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News Notes

Natural Resource Ecology Laboratory

WARNER COLLEGE OF NATURAL RESOURCES



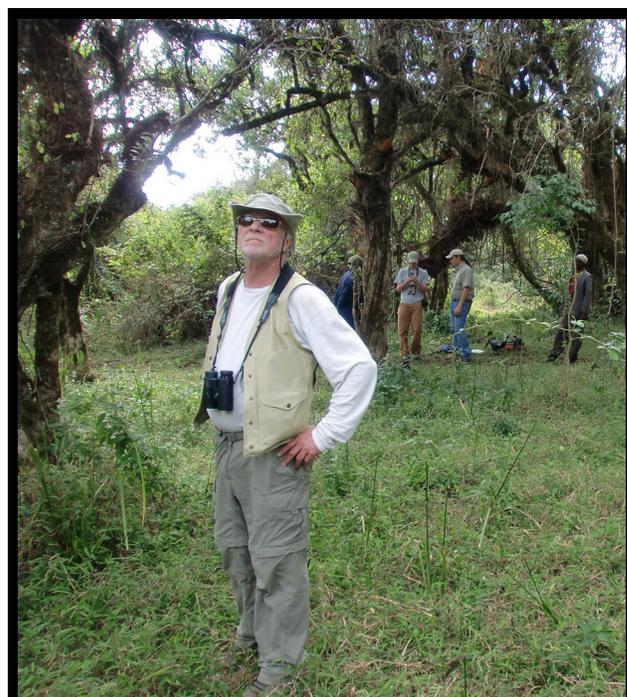
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Research team builds collaborative networks, identifies GIS needs in Ethiopia

A research team from Colorado State University, comprised of Paul Evangelista, John Moore, Jaime Moore, Dave Swift (NREL); Melinda Laituri (FRWS); Martha Denney (International Programs); Lloyd Walker (College of Engineering); Christina Kuroiwa (Hartshorn Health Service); and Nick Young and Carl Reeder (WCNR graduate students); in addition to Steve Prager (Univ. of WY), traveled to Addis Ababa, Ethiopia over the holiday break to host two strategic planning workshops and initiate new partnerships with academics, scientists, and resource managers. The objective of the first workshop was to build collaborative networks between US and Ethiopian academic institutions and government agencies. Activities included a series of presentations highlighting CSU's research and academic capabilities, an open forum to discuss priority issues related to education and environment, and strategic planning for future collaboration and partnerships. The second workshop focused specifically on Geographic Information Systems (GIS) identifying education and training needs for Ethiopian universities and resource management agencies. Over 50 participants attended the workshops, including representatives of three Ethiopian universities, the Ethiopian Wildlife Authority, Ethiopian Mapping Authority, Ministry of Water, World Food Program, and others. A Memorandum of Understanding was drafted between CSU and Addis Ababa University and, as a result, several collaborative research projects have been initiated.

Following the workshops, Research Scientists Paul Evangelista and Dave Swift, and graduate student Nick Young traveled south to the Bale Mountains National Park to conduct field studies on the mountain nyala. The



NREL Senior Research Scientist Dave Swift observes avian biodiversity during a field expedition to the Bale Mountains National Park in Ethiopia. In the background, the field team sets up sample plots.

mountain nyala is an endangered antelope endemic to the Ethiopian highlands. The four year study includes annual counts to determine herd sizes, gender ratios and reproductive success. The team also tested two methods of measuring large mammal abundance by counting pellets and other spoor observed within field plots and belt transects. The Bale Mountains are known for their high incidence of endemic species, and will be the focus of a larger proposed research effort by scientists at the NREL and Addis Ababa University.

Did you know a study published in *Scientometrics* (Vol. 81, no. 3, pp. 601-610), which analyzed all biological invasion-related publications in the Science Citation Index from 1991-2007, cites Senior Research Scientist Tom Stohlgren (USGS/NREL) as one of the top 10 most productive authors in the world (out of a pool of 7,261 scientists) in this field? The indicator "citation per publication" was used to evaluate the impact of articles, journals, and institutions. Dr. Stohlgren has authored over 180 publications during his career, including a recent textbook, *Measuring Plant Diversity: Lessons from the Field* (2007, Oxford University Press).

Research News

Chronic Wasting Disease study targets deer capture in Colorado



Trained pilots capture two mule deer in the Laramie Foothills of Colorado to facilitate the study of Chronic Wasting Disease

The National Science Foundation (NSF) funded research of Tom Hobbs (PI) and Randy Boone (NREL), Simon Tavener (Mathematics), Jennifer Hoeting (Statistics), Mike Miller (CDOW), and Mike Antolin (Biology) to study Chronic Wasting Disease (CWD) in mule deer in the Laramie Foothills is underway. Research permits have been granted to capture and monitor deer on Red Mountain Open Space (Larimer County), Soapstone Prairie (City of Fort Collins), Lone Pine State Wildlife Area (Colorado Division of Wildlife), Phantom Canyon (The Nature Conservancy), as well as on many private lands in the area.

