

Forest Ecology Bulletin



British Ecological Society
Forest Ecology Group

Introduction

by MARKUS EICHHORN

Happy New Year to all forest ecologists, and I'm glad to report that the number of Bulletin subscribers has now passed 300! In this issue we have an entralling description of the El Yunque National Forest and Luquillo Experimental Forest in Puerto Rico as our Forest of the Month, including details of current research and opportunities. There are also plenty of conference announcements to help you plan your year, along with a large number of job openings. We also have a Twitter account [@BESforests](#) where I will post notices with short deadlines.

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The contents of this newsletter are determined by what you submit, so if there's anything you think should be included then please pass suggestions on to either me (markus.eichhorn@nottingham.ac.uk) or Jake Snaddon (jlsnaddon@gmail.com). If you have received this Bulletin indirectly then you can sign up to receive more on our mailing list by going [here](#) and clicking 'Subscribe', or follow news on Twitter [@BESforests](#).

Forest of the Month

by CHRIS NYTCH CHRIS.NYTCH@ITES.UPR.EDU

El Yunque National Forest (EYNF), coterminous with the Luquillo Experimental Forest, is located in the Luquillo Mountains of northeastern Puerto Rico (18°20' N, 65°49' W). Established as a forest reserve in 1903, EYNF has been administered by the US Department of Agriculture Forest Service since 1917 (Brown et al. 1983). It currently encompasses 11,330 ha of land and is the only tropical rain forest in the United States. The Luquillo Mountains are derived primarily from volcanoclastic sediments, and they're characterized by steep, highly dissected topography that rises rapidly from the coastal plain to an elevation of roughly 1,000 meters over a distance of approximately 7.5 km (Scatena 1989). The predominate weather patterns that affect the forest come from westerly-blowing trade winds, which upon contact with the mountains rise and cool to produce orographically-derived rainfall. From the coast to the top of the mountain, mean annual temperature falls on average about 6°C and annual rainfall triples, exceeding 5 m on the highest peaks (Lugo 2005). Systematic changes in soil properties as well as community structure and species composition also accompany the abrupt increase in elevation; plantations in the foothills give rise to secondary tabonuco (*Dacryodes excelsa*) forests, then primary tabonuco, colorado (*Cyrilla racemiflora*), and ultimately dwarf forests at the summits (Brown et al. 1983).

EYNF is a recreation site for about 600,000 annual visitors, a water supply for approximately 20% of Puerto Rico's population, a regional center for electronic communication, and a refuge of Caribbean biodiversity. Additionally, it has been a center of tropical forestry research for nearly a century. All research activities within the Luquillo Experimental Forest are conducted under the auspices of the International Institute of Tropical Forestry (IITF) of the USDA Forest Service. Current research scientists at the Institute work on various aspects of tropical forestry, including studies of plantations and natural forests, hydrology and geomorphology, global change and biogeochemical cycles, mycology, wildlife, terrestrial and aquatic ecology, biometrics, and resource economics. Other agencies engaged in scientific investigation within the forest include the [US Geological Survey](#), which maintains stream gages and researches landslides, weathering, and biogeochemical budgets, and the University of Puerto Rico, which through its [Institute for Tropical Ecosystem Studies](#) (ITES) manages the Luquillo Long-Term Ecological Research Program and operates [El Verde Field Station](#), and through its [Biology Department](#) operates a field house on East Peak.



El Verde Field Station

El Verde Field Station was built in 1937 and is one of the oldest research areas within the forest. Research in this 100 ha area is conducted under a special use permit between ITES and the US Forest Service. The station has a housing capacity of 50 visiting researchers and limited office and laboratory space for staff and visiting researchers. Research facilities include long-term plots, a 16 ha forest dynamics plot, a canopy walkway, artificial streams, and a long-term climate station. All research at the station must have prior approval from the station director. Reservations to use the facilities and additional information may be obtained directly from the field station [website](#).

There are a number of research endeavors at El Verde for undergraduate and graduate students. Undergraduate opportunities include the REU program in

Tropical Ecology and Evolution (see web.ites.upr.edu/reu), a summer experience where students develop an independent research project under the guidance of faculty mentors in areas such as ecology of plant communities, soils and streams, or evolution, such as population genetics.

For more information about El Verde and internship opportunities please see evfs.ites.upr.edu.

Opportunities for college graduates include volunteer internships with the Luquillo Forest Dynamics Plot (LFDP) and the Canopy Trimming Experiment (CTE). Volunteer interns assist as field researchers for yearly seedling and tree censuses (see [internships](#)). Information gathered in these projects is directed at understanding the factors that determine the diversity and structure of tropical forest communities as they relate to environmental gradients, natural disturbance patterns, land-use legacies. A common understanding of these factors is achieved via identical studies in other tropical forests around the world (see www.ctfs.si.edu). The application of this information, in turn, can help mitigate the compound effects of human disturbance and climate change on tropical forest dynamics, inform management decisions and guide conservation practices. Through these internships volunteers gain practical experience related to diverse aspects of tropical ecology from scientists involved in the Luquillo Long-Term Ecological Research Program. Internships typically range from 3-6 months, and volunteers receive a monthly stipend to cover living expenses, as well as funds to support travel to and from Puerto Rico.



References:

- Brown, S., Lugo, A.E., Silander, S., and L. Liegel. 1983. Research history and opportunities in the Luquillo Experimental Forest. New Orleans, LA.: USDA Forest Service, Southern Forest Experiment Station, Institute of Tropical Forestry. 128 p. (Gen. Tech. Rep. SO-44).
- Lugo, A.E. 2005. The ecosystems of the Luquillo Mountains. *Acta Científica* 19(1-3): 3-6.
- Scatena, F.N. 1989. An introduction to the physiography and history of the Bisley experimental watersheds in the Luquillo Mountains of Puerto Rico. New Orleans, LA: USDA Forest Service, Southern Forest Experiment Station, Institute of Tropical Forestry 22p. (Gen. Tech. Rep. SO-72).

