



# News Notes

## Natural Resource Ecology Laboratory

Warner College of Natural Resources



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### New School of Global Environmental Sustainability Announced

Colorado State University announced plans for the state's first School of Global Environmental Sustainability to streamline the university's internationally recognized environmental research and to prepare students for the growing "green" workforce.

The School of Global Environmental Sustainability is an umbrella organization that encompasses all environmental education and research at the university. World-leading environmental researcher Diana Wall will serve as founding director of the school. Over the next year, Wall will form advisory committees to help create curriculum and programs for the school, which could start offering new courses as early as 2010.

"As a national leader in addressing the global challenges related to sustainabil-

ity, Colorado State University is taking the next logical step: Using a campus-wide approach to help solve these challenges through environmental research and educational opportunities," said Larry Edward Penley, president of Colorado State University. "Under Dr. Wall's leadership, the school will ensure that students leave CSU with the creative, critical-thinking skills needed to solve the globe's greatest environmental problems and successfully contribute to the emerging green workforce."

The school will act as a clearinghouse for the hundreds of university faculty in all eight colleges already studying the environment in areas such as atmospheric science, environmental politics, wind engineering, agricultural economics, green building, wildlife biology, ecotourism, forestry, ecology, sustain-



*Dr. Diana Wall, Biology/  
NREL Senior Research  
Scientist*

able entrepreneurship and public policy. Students will have the opportunity to complement their majors with environmental courses, which will help prepare them to solve increasingly complex global environmental challenges.

*CSU News and Information  
July 22, 2008*

### Congratulations 2008-2009 NREL Scholarship Recipients

#### Francis Clark Soil Biology Scholarship

•Jessica Ernakovich

Project: Analysis of Spring Thaw Soil Processes in the Arctic  
Advisor: Matt Wallenstein

•Karen Seaver

Project: An Investigation of the Mechanisms of Anhydrobiosis in Nematodes of the Antarctic and Shortgrass Steppe LTERs  
Advisor: Diana Wall

#### James E. Ellis Memorial Scholarship

•Sarah Maisonneuve

Project: Human-Elephant Conflict in Ruaha, Tanzania  
Advisor: Mike Coughenour

•Amy Swan

Project: Local Environmental and Socioeconomic Influences on Adoption of Conservation Practices on Farms  
Advisors: Keith Paustian, Steve Ogle

THANK YOU to the mentors and the NREL Scholarship Committee - Randy Boone, Ed Ayres, Heidi Steltzer, Breana Simmons and Sunil Kumar - for contributing to the continued success of our future scientists.

## Awards and Appointments

Ed Ayres received the 2007 Haldane Prize for best paper published by a young author in Functional Ecology. The award was presented at the annual meeting of the British Ecological Society in London.

## NREL Outreach

NREL along with CSMATE will be hosting K-12 teacher workshops this semester. The workshops are: a) Phenological Observations lead by Shannon Spencer; b) Invasive Species Monitoring Using GPS and GIS lead by Jim Graham and Greg Newman; and, c) GIS and Complexity Science: Comparing Watersheds in Puerto Rico and Colorado lead by Melinda Laituri. Teacher will receive one graduate credit for attending two of the three workshops. To sign up, contact Kim at kimberly.melville-smith@colostate.edu.

Jim Graham and colleagues are working with the Inter American Biodiversity Information Network (IABIN) Invasive Information Network (I3N) to help develop a new OpenSource toolkit to allow Central and South American countries to electronically manage data on invasive

species and share it through the Global Invasive Species Information Network (GISIN).

Mohammed A. Kalkhan, Research Scientist/Scholar III, attended a workshop and symposium on Climate Change in Western Rangelands, Organized by USDA-ARS, held September 4th in Cheyenne, WY.

Greg Newman, Alycia Crall, and colleagues conducted a citizen science training workshop at Beaver Creek Reserve in Fall Creek, WI on August 12th, 2008 and trained 11 volunteers on how to map invasive plants in their area and use our online mapping application (see [www.citsci.org](http://www.citsci.org)) to map and contribute occurrences. The volunteers have already mapped several other natural areas in their area on their own. The training was a great success!

## Meetings and Presentations

Tom Stohlgren (US Geological Survey and NREL) was invited to present a keynote address at the 5th Conference of The European Group on Biological Invasions, "NEOBIOTA: Towards a Synthesis," held in Prague, Czech Republic, September 23-26, 2008. <http://www.ibot.cas.cz/neobiota/Research> topics of interest include assessing landscape-scale to national patterns of invasive species in the US, linking species distribution information at multiple scales with known precision and accuracy, and developing GIS-based, predictive spatial and temporal ecological models to guide the management of public lands.

