Natural Resource Ecology Laboratory
NEWS NOTES
Colorado State University

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# NATURAL RESOURCE ECOLOGY LABORATORY SCHOLARSHIP RECIPIENTS ANNOUNCED

Amy Treonis and Serita Frey

NREL is pleased to announce the first recipients of the Francis Clark Soil Biology Scholarship and the NREL Graduate Student Fund Fellowship. Although the Francis Clark Soil Biology Scholarship announcement stated there would be one award, the selection committee, in consultation with Dr. Clark, recommended that **Amy Treonis** and **Serita Frey** share the award. This fund was established in 1997 to provide awards to undergraduate or graduate students in the Natural Resource Ecology Laboratory, to further research in soil biology and to keep NREL on the cutting edge of science. Awards are made in the area of soil biology, based on scholastic merit and financial need, with favorable consideration given to applicants who show concern for the public welfare. **Benjamin Balk** is the recipient of the NREL Graduate Student Fund

Fellowship award for 1998-1999. This fund was also established in 1997 to be used for any legitimate purpose related to the graduate program of the selected student. Criteria include financial need, scholarship merit, and intellectual contributions to NREL.

**Amy Treonis** is a third year graduate student at NREL and hopes to complete her Ph.D. in the Graduate Degree Program in Ecology GDPE in 1999. Amy's dissertation research, under advisor **Diana all** , has been conducted in the laboratory at NREL and in the field at the National Science Foundation's McMurdo Dry Valleys Long Term Ecological Research LTER site in Taylor Valley, Antarctica. Amy has spent two field seasons "on the ice" conducting field and laboratory eperiments investigating the ecology of soil nematodes in this etreme cold desert ecosystem. In field and microcosm eperiments, she studies the decomposition process in dry valley soils and the role of soil nematodes in this process. Additional proects include analyses of soil water potential and physical properties and how these relate to nematode activity a modeling proect of dry valley nematode life cycles and a biodiversity survey of dry valley invertebrates in relation to sources of water within the ecosystem.

After completing her Ph.D., Amy plans to continue research in the field of soil ecology and hopes to be involved in interdisciplinary approaches to ecosystem studies, such as the type of work done at NREL and in the LTER network. She will continue research on soil biodiversity and ecosystem function because she feels that understanding soil biology and processes is necessary in order to preserve the uality of our soils and the services they provide for future generations. Amy also enoys teaching and would like to help make science, soil ecology in particular, interesting and accessible to students. Amy has given guest lectures on the ecology of Antarctic dry valley soils in undergraduate courses at CS, as well as at Wageningen Agricultural niversity in The Netherlands, where she attended a two-week nematode identification course taught by **Dr. Tom Bongers**. Amy also co-hosted a workshop at CS for undergraduate and graduate students, "Poster Presentations in the Biological Sciences," as part of a series of workshops arranged this spring by the organiing committee of the Front Range Student Ecology Symposium, of which she was a member. Amy served as the McMurdo Dry Valleys LTER graduate student site representative in 1997, and was awarded NCEAS graduate funding in 199 to attend the opening symposium for the National Center for Ecological Analysis and Synthesis NCEAS in Santa Barbara, California. This fall, she was awarded NSF funding to present her research at the Scientific Committee on Antarctic Research SCAR International Biology Symposium in Christchurch, New ealand.

**Serita Frey** is a doctoral candidate in the GDPE and a research associate at NREL. er dissertation research, under the direction of **Ted Elliott** and **eith Paustian** , eamines how different agricultural management practices influence soil microorganisms, particularly bacteria and fungi, and how changes in the microbial community impact soil organic matter dynamics. er research has included field observations collected from several long-term agricultural eperiments located in the wheat and corn-growing regions of the .S., as well as laboratory and field eperiments designed to test specific hypotheses. er eperiments have eamined soil moisture effects on microbial community composition nitrogen translocation through fungal hyphae and impacts of protooan predation on carbon utiliation patterns of bacteria and fungi.

Serita enoys interacting with students and her goal is to integrate her research in soil microbial ecology with her interest in science education by teaching and providing research opportunities to students. Last fall, she co-taught a microbial ecology course with **Dr. Donald lein** in the Department of Microbiology, and provided graduate students an integration of current concepts of microbial ecology in medical, engineering, environmental, and other areas. She also provided guest lectures for several undergraduate courses on topics including microbial diversity and evolution, sustainable agriculture, nutrient cycling, and soils as natural resources. She and fellow student **ohan Si** are currently participating in the master's research of **Heleen Bossuyt** and **arolien Denef** , visiting students from atholieke niversiteit in Leuven, Belgium. Their research proect eamines the role that fungi play in the formation of soil aggregates.

Serita also participates in community outreach activities aimed at presenting ecology and, in particular, soil biology, to school children. This past spring she organied and taught a -week after-school ecology program at Irish Elementary. Activities included culturing microorganisms from a variety of schoolyard surfaces rocks, grass, chalk, soil, student's ears and fingers and collecting soil samples and using a microscope to get a close-up look at the worms and insects that the student's found in their samples.

