Robert E. Heumann

Department of Ecosystem and Conservation Sciences | The University of Montana
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Education

2021 – Present — **Ph.D.** The University of Montana, Department of Ecosystem and Conservation Sciences, Terrestrial Ecosystem Ecology and Biogeochemistry Lab, Missoula, MT | Expected Completion: May 2026
Advisor: Dr. Cory Cleveland

2015 – 2019 — **B.A.** Skidmore College, Saratoga Springs, NY | Major: Environmental Science | Thesis: *Is Skidmore Carbo Loading? Establishing a Baseline Carbon Inventory of Skidmore's Northern Lands.*
Advisor: Dr. Karen Kellogg
NCAA Division III Men's Soccer | Team Captain 2018-2019

Spring 2018 — SIT Zanzibar, Tanzania | Coastal Ecology and Natural Resource Management | Thesis: *What Happens to the Rest? An Assessment of Unmanaged Solid Waste in the Zanzibar Municipality.*

Research Experience

Spring 2021 — Research Assistant | Terrestrial Ecosystem Ecology and Biogeochemistry Lab, The University of Montana

Fall 2018 — Undergraduate Research Assistant | Biogeochemistry Lab, Skidmore College
Advisor: Dr. Kurt Smemo

Professional Experience

June - Dec 2020 — Landscape Crew Lead | MowGreen Lawn Care, Fairfield CT

June - Nov 2019 — Prescribed Fire Ecological Monitoring Technician | Vegetation and Fire Ecology Lab, The University of California – Davis

June - Aug 2018 — Biogeochemistry Research Assistant | Biogeochemistry Lab, Skidmore College

Sept 2017 - May 2019 — Compost Program Manager | Sustainability Office, Skidmore College

Teaching Experience

Scientific Teaching Fellow
June 2025 — Mobile Institute on Scientific Teaching. The University of Montana.

Guest Lecturer
Spring 2025 — GPHY 111: Climate, Landforms, and Vegetation. College of Forestry and Conservation Sciences. The University of Montana. March 2025

Guest Lecturer
Fall 2024 — NRSM 211: Soils and Water. College of Forestry and Conservation Sciences. The University of Montana. September 2024

Guest Lecturer

Fall 2023	FORS 335: Forest Ecology. College of Forestry and Conservation Sciences. The University of Montana. September 2023

Graduate Teaching Assistant

Fall 2023	NRSM 211: Soils and Water, College of Forestry and Conservation Sciences, The University of Montana

Graduate Teaching Assistant

Fall 2022	NRSM 211: Soils and Water, College of Forestry and Conservation Sciences, The University of Montana

Awards and Honors

2025	Edward F. Barry Memorial Scholarship Recipient – W.A. Franke College of Forestry and Conservation Sciences
2019	Environmental Science Faculty Award. Skidmore College
2019	Skidmore "Make your voice heard" Public Policy Competition – 1st place.
2019	Thoroughbred Society, Skidmore College

Funded Research

UGP 2023: Exploring deep soil nitrogen dynamics in forests regenerating after fire. The University of Montana ($5000, 1 year).

Publications

Heumann, R.E., Turner, M. G., Cleveland, C.C. (*in review*). Biophysical and biogeochemical controls on nitrogen fixation in cyanolichen and decaying wood. *Biogeochemistry*.

Keller T.T., Cleveland C.C., Heumann R.E., Link A.C., McGuire L.T., Turner M.G. (*in review*) Nitrogen dynamics 35 years after stand-replacing fire: Aboveground pools continue to rise as soil pools remain unchanged. *Ecology*.

Heumann, R.E., Turner, M. G., Cleveland, C.C. 2025. Rates and controls of cryptic nitrogen fixation in post-fire lodgepole pine forests. *Ecology*. https://doi.org/10.1002/ecy.70016

Turner, M.G., Kiel, N.G., Warren, J.A., Heumann, R.E., Cleveland, C.C. 2025. Reburning before recovery: Effects of short-interval fire on subalpine forest nitrogen stocks. *Ecosystems.* https://doi.org/10.1007/s10021-024-00947-4

Presentations and Posters

Heumann, R. E. and C. C. Cleveland 2025. Resolving the paradox of post-fire forest recovery in the Greater Yellowstone Ecosystem: the importance of subsurface nitrogen cycling. *American Geophysical Union Annual Meeting* (poster).

Heumann, R. E., M. G. Turner, C.C. Cleveland 2025. Post-fire forest recovery in the Greater Yellowstone Ecosystem: The paradox of missing nitrogen. *Ecological Society of America Annual Meeting* (talk).

Heumann, R. E. 2024 Patterns and controls on cryptic nitrogen fixation during post-fire forest recovery in the Greater Yellowstone Ecosystem. *Biennial Greater Yellowstone Ecosystem Science Conference* (talk).

Heumann, R. E. 2022. The role of cryptic nitrogen fixation (CNF) in post-fire forest recovery within the Greater Yellowstone Ecosystem. *The Biennial Greater Yellowstone Ecosystem Science Conference* (poster).

Smemo, K. A., Blackwood, C. A., Casarella, D. J., Cristiano, J.A., Eagar, A. C., Heumann, R.E. Can tree functional traits drive ecosystem properties and processes across environmental and community gradients? 2018. *American Geophysical Union Annual Meeting*. (poster)

Service

2024 – present	Head Coach. University of Montana Men's Club Soccer
2023 – 2024	Graduate Representative. University of Montana College of Forestry
2022 – 2024	Founder and Co-president of Graduate Empowerment in Ecology and Conservation Sciences (GEECS) group at the University of Montana
2021 – 2023	Volunteer. Soil Cycle Missoula
2021 – 2023	Science and Math Tutor. Soft Landing Missoula
2018 – 2019	Volunteer. Take Back the Tap Initiative. Skidmore College

Journal Reviews

Global Change Biology 2025
Nutrient Cycling in Agroecosystems 2023