New Publications

Forests2011 by RAF AERTS

Marking the end of the UN International Year of the Forests, EU policy makers gathered in Leuven to accept and discuss a position paper on the future of forests prepared by an interdisciplinary team of scholars. The paper is available on ees.kuleuven.be/forests2011.

Principles and Practice of Forest Landscape Restoration: Case Studies from the Drylands of Latin America by ADRIAN NEWTON & NATALIA TEJEDOR

The Spanish version of this book has now been published; see [website](#) for further details.

Upcoming Meetings

Strategies for Landscape-Scale Restoration in the Tropics

by DANIELLE RAPPAPORT

26-28 January, New Haven, CT

International Society of Tropical Foresters, Yale Chapter, 18th Annual Conference

Keynote Addresses

- Jan McAlpine, United Nations Forum on Forests
- Robin Chazdon, University of Connecticut

Special Commentary from David Lamb, author of *Regreening the Bare Hills: Tropical Forest Restoration in the Asia-Pacific Region*.

Workshop by Ina Vandebroek, New York Botanical Garden

Conference Panels

- Forest regeneration in human-modified landscapes
- Private sector engagement in forest restoration
- Economic viability of landscape-scale initiatives
- Scaling up: Applying lessons learned

For our schedule of events and further information, visit www.yale.edu/istf. Register by January 15: send name, affiliation, and contact information to istf@yale.edu.

Valuing Ecosystems: Policy, Economic and Management Interactions

by KIRSTEN HUTCHISON

3-4 April 2012, Edinburgh

SAC & SEPA Biennial Conference (in association with Forest Research, the James Hutton Institute and Scottish Natural Heritage).

We look forward to seeing you at the SAC/SEPA Biennial Conference 2012. For further details please see www.sac.ac.uk/sacsepaconf. Bookings made before 23 January 2012 qualify for our early booking rate.

Integrated management of our agricultural and forestry landscapes is essential to the delivery of multiple ecosystem services. However, current understanding of the linkages between different ecosystems and the services they provide is incomplete. The management implemented therefore needs to be flexible to adapt to these uncertainties. The need for implementation at the landscape scale also means integrating management practices across different land-managers.

This conference will seek to present not only the best possible scientific understanding of the complexities associated with the delivery of multiple ecosystem services but also provide a forum to raise and discuss what still needs to be done to have an ecosystem approach recognised and supported by land managers, researchers and policy makers. The conference will be relevant to members of all three of these target audiences.

The keynotes will be given by Jonathan Pryce from the Scottish Government, Brian Chambers from ADAS, Heidi Wittmer from Helmholtz Centre for Environmental Research and Tom Crompton from WWF. The Conference will take place in the John McIntyre Conference Centre of the University of Edinburgh. Details of costs and accommodation can be found at www.sac.ac.uk/sacsepaconf.



EGU Symposium: Biogeochemistry of boreal forest soils

by ALISON MUNSON

22-27 April, Vienna

Call for abstracts

Boreal forests play a significant role in the global biogeochemical cycles of water and nutrients. Carbon stocks in boreal forest soils alone are estimated at 470 Gigatons, more than half the current amount of carbon in the atmosphere. This session aims to bring together researchers working on biogeochemistry of boreal forest soils. Contributions addressing the role of boreal soils in carbon sequestration, mechanisms of carbon stabilization unique to these soils, including the role and contribution of black carbon to total soil carbon stocks, are welcome. We also would like to invite contributions focusing on soil ecology, mineralogy, hydrology, and pedological processes, with special welcome to cross-disciplinary studies of these ecosystems.

Convenor: Sylvie Quideau. Co-convenors : Alison Munson, Caroline Preston

The deadline for abstracts is January 17 2012, via the EGU congress site meetings.copernicus.org/egu2012.

Other interesting symposia in the Biogeosciences section:

- Climate extremes, ecosystems and biogeochemical cycles
- Non-CO₂ influences of land cover changes on climate

- Criteria and indicators for forest ecosystem management under changing climate and environmental conditions
- Climate Change: carbon cycle, mortality, growth, and shift of forests
- Stabilization of organic matter in soils, sediments and marine dissolved organic matter



TRACE2012

by TANJA SANDERS

9-12 May, Potsdam & Eberswalde

This year's TRACE meeting will be jointly organised by the German Research Centre for Geosciences in Potsdam, the German Archaeological Institute in Berlin and the Institute of Forest Ecology and Forest Inventory in Eberswalde. The annual TRACE is the scientific meeting of the Association for tree-ring research (www.tree-ring.org).

Registration will be on Wednesday with an ice-breaker in the evening; sessions continue in Potsdam on Thursday and Friday. On Saturday a field trip to Eberswalde is scheduled, including a morning session with the focus on forest ecology and a visit to the largest lysimeter in Europe on an intensive forest monitoring site in the afternoon. The evening will be spent in the forest botanical gardens with roasted boar and a performance of the wind section on their hunting horns.

We are very happy to announce that confirmed invited speakers are Malcolm Hughes (LTRR, Arizona), Fritz Schweingruber and Jérôme Ogée (INRA, France). Please visit our

webpage trace2012.net for more information and registration. Abstracts should be submitted no later than February 15.

Trees Beyond The Wood

by JOHN BIRBECK

5-7 September, Sheffield, UK

This conference will celebrate twenty years of work since the first major Sheffield conference on the theme of ancient trees and woodlands. It is also almost ten years since our 2003 “Working and Walking in the Footsteps of Ghosts” event which started to raise issues and challenge assumptions about what is ‘ancient’ or ‘natural’ and what is meant by the terms ‘wood’ or ‘woodland’. Since then on-going work in a range of disciplines across ecology, biology, landscape history, archaeology, forestry and nature conservation has continued the process of research and evaluation across the subject area.

