Clarice R. Perryman

crperry@stanford.edu
Green Earth Sciences, Stanford, CA 94305
www.clariceperryman.com | she/her/hers

Professional Appointments

Postdoctoral Scholar | Stanford University — *current*
Advisor: Dr. Alison Hoyt

Education

Ph.D., Earth & Environmental Science | University of New Hampshire — 2022
Dissertation: Influence of Permafrost Thaw, Microtopography, and Precipitation on Methane Cycling in Northern Peatlands
Advisor: Dr. Ruth Varner

M.S., Earth Science | University of New Hampshire — 2017
Thesis: Illuminating Geochemical Controls of Methane Oxidation Across a Gradient of Permafrost Thaw
Advisor: Dr. Ruth Varner

B.A., Geology | Earlham College — 2016
Minor in Environmental Studies
Phi Beta Kappa; College and Departmental Honors

Research Experience

Graduate Research Fellow — 2016–2022
Trace Gas Biogeochemistry Lab, University of New Hampshire

Northern Ecosystems Research for Undergraduates NSF REU — Summer 2015
University of New Hampshire, Abisko Scientific Research Station

Geochemistry Undergraduate Research Assistant — 2014–2016
Geology Department, Earlham College (PI Dr. Cynthia Fadem)

Publications (*indicates inclusion under team authorship)

Burke, S.A., Palace, R., Contosta, A.R., **Perryman, C.R.**, Bennett, K.A., Rocci, K.S., DelGreco, J., Herrick, C., Crill, P.M., & Varner, R.K. Connecting methane ebullitive flux to thaw pond size using unpiloted aerial systems. *Under review at Journal of Geophysical Research: Biogeosciences.*

Perryman, C. R., McCalley, C. K., Ernakovich, J. G., Lamit, L. J., Shorter, J. H., Lilleskov, E., & Varner, R. K. (2022). Microtopography matters: Belowground CH_4 cycling regulated by differing microbial processes in peatland hummocks and lawns. *Journal of Geophysical Research: Biogeosciences*, 127, e2022JG006948. https://doi.org/10.1029/2022JG006948

Robison, A. R., Wollheim, W. M., **Perryman, C. R**., Cotter, A. R., Mackay, J. E., Varner, R. K., Clarizia, P., Ernakovich, J.G. 2022. Dominance of diffusive methane emissions from lowland headwater streams promotes oxidation and isotopic enrichment. *Frontiers in Environmental Science*, 9:791305. https://doi.org/10.3389/fenvs.2021.791305

Ernakovich, J.G., Eklund, N., Varner, R. K., Kirchner, N., Jeuring, J., Duderstadt, K., Granebeck, A., Golubeva, E., **ASAIQ Participants.*** (2021). Is a common goal a false hope in convergence research?: Opportunities and challenges of international convergence research to address Arctic change. *Earth's Future*. https://doi.org/10.1029/2020EF001865

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: e2019JG005526. https://doi.org/10.1029/2019JG005526

Perryman, C. R., Wirsing J., Bennett K. A., Brennick O., Perry A. L., Williamson N., Ernakovich, J. G. (2020) Heavy metals in the Arctic: Distribution and enrichment of five metals in Alaskan soils. *PLoS ONE*, 15(6): e0233297. https://doi.org/10.1371/journal.pone.0233297

Bolduc B., Hodgkins S.B., Varner R.K., Crill P.M., McCalley C.K., Chanton J.P., Tyson G.W., Riley W.J., Palace M., Duhaime M.B., Hough M.A., IsoGenie Project Coordinators, **IsoGenie Project Team*, A2A Project Team***, Saleska S.R., Sullivan M.B., Rich V.I. (2020). The IsoGenie database: an interdisciplinary data management solution for ecosystems biology and environmental research. *PeerJ*, 8:e9467.

