Annette Trierweiler

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Home Address
918 Roberts St
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Campus Address
Department of Biological Sciences
100 Galvin Life Science Center
University of Notre Dame
Notre Dame, IN 46556

EDUCATION

Princeton University, Princeton, NJ
Doctor of Philosophy in Ecology and Evolutionary Biology, January 2016
How rising CO_2 influences nutrient interaction to control tropical N_2-fixation
Adviser: Lars Hedin
Committee: Henry Horn, Stephen Pacala, and Daniel Sigman

The Ohio State University, Columbus, OH
Masters of Science in Geological Science, August 2010
The Role of Landsliding in Fluvial Carbon Transport
Adviser: Anne Carey
Committee: Berry Lyons, Andrea Grottoli, and Carla Resptrepo
GPA: 3.669

Furman University, Greenville, SC
Bachelor of Science, Biology and Earth and Environmental Science, May 2008
GPA 3.784 Biology: GPA 3.80 Environmental Science: GPA 3.80
magna cum laude

Financed 40% of undergraduate education through work and scholarships.

Study Abroad and Field Courses:

Tropical Ecology, Osa Peninsula, Costa Rica 2011.
Field Camp Ephraim, Utah- Summer 2008, field coursework in geological mapping
South Africa and Belize- Winter Term 2007, study abroad program with coursework in African Ecology and Marine Biology
Hermosa, New Mexico- Fall 2005, extensive field biology coursework in ecology, field zoology, and natural resource management

ACADEMIC / RESEARCH INTERESTS

Ecosystem ecology; tropical forest modeling; biogeochemical cycling of carbon, nitrogen, and phosphorous; climate change; nitrogen fixation

TEACHING EXPERIENCE AND TRAINING

Instructor and co-developer of Woody Plants (BIO202) at East Jersey State Prison (Spring, Fall terms 2015), Course is accredited through Mercer County Community College
Laboratory Instructor for Introduction to Environmental Science (2015)
Princeton Teaching Certificate Program (2010-present)
Teagle Teaching Seminar (2014-2015)
Term Paper Grader for Ecology and Evolution of Immune Systems (2014)
Assistant Instructor for upper level course on Ecosystems and Climate Change, Princeton (2012-2013)
Assistant Instructor for Introductory course on Biology, Princeton (2010-2011)
Assistant Instructor training at Princeton (2010) and Ohio State University (2008)

RESEARCH AND INTERNSHIPS

Post-Doctorial Research Associate, Princeton University February, 2016-present
- Improving belowground processes and nutrient acquisition in the Ecosystem Demography model (ED2) model for dry tropical forests.
- Adviser: David Medvigy

Doctorial Dissertation Research, Princeton University August, 2010-present
- Researching geologic controls on tropical nitrogen fixation under increasing atmospheric

CO_2
- Conducted greenhouse and field fertilization experiments in Panama, created advanced statistical models from long-term field fertilization data, and obtaining novel Mo concentration and isotopic measurements across the Amazon Basin
- Supervised three undergraduate students in an internship and senior theses in Panama
- Funded by NSF Graduate Research Fellowship Program, NSF Doctorial Dissertation Improvement Grant, Smithsonian Tropical Research Institute Short-term fellowship, and Walbridge Fund

Masters Thesis Research, Ohio State University August, 2008- 2010
- Researching the role of landsliding and land-use change (deforestation) on carbon and nutrient export from affected sub-watersheds
- Supervised an undergraduate student for a month collecting water, sediment and rock samples in the Sierra de las Minas, Guatemala (June-July, 2009).
- Funded by NSF SGER #0909271 and NSF Graduate Research Fellowship Program

Research Experience in Carbon Sequestration, Albuquerque, NM July, 2009
- Short course sponsored by the Department of Energy on Carbon Capture and Storage at the University of New Mexico.