Our 2012 event will bring together key speakers in the debate and give the opportunity for others to present shorter papers or posters to explore themes and issues which will move the discussion forward and allow for a greater level of understanding between disciplines. If you are interested in presenting a short paper or poster please contact Christine Handley via email Christine@hallamec.plus.com. An ‘early bird’ discount for bookings is available. Further information can also be found on our website www.ukeconet.co.uk.

Come join us for this important conference promoting science-based applications of remote sensing and other spatial data in forested systems (www.forestsat2012.com). The purpose of ForestSAT 2012 is to promote scientifically-based understanding of how spatial analysis technologies can help describe and monitor forested systems. Recognized is an inherent need to integrate data from an array of remote sensing systems, and other spatial information, using a variety of approaches. Numerous uses of spatial data are relevant, from addressing the needs of local forest managers, to informing forest ecosystem models, to establishing monitoring systems in support of international agreements. Delegates to ForestSAT typically represent research organizations, universities, agencies, and the private sector.

Please consider submitting an abstract to present a paper or poster! We are looking forward to your participation.

Managing Forests for Ecosystem Services; Can Spruce Forests Show the Way?

by BILL MASON

8-11 October, Edinburgh, UK



The deliberations of the Millennium Ecosystem Assessment (MEA) and the development of the MEA methodologies in successor documents such as the UK National Ecosystem Assessment have led to considerable interest in ecological and environmental circles (e.g. the ‘President’s Soapbox’ in the August 2011 issue of the BES Bulletin). An example of this interest is the recent report (Eustafor and Patterson,

2011) that looked at the provision of ecosystem services (ES) in the state forests of a range of countries in Europe. This report noted that forest managers and their stakeholders are confronted with a major challenge as they attempt to describe, assess and deliver the various benefits that forest ecosystems can provide.

The ecosystem services provided by forests will vary with different forest types and the ways in which they are managed. One forest type of major importance in the Northern Hemisphere comprises those forests dominated by spruce (*Picea*) species. Spruces occur in both natural forest systems (e.g. in North West America, Europe, North East Asia) and plantation forests (e.g. the British Isles, Western Europe). These forests are important sources of timber, yet can also provide a wide range of other ES such as biodiversity, recreation, water quality, carbon sequestration, and landscape. Planning and implementing multifunctional forest management in spruce dominated forests is challenging because of the trade-offs and synergies between ES. There is a lack of understanding of appropriate silvicultural and funding measures that will enhance or sustain the provision of different services yet maintain forest resilience in the face of projected climate change and allow for the impacts of biotic and abiotic risks.

In a meeting in Edinburgh in October 2012, we plan to use spruce-dominated forests as a ‘model’ system to evaluate concepts capable of application across a much wider range of forest ecosystems. This meeting will enable researchers, practitioners and policymakers to present and discuss findings on how best to translate the concepts promulgated by the MEA, UKNEA and similar studies into strategic, tactical and operational management regimes that will help adapt forests to meet changes in climate and in societal demands. For example, the findings will illustrate the possibilities of finding more resilient and integrated ways of managing forest ecosystems for an uncer-



ForestSAT 2012

by JEANNETTE HARPER

11-14 September, Corvallis, OR

tain future which achieve a balance between wood production and provision of other ecosystem services.

For further details including information on agreed keynote speakers please see the conference website at www.forestry.gov.uk/fr/iufro2012. The call for papers should be open in early January 2012 together with the Early Bird registration.

Eustafor and Patterson, T. (2011) *Ecosystem Services in European State Forests*, European State Forest Association, Brussels, 40 p. [pdf](#)

Grants & Funding

No items this issue.

Employment

Head, Department of Forest, Rangeland, and Fire Sciences

The University of Idaho College of Natural Resources

The candidate will lead outstanding programs, mentor faculty, and prepare globally competitive graduates. The Department ([website](#)) offers masters and doctoral programs in Natural Resources, as well as undergraduate programs in Fire Ecology and Management, Forest Resources, Rangeland Ecology and Management, and Renewable Materials. The Department Head will guide and mentor faculty, staff, and students, communicate effectively with stakeholders, and liaise with college and university administration to lead some of Idaho's flagship academic programs. Responsibilities include administering departmental instruction, research, outreach, and engagement activities, fostering faculty and staff development, growing investments in university research, and updating and implementing the College Strategic Action Plan. As an active faculty member, the Department Head will also maintain a portfolio of research, teaching, and outreach activities. Additional responsibilities, a description of academic programs,

and position qualifications are found [here](#).

Applications must include a letter of interest and qualifications, a philosophy of leadership in a teaching, research, and outreach program, a curriculum vitae, and contact information for five references. To apply, submit the materials via the online application system ([website](#)). Review of applications will begin no sooner than 26 February 2012 and will continue until the position is filled. Questions regarding the position may be directed to Dr. Anthony S. Davis, search committee chair (asdavis@uidaho.edu; 208-885-7211).

To enrich diversity, the University of Idaho is an Equal Opportunity Affirmative Action Employer. Final candidates must pass a criminal background check. The selectee must provide required U.S. Citizenship and Immigration Services eligibility verification prior to employment.

Assistant Professor, Forest and Wetland Soils

Michigan Technological University

The School of Forest Resources and Environmental Science at Michigan Technological University (forest.mtu.edu) invites applications for the position of Assistant Professor of Forest and Wetland Soils. This is a nine month, tenure-track position at Michigan Technological University in collaboration with the USDA Forest Service Northern Research Station-Climate, Fire and Carbon Cycle Science research unit ([website](#)). In the Upper Midwest, there is a wide diversity of soils and soil dynamics located in a landscape matrix of managed upland and lowland forests, sub-boreal wetlands and low-intensity agriculture. The successful candidate will have excellent opportunities to collaborate with the highly productive community of foresters, ecologists, hydrologists, biologists, and others in the School, the University and Forest Service.

