Clarice R. Perryman

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EDUCATION

PhD, Earth & Environmental Science, University of New Hampshire, expected 5/2022
Dissertation Topic: Investigating the Impact of Climate Change on Aerobic Methanotrophy in Northern Peatlands
Advisor: Dr. Ruth K. Varner

MS Earth Science – Geochemical Systems, University of New Hampshire, 12/2017
Thesis: Illuminating Geochemical Controls of Methane Oxidation Across a Gradient of Permafrost Thaw
Advisor: Dr. Ruth K. Varner

BA Geology (minor in Environmental Studies), Earlham College, 5/2016
Senior Research: Geoarchaeology and the Basketmaker Communities Project
Phi Beta Kappa, College and Departmental Honors
Advisors: Dr. Cynthia Fadem and Dr. Andrew Moore

RESEARCH EXPERIENCE

Doctoral Research, University of New Hampshire, January 2018 – present

Assessing the impact of climate and environmental change on methane oxidizing bacteria in a thawing permafrost peatland in Abisko, Sweden and a fen experiencing woody encroachment in Barrington, NH using incubation experiments, flux measurements, stable isotopes, and amplicon and metagenomic sequencing of microbial communities.

Master's Research, University of New Hampshire, August 2016 – December 2017

Quantified potential methane oxidation rates across a gradient of permafrost thaw in Stordalen Mire (Abisko, Sweden) using incubations and measured porewater redox chemistry to identify geochemical controls of methane oxidation.

Graduate Research Assistant, Trace Gas Biogeochemistry Lab Group**,** University of New Hampshire, August 2016 – present

Measured greenhouse gas fluxes and porewater concentrations and their isotopic composition across various northern wetland sites. Collected aerial imagery of field sites using unmanned aerial systems (UAS).

Northern Ecosystems Research for Undergraduates NSF REU, University of New Hampshire, June 2015 – August 2015.

Investigated potential methane oxidation rates across a permafrost thaw gradient in Stordalen Mire (Abisko, Sweden) using incubations experiments and GC-FID. Collected peat samples for microbial community analyses.

Undergraduate Research Assistant, Earlham College, July 2014 – May 2016

Completed soil profiling and bulk sampling in active archaeological research sites maintained by the Crow Canyon Archaeological Center (Cortez, CO) and mapped field

sites using a Trimble DGPS. Analyzed soil chemistry and mineralogy of archaeological soils using XRD, LOI, electrode chemistry, and photometry.

PUBLICATIONS

Perryman, C. R., McCalley, C. K., Malhotra, A., Fahnestock, M. F., Kashi, N. N., Bryce, J. G., Reiner, G., Varner, R. K. (2020). Thaw transitions and redox conditions drive methane oxidation in a permafrost Peatland. *Journal of Geophysical Research: Biogeosciences*, 124. https://doi.org/10.1029/2019JG005526

Perryman, C. R., Wirsing, J., Bennett, K. A., Brennick, O., Perry, A. P., Williamson, N., Ernakovich, J. G. *(in revision)*. Heavy metals in the Arctic: Distribution and enrichment of five metals in Alaskan soils.

PRESENTATIONS

(invited) **Perryman, C. R.;** Palace, M. W.; DelGreco, J.; Malhotra, A.; Varner, R. K. Rapid Permafrost Collapse Spurs Changes in Methane Oxidation. American Geophysical Union Fall Meeting 2018.

Perryman, C. R.; McCalley, C. K.; Lamit, L. J.; Varner, R. K. Insights from Methanotrophy to Methane Emissions Patterns in a Temperate Fen. American Geophysical Union Fall Meeting 2018.

Perryman, C. R.; Kashi, N. N.; Malhotra, A.; McCalley, C. K.; Varner, R. K. Permafrost Thaw Induces Methane Oxidation in Transitional Thaw Stages in a Subarctic Peatland. American Geophysical Union Fall Meeting 2017.

Perryman, C. R.; Kashi, N. N.; McCalley, C. K.; Malhotra, A., Varner, R. K. Methane Oxidation Kinetics Provide Insight to Methanotrophy in a Thawing Permafrost Peatland. Geological Society of America Annual Meeting, 2017.

Perryman, C. R.; Kashi, N. N.; Malhotra, A.; McCalley, C. K.; Varner, R. K. Permafrost Thaw Induces Methane Oxidation in Transitional Thaw Stages in a Subarctic Peatland. American Geophysical Union Fall Meeting 2015.

Kashi, N. N.; **Perryman, C. R.;** Malhotra, A.; Marek, E. A.; Giesler, R.; Varner, R. K. Nutrient Controls on Methane Emissions in a Permafrost Thaw Subarctic Peatland. American Geophysical Union Fall Meeting 2015.

Fadem, C.M., **Perryman, C. R.,** Hauser, E. M., Birkel, Jonathan F., Geoarchaeology and The Basketmaker Communities Project: Preliminary Results. Geological Society of America Annual Meeting, 2014.

TEACHING AND MENTORSHIP EXPERIENCE

Teaching Assistant, Earlham College Geology Department, 2014-2016.
Courses: Physical Geology, Earth History

Teaching Assistant, University of New Hampshire Department of Earth Science, 2020-present.
Courses: ESCI 420 (Our Solar System)

Graduate Student Mentor, University of New Hampshire, 2018-present.
Mentored 4 undergraduate student in research proposal writing, research methods, and preparation of presentation materials for their senior capstone research.

Workshop Instructor, R Basics, Collaborative Links to Ocean Science and Earth Science Graduate Academic Programs (CLOSES-GAP, NSF- GEO1801420), 2019-present

HONORS AND AWARDS

JGI New Investigator Community Sequencing Proposal	2020
NASA New Hampshire Space Grant Consortium Graduate Fellowship	2019
UNH Earth Science Student Research Grant	2018, 2019
AGU Outstanding Student Presentation Award	2017
Harriet Evelyn Wallace Scholarship, American Geosciences Institute	2017
Graduate Research Fellowship, The American-Scandinavian Foundation	2017
Graduate Research Grant, Geological Society of America	2017
National Science Foundation Graduate Research Fellowship (NSF GRFP)	2016

ACADEMIC SERVICE

Committee Member, AGU Biogeosciences Section Awards Committee, 2019 – present.
Committee Member, College of Engineering and Physical Science Dean's Graduate Student Advisory Board, 2019 – present

OUTREACH AND COMMUNITY SERVICE

AGU Voices for Science – Policy Track, 2020 cohort
Women in Science co-coordinator, University of New Hampshire, 2017 – present.
Social Media Coordinator, UNH Trace Gas Biogeochemistry Lab, 2018 – present.
Student Network co-coordinator, UNH NRESS PhD Program, 2018 – present.

PROFESSIONAL DEVELOPMENT

JGI Microbial Genomics & Metagenomics Workshop	2019
Transdisciplinary Research on the Changing Arctic and Its Global Impacts: Enhancing Capacity for Convergence Science, University of California Irvine	2019
Research Communications Academy, UNH	2019
Alda Center for Communicating Science Training	2019
São Paulo School of Advanced Methane Science, Ilhabela, Brazil	2018
Arctic Science Integration Quest (ASIAQ) Workshop, Stockholm University	2018
Social Justice Educator Training, UNH	2018
Communication Across Disciplines Workshop, UNH Graduate School	2017
Responsible Conduct of Research Training, UNH	2015/2017

PROFESSIONAL AFFILIATIONS

American Geophysical Union (AGU)
Geological Society of America (GSA)
Association for Women Geoscientists (AWG)