

CURRICULUM VITAE

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Education:

Ph.D., Biology, with honors, Northern Arizona University, *Belowground Feedbacks to Global Environmental Change*, 2009.
B.A., Environmental Sciences, University of Virginia, 2002.

Academic Mentors:

Postdoctoral: Dr. Joshua Schimel (Oct 2012 - present); Dr. Stephen Hart (Sept 2009 - Sept 2012); Dr. Paul Dijkstra (May 2009 - Aug 2009)
Graduate: Dr. Bruce Hungate (Ph.D. major professor), Dr. Egbert Schwartz (microbial ecology), Dr. Maribeth Watwood (microbial ecology)
Undergraduate: Dr. Jack Cosby (biogeochemistry), Dr. Jim Galloway (global nitrogen cycling), Dr. Aaron Mills (microbial ecology), Dr. Hank Shugart (global carbon cycling)

Professional Background:

Assistant Specialist, Microbial Ecology, University of California Santa Barbara, Oct 2012 - present.
Postdoctoral Scholar, Climate Change Ecohydrology and Soil Biogeochemistry, University of California Merced, Sept 2009 – Sept 2012.
Postdoctoral Scholar, Stable Isotope Techniques and Microbial Physiology, Northern Arizona University, May 2009 - Aug 2009.
Graduate Research Assistant and Undergraduate Instructor, Ecosystem Ecology and Biology, Northern Arizona University, Aug 2002 - May 2009.
Ecotourism Guide, Southeast Expeditions Sea Kayaking, Cape Charles, VA, 2002.
Undergraduate Researcher, Forest and Stream Biogeochemistry, University of Virginia, Sept 2001 - May 2002.
Undergraduate Researcher, Air Quality Monitoring, Student Conservation Association Internship, Great Smoky Mountains National Park, May-Aug 2001.

Honors:

Environmental Systems-Quantitative and Systems Biology Postdoctoral Fellow in Ecology and Evolutionary Biology, 2011-2012
Selected for On The Cutting Edge Workshop, Preparing For An Academic Career in Geosciences, Stanford University, 2010
Outstanding Graduate Teaching Assistant Award Finalist, Northern Arizona University, 2009
Selected for National Center for Atmospheric Research 2-week Colloquium on Regional Biogeochemistry, 2007
Selected for PrecipNet / STEPS 1-week Workshop on Climate Change Science and Policy, 2004
Northern Arizona University Student Travel Award, 2006
Philip Morris Scholarship, 1998-2002

Peer-Reviewed Publications:

Journal Articles (from older to newer):