We are seeking an exceptional scientist whose research focuses on for-

est and wetland soils. The candidate must have: 1) the ability to teach effectively at the graduate and undergraduate levels; 2) a Ph.D. in soils, or a soils emphasis within forestry, hydrology, fire ecology, or a closely related field at the time of appointment; 3) a record of research and scholarship in the subject of forest and wetland soils, including publications in peer-reviewed journals; and 4) the ability to communicate effectively with students, professionals, and the general public. Preferred qualifications include: experience teaching courses in soil science or fire science; post-doctoral research experience and training; successful development of competitive externally-funded grants; and experience or background in resource management including experience interacting with industrial land owners and natural resource agencies. Preference will also be given to applicants whose research complements that of other faculty in the School.

Responsibilities:

- Contribute to the teaching and mission at the undergraduate and graduate level. Currently, the teaching of an undergraduate course in soil science and an undergraduate or graduate course in fire science is expected.
- Develop a vigorous, externally funded research program in forest and wetland soils.
- Advise graduate student research at the M.S. and Ph.D. level and involve undergraduates in research.
- Participate in School and University committees.

Michigan Tech's School of Forest Resources and Environmental Science is one of the most productive forest research programs in the country. We currently employ 25 tenure-track faculty, 5 research faculty, 19 research professionals, and 19 administrative professionals and enroll 180

undergraduate and 85 graduate students. The School is particularly well known for its excellence in the fields of forestry, applied ecology, forest molecular genetics, and wildlife management. The Chronicle of Higher Education recently ranked the School first in Faculty Scholarly Productivity. The School's faculty members were also ranked No. 1 in the number of forestry journal citations by a study published in the Journal of Forestry.

Established in 1885, Michigan Tech is a nationally recognized research university and a leader in science and engineering education. Located in Houghton in the Upper Midwest in the scenic Keweenaw Peninsula, Michigan Tech offers a friendly, safe, and affordable living environment with excellent opportunities for year-round outdoor recreation.

To apply please submit graduate transcripts, CV, statements of teaching and research interests, copies of relevant publications and three references to www.jobs.mtu.edu. Review of applications will commence January 2, 2012 and will continue until the position is filled. The anticipated start date for the position is August 20, 2012.

Assistant Professor of Forest Soils and Ecosystem Ecology

School of Forestry at Northern Arizona University

This is a 9-month, tenure-track appointment, with an anticipated start date of 17 August 2012. The successful applicant will be expected to teach courses at the undergraduate and graduate levels (e.g., forest soils, forest ecology, ecosystem ecology), develop a productive, externally-funded research program, and advise graduate students. The minimum qualification is an earned Ph.D. in forestry, soil science, ecosystem ecology or related field conferred by start date. Please see hr.nau.edu/node/2620 for full position announcement. NAU is AA/EEO/MWDV.

Postdoctoral Research Fellow

Modeling the Temperature Sensitivity of Plant Respiration

University of Florida, Gainesville, Department of Biology

Supervisors: Jeremy Lichstein ([website](#)), Kaoru Kitajima ([website](#)), and Stefan Gerber ([website](#)).

Plant respiration consumes roughly half of gross primary productivity and is expected to increase with climate warming. In the tropics in particular, plant respiration rates are expected to increase relative to photosynthetic rates as the climate warms. The resulting decrease in tropical net primary productivity (NPP) could threaten the sustainability of current terrestrial carbon sinks, resulting in a positive feedback to climate change. Alternatively, temperature acclimation of respiration could minimize future temperature-induced NPP declines. This project will use a state-of-the-art ecosystem process model to quantify the impact of climate change on terrestrial carbon balance, with particular emphasis on the temperature sensitivity and acclimation of plant respiration. The project will leverage multiple data sources, including an ongoing NSF-funded study on the temperature response of tropical trees to experimental warming. The NSF study involves *in situ* measurements of leaf and branch respiration using a canopy crane in central Panama, as well as experiments with tropical tree seedlings (for more details, see [pdf](#)). These and other data sources are providing improved information on the temperature sensitivity and acclimation of plant respiration at scales ranging from leaves to whole plants. However, our understanding of the ecosystem-to global-scale implications of these fine-scale processes remains primitive. The successful candidate will use a process-oriented ecosystem model to "scale up" leaf- and plant-level measurements to whole ecosystems. Candidate models include the Ecosystem Demography (ED) model (Moorcroft

et al. 2001, Ecol. Monog. 71:557-586; Medvigy et al. 2009, J. Geophys. Res. 114:G01002) and the NOAA-GFDL LM3V land model (Shevliakova et al. 2009, Global Biogeochem. Cy. 23:GB2022; Gerber et al. 2010, Global Biogeochem. Cy. 24:GB1001). In support of the NSF-funded project described above, the modeling work will include applications focused on central Panama. In addition, there is considerable freedom to develop complementary aspects of the research program, which could (for example) extend this work to broader spatial scales.

Qualifications: PhD in ecology, plant physiology, geosciences, applied mathematics, or related field; strong quantitative and writing skills. Preference will be given to applicants with (1) research experience in terrestrial ecosystem ecology or plant physiology, and (2) strong mathematical, statistical, and computational skills (i.e., proficiency with one or more scientific programming languages, such as C, FORTRAN, or R). Applicants who lack these qualifications should explain in a cover letter their motivation for transitioning to ecosystem modeling research.

Start date is flexible, with a preferred start date before October 2012. Funding: two years, with competitive salary and benefits

To Apply: Email a single pdf to Jeremy Lichstein (jllichstein@ufl.edu) with subject POSTDOC-RESPIRATION including (1) cover letter with a 1-2 page statement of research interests and goals; (2) CV; and (3) contact information for three references. Applications will be reviewed as they are received, and the position will remain open until filled.

Minorities, women and members of other underrepresented groups are encouraged to apply. The University of Florida is an equal opportunity institution.