Dr. Wei Gao traveled to Tampa, Florida, to attend the June 2008 Climate Information for Managing Risks (CIMR), Partnerships and Solutions for Agriculture and Natural Resources Symposium in St. Pete Beach, Florida. This was an International Symposium hosted by the University of Florida, Institute of Food and Agricultural Sciences, and the Southeast Climate Consortium. (The Southeast Climate Consortium (SECC) serves Alabama, Florida, and Georgia in partnership with NOAA Climate Program Office, USDA Risk Management Agency, and USDA Cooperative State Research, Education, and Extension Service.) Dr. Gao presented the USDA -UV-B Monitoring and Research Program's research and modeling results, which highlighted the Program's capabilities. During poster presentations, he presented "Modeling U.S. Cotton Yields and Climate Stresses during 1979-2005: Preliminary Result." In addition to the Symposium, he attended several meetings with conference scientists to discuss research and the opportunity to establish collaborations.

Dr. Wei Gao traveled to San Diego in August to attend the 2008 SPIE Meeting, The International Society for Optical Engineering, and Chaired section 7083, Remote Sensing and Modeling and Ecosystems for Sustainability V, "Simulation of cotton yields over the U.S. cotton belt using cotton2K model." He presented ultraviolet ground and space-based measurements, models and effects research on behalf of the USDA UV-B Monitoring and Research Program. He also networked with other researchers from around the world. SPIE is the largest international force for the exchange, collection, and dissemination of knowledge in optics, photonics and imaging. As a member of the SPIE Executive Committee, Dr. Gao also attended additional executive committee meetings.

## Funding Updates

■ Dr. Wei Gao, PI, UVMRP/NREL, was recently awarded \$530,000 from USDA NRI for a three year project entitled "Integrated Bioclimatic-Dynamic Modeling of Climate Change Impacts on Agricultural and Invasive Plant Distributions in the United States." Dr. Gao will work with co-investigators Dr. Xin-Zhong Liang, University of Illinois, and Dr. Thomas J. Stohlgren, NREL on this project. The project objective is to evaluate how global climate changes affect the U.S. agricultural and invasive plant species distributions focusing on crop production and to account for both adaptation of alternative crops and invasion of non-native species to enable decision makers to design effective management and control strategies for a sustainable future agroecosystem.

■ Dr. Wei Gao, PI, UVMRP/NREL was recently awarded \$1,413,474 from the USDA CSREES, entitled "Global Change, Ultraviolet Radiation Monitoring Network." Funding will support the continued operation of the Climatological Monitoring Network, as well as continued development of an Integrated Climate-Crop Modeling Assessment System by the Center of Remote Sensing and Modeling for Agricultural Sustainability (CRSMAS), which is housed within the UVMRP. CRSMAS is focused on developing an integrated crop assessment modeling system that accurately simulates regional and national scale crop productivity and its dependence on various climatic and environmental stress factors at the regional and national scales.

■ Geneva Chong is working with USGS and University colleagues on a newly funded proposal (Kauffman et al.): "Quantifying the influence of climate change on Rocky Mountain ungulate populations, migration and feedground use, and herbivory impacts on vegetation" This and on-going Wyoming Landscape Conservation Initiative research also form part of a new cooperative agreement with Heidi Steltzer: "Vegetation and biological soil sampling and data analysis for the Wyoming Landscape Conservation Initiative (WLCI) and other vegetation research partners."

■ Ed Ayres, Heidi Steltzer, and Matt Wallenstein were awarded NSF Ecosystems funding for a 2-year project to test whether soil communities specialize in decomposing leaf litter from local trees. The project will focus on aspen, pine, and spruce forests in the Rocky Mountains.

■ The Natural Resource Ecology Laboratory (NREL) has received funding from USDA to recruit and retain three doctoral fellows from groups under-represented in sciences into graduate degree programs in the area of Training in Sustainable Sciences. The relevant disciplines include interdisciplinary, agricultural, and environmental sciences degree programs. The NNF-supported Fellows will build on the existing research and graduate training enterprises at the NREL and will facilitate the development of new graduate programs in Ecosystem Science and Sustainability. PI- John Moore, Co-PI's Rich Conant, Matt Wallenstein, Heidi Steltzer, and Jodi Hanzlik.

## Publications

Paul Evangelista is lead author on a new publication on species distribution modeling that was published in September 2008: Evangelista PH, Kumar S, Stohlgren TJ, Jarnevich, CS, Crall, AW, Norman, JB, and DT Barnett. 2008. Modeling invasion for a habitat generalist and a specialist plant species. *Diversity and Distributions* 14 (5) 808-817.

