Laurel Lynch

NSF IGERT Fellow, Integrated Water Atmosphere Ecosystems Education and Research
Natural Resource Ecology Laboratory
Colorado State University · Fort Collins, CO 80521 · laurellynch@gmail.com

Research Interests

Arctic biogeochemistry, microbial ecology, root-rhizosphere interactions, nutrient transport and processing at the terrestrial-hydrological interface, permafrost dynamics, soil organic matter structure, ecosystem response to global climate change.

Education

Ph. D. Candidate: Ecology
NSF IGERT Fellow, Integrated Water Atmosphere Ecosystems Education and Research
Graduate Degree Program in Ecology (GDPE)
Colorado State University, Fort Collins, CO
Advisor: Dr. Matthew Wallenstein
Anticipated date of graduation: 2017

B.A. Biology with Distinction
St. Olaf College, Northfield MN
Date of graduation: May 2012

Formal Poster Presentations

Lynch, L.M., D.E. Hernandez, J.D. Schade, 2011: **Extracellular enzyme activity and biogeochemical cycling in restored prairie soils**, ESA Summer Meeting, Austin, TX; AUG Meeting 2011, San Francisco, CA.

Rhoades, E.R., L.M. Lynch, R.M. Holmes, P.J. Mann, J.E. Vonk, J.D. Schade, 2011: **Microbial activity and biogeochemical cycling in first-order Russian Arctic streams**, AGU Meeting 2011, San Francisco, CA.

Research

Colorado State University, Fort Collins, CO Fall 2012-Present
Research Advisor: Dr. Matthew Wallenstein, *Associate Professor of Ecosystem Science and Sustainability, CSU*

Collaborated with Ph.D. candidate Jessica Ernakovich on a three-month laboratory incubation of permafrost cores collected from Sagwon Hills, Alaska. Soils were incubated under anoxic and oxic conditions, at 1°C and 15°C and with varying degrees of physical protection. Assessed rates of CO_2 and CH_4 flux, production of extracellular enzymes, proteomic profiles, and availability of Fe, C, N, and P. Extracted pore water samples for FTIR and EEMS analysis to identify functional groups and structural classes of dissolved organic carbon compounds.

The Polaris Project, Cherskiy Siberia, Summer 2011
Research Advisor: Dr. John Schade, *Associate Professor of Biology and Environmental Studies, St. Olaf College*

Conducted whole-stream nutrient addition experiments in first-order streams to assess the degree of biogeochemical coupling between nitrogen and phosphorus and to estimate potential nutrient limitation of biological productivity. Presented research at the Annual American Geophysical Union meeting 2011 in San Francisco, CA.

St. Olaf College, Northfield MN, Fall 2010-Spring 2012
Research Advisor: Dr. John Schade, Associate Professor of Biology and Environmental Studies, St. Olaf College

Conducted a two-year long independent research project examining extracellular enzyme activity and biogeochemical cycling in two restored prairies. Measured labile C, extractable N and P, mineralizeable N, and microbial C, N and P to assess nutrient bioavailability and microbial biomass in snow removal sites and adjacent unmanipulated prairie. Conducted fluorometric assays to assess the monthly degradation potential of five enzymes. Measured changes in plant biomass and analyzed foliar

tissue and soil samples for C:N and ^{15}N in order to assess plant N-availability and the extent of soil N-cycling. Presented at the 50th annual Ecological Society of America conference in Austin, TX, and at the American Geophysical Union Meeting 2011 in San Francisco, CA.

Institute of Arctic Biology: Department of Wildlife and Biology, University of Alaska Fairbanks, Summer 2010
Employer: Dr. Roger Ruess, Professor of Biology, University of Alaska Fairbanks

Undergraduate research assistant at the Institute of Arctic Biology at the University of Alaska Fairbanks working on several NSF- funded projects. Primary focuses included nutrient cycling in taiga soils, the physiological ecology of alder-Frankia-mycorrhizal interactions, and phosphorus biogeochemistry in boreal forests.

Achievements and awards

Zibell Scholarship
Alliss Scholarship
St. Olaf Academic Scholarship

Distinction in Biology

Dean's List (*Fall '08, Spring '09, Fall '10, Spring '11*)

Professional affiliations

United States Permafrost Association, *Fall 2012-present*
Permafrost Young Researchers Network, *Fall 2012-present*
Ecological Society of America. *Fall 2011-present*
American Geophysical Union. *Spring 2011-present*

References

Dr. Matthew Wallenstein
Assistant Professor, Department of Ecosystem Science and Sustainability
Natural Resource Ecology Laboratory
Colorado State University
Fort Collins, CO 80523
(970) 556-2591
matthew.wallenstein@colostate.edu

Dr. John Schade
Assistant Professor, Department of Biology
St. Olaf College
1520 St. Olaf Avenue
Northfield, MN 55057
(507) 646-3909
schade@stolaf.edu

Dr. Roger Ruess
Professor of Biology
Institute of Arctic Biology
University of Alaska Fairbanks
Fairbanks, AK 99775-0180
(907) 474-7153
rwruess@alaska.edu