Post-Doctoral Researcher in Forest Ecosystem Modeling

School of Forest Resources, Pennsylvania State University

The Earth Systems Ecology Lab in the School of Forest Resources at The Pennsylvania State University is currently recruiting for the fixed-term position of Post-Doctoral Researcher in the area of forest ecosystem modeling. The initial appointment will be for one year, with the possibility of a one year renewal. The expected start date is 30 January 2012. Salary range: \$40,000 - \$42,000, plus benefits. Qualifications: The minimum qualification is a Ph.D. in Biogeochemistry, Ecology, Environmental Science, or a related field. Preference will be given to candidates that have a strong quantitative background, modeling experience, proficiency in R and/or one or more high level languages, and strong writing skills.

Responsibilities: This position will play a leadership role in a project modeling carbon trade-offs of different management actions in fire-prone forests. The successful applicant will 1) work with the multi-institution research team to coordinate data collection and integration in the modeling framework; 2) develop additional model experiments; 3) run simulations; 4) serve both a lead and supporting role in manuscript preparation; and 5) contribute to proposal writing. Additionally, the successful applicant will be an active member of the Earth Systems Ecology Lab and the larger research community at Penn State. To apply e-mail a cover letter, CV, unofficial transcripts, and the names and contact information for three references to: matthew.hurteau@psu.edu. Review of applications will continue until filled.

Summer Field Technicians

Yosemite, CA and Wind River, WA

These four summer positions involve tree mortality surveys in two

25.6 ha forest dynamics plots, one in Yosemite National Park (old-growth sugar pine/white fir) and one in the Gifford Pinchot National Forest, WA (old-growth Douglas-fir/western hemlock). Tasks include revisiting each tree and recording mortalities, ingrowth, and coarse woody debris recruitment. Mortality checks require hatchet use. Staff will supervise students and volunteers. Two weeks of on-the-job training in late-June/early-July at the Yosemite Forest Dynamics Plot.

Qualifications: Previous experience taking vegetation research data and ability to follow complex data collection protocols is required. Candidates should demonstrate the ability to solve problems and to work both independently and in teams of two or three. Work will involve moving through sometimes steep terrain with delicate and expensive equipment, as well as the ability to carry up to 15 kg of additional gear. Knowledge of western flora, tree pathogens, and western forest insects is desirable. Staff must have a driver's license and a Wilderness First Aid/CPR certification (or higher) valid until October 31, 2012 (if you are not certified, please include your plans for certification in your cover letter).

Other: Practical experience in the operation and maintenance of electronic and mechanical equipment, familiarity with a variety of software and instrumentation, and experience with periods of outdoor living are all positives.

Duration: Mid-June – mid-October 2012 (2 positions); mid-June – September (2 positions).

Salary: \$12 to \$15 per hour, depending on experience. Camping accommodations provided during training in Yosemite. Bunk accommodations provided in Wind River. The work schedule is four, ten hour days per week.

Apply: Please assemble the following into a single PDF file and email it to jlutz@uw.edu – 1) A one-page cover letter describing your interests and reasons for applying, 2) A resume or CV, no longer than two

pages, 3) Specific dates of availability (including any planned mid-summer absences), 4) Unofficial transcripts, and 5) Phone numbers and email addresses of references (please do not send letters of reference).

Additional information at www.wfdp.org and www.yfdp.org. Contact [Jim Lutz](mailto:jlutz@uw.edu) with questions not answered on those pages.

Application deadline: February 29, 2012.

A PDF job flyer is available [here](#).

Internships are also available for those without field experience. Interns work alongside the professional ecologists, paid staff, and students.

Field Technician position: Longleaf pine restoration

The Savannah River Site, South Carolina

We seek to fill a field technician position for a large-scale experiment on the restoration of longleaf pine plant communities in the Southeastern United States. Primary job duties will include setting up and maintaining experimental plots, soil processing, seed collection and cleaning, data entry and various other tasks required for experimental studies of plant community restoration and plant-animal interactions. Technicians will be involved in supplemental activities focused on restoring the imperiled longleaf pine understory. The position will begin March 2012, and will last for 3-9 months. Pay rate will be \$10-12/hr commensurate with experience. The technician will work at the Savannah River Site, live in a town near the site (Aiken or Ellenton, SC; Augusta, GA), and will join a team of two principal investigators (John Orrock at University of Wisconsin-Madison and Lars Brudvig at Michigan State University) a postdoc (Chris Habeck, at Michigan State University) and a Lead Technician (Joe Ledvina, at Michigan State University). Housing is not provided, although low cost options are plentiful. Successful candidates will have some background in ecology, biology, or a related discipline. All appli-

cants must be able to endure hot, humid conditions and long hours in the field. Previous field research experience required. Botanical experience would be desirable, but not required.

Michigan State University is an equal opportunity employer. Women and minorities are strongly encouraged to apply. Because the research site is a highly secure area run by the federal government, non-United States citizens may have difficulty gaining clearance to work there.

To apply, please email a CV or resume and letter describing past experience, why this position is interesting or important to you, dates of availability, and contact information with email addresses for two references to Chris Habeck (habeckch@msu.edu). The position will be filled when a suitable applicant is found. Applications submitted after February 1, 2012 will not be considered.

Graduate Openings

PhD in tropical forest carbon cycling

Florida International University, Miami, Florida

We have a fully-funded research assistant position available for a graduate student to pursue a PhD in tropical forest carbon cycling in the Ecophysiology and Global Change Lab in the Department of Biological Sciences at Florida International University, the Public University of Florida at Miami ([website](#)). The research will be based at the La Selva Biological Station in Costa Rica and is available starting summer 2012.

Additional MS/PhD opportunities on other projects active in the lab are available via funding by teaching assistantships. Active research projects in the lab include:

- Structure and function in Everglades tree islands
- Carbon and water cycling in tropical rainforest

- Climate and water management effects on carbon fluxes in Everglades marsh
- Arctic ecosystem responses to climate change

For more information contact Steve Oberbauer (oberbaue@fiu.edu, [website](#)). To be eligible for positions, interested students must meet the graduate admission requirements of Florida International University and have competitive GPA and GRE scores. With the exception of the tropical forest carbon cycling research assistant position, support is by teaching assistantships with summer funding opportunities. Highly-qualified candidates may be eligible for fully-funded Presidential Fellowships. The deadline for graduate applications is January 15 2012. The application is available [here](#). Applicants should be sure to request a teaching assistantship on the application form.

