submitted). Simulations of terrestrial ecosystem responses to different levels of N deposition suggested that alpine tundra ecosystems are currently saturated, while high elevation subalpine forests are rapidly approaching a level where they, too, will become N saturated (Baron et al. 1994). Investigations into the validity and biological consequences of the model results for alpine tundra are underway at the Niwot Ridge LTER (Bowman et al. 199). This research proposed here begins to address the validity of the model results and the ecological consequences of N saturation for old growth subalpine forests.

The National Biological Service (NBS) funded the proposal "Large Mammalian Herbivores, Plant Interactions, and Ecosystem Processes in Five National Parks" submitted by Frank Singer, Jeff Welker, Mike Coughenour, Dave Valentine and Ted Elliott.

The NBS funded the proposal "Ungulate-Prairie Dog Interactions in Badlands National Park" submitted by Jim Detling.

Abstract for Both NBS Projects. The purpose of our investigations in Five National Parks in the Intermountain West and prairie regions (Yellowstone, Rocky Mountain, Bighorn Canyon, Badlands and Wind Cave National Park units) is to document plant biomass production, plant species diversity, plant fitness, and soil ecosystem processes influences of large ungulate herbivory and to study their relationships to other ecosystem perturbations, such as fire suppression, climate change, and declines in keystone species, such as beaver. In particular, we will focus on the declining willow and woody draw communities in Rocky Mountain, Wind Cave and Yellowstone parks (Singer, Welker, Valentine, Elliott) and the grassland-prairie dog-bison complex in Badlands National Park (Detling and students). Mike Coughenour will take the lead role in the ecological carrying capacity and ungulate management risk assessment modeling aspects of the studies, building upon his own SAVANNA model and the prior work on ungulate carrying capacity modeling in Wind Cave by Dave Swift and students. Significant nonNREL scientists involved are: Rex Cates (Brigham Young University), Gus Cothran (University of Kentucky, Equine Blood Typing Research Lab)

Proposals Submitted

Keith Paustian submitted a proposal titled "Analysis of production, N dynamics and profitability in complex cropping systems" to USDA/CSRS.

Frank Singer and Ted Elliott submitted a continuation proposal to USDI/NBS titled "Large mammalian herbivores, plant interactions, and ecosystem processes in 5 national parks."

Tom Kirchner and John Gross submitted a proposal titled "Evaluating risks associated with genetically altered organisms" to USDA/CSREES.

A proposal titled "Coarse woody debris and site production in Rocky Mountain coniferous forests" was submitted by Dennis Ojima and Bill Pulliam to U WY/USDA/CSRS/NRICGP.

Tom Stohlgren and Mike Coughenour submitted a proposal titled "Field and laboratory assistance for cooperative research projects" to NBS.

A proposal titled "Status and trends of the Rocky Mountains" was submitted to NBS by Tom

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