During the initial deer capture, Jan. 4-7, 2010, 100 deer were captured, sampled, collared, and released. The telemetry to monitor these deer was so successful that the team decided to do a second capture on Feb. 5. Forty more deer were captured, processed and released. These 140 deer will be monitored for the next year and recaptured in early 2011 to see if their Chronic Wasting Disease status has changed. The data will be used to:

- 1) understand the genetic and environmental factors that control variation among individuals in their susceptibility to the disease;
- 2) develop a forecasting model that predicts effects of the disease on population growth;
- 3) estimate how many new infections are created by a single infected individual; and,
- 4) determine if Chronic Wasting Disease will cause sustained, long-term declines in the abundance of mule deer.

WCNR, NREL students complete trek to the Loch Vale Watershed site...on sleds



Photographs by Patty York

On January 12, 2010, a large group of students and volunteers from the NREL and the WCNR successfully assisted Eric Richer (NREL) transport four 75 pound deep-cycle batteries, on sleds, to the main equipment site in the Loch Vale Watershed long-term ecological research and monitoring site in Rocky Mountain National Park. Loch Vale is a long-term ecological research site maintained since 1983 by the NREL and the US Geological Survey. The batteries support two rain gauges and two National Atmospheric Deposition Program wet precipitation collection buckets in this remote location. Solar panels charge the batteries. Atmospheric deposition of nitrogen to the high elevations of the park is of great interest to park managers, state environmental health officials, and the public, since the excess nitrogen is fertilizing and changing park resources.

Outreach

The Natural Resource Ecology Laboratory announces its Spring 2010 Seminar Series: "A Dialog on Ecosystem Science and Sustainability"

Ecosystems include the many processes of life that support and enrich humankind. These processes include interactions among organisms and species, the flow of energy and the cycling of matter, and the maintenance of diverse and complex communities of microbes, plants, and animals. Our responsibility is to understand the world's ecosystems and the role human societies play in ecosystem processes and their long-term ecosystem sustainability. Research and education are central to that understanding, enhancing our ability to manage for the sustainability of ecosystems, societies, and the biosphere. For this seminar series, speakers will guide us through areas of research in ecosystem science and issues related to sustainability, and how we can integrate these into a program of study within the Warner College of Natural Resources. Lectures will be in the NESB Francis Clark Conference Room B215, at 11 a.m. - noon, unless otherwise noted. Talks will be limited to 35 minutes to allow ample time for questions, suggestions, and discussion. For more information and schedule updates, please visit our website, <http://www.nrel.colostate.edu/seminar.html>.

Publications

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- Hoeksema J.D., V.B. Chaudhary, C.A. Gehring, N.C. Johnson, J. Karst, R.T. Koide, A. Pringle. C. Zabinski, J.D. Bever, J.C. Moore, G.W.T. Wilson, J.N. Klironomos, and J. Umbanhowar. 2010. A meta-analysis of context-dependency in plant response to mycorrhizal fungi. *Ecology Letters* 13: Early On-line.
- Stafford, S.G., D.M. Bartels, S. Begay-Campbell, J.L. Bubier, J.C. Crittenden, S.L. Cuttler, J.R. Delaney, T.E. Jordan, A.C. Kay, G.D. Libecap, J.C. Moore, N.N. Rabalais, D. Rejeski, O.E. Sala, J.M. Shepherd, J. Travis. 2010. A call to action: Transitions and tipping points in complex environmental systems. *Environment* 52:38-45.
- Stohlgren, T.J., P. Ma, S. Kumar, M. Rocca, J.T. Morissette, C.S. Jarnevich, and N. Benson. 2010. Ensemble •Habitat Mapping of Invasive Plant Species Risk Analysis. 30(2), 2010 DOI: 10.1111/j.1539-6924.2009.01343.x

Staff and Student News

Ginger Bradshaw (Tom Stohlgren, advisor) submitted a professional paper entitled "Sharing invasive species data facilitates habitat modeling," to complete her master's degree through the Graduate Degree Program in Ecology. Ginger is working in California with the National Park Service on invasive species issues.

Justin Neu Overlin (NREL, John Moore, advisor), is a recipient of a USDA National Needs Fellowship in addition to an Alliance for Graduate Education and the Professoriate (AGEP) assistantship through NSF funding to Colorado State University. Justin will explore the relationship between amphibian and reptile occurrences. He will also study farmland conservation programs, such as the Conservation Reserve Program.

Jared Stabach (NREL) is a Graduate Research Assistant on an NSF supported project Randy Boone, PI studying the effects of land fragmentation and climate change on forage acquisition by Kenyan wildebeest.

Remember to send in your story ideas.