Florida International University is the public research university in Miami with a highly diverse, vibrant, and growing student body located near the edge of the Florida Everglades. The Department of Biological Sciences has strengths in marine, wetland, arctic, and tropical ecology.

Graduate Position in Temperate Forest Ecology

University of Dayton

An opportunity exists at the University of Dayton (UD) for graduate-level training in deciduous forest ecology. The student will be based at UD and will work in the laboratory of Dr. Ryan McEwan. This search is focused on applicants for a PhD-level project, applicants with an MS are encouraged to apply and evidence of peer-reviewed publication will be beneficial to the application process.

This project will focus on the Biodiversity-Ecosystem Function relationship in temperate broadleaved forest (main focus is the Eastern Deciduous Forest, but international travel is also possible). Some things

I am looking for in applicants include familiarity with: forest sampling (for vegetation and CWD), the use of allometric equations to estimate biomass, dendrochronology, using GIS for spatial analysis, and model building within R. The applicant needs to be comfortable working with large, complex, datasets.

The student will be supported by a teaching assistantship through the Department of Biology at UD. The assistantship is associated with a stipend of \$20,000/year; however, a portion of this comes in the form of a University summer fellowship which is awarded through a competitive process. The assistantship also comes with 100% tuition remission and health insurance is relatively inexpensive through UD. Support is guaranteed for the life of the project pending satisfactory performance.

UD is the largest private University in the state of Ohio, and is consistently award-winning for both academic programs and scholarship. Enrollment is c.11,000 with approximately 3,000 graduate students.

Interested individuals are encouraged to view the following web sites:

- [Dr. McEwan's Lab Pages](#)
- [Department of Biology](#)
- [University of Dayton](#)

To begin the application process, please send a CV, GPA, GRE scores and PDF reprints to ryan.mcewan@udayton.edu.

MS/PhD Assistantship: Plant-insect interactions

Department of Entomology at Purdue University

I have USDA-APHIS funding to support a graduate research assistantship at either the MS or PhD level in the Department of Entomology at Purdue University. The emerald ash borer (EAB) is an invasive wood borer introduced from Asia that is spreading throughout the Midwest with devastating effect. This project is aimed at uncovering underlying

mechanisms that confer resistance of ash trees to this destructive pest. We also seek to further understand the influence of ash volatiles on the behavior of natural enemies that regulate EAB populations.

Ideal students should be highly motivated and enthusiastic about working in the areas of chemical and behavioral ecology. This assistantship comes with an annual stipend of \$18,500, full tuition waiver, and a benefits package that includes health insurance. The preferred start date is summer 2012.

Interested individuals should contact me directly via email (mginzel@purdue.edu) to discuss their background, qualifications, and research interests. Please also provide a short (one page) letter of interest and a CV that includes cumulative GPA, GRE scores and contact information for at least three references.

PhD Mountain Mahogany Shrubland Restoration

University of Wyoming

We are recruiting a Ph.D. graduate student to study ecological genetic and landscape approaches to mountain mahogany shrubland restoration in the labs of Dr. Kristina Hufford and Dr. Pete Stahl at the University of Wyoming. Research will investigate genotype-environment interactions and molecular marker divergence along a latitudinal transect of the mountain mahogany (*Cercocarpus montanus*) range to test predictions for appropriate seed collection zones for restoration.

There will be opportunities for the Ph.D. student to develop novel research directions within the framework of the study program, and we encourage applications from prospective candidates with a background and interest in restoration ecology and population genetics. Evidence of excellent written and communication skills and enthusiasm for field and laboratory research are a plus.

Qualifications for the position include a strong academic record and

an MS degree. The graduate assistantship includes stipend, tuition and research support for 2.5 years and opportunities will exist to apply for additional funding. Enhanced stipend funding may be available for applicants with a minimum GRE score of 1200 (310 under the new scoring system) and GPA 3.0 (BS)/3.3 (MS).

We are interested to fill this position as soon as possible and applications should be received by January 12, 2012 for full consideration. An opportunity to visit the University of Wyoming may be possible during the graduate recruitment period. The position will remain open until filled.

Please send application materials, including a cover letter and copies of transcripts, GRE scores, resume and contact information for 3 references to khufford@uwyo.edu.

Also complete a departmental application at the [website](#).

PhD position: Soil Carbon and Atmospheric N Deposition

Swedish University of Agricultural Sciences, Umeå

I am searching for a PhD student to investigate a range of mechanisms through which atmospheric N deposition may affect soil C sequestration in Swedish boreal forests. Further details about the position can be found on the Swedish University of Agricultural Sciences jobs page ([website](#)). The position will begin in spring or early summer of 2012. Please share this announcement with anybody who may be qualified and interested.

Sincerely, Michael J. Gundale (Michael.Gundale@SVEK.SLU.SE), Dept. of Forest Ecology and Management, Swedish University of Agricultural Sciences, Umeå, Sweden ([website](#)).

PhD in Forest Modeling Complexity

Université du Québec à Montréal

We are looking for a motivated

PhD student to work on a modeling project that investigates the potential tradeoffs between managing forests for efficient provision of goods and services and adaptability in relation to global change factors and in the context of complex adaptive system theory. The project will be coordinated between the Université du Québec à Montréal (UQAM), Oregon State University, and the Swedish University of Agricultural Sciences, Umeå, Sweden; with the student being based at the UQAM, but travelling among the three universities.

Required qualifications include a basic training in forestry, forest ecology, and forest economics and a strong background in quantitative sciences and modeling. To apply or for further information, send a letter of interest outlining your suitability and motivation, a CV, and a list of references to [Klaus Puettmann](#), [Christian Messier](#) or [Jon Moen](#). The candidate's acceptance will depend upon successfully obtaining a scholarship from the Forest Modeling Complexity program ([website](#)).