**Benjamin C. Balk** the recipient of the 1998-1999 NREL Graduate Student Fund Fellowship award, is an M.S. student in the Department of Earth Resources, working on geostatistical modeling of snow accumulation. With NREL advisor, **ill Baron** and **elly Elder** , his Department of Earth Resources advisor, Ben's research focuses on mountain basins that provide natural water storage in the form of a snowpack. About 7 of streamflow in the western states results from snowmelt runoff. Ben conducted intensive snow surveys near peak accumulation in April 1997 and 1998 in the Loch Vale Watershed LVWS of Rocky Mountain National Park, and his data compares various interpolation methods that distribute point measurements of snow depth and density across the watershed. Ben has found that a combination of geostatistical and regression tree techniues produces the best estimates of snow water euivalence SWE distribution in LVWS.

Ben is originally from Montrose, Colorado, and received a Bachelor of Science in mathematics with a geology minor from the niversity of Notre Dame. e transferred to CS from the niversity of Ariona, where he studied hydrology and water resources. Ben worked summers with the .S. Forest Service as part of the trail crew, was involved in residential life on campus as udicial board commissioner and residence hall clerk, tutored and graded assignments in Mathematics, and volunteered his time with the Logan Center.

Ben anticipates completing his thesis in the fall of 1998, and is submitting a paper for publication in a Loch Vale Water Shed special section in Water Resources Research. e has another paper written with **elly Elder** and **ill Baron** , "sing geostatistical methods to estimate snow water euivalence distribution in a mountain watershed," being published in the Proceedings of the th Western Snow Conference. e was invited to present a poster at the International Conference on "Snow ydrology: The Integration of Physical, Chemical and Biological Systems" in Brownsville, Vermont, October - 9.

# ANNOUNCEMENTS

**Francis Singer** received the .S. Department of Interior's Superior Service Award for his research on elk and bighorn sheep in national parks. The recommendation from the National Park Service states, in part: "Dr. Singer has shown consistent leadership in designing, implementing, and providing results of obective research on large mammals to the National Park Service, Bureau of Land Management, and other managers of wildlife on the public lands. Throughout his career, he has been steadfast in his careful reliance on defensible, uantitative scientific methods in order to draw the strongest inferences for management recommendations. is research has varied from uestions of population dynamics and behavior to habitat relationships, and includes issues related to habitat impacts, range health, restoration of populations, and predator-prey interactions. Dr. Singer has studied bears, wolves, wild horses, and some ten species of wild ungulates in the southeastern nited States, the Rocky Mountains, and Alaska. Dr. Singer is one of the most prolific scientists in public service, authoring, or coauthoring, over two doen published articles in the last three years, as well as

serving on numerous panels for professional societies and at conferences. e is an active member of the Wildlife Society, sponsoring a maor symposium on large mammal management at the organiation's last conference in September 1997." Congratulations to Francis for receiving this prestigious national award!

**Ted** and **athy Elliott** will move to the Washington, D.C., area in September, where Ted will be program director for Ecosystem Studies at the National Science Foundation for two years. Ted's responsibilities will include coordinating the review of proposals within the Ecosystem Studies cluster and decisions on proposal funding. **eith Paustian** will have responsibility for Ted's proects, although NSF will allow Ted to spend 20 of his time on his own research. In addition to work with his four Ph.D. students, Ted will use his research time at NSF to coordinate the Department of Energy's National Institute for Global Environmental Change NIGEC Central .S. Agriculture Sector Assessment, a consortium of eight proects. Ted will be returning to NREL on a regular basis throughout the net two years.

Congratulations to **Tamera Minnick**, who successfully defended her thesis entitled "Abiotic Factors Affecting Distribution and Dominance Patterns of Two C Perennial Grass Species" on May 2.

Tamera has completed all reuirements for graduation and will be officially awarded her Ph.D. in August. **Debra Coffin** was Tamera's maor advisor.

**Heather Rueth** received a prestigious EPA STAR Fellowship for Graduate Research. The three-year fellowship will be used toward eather's Ph.D. research into nitrogen cycling and possible influences from atmospheric N deposition to old-growth spruce-fir forests of the Colorado Front Range. **ill Baron** is eather's thesis advisor.

# MEETINGS ATTENDED AND PAPERS PRESENTED

## National

**Ted Elliott** and **eith Paustian** worked at Montana State niversity, une 9 -11, with economists **ohn Antle** and **Susan Capalbo** on a climate change impact assessment for Montana as part of their oint NIGEC proects .

**Mohammed alkhan** and **Tom Stohlgren** presented a paper entitled "Assessing the Accuracy of Landsat Thematic Mapper Classification sing Multiphase Sampling Design" at the 1998 IEEE International Geoscience and Remote Sensing Symposium IGARSS '98: "Sensing and Managing the Environment," uly -10, Seattle, Washington. Mohammed chaired the ecosystems session.

**Tim ittel ill Lackett** , **Dennis Ojima**, and **Carol Simmons** attended the .S. National Assessment Coordination Meeting entitled "The Potential Conseuences of Climate Variability and Change" in Monterey, California, uly 2 -1. Tim, an invited speaker and panel member, presented "VEMAP2 gridded climate time series for the .S. National Assessment."