Honors and Awards

Fellowships:

University of New Hampshire Dissertation Year Fellowship	2021–2022
NASA New Hampshire Space Grant Consortium Graduate Fellowship	2019–2021
The American-Scandinavian Foundation Graduate Research Fellowship	2017
National Science Foundation Graduate Research Fellowship	2016–2019

Grants:

Society of Wetland Scientists NE Chapter Student Research Grant	2021
DOE Joint Genome Institute New Investigator Award	2020
UNH Earth Science Student Research Grant	2018, 2019
UNH Iola Hubbard Climate Change Endowment Fund	2018
Geological Society of America Graduate Research Grant	2017, 2021

Awards:

AGU Outstanding Student Presentation Award	2017
American Geosciences Institute Harriet Evelyn Wallace Scholarship	2017
Thomas Clarkson Grave and Anna Hubbard Grave Graduate Scholarship	2016
Charles A. Frueauff Award (for achievement in undergraduate research)	2015
Earlham College Presidential Honors Merit Scholarship	2012–2016

Invited Presentations

Perryman, C. R., McCalley, C.K., Perry, A.L., Shorter, J. H., White, N. A., Dziurzynski, A.M., Varner, R.K. Come Rain, Come Shine: Methane Cycling and Emissions in a New Hampshire

Peatland Under Drought and Heavy Rain. Society of Wetland Sciences New England Chapter Annual Meeting. October 2022.

Perryman, C. R., Palace, M. W., DelGreco, J., Malhotra, A., Varner, R. K. Rapid Permafrost Collapse Spurs Changes in Methane Oxidation. AGU Fall Meeting. December 2018.

Selected Presentations at Conferences and Workshops

Perryman, C.R., Kuhn, M.A., Mohssen, M., Tian, F., McCalley, Carmody, K., Malhotra, A., Li, Y., Burke, S.A., Cory, A.N., Fahnestock, M.F., Fonner, B.A., Hodgkins, S.B., O'Brien, J.M., Perry, A.L., Rich, V.I., Varner, R.K. Redox-Driven Shifts in Methane Oxidizing Bacteria Control Methane Oxidation Rates in Thawing Permafrost Peatlands. AGU Fall Meeting, December 2022.

Burke, S.A., Palace, M., Sullivan, F., **Perryman, C.R.**, Herrick, C., Kuhn, M.A., Schulze, C., Heffernan, L., Olefeldt, D., Sonnentag, O., Varner, R.K. Beyond what the eye can see, using high-resolution UAS-derived hyperspectral imagery to classify boreal peatland vegetation, oral presentation: AGU Fall Meeting, December 2022.

Perryman, C.R., White, N.A., Dziurzynski, A.M., McCalley, C.K., Shorter, J.H., Varner. R.K. Influence of Temperature on Rates and Carbon Isotopic Fractionation of Methane Oxidation in Northern Peatlands. AGU Fall Meeting, December 2021.

Kuhn, M.A, McCalley, C.K., Shorter, J.H., **Perryman, C.R.**, Burke, S.A., Sullivan, F., DelGreco, J.L., Hodgkins, S., Deng, J., Lamit, L.J., Crill, P.M., Palace, M.W., Rich, V.R., Varner, R.K. Integrating Microbial, Isotopic and Landscape-Scale Observations to Quantify Methane Emissions and Isotopic Fluxes from Global High-Latitude Ecosystems. AGU Fall Meeting, December 2021.

Bennett, K.A., Varner, R.K., **Perryman, C.R.**, Kuhn, M.A., Burke, S.A., Hoyt, A.,Yanez, C.C., Oh, Y., Erazo, N., Heffernan, L., Olefeldt, D., Sonnentag, O. Czimczik, C.I. A synthesis of in-situ emissions and dissolved sub-surface $\delta^{13}C\text{-}CH_4$, $\delta^{13}C\text{-}CO_2$, and $\delta D\text{-}CH_4$ from northern wetlands, lakes, and seasonally-inundated ecosystems. AGU Fall Meeting, December 2021.

Perryman, C. R., McCalley, C. K., Ernakovich, J. G., Lamit, L. J., Shorter, J. H., Lilleskov, E., Varner, R. K. Shrub encroachment enhances methanotrophy in a minerotrophic fen. American Geophysical Union Fall Meeting. December 2020.

Burke, S.A., Palace, M.W., Contosta, A., **Perryman, C.R.**, Bennet, K.A., Rocci, K., DelGreco, J., Herrick, C., Crill, P.M., Varner, R.K. Monitoring changes over time in thaw pond size with unmanned aerial systems (UAS): connections to ebullitive methane emissions. AGU Fall Meeting. December 2020.