1. Barnard, R.L., Le Roux, X., Hungate, B.A., Cleland, E.E., **Blankinship, J.C.**, Barthes, L., and P.W. Leadley, 2006. Several components of global change alter nitrifying and denitrifying activities in an annual grassland. *Functional Ecology* 20:557-564.
2. **Blankinship, J.C.**, Riveros-Iregui, D.A., and A.R. Desai, 2008. NCAR Advanced Study Program students “method-hop” their way to regional biogeochemistry. *Bulletin of the American Meteorological Society* 89:1571-1573.
3. **Blankinship, J.C.**, Brown, J.R., Dijkstra, P., and B.A. Hungate, 2010. Effects of interactive global changes on methane uptake in an annual grassland. *Journal of Geophysical Research* 115, G02008, doi:10.1029/2009JG001097.
4. **Blankinship, J.C.**, Brown, J.R., Allwright, M.C., Dijkstra, P., and B.A. Hungate, 2010. Response of terrestrial CH₄ uptake to interactive changes in precipitation and temperature along a climatic gradient. *Ecosystems* 13:1157-1170.
5. Dijkstra, P., **Blankinship, J.C.**, Selmants, P.C., Hart, S.C., Koch, G.W., Schwartz, E., and B.A. Hungate, 2010. Probing carbon flux patterns through soil microbial metabolic networks using parallel position-specific tracer labeling. *Soil Biology and Biochemistry* 43:126-132.
6. **Blankinship, J.C.**, Niklaus, P.A., and B.A. Hungate, 2011. A meta-analysis of responses of soil biota to global change. *Oecologia* 165:553-565.
7. Niboyet, A., Brown, J.R., Dijkstra, P., **Blankinship, J.C.**, Leadley, P.W., Le Roux, X., Barthes, L., Barnard, R.L., Field, C.B., and B.A. Hungate, 2011. Global change could amplify fire effects on soil greenhouse gas emissions. *PLoS ONE* 6, e20105, doi:10.1371/journal.pone.0020105.
8. Niboyet, A., Le Roux, X., Dijkstra, P., Hungate, B.A., Barthes, L., **Blankinship, J.C.**, Brown, J.R., Field, C.B., and P.W. Leadley, 2011. Testing interactive effects of global environmental changes on soil nitrogen cycling. *Ecosphere* 2, art56, doi:10.1890/ES10-00148.1.
9. **Blankinship, J.C.**, and S.C. Hart, 2012. Consequences of manipulated snow cover on soil gaseous emission and N retention in the growing season: a meta-analysis. *Ecosphere* 3, doi:10.1890/ES11-00225.1.
10. Brown, J.R., **Blankinship, J.C.**, Niboyet, A., van Groenigen, K.J., Dijkstra, P., Le Roux, X., Leadley, P.W., and B.A. Hungate, 2012. Effects of multiple global change treatments on soil N₂O fluxes. *Biogeochemistry*, doi: 10.1007/s10533-011-9655-2.
11. Duval, B.D., **Blankinship, J.C.**, Dijkstra, P., and B.A. Hungate, 2012. CO₂ effects on plant nutrient concentration depend on plant functional group and available nitrogen: a meta-analysis. *Plant Ecology* 213:505-521.
12. **Blankinship, J.C.**, Meadows, M.W., Lucas, R.G., and S.C. Hart. Snowmelt timing alters shallow but not deep soil moisture in the Sierra Nevada. *Water Resources Research*, in review.
13. **Blankinship, J.C.**, and S.C. Hart. Hydrological control of greenhouse gas fluxes in a Sierra Nevada subalpine meadow. *Arctic Antarctic and Alpine Research*, in review.
14. Carey, C.J., Eviner, V.T., **Blankinship, J.C.**, and S.C. Hart. Exotic plant invasion slows nitrogen cycling in a California grassland. *Ecology*, in prep.
15. **Blankinship, J.C.**, McCorkle, E.P., and S.C. Hart. Earlier snowmelt constrains warming-induced soil greenhouse gas fluxes. *Science*, in prep.

16. **Blankinship, J.C.**, Becerra, C.A., Schaeffer, S.M., and J.P. Schimel. Separating cellular metabolism from exoenzyme activity in soil organic matter decomposition. *Soil Biology and Biochemistry*, in prep.

Book Chapters:

1. **Blankinship, J.C.** and B.A. Hungate, 2006. Belowground food webs in a changing climate. *In* Agroecosystems in a Changing Climate, Eds. P.C.D. Newton, R.A. Carran, G.R. Edwards, and P.A. Niklaus, CRC Press, pp. 117-150.

Teaching and Other Leadership Experiences:

Courses Taught at Northern Arizona University:

- BIO 181L, 4 semesters, Introductory Biology Laboratory for Majors: Spring 2008, Summer 2008, Fall 2008, Spring 2009 (highly-rated instructor, contributed to curriculum development, lab preparation, taught approximately 400 students total)
BIO 326LW, 6 semesters, Ecology Lab for Majors: Fall 2002, Spring 2003, Spring 2004, Spring 2006, Spring 2007, Fall 2007 (highly-rated instructor, field-based, writing-intensive, significant contribution to curriculum development, taught approximately 200 students total)

Graduate Students Mentored:

- Kenneth Marcus (Ecology, Evolution & Marine Biology, Univ of California Santa Barbara)
Chelsea Carey (Environmental Systems graduate group, Univ of California Merced)
Erin Stacy (Environmental Systems graduate group, Univ of California Merced)

Undergraduate Students Mentored:

- Daniel Berg (Environmental Studies major, University of California Santa Barbara)
Theo Tzeng (Biology major, University of California Santa Barbara)
Emma McCorkle (Earth Systems Science major, University of California Merced)
Alison Nill (Environmental Studies and Economics major, New York University)
Rachel Schlick (Earth Systems Science major, University of California Merced)

Other Teaching/Leadership Experiences:

- Seminar Leader, Biogeosciences, University of California Santa Barbara, 2013
Seminar Leader, Evolutionary Ecology, University of California Merced, 2011-2012
Guest Lecturer in Ecosystem Ecology, University of California Merced, 2010-2011
Presenter at Virginia Association of Science Teachers Annual Meeting, 2001
Graduate-Level Course on Teaching Science, University of Virginia, 2001
National Youth Leadership Forum on Medicine, Washington, D.C, 1998

