

## Mr. Courtney Meier

National Ecological Observatory Network  
Fundamental Sentinel Unit  
5340 Airport Blvd.  
Boulder, CO 80301

Work phone: (720) 746-4899  
Email address: [cmeier@neoninc.org](mailto:cmeier@neoninc.org)  
Web: <http://courtneymeier.artifex.org>

### EDUCATION

(2008) Ph.D. University of Colorado at Boulder, Ecology. Dissertation title: Effects of alpine plant species on soil carbon and nitrogen dynamics and neighboring plant growth. Advisor: Dr. William D. Bowman.

(1998) B.A. Pomona College, Claremont, CA; Chemistry, *cum laude*.

### RESEARCH INTERESTS

Effects of interactions between plant species and soil microbes on ecosystem function within the context of environmental changes like biodiversity loss, rising atmospheric CO<sub>2</sub> concentrations, and nitrogen deposition. Interests focus on interactions between plant litter chemistry and soil microbes, and effects on decomposition, soil carbon and nutrient cycling, soil microbial function, and plant-soil feedbacks.

### POST-DOCTORAL POSITIONS

(Jan. 2009 – Dec. 2010) USDA NRI (Soil Processes) Postdoctoral Fellow. University of Colorado at Boulder. Advisor: Dr. Jason C. Neff. Project title: Abiotic and biotic controls on priming of slow-cycling soil organic matter pools.

(2008) Postdoctoral research associate, Institute of Arctic and Alpine Research, University of Colorado at Boulder. Advisor: Dr. William D. Bowman. Project title: Influence of plant-soil feedbacks on soil C and N cycling, and effects on neighboring plant growth.

(2008) Postdoctoral research associate, Cooperative Institute for Research in Environmental Sciences, University of Colorado at Boulder. Advisor: Dr. Noah Fierer. Project title: Decomposition dynamics across a Peruvian elevation gradient.

### PUBLICATIONS

Meier C.L. and W.D. Bowman. 2010. Chemical composition and diversity influence non-additive soil responses to litter mixtures: Implications for effects of species loss. *Soil Biology & Biochemistry* 42: 1447-1454.

Meier C.L., J. Rapp, R.M. Bowers, M. Silman, and N. Fierer. 2010. Fungal colonization of a common wood substrate across a tropical elevation gradient: Temperature sensitivity, community composition, and potential for above-ground decomposition. *Soil Biology & Biochemistry* 42: 1083-1090.

Meier C.L., K. Keyserling, and W.D. Bowman. 2009. Fine root inputs to soil reduce growth of a neighbouring plant via distinct mechanisms dependent on root carbon chemistry. *Journal of Ecology* 97: 941-949.

Meier C.L. and W.D. Bowman. 2008. Links between plant litter chemistry, species diversity, and below-ground ecosystem function. *Proceedings of the National Academy of Sciences U.S.A.* 105 (50): 19780-19785.

Meier C.L., K.N. Suding, and W.D. Bowman. 2008. Carbon flux from plants to soil: Roots are a below-ground source of phenolic secondary compounds in an alpine ecosystem. *Journal of Ecology* 96: 421-430.

Meier C.L. and W.D. Bowman. 2008. Phenolic-rich leaf carbon fractions differentially influence microbial respiration and plant growth. *Oecologia* 158: 95-107.

Bowman W.D., H. Steltzer, T.N. Rosenstiel, C.C. Cleveland, and C.L. Meier. 2004. Litter effects of two co-occurring alpine species on plant growth, microbial activity and immobilization of nitrogen. *Oikos* 104: 336-344.

Meier C.L., M. Svensson, and P.M. Kaye. 2003. *Leishmania*-induced inhibition of macrophage antigen presentation analyzed at the single-cell level. *The Journal of Immunology* 171: 6706-6713.

#### MANUSCRIPTS IN PREPARATION

Meier C.L. and J.C. Neff. Analysis of soil molecular structure at a global scale provides evidence for a common decomposition sequence. *Global Biogeochemical Cycles* (*in prep*).

#### SELECT MEETING PRESENTATIONS

Meier C.L. and J.C. Neff. 2009. Biogeography of soil organic matter molecular structure across multiple soil size fractions. American Geophysical Union meeting, San Francisco, CA. Oral presentation.

Meier C.L. and W.D. Bowman. 2009. Litter chemical composition and chemical diversity influence non-additive soil C and N responses to litter mixtures. NSF LTER All Scientists Meeting, Estes Park, CO. Poster presentation.

Meier C.L. and W.D. Bowman. 2009. Predicting non-additive effects of species diversity on decomposition using functional traits based on litter chemistry. Ecological Society of America meeting, Albuquerque, NM. Oral presentation.

Meier C.L., M. Maxa, and W.D. Bowman. 2007. Predicting litter diversity effects on short-term C and N turnover. Soil Ecology Society meeting, Moab, UT. Poster presentation.

