



NRES WEEKLY NEWS

March 2, 2007

A newsletter for faculty, staff and students
who participate in the
Natural Resources & Environmental Studies Institute
and **NRES Graduate Programs**

NRESI RESEARCH COLLOQUIUM SERIES

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Applications of tree-ring analysis to understanding forest insect dynamics

Dendrochronology is a technique that provides a natural way to record environmental processes and human behavior. Because the tree becomes the instrument for environmental monitoring, it provides a long-term record that extends for the lifetime of the trees. Dendrochronology can provide records of past temperature, rainfall, fire, insect outbreaks, landslides, hurricanes, and ice storms to name a few applications. Trees record any environmental factor that directly or indirectly limits a process that affects the growth of the tree. It has broad applications in ecology and I will specifically be talking about its use in recording insect outbreaks and determining the effect of insects on tree growth in general. The first example that I will present will be a 1571-year reconstruction of pandora moth outbreaks, a defoliating insect, from ponderosa pine trees growing in Oregon. The second example will be examining the effects of periodical cicadas, a root parasite, on tree growth in the Eastern Deciduous Forest. By comparing multiple tree ring records I have been able to determine that pandora moth outbreaks seem to reduce fire occurrence, have a 20 and 40 year cycle of outbreaks, and are likely triggered by drought, but maintained by moist years. Cicadas have little overall effect on tree growth, but they do effect sites with heavy insect loads and may be significant in nutrient cycling.

Friday, March 2, 2007
3:30 pm — 4:30 pm
Lecture Theatre 7-158

Light Refreshments served at 3:20 pm

★★★
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 ★ **CONGRATULATIONS to Matthew Klingenberg** in the Aukema lab, who was recently awarded a
 ★ Pacific Forestry Centre Graduate Scholarship. Way to go Matt!
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 ★★★

REMINDER: Share your information about recent publications, grants, and /or other honours you may have received with others interested in NRES issues.

PLEASE EMAIL ALL INFORMATION AND MATERIAL to
Elissa Zemplak: zemplak@unbc.ca

We're on the web at: www.unbc.ca/nres/newsletter

WELCOME

Neil Williams has joined UNBC as a post-doctoral fellow working with **Ellen Petticrew** and **Phil Owens**. He will be involved in terrestrial and aquatic research at the Quesnel River Research Centre. He is located in Rm 8-361 and can be contacted at 6739.

TRAVEL

Brian Aukema and his students **Matthew Klingenberg** and **Honey Giroday** are traveling to the Western Forest Insect Work Conference March 5-9 in Boise, Idaho (along with **Dezene Huber** and his students **Erin Clarke** and **Daniel Ott**). Each will be giving presentations. **Staffan Lindgren**, **Mike Gillingham**, and adjunct **Allan Carroll** are among the coauthors.

Gail Fondahl is traveling to Alta, Norway next week, to give a keynote address and a session paper at the Borealis Conference, 'Building Capacity for Sustainable Places in the Circumpolar North'. Her talks are on community-university research partnerships and their role in building community capacity. On the return trip she'll detour to Abbotsford, to meet colleagues and students at the Western Division of the Canadian Association of Geographers annual meeting.

Paul Sanborn was in Ottawa February 19-22 to work with staff scientists at Agriculture Canada and the Geological Survey of Canada on northern soils research projects.

Kathy Lewis and **Doug Thompson** attended the "Complex Stands Research and Management Conference" held in Smithers, B.C. The conference was hosted by the Bulkley Valley Centre for Natural Resources Research and Management. Doug presented some recent work that involved dendroecological methods:

Thompson, R.D. and Lewis, K.J. Relationship between 2-year cycle budworm, spruce beetle and western balsam bark beetle: Dendroecological evidence from the central interior of British Columbia.

Mike Gillingham will be giving a seminar in the Life Sciences Seminar Series at the University of Alaska Fairbanks on Friday March 2nd. The seminar and his travel were sponsored by the Institute of Arctic Biology and the Department of Biology and Wildlife. Mike's presentation is entitled "Using Forest Structure to Monitor Vertebrate Diversity".

PUBLICATIONS

Rea, R.V. and **D.P. Hodder**. 2007. Improving a field school curriculum using modularized lessons and authentic case-based learning. *Journal of Natural Resources and Life Science Education*. 36: 11-18.

N.D. Williams, D.E. Walling, G.J.L. Leeks. (2007) High temporal resolution in situ measurement of the effective particle size characteristics of fluvial suspended sediment. *Water Research*, 41:1081 – 1093.

Petticrew, E.L., P.N. Owens and **T.R. Giles**. (2006) Wildfire effects on the quality and composition of suspended and gravel-stored sediments. *Water Air and Soil Pollution: Focus*, 6: 647-656.

Owens, P.N., W.H. Blake and **E.L. Petticrew**. (2006) Changes in sediment sources following wildfire in mountainous terrain: a paired-catchment approach, British Columbia, Canada. *Water Air and Soil Pollution: Focus*, 6: 637-645.

Erik Schiefer, Brian Menounos, and **Olav Slaymaker**, 2006. Extreme sediment delivery events recorded in the contemporary sediment record of a montane lake, southern Coast Mountains, British Columbia. *Canadian Journal of Earth Sciences* 43: 1777-1790.

Gerald Osborn, Brian Menounos, Johannes Koch, John J. Clague and **Vanessa Vallis**, Multi-proxy record of Holocene glacial history of the Spearhead and Fitzsimmons ranges, southern Coast Mountains, British Columbia, *Quaternary Science Reviews*, Volume 26, Issues 3-4, February 2007, Pages 479-493.