**Arin Mosier** , SDA, **Dennis Ojima** and **Bill Parton** attended the working group meeting "Analysis and Synthesis of Trace Gas Flues II" at the National Center for Ecological Analysis and Synthesis in Santa Barbara, California, May 2 -27. Dennis and Arvin were the co-facilitators for the meeting.

**Andy Parsons** and **Gina Adams** traveled to the niversity of California, Davis, Bodega Bay Marine Lab, uly 9 -1. They worked with **Diana all** , a Bodega Marine Lab Distinguished Research Fellow at the time, on a number of papers and proposals.

**Bill Parton** and **Mike Coughenour** participated in the workshop "Interactions in Mied Tree -Grass

Systems" at the National Center for Ecological Analysis and Synthesis in Santa Barbara, California, May 10-1. As group leader, Bill also participated in the .S. Department of Energy's Integrated Assessment Global Climate Change Research Program proposal review meeting held in Washington, D.C., on uly 1. Bill presented a talk on "Potential for Seuestering Carbon in Agricultural Soils" at the Energy Modeling Forum's workshop on "Climate Change Impacts and Integrated Assessment" in Snowmass, Colorado, August -9.

**eith Paustian** attended a Stakeholder's Workshop on Carbon Seuestration at the Massachusetts Institute of Technology, Cambridge, une 22 -2, and presented "Soil Seuestration of Carbon" at a plenary session. The meeting attendees included fossil fuel energy utilities, gas and oil, coal industry and focused on C seuestration technologies, including point source engineering approaches e.g., removal and disposal of $CO_2$ from flue gases and biological seuestration potentials. eith also attended the All Investigators meeting for the BS -LTER at ickory Corners, Michigan, uly 21-22, and presented results of cropping systems modeling work. eith and **endrick illian** later met with **.T. Richie** and others at Michigan State niversity, uly 22 -27, to work on the SALS cropping systems model.

Graduate student **ohan Si** presented an invited talk entitled "Carbon seuestration in no -tillage: a process-level eplanation" to the Department of Agronomy and Range Science at the niversity of California, Davis, on uly 27.

**Daid Theobald** presented a paper "A visual programming environment for spatial modeling: The ArcView Spatial Modeler etension" at the ESRI ser Conference '98 in San Diego, California. Dave, im ack , and Tom obbs presented Tammy Bearly's paper entitled "Disseminating natural diversity information using ArcView IMS: Design issues and technical considerations."

**Amy Treonis** and **Andy Parsons** attended an NSF-sponsored invitational workshop at the niversity of Illinois, Chicago, uly 1 -17, focusing on the impact of research activities on the perennially ice-covered McMurdo Dry Valley MCMDV lakes of Antarctica. The thirty -five eperts in auatic and antarctic terrestrial environments assessed the impact of past and current research activities on this ecosystem. Andy gave an invited presentation entitled "Soil research in the dry valleys--human disturbance and the possible effect on lakes." The workshop was followed by a meeting of the MCMDV Long-Term Ecological Research group PIs, where Amy presented a talk on "Invertebrate Diversity in the Soils and Sediments of Taylor Valley."

**Diana all** and **Gina Adams** organied a meeting of the Chairs and Scientific Advisory Committee of the Scientific Committee on the Problems of the Environment SCOPE, Committee on Soil and Sediment Biodiversity and Ecosystem Functioning SSBEF une 12 -1, hosted by **Dr. Fred Grassle** at The Marine Institute, Rutgers niversity, New ersey. Plans were finalied for a workshop in October 1998, at Lunteren, The Netherlands, of 0 international scientists. This workshop will synthesie current knowledge on the "Interactions between belowsurface and above surface biodiversity mechanisms, stability and global change." Diana and Gina also attended the SCOPE 10th General Assembly, at the Environmental and Occupational ealth Sciences Institute, Rutgers, New ersey, from une 1 -20. The General Assembly reviewed SCOPE's achievements and discussed future directions for the net five years. Gina presented a report of the SSBEF Committee at the SCOPE Working Group of the Ecosystem Processes and Biodiversity Cluster, chaired by **erry Melillo**, president and coordinator for the ecosystem processes and biodiversity cluster.

**Diana all** organied and chaired the opening plenary symposium, "Biodiversity, Does It Matter to Nematologists" at the 7th Annual Meeting of the Society of Nematologists, une 20, in St. Louis, Missouri. Speakers were **Peter Raen** , the Director of the Missouri Botanical Garden, **P. ohn D. Lambshead** of the Natural istory Museum, London, **Daniel Brooks** from the niversity of Toronto, and Diana. Diana's talk was entitled "Implications of Nematode Biodiversity for Ecosystem Functioning."

*Climate Change May Affect the Carbon Balance of a Rocky Mountain Wetland*

*Weeds of the West:*

*(Lepidium latifolium*

*Great Basin Naturalist*

*Ecol. Applic.*

*Global Change Biology*

*Canadian Journal of Remote Sensing*

*Geoderma*

*Global Change Biology*

*Global Change Biology,*

*Bulletin of the Ecological Society of America*

*May*

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