River Basin Research Initiative, Furman University June, 2007 - May, 2008
- Funded through a Furman Advantage Research Fellowship
- Built water and nutrient budget (for C and N) for Furman Lake, Greenville SC for senior thesis which contributed to the lake's Restoration project

River Basin Research Initiative, Greenville, SC June, 2006 - August, 2006
http://ees.furman.edu/research/rbri/rbri.html
- Funded by the National Science Foundation as a Research Experience for Undergraduates
- Collected water chemistry samples in streams to study the impact of urbanization on stream headwaters.

Coweeta Hydrologic Laboratory, Otto, NC June, 2005 - August, 2005
http://coweeta.ecology.uga.edu/
Internship
- Conducted research and performed data analysis, giving me a good perspective on scientific methodologies
- Assisted graduate students with their research on the weekends
- Presented summer research at the end of the summer on effects of prescribed burning on vegetation in mesic and dry forests at Roach Mill

Center for Earth and Environmental Science, IUPUI Indianapolis, IN 2000 - 2004
http://www.cees.iupui.edu/
- Worked with a research scientist on zooplankton-phytoplankton interactions in Eagle Creek Reservoir in Indianapolis, Indiana

FUNDING

2014
- Doctorial Dissertation Improvement Grant, $12,000 for PhD research on the biogeochemical controls of phosphorus and molybdenum across the Amazon Basin

2013
- Sigma Xi, $400 for PhD research on climate change in the tropics

2012
- Walbridge Fund, $6,000 for PhD research on climate change in the tropics

2011
- Smithsonian Tropical Research Institute Short-Term Fellowship $4,000 for research in Panama and $1,200 for living expenses

2009
- Nation Science Foundation Graduate Research Fellowship, 2009-2014

2003

- Research grant from the Indiana Academy of Science, $360 for high school research

AWARDS AND HONORS

- Princeton Energy and Climate Scholars, 2012-2014, an interdisciplinary discussion group that does community outreach and a service project related to climate and energy, you must apply to be a part of this group.
- First Year Princeton Fellowship, 2010-2011
- Nation Science Foundation Graduate Research Fellowship, 2009-2014
- Distinguished 1st year Graduate Student "Estwing Award", 2009, Departmental award at Ohio State University
- Ohio State University Fellowship, 2008-2009
- Lois Jones Fellowship, Summer 2008, Ohio State University Award for Women in Geology
- Dean's List all twelve semesters at Furman University
- Phi Beta Kappa, 2008
- Wallace C. Fallaw Outstanding Senior Award in Earth and Environmental Sciences at Furman University, 2008
- Distinguished Research Award in Biology, 2008
- Who's Who Among Students in American Universities and Colleges, 2008
- Omicron Delta Kappa, 2007, national leadership honor society
- Carolina Foothills Garden Club Award 2005, 2006, and 2007.
- American Mineralogist Undergraduate Award, 2007
- Honorable Mention for Morris K. Udall Scholarship, 2007
- Beta Beta Beta Service Award, 2007
- Phi Eta Sigma Freshman Honor Society, 2005
- Nora Mullens Biology Award for outstanding work as Freshman biology student
- Furman University Achiever's and Honors Scholarships, 2004-2008
- Intel International Science and Engineering Fair, May 2004, Fourth Award in Environmental Science

PUBLICATIONS

Trierweiler, A.M., K. Winter, and L.O. Hedin. *In Prep*. Response of tropical N_2-fixing trees to rising CO_2 depends on phosphorus and molybdenum.

Trierweiler, A.M., S.J. Wright, K. Winter, and L.O. Hedin. *In Prep*. Disproportionate response of N_2-fixing trees to limiting nutrients in a lowland tropical forest.

Trierweiler, A.M., C. Restrepo, C. Mondro, S. A. Welch, and A. E. Carey. *In Prep*. The effect of landslide disturbance on weathering, CO_2 consumption, and fluvial chemical yields. Water Resource Research.

