

Patrick O. Sorensen

Curriculum Vitae

Climate and Ecosystems Division
Lawrence Berkeley Laboratory
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Current Position

Postdoctoral Research Fellow July 2016-present
Lawrence Berkeley National Laboratory

Postdoctoral Supervisor: Harry R. Beller

Professional Preparation

Boston University	Biology	Ph.D. 2011- 2016
Boise State University	Biology	M.Sc. 2009 - 2010
Boise State University	Biology	B.Sc. 2003 - 2008

Graduate Advisors:

Ph.D. Boston University	Pamela H. Templer and Adrien C. Finzi
M.Sc. Boise State University	Kevin P. Feris

Appointments

CESD Division Council Postdoctoral Representative	2017
Boston University, Lecturer	2016
Boston University, Teaching Fellow	2011 - 2016
Boise State University, Research Assistant	2009 - 2010

Awards

NSF Doctoral Dissertation Improvement Grant (\$21,264), 2014-2016
BU Biogeoscience Student Research Award (\$500), 2012
Boise State University Department of Biological Sciences Scholarship (\$1000), 2006-2008
Idaho Governor's Scholarship (\$2000), 2003-2005

Publications

Sorensen PO, MJ Germino, KP Feris (2013) Microbial community responses to 17 years of altered precipitation are seasonally dependent and coupled to co-varying effects of water content on vegetation and soil C. Soil Biology and Biochemistry, 64:155-163.

Sorensen PO, PH Templer, AC Finzi (2016) Snow depth and duration exerts stronger influence than soil frost on growing season microbial biomass and enzyme activity in two temperate deciduous forests. Biogeochemistry, 128(1):141-154.

Sorensen PO, PH Templer, LM Chistenson, J Duran, TJ Fahey, MC Fisk, PM Groffman, J Morse, AC Finzi (2016) Reduction in snow cover alters root-microbe interactions and decreases nitrification in a northern hardwood forest. *Ecology*, 97: 3359–3368.

Templer PH, AB Reinmann, R Sanders-DeMott, **PO Sorensen**, SM Juice, F Bowles, LE Sofen, JL Harrison, I Halm, L Rustad, ME Martin, N Grant (2017) Climate change across seasons experiment (CCASE): a new method for simulating future climate in seasonally snow-covered ecosystems. *PLOS ONE*, 12(2): e0171928.

Publications in Review or Preparation

Sorensen PO, PH Templer, MA Giasson, AC Finzi, AB Reinmann, R Sanders-DeMott. Winter Soil Freeze-Thaw Cycles Lead to Reductions in Soil Microbial Biomass and Activity Not Compensated for by Soil Warming. *Soil Biology and Biochemistry*, *in review*.

Sorensen PO, PH Templer, LM Chistenson, J Duran, TJ Fahey, MC Fisk, PM Groffman, J Morse, JM Talbot, and AC Finzi. Ectomycorrhizae and winter snow depth mediate soil N cycling across a winter climate gradient. *in preparation*.

Oral and Poster Presentations

Sorensen P (September 2015) Declining snow cover effects on plant-microbial interactions in hardwood forests of the northeastern US. Environmental Protection Agency, National Exposure Research Lab, Cincinnati, Ohio. Oral Presentation.

Sorensen P, Templer P, Finzi A (August 2015) Increased freeze-thaw cycles in winter partially offsets stimulatory effects of growing season soil warming on microbial activity in northern hardwood forests. 100th Annual Ecological Society of America Meeting. Baltimore, Maryland. Oral Presentation.

Sorensen P, Templer P, Chistenson L, Duran J, Fahey T, Fisk M, Groffman P, Morse J, Finzi A (July 2015) Tree roots affect nitrification response to decline in winter snowpack. Hubbard Brook 51st Annual Cooperators Meeting. Thornton, New Hampshire. Oral Presentation.

Sorensen P, Finzi A, Templer P (December 2014) Climate change in winter versus the growing-season leads to different effects on soil microbial activity in northern hardwood forests. American Geophysical Union Annual Fall Meeting. San Francisco, California. Poster Presentation.