Catherine Jarnevich and Tom Stohlgren co-authored a manuscript on "Near term climate projections for invasive species distributions," that was published by the journal *Biological Invasions* through "on line first" in September 2008. <http://www.springerlink.com/content/n57071x685430766/fulltext.html>

Bill Parton and Dennis Ojima co-authored a letter in October 2008 *Science Magazine* entitled "Sustainable Biofuels Redux." The paper stems from a workshop jointly organized by ESA and Bill Parton. Dennis Ojima was part of the organization committee. The letter may be found by clicking on <http://www.sciencemag.org/cgi/reprint/322/5898/49.pdf>.

Barnes, P.W., S.D. Flint, J.R. Slusser, W. Gao, and R.J. Ryel, 2008, Diurnal changes in epidermal UV

*Publications continued on next page*

## Publications

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Lantz, K., P. Disterhoft, J. Slusser, W. Gao, J. Berndt, G. Bernhard, R. Booth, J. Ebrahimian, L. Harrison, G. Janson, P. Johnston, P. Kiedron, R. McKenzie, M. Kimlin, P. Neale, M. O'Neill, V.V. Quang, G. Seckmeyer, T. Taylor, S. Wuttke, and J. Michalsky, 2008, The 2003 north American interagency intercomparison of ultraviolet spectroradiometers, part A: scanning and spectrograph instruments. *Journal of Applied Remote Sensing*, (accepted)

Liang, X.Z., M. Xu, W. Gao, K.R. Reddy, K. Kunkel, and K.L. Schmoltdt, 2008, Physical modeling of U.S. cotton yields and climate stresses during 1979-2005. *Journal of Geophysical Research*, (submitted)

Liu, S.Y., X.Z. Liang, W. Gao, and H. Zhang, 2008, Application of climate-weather research and forecasting model (CWRf) in China: domain optimization. *Journal of Atmospheric Sciences*, Vol.32, No.3, 457-468

Shardendu K. Singh, Giridara-Kumar Surabhi, W. Gao, K. Raja Reddy, 2008, Assessing genotypic variability of cowpea (*Vigna unguiculata* [L.] Walp.) to current and projected ultraviolet-B radiation, S.K. Singh et al. / *Journal of Photochemistry and Photobiology B: Biology* 93, 71-81, (In Press)

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Wang, X.L., W. Gao, J.R. Slusser, J.Davis, B. Olson, S. Janssen, G. Janson, W. Durham, R. Tree, and R. Deike, 2008, USDA UV-B monitoring system: an application of centralized architecture. *Computers and Electronics in Agriculture*, doi:10.1016/j.compag.2008.04.006

## Extra! Extra! Read All About It...



You've heard it before, but we'll say it again! One of the main objectives of NREL's News Notes is to make sure that everyone who works here has a voice. After all, this is your publication but we need your help to make it happen. We'd like to cover the vast array of research news and activities that occur daily in this wonderful research environment at NREL. Do you have great stories and photos of a research trip, workshop, or discovery? Maybe you achieved a milestone that makes people say "WOW?" Wouldn't you just love to share those accomplishments with the rest of the group?

Please submit your "stuff" to us and we will do our best to include it in the next publication. Remember, only you can prevent "news goose eggs."

## Thought of the Day

*A conclusion is simply the place where someone got tired of thinking.*

*-Arthur Block*

## Student and Staff News

- William K. Smith (Dr. Wei Gao, advisor) graduated summer 2008 with a Master's Degree in Ecology awarded by the Graduate Degree Program in Ecology at Colorado State University. The title of his thesis was "Ultraviolet-B Radiation: Impacts on Litter Decomposition Under Different Precipitation Regimes and Biotics." He is currently in the process of submitting two publications from his thesis.
- Chelsea Corr (Dr. James Slusser, co-advisor) graduated summer 2008 with a Master's Degree in Atmospheric Science awarded by the Department of Atmospheric Science at Colorado State University. The title of her thesis was "Retrieval of aerosol single scattering albedo at UV wavelengths for two urban field campaigns." She is currently in the process of preparing and submitting a publication from her thesis work. She is attending the University of New Hampshire, is enrolled in the Natural Resources and Earth System Sciences program for a PhD in Earth and Environmental Science. Her work will focus on pollution transport and evolution in the Arctic.
- Tracy (Davern) and Brian Holcombe were married on June 28, 2008.

### New Babies



Lindsey Christensen, a long-time NREL member, gave birth to 6 lbs, 13 oz William Shawn Nesbitt on July 25, 2008. Congratulations to Lindsey, Shawn, and baby William!

Steve Sherman (CEMML), Jill Lackett (NREL), and big sister Eleanor welcomed a new baby girl, Anna Amelia Sherman, on August 7, 2008. She weighed in at 8 lbs, 14 oz and was 20 ¼ inches.



John Moore, NREL Director and wife, Jaime, announce a new daughter!

Emma Christine Moore was born on Sept 26, 2008, weighing in at 7 lbs, 10 oz and 21 inches.

Jaime is doing fine and will be taking some time off from her job as a pre-school teacher at Eyestone Elementary.