Trierweiler, A.M., C. Restrepo, S. A. Welch, and A. E. Carey. *Submitted*. The effect of landslide disturbance and watershed scale on fluvial chemical yields. Water Resource Research.

Allen, K., J.M. Dupuy, M.G. Gei, C.M. Hulshof, D. Medvigy, C. Pizano, B. Salgado-Negret, C.M. Smith, **A. Trierweiler**, S.J. Van Bloem, B.G. Waring, X. Xu, J.S. Powers (corresponding author). Will seasonally dry tropical forests be sensitive or resistant to future changes in rainfall regimes? *In Review*, Environmental Research Letters.

C. Chou, J. Jhaveri, J. Baldwin, P. Hannam, K. Keller, W. Peng, S. Rabin, A. Ravikumar, **A. Trierweiler**, T. Wang, and R. Socolow. *2016*. Nuclear Fusion as an energy source. Andlinger Center for Energy and the Environment.

McAdams, B.C., **A.M.Trierweiler**, S. A. Welch, C. Restrepo, and A. E. Carey. 2015. Two sides to every range: Orographic influences on CO_2 consumption by silicate weathering. Applied Geochemistry, doi:10.1016/j.apgeochem.2015.04.010.

Goldsmith, S. T., **A.M. Trierweiler,** S.A. Welch, A.M. Bancroft, J.M. Von Bargen, and A.E. Carey. 2013. Transforming a University Tradition Into a Geoscience Teaching and Learning Opportunity for the University Community. Journal of Geoscience Education, 61(3), 280-290.

Fortner, S.K., B.G. Mark, J. McKenzie, J. Bury, **A.M. Trierweiler**, and M. Baraer. 2011. Elevated stream trace and minor element concentrations in a tropical proglacial stream. Applied Geochemistry.

Trierweiler, A.M., and D. L. Pascual. 2007. Zooplankton growth response to the cyanobacteria *Microcystis* and *Anabaena* in Eagle Creek Reservoir, IN. Proceedings of the Indiana Academy of Science 116:173-183.

Words of War: Wartime memories from the American Revolution through the Iraq War-Vol. II Transcribing author and editor (2004)

PRESENTATIONS And ABSTRACTS

A.M. Trierweiler, J. Pett-Ridge, E. A. King, C. A. Quesada, J. Lloyd, L.O. Hedin. Biogeochemical controls of Mo and P availability and forest nutrient dynamics across the Amazon Basin. Ecological Society of America Annual Meeting, Ft. Lauderdale, August 7-12th 2016, Oral presentation.

A.M. Trierweiler, X. Xu, D. Medvigy. 2016 The role of N_2-fxating legumes in neotropical dry forests: insights from ecosystem modeling. Association of Tropical Biology and Conservation, Montpellier, France, June 19-23rd 2016, Oral presentation.

A.M. Trierweiler, X. Xu, C. Zarakas, and D. Medvigy. 2016. Incorporating P acquisition strategies into ED2 model to enhance the representation of tropical dry forests. INTERFACE Workshop *Phosphorus Cycling in Terrestrial Ecosystems*. Townsend, TN. May 23-25th 2016. Poster presentation.

A.M. Trierweiler, C. A. Quesada, J. Lloyd, L.O. Hedin. 2015. Biogeochemical controls of Mo and P availability for N_2-fixing trees across the Amazon Basin. Ecological Society of America Annual Meeting, Baltimore, August 9-14th 2015, Oral presentation.

Howell, N., **A.M. Trierweiler**, S.A. Batterman, M. Schumer, J. Knapp, K. Volzing, K. Uyehara, J. Carey, and B. Jonsson. Woody Plants class as an introduction to lab science for incarcerated students. Ecological Society of America Annual Meeting, Baltimore, August 9-14th 2015, Oral presentation.