Professional Activities:

- Environmental Systems & Quantitative Systems Biology Postdoctoral Fellow in Ecology and Evolutionary Biology, Graduate interdisciplinary seminar leader, Fall 2011 & Spring 2012
SERC Cutting Edge Workshop on Preparing For An Academic Career in Geosciences, Postdoctoral participant, Stanford University, Palo Alto, CA, 29 Jul - 1 Aug 2010
NCAR Advanced Study Program Colloquium on Regional Biogeochemistry, Participant and presenter, National Center for Atmospheric Research, Boulder, CO, 4-15 Jun 2007
PrecipNet / STEPS Workshop on Climate Change Science and Policy, Participant and presenter, University of California, Santa Cruz, CA, 26-29 Jun 2004
Southern Sierra Critical Zone Observatory Annual Meeting, Do changes in the

timing of water availability affect soil microbial community structure and annual rates of biogeochemical cycling? Merced, CA, 2010; Biogeochemical effects of simulated climate change across the rain-snow transition zone, Shaver Lake, CA, 2011; The legacy of winter climate change on summer soil biogeochemical fluxes, Fresno, CA, 2012.

Yosemite National Park-USGS-UC Merced Joint Meeting, Greenhouse gas fluxes and plant community interactions along a hydrological gradient in a subalpine meadow in Yosemite National Park, Merced, CA, 2010.

Ecological Society of America Annual Meetings: “The biological methane sink in a changing climate: results from five upland ecosystems,” Montreal, Quebec, Canada, 2005; “Do soil CO₂, N₂O, and CH₄ fluxes in different ecosystems respond similarly to changes in temperature and precipitation?,” Memphis, TN, 2006; “Meta-analysis of soil organisms in a changing climate”, San Jose, CA, 2007; “Soil greenhouse gas fluxes in the High Sierra: lessons from a hydrological gradient in a subalpine meadow in Yosemite National Park,” Austin, TX, 2011.

American Geophysical Union Annual Meetings: “Base cations in northern red oak trees, soils, and surface waters of Shenandoah National Park,” Washington, DC, 2002 (co-author, poster); “Global change simulations affect potential methane oxidation in upland soils,” San Francisco, CA, 2004 (1st author, poster); “Consequences of warming and altered snowmelt timing on soil CO₂, CH₄, and N₂O fluxes in the Sierra Nevada rain-snow transition zone,” San Francisco, CA, 3 Dec 2012 (1st author, oral presentation).

Jasper Ridge Global Change Experiment Annual “Datafest” Meeting, Global change effects on soil CH₄ consumption and N₂O production at Jasper Ridge, 2005; Jasper Ridge CH₄ consumption, Palo Alto, CA, 2006.

Additional Poster Presentations:

US Department of Agriculture Greenhouse Gas Conference, “The importance of manure accumulation for trace gas production in a semi-arid landscape,” Baltimore, MD, 2007 (co-author).

Ecological Society of America Annual Meeting, “Interactive effects of multiple global change factors on soil nitrogen transformations in a California grassland,” Portland, OR, 2012 (co-author).

Invited Presentations: Yosemite Research Experience for Undergraduates, 2010; UC Merced Quantitative and Systems Biology Spring Retreat, 2011; UC Santa Barbara Biogeosciences Seminar, 2012

Present and Past Collaborators: Sedgwick Reserve, Bren School of Environmental Science and Management, Sierra National Forest, Kings River Experimental Watershed, Southern Sierra Critical Zone Observatory, Yosemite National Park, Sequoia-Kings Canyon National Parks, San Joaquin Experimental Range, California Department of Water Resources, Carnegie Institution of Global Ecology, Jasper Ridge Biological Preserve, Rocky Mountain Biological Laboratory, Smithsonian Environmental Research Center, Merriam Powell Center for Environmental Research, The Nature Conservancy, Great Smoky Mountains National Park, National Acid Deposition Program, National Dry Deposition Network, Air Resource Specialists, Oak Ridge National Laboratory, Environmental Protection Agency

Journal Reviews: Biogeochemistry, Ecosphere, Environmental Pollution, Environmental Science & Technology, European Journal of Soil Science, Journal of Geophysical Research-Biogeosciences, Oecologia, Plant and Soil, Soil Biology & Biochemistry

Memberships: Ecological Society of America (2004-present), American Geophysical Union (2003-present), American Association for the Advancement of Science (2007-present), National Scholars Honor Society (2007-present)

