

## NREL NEWS NOTES

*NATURAL RESOURCE ECOLOGY LABORATORY*  
*Colorado State University*

*No. 10 December 1994 & January 1995*

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- [Announcements](#)
- [Meetings](#)
- New Employees
- NREL Seminars
- [Visitors](#)
- [Fellowship/Grant Opportunities](#)
- [Graduate Student News](#)
- [Grants Funded](#)
- [Project Progress Reports](#)
- [Proposals Submitted](#)
- [Manuscripts Published](#)
- [Personals](#)
- Open Positions
- [Previous NREL News Notes](#)

### Announcements

The NREL Annual Outstanding Achievement Awards Program and Christmas Party was held at the Lincoln Center on Dec. 13. Winners of the awards were: *Most Publications* - Dave Schimel; *Most Proposals* - Ted Elliott; *Most Travel* - Diana Freckman; *Outreach* - for his work with the Larimer County Search and Rescue team went to Dave Bigelow; *Outstanding Employee* - Admin. Support to Arlene Boaman, Programming/Data Analysis Scientific Support to Martin Fowler, Lab/Field Scientific Support to Dan Reuss, Posdoctoral Fellow to John Gross, Graduate Student to By Brown, and Hourly to Ben Riebau.

Kathy Galvin has accepted an offer to become a member of the International Editorial Board of the journal *Applied Human Science. Journal of Physiological Anthropology*. The journal is published in Japan.

The NADP Coordination Office and the Ultraviolet- B Program (UVB) will be moving March 1 to an off-campus location. The new space is located at 419 Canyon, Suite 226. The purpose of this move is to make space available to accommodate NREL growth, however, both programs will officially remain a part of NREL and CSU.

Krista Alper has collected over 3000 citations from National Parks for the automated bibliography of scientific information for 22 National Park units in the Rocky Mountain Region. She has a trip to Badlands National Park planned for January.

Chris Andre was appointed in December to the position of Temporary Research Associate in Diana Freckman's Lab.

Tom Hobbs has been invited to join the Editorial Board of the Journal of Wildlife Management. His appointment begins January 1, 1995 and runs for 2 years.

Mark Lombardi has been accepted into CSU's graduate school to study restoration ecology with Ed Redente in the Rangeland Ecosyst. Sci. Dept.

## Meetings

A seminar was presented on Nov. 1 at NREL by Alan Covich, Department Head, Fishery and Wildlife Biology titled "On-going Long-Term Research in Fishery & Wildlife Biology: A Tropical Perspective on Woody Debris and Stream Foodwebs".

Indy Burke presented a seminar titled "Effects of Graing on Soils in Shortgrass Steppe" on Dec. 2, 1994 at NREL.

Kathy Galvin presented a poster titled "Food Choice During Drought Among Maasai Women of Northern Tanania" at the annual meetings of the American Anthropological Association, Nov. 30 - Dec. 4 in Atlanta, GA.

The TRAGNET Steering Committee met during the American Geophysical meetings in San Francisco, Dec. 5. Members attending were Beth Holland, Arvin Mosier, Dennis Ojima and Phil Robertson. Other participants were Keith Smith (Edinburgh, Scotland) and W. H. Su (Beijing, China). The Committee approved establishing a database and a model analysis that will be useful in determining a general relationship of trace gas exchange across a broad environmental gradient and to better quantify fluxes of biogenic radiatively active trace gases across North America. This effort will begin setting up the basics for the database and system for accessing the database that should be reasonably usable. This effort will be conducted at NREL. More information is forthcoming on the database development. TRAGNET will hold a data meeting at the ESA meetings July 29 and 30 in Snowbird, UT. The purpose of the Workshop is to implement site data input and begin the steps for model use of these data. All who want to input data to TRAGNET or use the data for modeling should plan to attend. If there are any questions or comments about TRAGNET, please contact Arvin Mosier or Dennis Ojima.

The Annual CPER-LTER Symposium was held at the Fort Collins Marriott on January 13 where Shiou Pin Huang, Diana Freckman, Mark Easter, Bob Niles and Mary Krat presented a poster titled "Graing Effects on Nematode Biodiversity and Populations in the Shortgrass Steppe of the CPER.

Three posters were presented at the Fall AGU Meeting in San Francisco on Dec. 4-9: (1) "General Model of N<sub>2</sub> and N<sub>2</sub>O Fluxes from Nitrification and Denitrification" by W. J. Parton, D. S. Ojima, A. R. Mosier, D. Valentine and D. S. Schimel; (2) "Water and Temperature Controls on NO and N<sub>2</sub>O Soil Fluxes from Denitrification Shortgrass Steppe" by M. C. Scholes, R. E. Martin, A. R. Mosier, W. J. Parton, and D. S. Ojima; and (3) "Methane and Nitrous Oxide Fluxes in Grasslands in Alaska, Colorado and Puerto Rico" by A. R. Mosier, J. A. Delgado, R. F. Follett, V. L. Cochran and D. W. Valentine.