Trierweiler, A.M., K. Winter, S. J. Wright, C. A. Quesada, J. Lloyd, L.O. Hedin. 2015. P and Mo limitation of nitrogen fixing trees are controlled by soil properties, light availability, and CO_2. Association of Tropical Biology and Conservation, Honolulu, July 12-17th 2015, Oral presentation.

Trierweiler, A.M., S.J. Wright, K. Winter, and L. Hedin. 2015. Nutrients and light limit biomass growth of N2-fixing but not non-fixing trees in tropical forests after 15 years of fertilization. European Geophysical Union General Assembly, Vienna, Austria, April 12-17th, oral presentation.

Trierweiler, A.M., S.J. Wright, and L. Hedin. 2014. Nutrients and light limit biomass growth of N_2-fixing but not non-fixing trees in tropical forests. Ecological Society of America, Sacramento, August 10-15th 2014, oral presentation.

Trierweiler, A.M., K. Winter, S.J. Wright, N. Wurzburger, and L. Hedin. 2013. Will rising CO2 influence how nutrients interact to control tropical N_2-fixation? American Geophysical Union Annual Meeting, San Francisco, December 9-13th 2013, poster.

McAdams, B.C., **A.M. Trierweiler,** A. Portier, S.A. Welch, C. Restrepo, A.E. Carey. 2013. Two sides of every range: Orographic influences on chemical weathering. Geological Society of America Annual Meeting, Denver, October27-30th 2013, oral presentation.

Trierweiler, A., K. Winter, N. Wurzburger, and L. Hedin. 2013. Will Tropical symbiotic nitrogen fixers face increasing P and Mo limitation with CO2 fertilization? Ecological Society of America, Minneapolis, August 4-9th 2013, oral presentation.

Trierweiler, A. M., K. Winter, L. Hedin. 2012. The response of tropical symbiotic nitrogen fixation to P and Mo limitations under pre industrial, present day, and elevated CO2 levels.

Princeton Research Symposium.

Trierweiler, A. M., C. A. Mondro, C. Restrepo, and A. E. Carey. 2010. Landslide disturbance and scale in watershed studies of fluvial carbon and nutrient yields. Geological Society of America Abstracts with Programs, Annual Meeting. (http://gsa.confex.com/gsa/2010AM/finalprogram/abstract_176985.htm)

Trierweiler, A. M., C. A. Mondro, A. E. Carey, S. A. Welch, C. Restrepo. 2010. Carbon and nutrient export dynamics in small mountainous watersheds prone to landsliding. Goldschmidt International Geochemical Conference.

Mondro, C. A., S.T. Goldsmith, A.E. Carey, **A.M. Trierweiler**, B.M. Johnson, and S.A. Welch. 2009. Transport of dissolved organic carbon in mountainous rivers of Dominica, Lesser Antilles. Geological Society of America Abstracts with Programs, Annual Meeting. (http://gsa.confex.com/gsa/2009AM/finalprogram/session_23845.htm)

Trierweiler, A. M., C. A. Mondro, A. E. Carey, S. A. Welch, C. Restrepo. 2009. Carbon and nutrient export dynamics in small mountainous watersheds prone to landsliding. Geological Society of America Abstracts with Programs, Annual Meeting. (http://gsa.confex.com/gsa/2009AM/finalprogram/abstract_165737.htm)

Goldsmith, S.T., S.A. Welch, A.M. **Trierweiler**, J.M. Von Bargen, C.A. Mondro, J.E. Stutz, and A.E. Carey. Periodic anthropogenic bioturbation of a small urban pond. Geological Society of America Abstracts with Programs, Annual Meeting. (http://gsa.confex.com/gsa/2009AM/finalprogram/abstract_165542.htm)

Moore, C., W. R. Dripps, and **A.M. Trierweiler**. 2008. Quantifying hydrologic fluxes to a small impounded piedmont lake, Greenville, South Carolina, Geological Society of America Abstracts with Programs, Southeastern Sectional Meeting (http://gsa.confex.com/gsa/2008SE/finalprogram/abstract_136545.htm)

Trierweiler, A.M., C. Fairley, W. Ranson and F. Powell. 2008. Assessing the Eco-Cottage legacy at Furman University. Association for the Advancement of Sustainability in Higher Education Conference.