Field and Laboratory Safety Training: Wilderness First Aid (2002), Avalanche Safety (2011), Standard First Aid and Adult CPR (2002), Laboratory Chemical Safety (2002-present), Radiation Safety (2012)

Music: songwriter, guitarist, and trombonist

Relevant Coursework:

Graduate Education at Northern Arizona University: Ecosystem Ecology, Microbial Ecology, Molecular Techniques Laboratory, Forest Soils, Plant Ecology, Plant Root Dynamics, Environmental Microbiology, Global and Environmental Change, Ecology of Climate Change, Quaternary Climate Change, Ecosystem Science and Management, Ecological Restoration Applications, Bioremediation, Phylogenetics, Statistical Methods I and II, Grant Writing, Teaching Science, Research Design and Presentation

Undergraduate Education at the University of Virginia: Global Biogeochemical Nitrogen Cycling, Global Carbon Dynamics, Microbial Ecology, Forest Ecology and Management, Physics I with Laboratory, Inorganic Chemistry I and II with Laboratories, Organic Chemistry I and II with Laboratories, Biology I and II with Laboratories, Atmosphere and Weather with Laboratory, Geology with Laboratory, Hydrology with Laboratory, Ecology with Laboratory, Ecology and Society, Climate and the History of Human Culture, Urban and Environmental Planning, Statistics, Calculus

Methods Experience:

Soil trace gas fluxes: field static chamber technique; Li-Cor 6400 soil CO₂ flux chamber; closed-top laboratory incubations; soda lime technique

Biological soil analyses: methane oxidation potential; nitrogen fixation (using acetylene reduction technique); nitrogen mineralization/immobilization (using ion exchange resin bags and ¹⁵N-ammonium pool dilution); nitrification potential, denitrification potential (using acetylene block technique); microbial biomass (using chloroform fumigation extraction, chloroform slurry extraction, and substrate induced respiration); vapor-induced respiration (using acetaldehyde); exoenzyme activities (using fluorimetric and colorimetric assays); soil sterilization techniques (using chloroform fumigation, gamma irradiation, and autoclaving); litter decomposition (using litter bags); macroinvertebrate collection and identification (using pitfall traps)

Molecular analyses: soil DNA extraction (Ogram protocol), quantification, and purification; gel electrophoresis; gene-specific PCR amplification; T-RFLP bacterial community analysis using GeneMapper and PC-ORD software

Physical and chemical soil analyses: texture; bulk density; water-holding capacity; litter layer thickness; temperature (using HOBO Pendant loggers and handheld probe); gravimetric water content; volumetric water content (using Campbell CS620 Hydrosense system, Soil Moisture MiniTrase system, and Campbell CR10X datalogger with Decagon ECH₂O soil moisture sensor); water potential (using Tru Psi SC10X water potential measurement system); water infiltration (using double-ring infiltrometer); compaction (using penetrometer), pH, nutrient fluxes using ion exchange resin lysimeters, total extractable carbon (using Shimadzu TOC analyzer), and biodegradable extractable carbon (using respiration assay)

Laboratory analytical instruments:

Elemental Combustion System carbon and nitrogen analyzer (Costech model 4010)

Isotopic CO₂ analyzer (Picarro model G1101-*i*)

Gas chromatography of CO₂, CH₄, and N₂O (Agilent model 6890 GC System and Shimadzu model 2014 Greenhouse Gas Analyzer)

Non-dispersive infrared CO₂ analyzer (Li-Cor 820)

Genetic analyzer (Applied Biosystems model 3130)

Lachat QuikChem 8500 Series 2 FIA System automated ion analyzer (NH₄⁺, NO₃⁻)

Field meteorology: precipitation quantity and frequency; air temperature; humidity; solar radiation; wind velocity; atmospheric visibility and particulate matter; dry and wet acid deposition

Plant analyses: species identification; diversity; facilitative vs. competitive interactions; biomass (using destructive harvest and NDVI); leaf water potential (using pressure bomb in the field; total C and N concentrations in leaf, stem, and root tissue

Design, installation, and maintenance of field manipulative experiments in remote and rugged terrain (warming, precipitation amount, snowmelt timing, atmospheric nitrogen deposition, plant carbon input by thinning and simulated grazing)

Mapping and trip logistical planning in remote locations

Statistical analysis of complex multi-factor, split-plot, pair-wise, and repeated-measures experimental designs using ANOVA and regression (SAS 9.1, JMP 9.0.2)

Synthesis of ecological data using meta-analysis (MetaWin 2.1 software)