Bill Davis presented a Seminar on Internet Programming on Jan. 10 in the NREL Conference Room. The seminar covered programming methods that utilize Internet capabilities including imagemaps, CGI scripts, forms generation, and security.

Menwelet Atsedu, Jim Detling and Harold Goet presented a poster titled "Effects of Graing History and Defoliation on Grass Morphology, Biomass, and Nitrogen Dynamics in the Shortgrass Steppe" at the Annual CPER-LTER Symposium, held at the Fort Collins Marriott on January 13.

Dave Swift hosted a workshop of the modeling group of the SANREM CRSP on Jan. 5 and 6. The purpose was to review and revise the modeling plans for this project. Out-of-town attendees were: Ian Flitcroft and Gerritt Hoogenboom (U. of Georgia); Roger Martin (Washington State U.); Christina Tague (U. of Toronto); Ragavan Srinivasan (Blackland Res. Center, Temple, T); Jianbang Gan

(Tuskegee Inst.); and Walter Bowen (Int'l. Fertil. Devel. Center, Muscle Shoals, AL).

Tom Hobbs has been invited to participate in Governor Romer's Growth Summit to be held January 25 and 26 in Denver. The purpose of the Summit is to develop strategies and tactics for coping with unprecedented population growth in Colorado.

Keith Paustian has been invited to attend a workshop in Lethbridge, Alberta, Canada from Jan. 2 -30, to provide a perspective on soil C balance studies in agricultural systems in North America. The workshop is sponsored by Environment Canada and Agriculture Canada who are jointly funding a research program to quantify the emissions of greenhouse gases (GHG) from Canadian agriculture and devise strategies for reducing such emissions.

Mohammed Kalkhan, Tom Stohlgren and Mike Coughenour will present an invited paper titled "An investigation of biodiversity and landscape-scale gap patterns using double sampling: a GIS approach" at the Ninth Annual Symposium on Geographic Information Systems, March 2 -30, 1995 in Vancouver, British Columbia, Canada.

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Dr. C. A. Campbell, Agriculture Canada, Swift Current, Saskatchewan visited NREL, Nov. 2. He was hosted by Keith Paustian, Ted Elliott and Vern Cole.

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Sigma i grants in Aid of Research for grants up to 1000 have due dates of Feb. 1, 1995, May 1, 1995 and Nov. 1, 1995. Please contact Maurya Falkner for application forms.

EPA Graduate Student Fellowships, Office of Research and Development, Office of Eploratory Research (03). Due date is Feb. 13. To receive applications and information, send reuests, including name, address, and phone number via FA to Virginia Broadway, EPA -ORD. Fa: (202) 260-0211.

The College of Natural Resources offers several grant scholarship opportunities for graduate students in the College. Application forms and information will be available from the Dean's Office, Feb. 16.

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Current and potential graduate students within NREL:

By Brown, Susan Smith, Ericha Courtright, Alicia Liarraga, Rich Alward, Menweyelet Atsedu, Daniel Too, Cyndi McDonald, Robin Martin, Carol Jacobs-Carre, Serita Frey (future grad), Maurya Falkner (future grad), and Holly Strand (future grad).

Beginning in Jan. 1995, NREL Grad Students will initiate regular meetings with the scientific staff (Take a scientist to coffee). The goal is to meet once a week with an individual on the scientific staff and discuss research perspectives. If you have any uestions, please contact Maurya Falkner.

The NREL Grad Students voted not to be moved from their current location to the visiting scientist room.

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Keith Paustian, Ted Elliott and Vern Cole submitted a progress report to USDA/CRIS on Climate Change Effects on Soil Carbon Balance. They also submitted a report titled "Assessment of the Contribution of CRP Lands to C Sequestration and CO<sub>2</sub> Mitigation" to USDA/SCS.

## Grants Funded

The Colorado Agricultural Experiment Station funded a proposal by Deb Coffin, George Beck (Plant Pathology and Weed Science), Dan Milchunas, and Dave Valentine to purchase a mini-rhizotron to examine belowground root productivity.

NSF funded the proposal titled "Environmental and Management Controls on Soil Structure and Organic Matter Dynamics" submitted by Keith Paustian and Ted Elliott in June.

## Proposals Submitted

Dennis Ojima submitted a continuation proposal to EPA titled "Trace Gas Exchange in the Boreal Forest Biome: Effects of Fire and Beaver Activity."

Dave Swift submitted a continuation proposal titled "SANREM CRSP Annual Workplan-NREL Modeling Activity and Related Topics" to Univ. Georgia/USAID.

Tom Hobbs and Dave Swift submitted a proposal to NSF/Univ. Wisconsin titled "Responses to Heterogeneity at Multiple Scales: Foraging by Ungulates in Yellowstone."

Ted Elliott submitted a proposal titled "Rocky Flats Plant Ecological Monitoring Program" to EG&G. This is a new contract from EG&G to continue work started by a project funded by the Stoller Corp.