Trierweiler, A.M., R. Lyerly, and W. Ranson. 2008. Using tire pressure checks to educate students about fuel efficiency, car maintenance and safety. Association for the Advancement of Sustainability in Higher Education Conference.

Trierweiler, A. M., C. Moore, G. P. Lewis, C. B. Andersen, and W. R. Dripps. 2008. Biogeochemistry of an artificial impoundment in the upper Piedmont of South Carolina, Geological Society of America Abstracts with Programs, Southeastern Sectional Meeting (http://gsa.confex.com/gsa/2008SE/finalprogram/abstract_136854.htm)

Trierweiler, A.M., and T. Perry. 2008. Using GIS to characterize cougar (*Puma concolor*) movement and activity for management and conservation, Abstract for Association Southeastern Biologists Spring Meeting.

Trierweiler, A.M., S. Pang, C. B. Andersen, and G. P. Lewis. 2007. Spatial variation of dissolved nitrogen in the headwaters of the highly urbanized Brushy Creek watershed, South Carolina. Geological Society of America Abstracts with Programs, Southeastern Sectional Meeting, v. 39, p. 17. (http://gsa.confex.com/gsa/2007SE/finalprogram/abstract_119266.htm)

Oral Presentation at Furman University, Greenville, SC August 2006 "The effects of urbanization on the water chemistry of Brushy Creek Watershed"

Oral Presentation at Furman University, Greenville, SC March 2006 "*Black-tailed Prairie dogs (Cynomys ludovicianus) as a Keystone Species in the Chihuahuan Desert Grasslands*"

Oral Presentation at Coweeta LTER, Otto, NC August 2005 "*Effects of prescribed burning on vegetation in mesic and dry forests at Roach Mill* "

Poster Presentation at the International Association for Great Lakes Research Conference, Chicago, IL Summer 2003, *Algal Blooms: A Study of Zooplankton-Phytoplankton*

Interactions in Eagle Creek Reservoir

Lectures and Invited talks

Earlham College (December 11 2015) "Tropical nitrogen fixing trees in a world of biogeochemical constraints and rising CO_2"
Brown University (March 31 2015) "Tropical nitrogen fixers in a world of biogeochemical constraints and rising CO_2"
Smithsonian Tropical Research Institute, Gamboa School House Lecture, Panama (2012)
Invited lecture, Gender, Science, & Sustainability, Presbyterian College (2008)

ACTIVITIES AND SERVICE

Volunteer teacher of Woody Plants (BIO202) at East Jersey State prison (Spring and Fall 2015)
Level 2 Volunteer with Be The Match Stem Cell Donor Drive (2014-present)- organized 4 registration drives and registered over 160 people.
Routine participant in the Bio-DIVERSITY breakfast discussions (2014-2015)
2nd and 4th year talk organizer (2013-2014)
Volunteer judge at Hopewell Science Fair (2013)
Social hour coordinator for Ecology Department (2010-2011)
Clintonville Community Band, trombone (2008-2010)

PROFESSIONAL MEMBERSHIPS

Member, European Geophysical Union- 2014 to present
Member, Ecological Society of America- 2010 to present
Member, American Geophysical Union- 2006 to present
Member, Geological Society of America- 2006 to 2014
Member, Mineralogical Society of America- 2007 to 2009
Member, Indiana Academy of Science - 2001 to 2009

PROFESSIONAL Service

Reviewer
Applied Geochemistry
Biology and Fertility of Soils Journal
Agricultural Science Research Journal
Plant and Soil Journal
United State Geological Society external reviewer
Pedosphere

Conference Volunteer
2015- Association Tropical Biology and Conservation
2013- Ecological Society of America