Graduate Research Assistantship in Fire Ecology

Oklahoma State University

I seek a MS student to research the effects of prescribed burning on ecosystem services of oak forests and savannas of south-central USA. The ecotone between the eastern forest and southern Great Plains has been subjected to anthropogenic burning for thousands of years. Because of recent changes in the fire regime there is growing interest in using prescribed burning to manage forests, savannas and grasslands for maintenance and enhancement of their ecosystem services. A MS student is sought to conduct independent research on prescribed burning effects on ecosystem structure and function. The research will be done within the context of a larger DOD project concerning how to manage the carbon footprint of forests and savannas.

The MS Graduate Research Assistantship (GRA) stipend will be

\$15,500 per year. The GRA will begin in mid-May 2012 and will be renewed for two years provided satisfactory progress in the project. GRAs are offered with tuition waivers. Please contact: Steve Hallgren, Oklahoma State University, 405-744-6805, steve.hallgren@okstate.edu.

Graduate Assistantships in Ecosystem Ecology and Uncertainty Analysis

State University of New York College of Environmental Science and Forestry

Ruth Yanai at the State University of New York College of Environmental Science and Forestry (SUNY-ESF) is recruiting students to start in Fall 2012 or Spring 2013. Preference will be given to those available to start with the 2012 summer field season in the White Mountains of New Hampshire.

Historically, ecosystem nutrient budgets have not included error propagation or reported confidence limits with estimates of elemental stocks and flows. QUEST (Quantifying Uncertainty in Ecosystem Studies) is a research network devoted to promoting the development and application of uncertainty analysis. We have made progress in the areas of forest biomass and stream loads and are also working on wet deposition and change in soil storage. There are research opportunities associated with each of these areas - see [website](#).

In addition to the primary research with QUEST, there are opportunities for secondary involvement in other projects associated with MELNHE (Multi-Element Limitation in Northern Hardwood Ecosystems) in the White Mountains. MELNHE sites are located at Bartlett Experimental Forest, Hubbard Brook Experimental Forest, and Jeffers Brook (USFS) ([website](#)).

Background in ecology, statistics, and programming would be valuable assets. Funding will consist of a combination of research and teaching assistantships (ability to TA in a General Chemistry lab would be

a plus). Please review the websites above and contact Heather Engelman at forestecology@esf.edu if you are interested in applying. While preference will be given to those with the experience listed above, anyone with a sincere interest in the projects is encouraged to apply.

Field Stations

La MICA Biological Station

by JULIE RAY

Panama

Are you looking for an amazing experience this spring? La MICA Biological Station, located in the cloud forest of central Panama, is accepting applicants for our RIO (Research and Inventory Opportunities) Program. The RIO Program offers students, researchers, and other interested people the opportunity to learn valuable research skills in the tropical forest while immersing themselves in the local community. Our project focuses on the conservation of the local environment, history, and culture through education, research, and global outreach while employing a number of Panamanian people in an effort to help the local, impoverished economy.

We offer a discounted rate to participants of the RIO Program and encourage each person to conduct a small project, many of which produce publishable results. This is a fantastic opportunity for anyone considering graduate school or looking to diversify their resume.

Visitors can stay for any length of time. We are especially looking to add some people for this spring, but accept applications for any time. University credit (internships) can be arranged.

Please visit our website at www.lamica.org for more information about our project. Email Dr. Julie Ray at la.mica@yahoo.com to receive a brochure about our RIO Program.

Thank you and we look forward to seeing you in Panama soon!

Courses

No items this issue.

Research Experience

UMaine Summer REU 2012 in Sustainable Forest Bioproducts (Full details [here](#))

Maine & Chile

Summer Undergraduate Research Fellowship in the University of Maine and University of Concepción, Chile.

During the Summer of 2012, the Forest Bioproducts Research Institute offers an opportunity for 10 highly qualified undergraduate students to participate in research for a 10 week period (4th June - 10th August 2012). This research experience is funded by the National Science Foundation. Women, minorities and students with disabilities are strongly urged to apply to the program. Award includes:

- \$5000 stipend + on campus housing provided
- 2 of the 10 students to perform their research in Chile
- Week-long research experience & exchange in Chile for all students
- Opportunity to perform research on pressing global issues relating to sustainable product development and biofuel generation from woody biomass

Eligibility:

- Current undergraduate in sophomore or junior year
- US Citizen or permanent resident
- Must have a valid passport

For more information contact Jessica Sleeth Jsleeth@umche.maine.edu. Rolling deadline to 31st March 2012. Apply online [here](#). For NSF Undergraduate Research Fellowship Applications see [website](#).

Volunteer Tropical Research Assistant

Monteverde, Costa Rica

The work will be monitoring and assessment of reforestation areas at the Cloud Forest School, where students in grades K to 11 have been reforesting abandoned pastures to restore the tropical cloud forest. I am seeking someone to assist with tree measurements, counting seedlings, assessing ground cover, and data entry. The assistant will work with and help mentor high school students on the project. There is also the opportunity to help start large scale monitoring of reforestation. The assistant must have field experience and be able to work independently. Pay is not available at this time. This is an ideal opportunity to develop an independent project or be a co-author on a publication. Spanish speaking skills are helpful. The assistant is needed starting in early to mid-February for two to three months.

Contact Patricia Townsend ptownsen@uw.edu or previous volunteer Michael Perkins (mdperkins77@gmail.com)

B4Warmed

Minnesota

Northern Minnesota is a focal point of potential climate warming impacts because it sits at the transition between boreal and temperate forest biomes. B4WARMED (Boreal Forest Warming at an Ecotone in Danger) is a unique manipulative experiment that warms plants and soil in the field to examine tree seedling and germinant response to warming with respect to physiology, phenology, growth, and survival. For more information on this project please visit [B4WARMED](http://B4WARMED.cfc.cfans.umn.edu) and cfc.cfans.umn.edu.