Meier C.L. and W.D. Bowman. 2007. Effects of low molecular weight phenolics and tannins on microbial activity and plant growth. NSF post-ASM Polyphenolics workshop, Corvallis, OR. Oral presentation.

Meier C.L. and W.D. Bowman. 2006. Mechanisms of carbon flux from plants to soil: Implications for a nutrient availability feedback loop. NSF LTER All Scientists Meeting, Estes Park, CO. Poster presentation.

Meier C.L. and W.D. Bowman. 2006. Phenolics, soil microbes, and competitor performance: The importance of both low molecular weight and tannin phenolics. Ecological Society of America meeting, Memphis, TN. Oral presentation.

Meier C.L. and W.D. Bowman. 2005. Phenolic effects on competitor growth. Guild of Rocky Mountain Ecologists and Evolutionary Biologists meeting, University of Colorado Mountain Research Station, Nederland, CO. Oral presentation.

Meier C.L. and W.D. Bowman. 2004. Phenolic rhizodeposition and overwinter litter: Significant sources of carbon for microbes during the growing season? Ecological Society of America meeting, Portland, OR. Poster presentation.

**COURSES TAUGHT**

(Oct. 2008) Guest lecturer, Principles of Ecology (EBIO 2040). Instructor of record: Dr. William Bowman.

(Nov. 2007) Guest lecturer, Soil Ecology (EBIO 4800). Instructor of record: Dr. Noah Fierer.

(Spring 2007) Teaching assistant, lab course part of Microbiology (EBIO 3400).

(Fall 2006) Teaching assistant, lab course part of Principles of Ecology (EBIO 2040).

(Spring 2006) Teaching assistant, lab course part of Microbiology (EBIO 3400).

(Spring 2004) Teaching assistant, lab course part of Microbiology (EBIO 3400).

(Fall 2003) Teaching assistant, lab course part of Principles of Ecology (EBIO 2040).

(Fall 2001) Teaching assistant, General Biology lab (EBIO 1230), part of General Biology lecture course (EBIO 1210).

**GRANTS**

(2009-2010) USDA NRI Soil Processes post-doctoral fellowship; \$125000 (PI)

(2002-2006) University of Colorado at Boulder, Department of Ecology & Evolutionary Biology, Graduate Student Research Grants; \$5800

(2002-2006) John W. Marr Ecology Fellowship Grants; \$3900

(Fall 2005) University of Colorado at Boulder, Department of Ecology & Evolutionary Biology, Graduate Student Fellowship; \$9600

**HONORS AND AWARDS**

(Spring 2007) Teaching Excellence Award. Awarded by: Department of Ecology & Evolutionary Biology, University of Colorado at Boulder.

(Spring 2006) Teaching Excellence Award. Awarded by: United Government of Graduate Students, University of Colorado at Boulder.

(2001) NSF pre-doctoral fellowship competition, Honorable Mention, 2001.

**ACADEMIC ACTIVITIES**

(2004 – present) Peer reviewer for: Arctic Antarctic and Alpine Research, Canadian Journal of Forest Research, Ecology, Ecological Research, Ecosystems, Eos, Journal of Chemical Ecology, Journal of Ecology, New Phytologist, Oecologia, Plant and Soil, and Soil Biology and Biochemistry.

(2008) Graduate teaching certificate. Awarded by: Graduate Teacher Program, University of Colorado at Boulder.

(Summer 2008) Mentor for NSF Research Experiences for Undergraduates (REU) Program in Behavior, Ecology and Evolution, University of Colorado at Boulder, Mountain Research Station. Student: Kaleb Keyserling; currently involved with AmeriCorps Program in Columbus, OH.

*(Summer 2006)* Mentor for NSF REU Program in Behavior, Ecology, and Evolution, University of Colorado at Boulder, Mountain Research Station. Student: Melissa Maxa; currently in the College of Forest Resources, University of Washington, WA.

*(2006 – 2008)* Website design for the NSF REU program at the University of Colorado Mountain Research Station.

*(2004 – 2007)* Graduate student site representative for the Niwot Ridge Long Term Ecological Research site, Institute of Arctic and Alpine Research, Boulder, CO.

*(2004 – 2006)* Colloquium Committee member, Department of Ecology and Evolutionary Biology, University of Colorado at Boulder. Responsible for scheduling and organizing internal and external speakers for weekly colloquium series.

*(2005)* Workshop organizer and primary speaker, NSF LTER Graduate Student Symposium, Blue River, OR. Title: Plant controls on soil nutrient dynamics.

*(2002 – 2005)* Collaboration with Central European ILTER group (Slovak Republic).

#### **ADDITIONAL EXPERIENCE**

*(1999 – 2001)* Professional research assistant, Immunology Unit, London School of Hygiene and Tropical Medicine, London, U.K. Duties: 1) Designed and conducted research to investigate the effects of intracellular pathogens on host immune function; 2) developed and applied confocal microscopy techniques to multiple host/parasite immune function models; 3) presented results at national and international conferences; and 4) instructed MSc students in the principles and applications of confocal microscopy.