Evan T. Pugh

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OBJECTIVES

Short-term: Ph.D in Forest Snow Hydrology, focusing on the impacts of vegetation cover change on snow processes

Long-term: Research or academic position studying hydrology/ecology in the western U.S.

EDUCATION

University of Colorado at Boulder, Boulder, CO
Doctorate, Geological Sciences, and Hydrologic Science Certificate, expected Aug 2012
Dissertation: "The impacts of pine beetle-induced tree death on snow accumulation and melt"

Haverford College, Haverford, PA
Bachelor of Arts, May 2007 Major: Geology
Thesis: "Effects of biological activity and precipitation on stormwater retention basin water chemistry in Bryn Mawr, PA"

Pennsylvania Governor's School for Excellence, Philadelphia, PA
Certificate, July – August 2002 Subject: Information, Society, and Technology

RESEARCH EXPERIENCE

Graduate Research Assistant, Univ. of Colorado, Boulder, CO June 2007-present

- Designed and implemented snow hydrology field studies
- Modeled long term hydrologic impacts of changing forest landscapes using computational models
- Presented results at regional & national meetings and authored scientific papers

Mountain Pine Beetle Working Group, Boulder, CO Sept. 2009-present

- Established and ran quarterly meetings to bring together biologists, geographers, hydrologists, and policy analysts with the goal of diversifying understanding of bark beetle-related topics

Undergraduate Research Fellow, Bryn Mawr College, Bryn Mawr, PA Summers 2005 & 2006

- Established a digital data repository website for environmental sciences research and allowing users to upload/download data in various formats
- Created an automated environmental monitoring network on Bryn Mawr's campus
- Learned and applied scientific field techniques for structural geology and stream hydrology research projects
- Designed a thesis project investigating diurnal and seasonal water chemistry fluctuations in a stormwater retention basin

TEACHING EXPERIENCE

Teaching Assistant, Univ. of Colorado, Boulder, CO (20 hours/wk) Aug. 2007-present

- Organized and led weekly labs and field trips for the "Introductory Geology Lab". Taught mineral/rock identification, orienteering, hydrology, fundamentals.
- Helped teach introductory and advanced spatial analysis techniques for "GIS for Geologists" coursework

- Led field trips and held office hours for an upper-level Hydrogeology course. Assisted in teaching fundamentals of subsurface water flow and site characterization

Snow Hydrology Internship Mentor, Univ. of Colorado, Boulder, CO Jan. – May, 2009-2010

- Created and led a one-credit field course to teach hands-on snow hydrology methods to undergraduate geology and environmental studies students

WEB DESIGN AND PROGRAMMING EXPERIENCE

Web and Database Designer, Western Water Assessment May – Sept., 2010

- Developed database product for report, "2011 Colorado Climate Preparedness Project" (http://www.coloadaptationprofile.org)
- Collaborated with policy analysts and decision-makers to determine project feasibility and scope

Digital Librarian, Haverford College Libraries, Haverford, PA Oct. – May, 2005-2007

- Developed websites and data repositories to aid in the dissemination of library special collections

COMPUTER SKILLS

Web Design and Server Administration
HTML/CSS
PHP/MySQL
JavaScript
XML
Apache

Programming & Modeling
PHP
MatLab
C++
FORTRAN
NOAH-MP, CLASS, SNOCAN

Graphic Design
Adobe Illustrator
Adobe Photoshop
SigmaPlot

Spatial and Statistic Analysis
ArcGIS
ENVI
AutoCAD
SAS JMP

FIELD AND LAB SKILLS

Field Techniques
Snow Measurement
Hemispherical Photography
Tree Census
Forest Biometeorology
Stream Characterization
Flow Measurement

Lab Techniques
Ion Chromatograph
Volumetric/Gravimetric Analysis

Datalogging and Instrumentation
Campbell Scientific/HOBO:

Precipitation	Snow Depth
Wind	Solar Radiation
Albedo	Temperature
Humidity	

RELEVANT COURSEWORK

Hydrology & Water Policy
- Surface Hydrology
- Snow Hydrology
- Water Resource Management in the western US
- Environmental Aqueous Geochemistry
- Fluvial Geomorphology

GIS, Statistics & Mathematics
- Remote Sensing
- GIS & GIS Modeling Applications
- Differential Equations and Linear Algebra
- Fundamental Ecological Statistics

Other Physical Geography
- Sedimentary Processes
- Quaternary Geology
- Mountain Climatology
- Glaciology

Geology
- Geomechanics
- Structural Geology
- Tectonics
- Mineral Petrology

Ecology & Biology
- Forest Ecology
- Applied Stream Ecology
- Paleobiology

AWARDS AND FELLOWSHIPS

Bruce Curtis Graduate Fellowship (2011; 2012)
W.O. Thompson Grant for Graduate Research (2011)
Jeffrey A. Deen Memorial Scholarship for Outstanding Graduate Students (2009)
Bryn Mawr College Summer Science Research Fellowship (2005; 2006)
Alma Newlin Educational Scholarship (2003)
Eagle Scout Award (2003)

PUBLICATIONS

Refereed

Pugh E.T. and Gordon E.S. (2012), A conceptual model of water yield impacts from beetle-induced tree death in snow-dominated lodgepole pine forests. *Hydrological Processes*. doi: 10.1002/hyp.9312

Pugh, E.T. and Small, E.E. (2011), The impact of pine beetle infestation on snow accumulation and melt in the headwaters of the Colorado River. *Ecohydrology*. doi: 10.1002/eco.239

In Review

Perrot D.O., Molotch N.P., Musselman, K.N., and Pugh E.T. Modeling the effects of the Mountain Pine Beetle on snowmelt in a subalpine forest, *Ecohydrology*, submitted April 2012.

Pugh E.T. and Small E.E. The impact of beetle-induced conifer death on stand-scale canopy snow interception, *Hydrology Research*, submitted May 2012.

In Preparation

Trahan N.A., Monson R.K., and Pugh E.T. Changes in soil microclimate and biogeochemical pools following mechanical girdling and mountain pine beetle disturbance in two Colorado subalpine forests, in prep.

Buma B., Pugh E.T., and Wessman C.A. Effect of a major insect outbreak on phonological and LAI trends in southern Rocky Mountain forests, *Remote Sensing of Environment*, in prep.

Pugh E.T. and Small E.E. The effects of weather on subcanopy snowmelt timing following tree death, in prep.

Brayden B., Trahan N.A., and Pugh E.T. Lodgepole pine growth response following pine beetle infestation, in prep.

Perrot D.O., Pugh E.T., Deems J.S., Molotch N.P., Small E.E. Effects of forest litter and aeolian dust deposition on snow surface albedo, in prep.

SELECTED PRESENTATIONS

"Understanding Impacts of Beetle Infestation on Forest Water and Energy Budgets" at the Utah Bark Beetles and Watersheds Workshop: Impacts on the Hydrologic Cycle and Water Quality, Western Water Assessment and the USFS Intermountain Region and Rocky Mountain Research Station, 12/1/2011 - Salt Lake City, UT.

“The Impacts of Tree Death on Snow Accumulation and Melt in the Headwaters of the Colorado River” at the MPB Science Symposium: Impacts on the Hydrologic Cycle and Water Quality - What Have We Learned?, Western Water Assessment, 4/25/2011 - Boulder, CO.

COMMITTEE INVOLVEMENT

Hydrologic Sciences Student Symposium Planning Committee, University of Colorado (2012)

PROFESSIONAL MEMBERSHIPS

American Geophysical Union (2007 – present)