Perryman, C. R., McCalley, C. K., Lamit, L. J., Varner, R. K. Insights from Methanotrophy to Methane Emissions Patterns in a Temperate Fen. AGU Fall Meeting. December 2018. (Poster)

Perryman, C. R., Kashi, N. N., Malhotra, A., McCalley, C. K., Varner, R. K. Permafrost Thaw Induces CH_4 Oxidation in a Subarctic Peatland. AGU Fall Meeting. December 2017. (Poster)

Diversity, Equity, and Inclusion

UNH Department of Earth Science DEI Committee	2020–2022
Pod Leader, Unlearning Racism in the Geosciences (www.urgeoscience.org)	2021
AGU DEI Congressional Advocacy Campaign	2020

Women in Science co-coordinator, University of New Hampshire 2017–2021

Mentorship

Kenneth R. De León Colón, EMERGE REU 2022
Aerobic methane oxidation in surface water of the boreal lakes
Natalie White, UNH Undergraduate Research Fellowship and Senior Thesis 2021–2022
Controls on carbon gas fluxes from a temperate forest soil
Angelica Dziurzynski, UNH Undergraduate Research Fellowship 2020–2021
Impact of sedges on peatland belowground methane concentration and emissions (2020)
Impact of productivity levels on inland water methane and carbon dioxide Emissions (2021)
Madeline Juffras, UNH Undergraduate Research Fellowship 2018–2019
Scaling methane emissions using vegetation cover type
Michael Zampini, UNH Undergraduate Research Fellowship 2018–2019
Impact of nitrogen inputs on plant composition at a New Hampshire fen

Outreach

Co-founder and Organizer, Peatland ECR Action Team (www.peatecr.com)
"Social Media for Scientists" – EMERGE BII Summer Institute 2021, 2022
Organizer, UNH Communicating with Policy Makers Training 2021
American Geophysical Union Voices for Science – Policy Track 2020–2021
Organizer and Facilitator, NH Youth Climate Gubernatorial Town Hall 2020
Panelist, NH Youth Climate and Clean Energy Presidential Town Hall 2020
Facilitator, UNH Sustainability Institute Communications Training 2019, 2020
AGU Climate Change Congressional Advocacy Campaign 2018, 2020

Academic Service

Session Convener, American Geophysical Union Meeting 2020, 2022
Panelist, Working with Your Mentor: Student Perspectives (UNH Grad School) 2020
AGU Biogeosciences Section Sulzman Award Committee 2019–2021
Miniseries Organizer, UNH Earth & Environmental Science Fall Seminar Fall 2020-21
UNH CEPS Dean's Graduate Student Advisory Board 2019–2022
Student Network co-coordinator, UNH NRESS PhD Program 2018–2020
Reviewer: Wetlands Ecology and Management, Ecosystems, Limnology and Oceanography, Mires and Peat

Teaching Experience

Co-Instructor, UNH ESCI 642: Biogeosciences in the Earth System Spring 2021
Guest Laboratory Instructor UNH NR 743/843: Arctic Ecology and Society Spring 2021
Teaching Assistant, UNH ESCI 420: Our Solar System Spring 2020
Workshop Instructor, Intro to R, CLOSES-GAP (NSF-GEO1801420) 2019–2021
Teaching Assistant, Earlham College GEOL 201: Earth & the Environment 2014–2016

Workshops and Other Professional Development

EMERGE BII Summer Institute 2021

DOE JGI Microbial Genomics & Metagenomics Workshop; Berkeley, CA	2019
NSF Transdisciplinary Arctic Research Workshop; UC Irvine	2019
Reclaiming STEM East Coast Workshop	2019
Alda Center for Communicating Science Training	2019
Research Communications Academy; UNH	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

Media

Gender Equality for a Sustainable Future | *UNH Today*
Building an early-career researcher community from the ground up | *Eos*
It Takes a Village: University of New Hampshire Students Spur Climate Change Research to Action | *UArctic Shared Voices Magazine*
Unexpected consequence of permafrost thaw: potentially less methane released into the atmosphere | *Geobites*
Data gaps hamper monitoring of heavy metals that threaten Arctic communities | *Phys.org*
