

Title Professor

First Name Barbara

9/10/2007

Middle Name

Permission date

Last Name Bond

Photo



Institution OSU

Department Forest Science

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Website

Research Fields

- Atmospheric chemistry
- Biogeochemistry
- Carbon Footprint Analysis
- Climatology
- Community & Disaster Planning
- Data Analysis & Statistical Modeling
- Ecology & Ecosystem Management
- Economics
- Energy policy & technology
- Ethics
- Fire
- Forestry & Forest Management
- Geographic Information Systems
- Horticulture
- Human Impacts - economics
- Human Impacts - health
- Human Impacts - policy
- Hydrology
- Impacts - agriculture & horticulture
- Impacts - ecosystems, populations
- Impacts - physical
- Instrumentation
- Mitigation Policy
- Modeling Climate
- Modeling Ecosystems
- Modeling Socioeconomic Processes
- Natural Resource Policy & Planning
- Outreach & Engagement
- Paleoclimatology
- Paleoecology
- Physical Ecology
- Physiological Ecology
- Urban Ecology
- Water Policy & Planning
- Other...

Specific Research Interests

My research centers on physiological processes of trees (especially water and carbon relations) at the whole-tree and ecosystem scales. I am interested in using and developing methods that are appropriate for integrating physiological process over relatively large temporal and spatial scales, such as stable isotope analysis, sensor networks, remote sensing, and process models.

Projects

Developing techniques to use stable isotopes of C in respired CO₂ as an indicator of ecosystem function in complex terrain; Interactions between mountainous terrain and climate variability on water and carbon fluxes of forest stands; Impacts of exotic plantations on water resources in Patagonia; Hydraulic limitations to growth in aging trees; effects of stand age of Douglas-fir/western hemlock forests on stand-level water and carbon fluxes; genetic vs. environmental controls over aging processes in conifers

Selected Recent Publications

(complete list with hyperlinks to pdf's at <http://www.fsl.orst.edu/~bond/publications>)

Pypker, T.G., M.H. Unsworth, B. Lamb, E. Allwine, S. Edburg, E. Sulzman, A.C. Mix and B.J. Bond. 2007. Cold air drainage in a forested valley: Investigating the feasibility of monitoring ecosystem metabolism. *Ag. For. Met.* In Press.

Bond, B.J., N. Czarnomski, C. Cooper, M.E. Day, M.S. Greenwood. 2007. Developmental decline in height growth in Douglas-fir. *Tree Physiology* 27:441-453.

Pypker, T.G., M.H. Unsworth, A.C. Mix, W. Rugh, T. Ocheltree, K. Alstad and B.J. Bond. 2007. Using nocturnal cold air drainage flow to monitor ecosystem processes in complex terrain: a pilot study on the carbon isotopic composition and advection of ecosystem respiration. *Ecological Applications* 17(3):702-714.

Ryan, M.G., N. Phillips and B.J. Bond. 2006. The hydraulic limitation hypothesis revisited. *Plant, Cell and Environment* 29:367-381.

Pypker, T.G., M. Unsworth and B.J. Bond. 2006. The role of epiphytes in rainfall interception by forests in the Pacific Northwest: Field measurements at the branch and canopy scale. *Canadian Journal of Forest Research*. 36(4): 819-832.

McDowell, Nate G., J. Licata and B.J. Bond. 2005. Environmental sensitivity of gas exchange in different-sized trees. *Oecologia* doi:10/1007/S00442-005-0104-6.

Pypker, T. G., B.J. Bond, T.E. Link, D. Marks and M.H. Unsworth. 2005. The importance of canopy structure in controlling the interception loss of rainfall: examples from a young and an old-growth Douglas-fir forest. *Ag. and For. Met.* 130:113-129.

Unsworth, M., N. Phillips, T. Link, B.J. Bond, M. Falk, M. Harmon, T. Hinckley, D. Marks, K.T. Paw U. 2004. Components and controls of water flux in an old-growth Douglas-fir / western hemlock ecosystem. *Ecosystems* 7(5):468-481.

Professional Activities

- Lead P.I. of the Andrews LTER Program (H.J. Andrews Experimental Forest) (2006-2007)
- NEON National Design Team (2005-2006)
- Teach FS561 – “Physiology of Woody Plants” – a 3 credit graduate course

- Fulbright visiting professor in Environmental Science – Argentina and Uruguay (2001-2002)