Deb Coffin, Bill Lauenroth and Indy Burke submitted a proposal to NSF titled "Alternative Dominant Plant Species: Explanations and Consequences."

Jeff Welker submitted a supplement to a proposal titled "Comparative Responses of Moist and Dry Tundra to Altered Snow Cover and Warmer Summer Temperatures" to NSF.

Bill Parton, Arvin Mosier and Bill Pulliam submitted a proposal to NSF titled "The Grassland Nitrogen Cycle and Trace Gas Fluxes: Pathways, Environmental Controls, and Interactions."

Mike Coughenour submitted to NSF a proposal titled "Analyses of Spatial Dynamic Soil-Plant-Herbivore Interactions in Two Grazing Ecosystems: The Serengeti and Yellowstone National Parks."

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

Ted Elliott submitted to USDA/Forest Service a proposal titled "Workshop Report on Effects of Management of Forest Soil Carbon."

Bob Woodmansee submitted a proposal titled "Land and Water Use Model for Application in the Rio Grande Basin" to USGS/Terra Laboratory.

Jill Baron and Dan Binkley submitted a proposal to NBS titled "Effects of Increased Nitrogen Deposition on Subalpine Forest Growth."

Mike Coughenour and Deing Chen submitted a proposal titled "Assessing Grassland Responses to Atmospheric Change with Linked Ecophysiological and Ecosystem Process Models" to DOE.

Tom Kirchner and John Gross submitted a proposal titled "Evaluating Risks Associated with Genetically Altered Organisms" to USDA/ARS - Biotechnology Risk Assessment Program.

Keith Paustian submitted "Analysis of Production, N Dynamics and Profitability in Complex Cropping Systems" to USDA/NRICGP.

Jim Ellis and Kathy Galvin submitted a proposal titled "Characterization of environmental stability and susceptibility to climate change and human disturbance: A case study of the arid and semiarid steppes of northern China and Mongolia" to NASA.

Bill Hunt, Deing Chen, Gale Dunn, Mike Coughenour and Jack Morgan submitted a proposal to USDA/ARS/CSRS titled "Plant species, resource level, herbivory and ecosystem function in shortgrass prairie."

## Manuscripts submitted

Kelly, J., S. M. Pletschet, and D.M. Leslie, Jr. 1994. Decline of the red-cockaded woodpecker (*Picoides borealis*) in southeastern Oklahoma. *Am. Midl. Nat.* 132:25 -23. Atsedu, M., D.L. Coppock and J.K. Detling. 1994. Fruit production of *Acacia tortilis* and *A. nilotica* in semi-arid Ethiopia. *Agroforestry Systems* 2:23 -30. Baron, J.S., D.S. Ojima, E.A. Holland and W.J. Parton. 1994. Analysis of nitrogen saturation potential in Rocky Mountain tundra and forest: implications for aquatic systems. *Biogeochemistry* 2:61 -72.

Lauenroth, W.K., O.E. Sala, D.P. Coffin and T.B. Kirchner. 1994. The importance of soil water in the recruitment of *Bouteloua gracilis* in the shortgrass steppe. *Ecological Applications* 4:41 -49.

Hook, P.B., W.K. Lauenroth and I.C. Burke. 1994. Spatial patterns of roots in a semiarid grassland: abundance of canopy openings and regeneration gaps. *Journal of Ecology* 2:45 -49.

Ojima, D.S., T.G.F. Kittel, D.S. Schimel, C.A. Wessman, B. Curtiss, S. Archer, V.B. Brown and W.J. Parton. 1994. Global arid and semi-arid ecosystems: Linkage between process models and remote sensing. In: R. Williamson and T. Stein (eds.) *International Space Year: Space Remote Sensing*. 12th Annual International Geoscience and Remote Sensing Symposium (IGARSS '92). Vol. II, Houston, TX, May 26 -29.

Hobbs, N.T., D.L. Baker, G.D. Bear, and D.C. Bowden. 1995. Ungulate grazing in sagebrush grassland I: Mechanisms of resource competition. *Ecological Applications* (in press).

Hobbs, N.T., D.L. Baker, G.D. Bear, and D.C. Bowden. 1995. Ungulate grazing in sagebrush grassland II: Effects of resource competition on secondary production. *Ecological Applications* (in press).

Aplet, G.H., R.D. Laven, M.B. Falkner, and R.B. Shaw. 1994. Population and site characteristics of a recently discovered disjunct population of *Croton alabamensis* (Euphorbiaceae). *Sida* 16:3 -55.

Keating, B.A., I. Vallis, W.J. Parton, V.R. Catchpoole, R.C. Muchow, and M.J. Robertson. 1994. Modelling and its application to nitrogen management and research for sugarcane. *Proceedings of Australian Society of Sugar Cane Technologists*.

Vitousek, P.M., D.R. Turner, W.J. Parton, and R.L. Sanford. 1994. Litter decomposition on the Mauna Loa environmental matrix, Hawaii: Patterns, mechanisms, and models. *Ecology* 5:41 -49.

## Personals

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Page last modified: March 23, 2002

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