Sorensen P, Giasson MA, Finzi A, Templer P (March 2013) Soil frost reduces microbial proteolytic and oxidative enzyme activities in a northern hardwood forest. Northeastern Research Cooperative Conference. Saratoga Springs, New York. Poster Presentation.

Oral and Poster Presentations

Sorensen P, Templer P, Finzi A (May 2012) Effects of winter climate change on the structure and function of microbial communities in northern hardwood forests. Boston University Biology Department Graduate Student Research Symposium. Boston University, Boston, MA. Poster Presentation.

Sorensen P, Thompson D, Huttanus B, Lalor S, Ingram L, Germino M, Feris K (August 2010) Experimental Manipulation of Soil Moisture Regime Impacts Soil Microbial Community Abundance, Diversity, and Function in a Semi-Arid Sagebrush Steppe. International Society for Microbial Ecology. Seattle, WA. Poster Presentation.

Sorensen P, Reinhardt K, Ingram L, Thompson D, Huttanus B, Germino M, Feris K (April 2010) Experimental Manipulation of Precipitation Structures Microbial Communities in the Sagebrush Steppe. NSF-EPSCoR Annual Tri-State Consortium Meeting. Incline Village, NV. Oral Presentation.

Sorensen P, Janzen B, Reinhardt K, Ingram L, Bachman S, Thompson D, Huttanus B, Germino M, Feris K (October 2009) Understanding soil-atmosphere carbon exchange through soil microbial and plant community dynamics; opportunities for predicting ecosystem response to global climate change. NSF-EPSCoR Annual National Meeting, Washington DC. Poster Presentation.

Sorensen P, Kiepert A, Feris K (April 2008) Novel photoheterotrophs and biological H₂ production from potato wastewater. Boise State University Undergraduate Research Symposium. Boise, ID. Poster Presentation.

Courses Taught

BI 108 Introductory Biology Lab (Cell and Molecular Biology focus)
BI 303 Evolutionary Ecology Lab
BI 306 Global Change Biology Lab
BI 311 Microbiology Lab

Synergistic and Outreach Activities at Boston University

Leadership

- Co-chaired and organized 1st and 2nd annual BU Biogeoscience graduate student research symposium (2015 and 2016)
- Chaired and organized graduate student invited speaker committee (Peter Groffman) for Fall 2012 BU Biogeoscience seminar series.

Education

- Led one day, Saturday field trips during Fall 2011/12/13/14/15 semesters in which Boston University undergraduate students traveled to Harvard Forest Long-Term Ecological Research Site, Petersham, MA to learn about the seminal ecological research conducted at that site and to calculate forest carbon budgets in forest ecosystems.

- Visited John Day O'Brian middle school in Boston, MA and led 7th and 8th grade students in a 'mesocosm' experiment to compare the decomposition of biotic (e.g., coffee grounds) and abiotic materials (e.g., aluminum foil).
- Trained twenty undergraduate research assistants at Boston University in laboratory methods, operating analytic instruments (e.g., microplate reader), and ecological field methods.

Broadening Participation of Under-Represented Groups

- Mentored two female high school students during summer 2013 and 2014, as well as one female undergraduate student in academic year 2015/16, and trained all three students in molecular microbiological lab methods and ecological methods.

Collaborators & Other Affiliations

Collaborators: Marc Andre-Giasson (Boston University), Nick Bouskill (Berkeley Lab), Eoin Brodie (Berkeley Lab), Markus Bill (Berkeley Lab), Lynn Christenson (Vassar College), Mark Conrad (Berkeley Lab), Jorge Duran (Universidad de Coimbra), Tim Fahey (Cornell University), Melany Fisk (Miami University), Maria Garcia (Boston University), Matthew Germino (United States Geological Survey), Peter Groffman (City University of New York), Jennifer Morse (Portland State University), Andrew Reinmann (City College of New York), Rebecca Sanders-DeMott (University of New Hampshire), Heidi Steltzer (Fort Lewis College), Jennifer Talbot (Boston University), Shi Wang (Berkeley Lab), Ken Williams (Berkeley Lab)

Other Affiliations: American Geophysical Union (AGU) member