We seek undergraduate or newly graduated students with a background or interest in biology, ecology, physiology, environmental science, biophysics, forestry, or a related field for paid field research intern-

ships (\$10/hr). Interns are needed primarily from June through August but some workers are needed as early as March and as late as November. Typical work days are eight hours Monday through Friday, however some tasks require early morning, evening, or weekend work. A valid driver's license is required. Personal vehicles helpful but not required; mileage accrued for work purposes will be reimbursed at official UofMN rate.

Responsibilities:

- Biotic and abiotic data collection in field and laboratory settings using high-tech equipment (e.g. Licor 6400 photosynthesis systems)
- Assess physiological traits and phenological events for woody and herbaceous species
- Routine maintenance of field sites, field instruments, and research equipment.
- Aiding principle investigators and graduate students as needed

Desired qualifications:

- Eagerness to work hard in an outdoor setting.
- Capacity to collect data following established protocols
- Familiarity with plant and tree species of northern Minnesota
- Willingness to work well and play well with others
- Curiosity and passion for the natural world

Field work will be split between research sites at the Cloquet Forestry Center in Cloquet, MN (cfc.cfans.umn.edu) and the Hubachek Wilderness Research Center near Ely, MN. Both research sites are in beautiful forested settings and provide access to the natural areas of northern Minnesota including the Boundary Waters Canoe Area Wilderness. Travel between sites will be

necessary. An individual's home base may be at either of these locations. On-site housing with cooking facilities is available for a small fee.

Please send cover letter (including available working dates), one-page resume, and contact information for two references electronically to Karen Rice (kerice@umn.edu).

Research Experience for Undergraduates

Costa Rica

Texas A&M University is again hosting a Research Experience for Undergraduates (REU) site funded by the National Science Foundation for 10 undergraduate students to conduct cutting-edge research in a transitional cloud forest in central Costa Rica. Specifically, the REU site provides a unique international opportunity for students to be immersed in the practice of active inquiry and research in:

- Ecohydrology: feedback between forest vegetation and hydrology from the scale of an individual leaf to the entire stand
- Hydrology: movement and distribution of water through the forest from above-canopy precipitation and cloud immersion, to stream and groundwater flow
- Meteorology and climatology: spatial and temporal variation in precipitation, evapotranspiration and boundary layer structure from the scale of an individual stand to the entire watershed
- Soil Science: structure and geochemistry of forest soils
- Biogeography: distribution and structure of forest vegetation at various scales in the watershed

Successful applicants will receive an all-expenses-paid trip to Costa Rica in addition to a \$500 a week stipend. Further information about

the program can be found [here](#) and a description of the Soltis Center for Research and Education in Costa Rica can be found at [here](#).

Please advertise this study abroad research opportunity to your undergraduate students. The program requires students to be US citizens or permanent residents. The application deadline is January 31, 2012.

Field Research Assistant - Immediate Start

STRI, Panama

Tropical forest ecosystems have been found to be undergoing widespread changes. Of particular concern is the increasing dominance of lianas (woody climbing vines). I am investigating whether increasing

CO₂ is a viable explanation for increasing liana dominance and, if so, through what mechanism CO₂ favors lianas over trees. The study is being conducted at the Smithsonian Tropical Research Institute (STRI) in Panama. Liana and tree species are growing in open-top plant growth chambers and exposed to elevated levels of CO₂.

Research assistant will have the opportunity to work closely with a PhD student to carry out a major research project. You will learn the design and operation of an elevated CO₂ growth chamber array, including instrumentation to measure CO₂ levels and the photosynthetic activity of plants. Other duties may include plant identification and collection, caring for seedlings, measurement of plant traits, and data collec-

tion/entry. This is a volunteer position intended for persons looking to gain field and research experience. Motivated students intending to apply to graduate school programs may have an opportunity to develop a research fellowship proposal in conjunction with the project.

Qualifications: ability to work long days in the field under tropical conditions (intense heat, rain, sun, biting/stinging insects), and a background in biology and/or ecology. Spanish language proficiency is preferred but not required. Positions start immediately and will run to the end of April 2012.

Please send cover letter (including earliest start date) and resume (with references) to Dave Marvin (marvs@umich.edu) or visit [website](#) for more information.

Dates for the Diary

2012

- **26-28 January** *Strategies for Landscape-Scale Restoration in the Tropics* New Haven, CT ([website](#))
- **22-25 February** *gtö: Islands in Land and Seascape: The Challenges of Fragmentation* Erlangen, Germany ([website](#))
- **24-27 March** ATBC Asia-Pacific Chapter: *Understanding and Mitigating the Impacts of Global Change in Tropical Asia* XTBG, Yunnan, China ([website](#))
- **3-4 April** SAC & SEPA: *Valuing Ecosystems: Policy, Economic and Management Interactions* Edinburgh, UK ([website](#))
- **22-27 April** EGU: *Biogeochemistry of Boreal Forest Soils* Vienna, Austria ([website](#))
- **9-12 May** TRACE2012, Potsdam & Eberswalde, Germany ([website](#))
- **19-22 June** ATBC: *Ecology, Evolution and Sustainable Use of Tropical Biodiversity* Bonito, Brazil ([website](#))
- **5-10 August** ESA Annual Meeting: *Life on Earth: Preserving, Utilizing, and Sustaining Our Ecosystems* Portland, Oregon, USA ([website](#))
- **28-31 August** IUFRO: *Biodiversity in Forest Ecosystems and Landscapes* Cork, Eire ([website](#))
- **5-7 September** UKEconet: *Trees Beyond The Wood* Sheffield, UK ([website](#))
- **11-14 September** ForestSAT2012, Corvallis, OR ([website](#))
- **8-11 October** IUFRO2012: *Managing Forests for Ecosystem Services; Can Spruce Forests Show the Way?* Edinburgh, UK ([website](#))
- **18-20 December** BES Annual Meeting, Birmingham, UK

2013

- **18-23 August** INTECOL 11: *Ecology: Into the Next 100 Years* London, UK ([website](#))