Anthony John Stewart

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Education

University of Washington, Seattle, WA, Advisors – Dr. L. Monika Moskal and Dr. David Butman exp. 2025
Ph.D. Candidate in Environmental and Forest Sciences

University of New Hampshire, Durham, NH, Advisor – Dr. Heidi Asbjornsen 2017
M.S. in Natural Resources

Montana State University, Bozeman, MT 2014
Bachelor of Science in Environmental Science

Experience

Graduate Research Assistant, UW, Seattle, WA 2020 – Present
Improving monitoring, characterization, and quantification of carbon stocks and forested wetland extent with terrestrial, airborne, and satellite remote sensing and machine learning tools at watershed to regional scales in the Pacific Northwest.

Laboratory Manager, Cornell University, Ithaca, NY 2017 – 2020
Managed forest ecosystem ecology research projects by operating analytical laboratory equipment and leading field research campaigns.

Graduate Research Assistant, UNH, Durham, NH 2015-2017
Evaluated effects of forest-to-agriculture land use change on landscape hydrology by conducting ecohydrological measurements and collaborating across disciplines with multiple researchers.

Teaching and Mentoring Experience

Graduate Teaching Assistant, UW, Seattle, WA 2022 – Present
Developed course material and conducted student instruction for lidar remote sensing in R, ArcGIS Pro, and Cloud Compare software for the ESRM 433: LiDAR Remote Sensing course. Additional teaching includes ESRM 201: Sustaining Pacific Northwest ecosystems

Cornell University – Mentor in Ecosystem Ecology and Biogeochemistry Lab 2018 – 2019
Supervised and mentored undergraduate students and their projects: **Whitney Denison**, Project: *Terrestrial Denitrification and Environmental Change*, **Nathaniel Fisher**, Biological Sciences Undergraduate Honors Program, Project: *Controls on Denitrification at Three Depths in a Northeastern Hardwood Forest*, **Nathan Chin**, Environment and Sustainability Undergraduate Honors Program

Graduate Teaching Assistant, UNH, Durham, NH 2015 – 2017
Led four semesters of independent instruction for introductory biology focusing on evolution, biodiversity, and ecology through inquiry learning.

Naturalist, Seacoast Science Center, Rye, NH June 2016
Organized and educated K-12 student groups from various New Hampshire schools on intertidal marine ecology field trips.

Additional Professional and Outreach Experience

Upward Bound Program – Outreach US Department of Education 2022
Organized and led a field-based introduction to soil carbon and wetlands in Juneau, AK for high school students to provide an opportunity to learn about science and the environment. Additionally provided supervision and support for other field-based classes.

Central High School, Independence, OR – Outreach 2021
Provided a guest visit and conversation about entering college, applying for graduate school, and becoming a scientist. Gave insight into non-traditional routes to college and graduate education.

Laboratory Technician, MSU, Bozeman, MT 2013 – 2014

Assisted an investigation of NO_3 leaching from agricultural fertilizer into freshwater resources by processing soil and biomass samples and performing field sampling.

Environmental Technician, Admiralty Environmental, Juneau AK Seasonally 2014 & 2015

Ensured State of Alaska and Federal regulated water quality by collecting and analyzing water quality samples from cruise ships, state ferries, and small tour vessels under regulatory scrutiny with compliance reporting in Juneau, AK.

College Intern, Alaska Department of Environmental Conservation, Juneau AK 2011 – 2013

Maintained and organized a file directory for environmental compliance and accounting documentation.

Manuscripts and Publications

Stewart, Anthony J., Meghan Halabisky, Chad Babcock, David Butman, David D'Amore, and Ludmilla Moskal. "Cryptic Carbon: The Hidden Carbon in Forested Wetland Soils." Preprint. *In Revision Nature Communications*, July 7, 2023. https://doi.org/10.21203/rs.3.rs-3131839/v1.

Halabisky, Meghan, Dan Miller, **Anthony J. Stewart**, Amy Yahnke, Daniel Lorigan, Tate Brasel, and Ludmila Monika Moskal. "The Wetland Intrinsic Potential Tool: Mapping Wetland Intrinsic Potential through Machine Learning of Multi-Scale Remote Sensing Proxies of Wetland Indicators." *Hydrology and Earth System Sciences* 27, no. 20 (October 20, 2023): 3687–99. https://doi.org/10.5194/hess-27-3687-2023.

Campbell, A.D., Fatoyinbo, T., Charles, S.P., Bourgeau-Chavez, L.L., Goes, J., Gomes, H., Halabisky, M., Holmquist, J., Lohrenz, S., Mitchell, C., Moskal, L.M., Poulter, B., Qiu, H., Resende De Sousa, C.H., Sayers, M., Simard, M., **Stewart, A.J.**, Singh, D., Trettin, C., Wu, J., Zhang, X., Lagomasino, D., 2022. A review of carbon monitoring in wet carbon systems using remote sensing. Environ. Res. Lett. https://doi.org/10.1088/1748-9326/ac4d4d

Stewart A, Coble AP, Contosta AR, Orefice JN, Smith RG, Asbjornsen H. 2020. Forest conversion to silvopasture and open pasture: effects on soil hydraulic properties. *Agroforestry Systems*. DOI: 10.1007/s10457-019-00454-9

Coble, A.P., Contosta, A.R., Smith, R.G., Siegert, N.W., Vadeboncoeur, M., Jennings, K.A., **Stewart, A.J.**, Asbjornsen, H., 2020. Influence of forest-to-silvopasture conversion and drought on components of evapotranspiration. *Agriculture, Ecosystems & Environment* 295, 106916. https://doi.org/10.1016/j.agee.2020.106916.

Stewart A. 2019. Opinion: Governor is blocking Alaska's potential. Juneau Empire Newspaper.

Presentations and Workshops

Society of Wetland Scientists Annual Meeting 2023

Cryptic Carbon of the Pacific Northwest: Improving Wetland Soil Carbon Estimation and Monitoring with Inclusion of Hidden Forested Wetlands

National Association of Wetland Managers - Wetland Mapping Consortium Webinar 2023

Mapping Wetland Probabilities: Tools, Models, and Applications

American Geophysical Union Annual Meeting 2022

Cryptic carbon: wetland identification under perennial forest cover enhances spatially explicit modeling of soil carbon stock

Northwest Indian Fisheries Commission Tribal Habitat Conference 2022

Climate Change Solutions: Carbon Sequestration in Coastal and Forested Wetlands – Improving estimates of wetland soil carbon beneath the forest canopy through a spatially explicit remote sensing approach

Joint Aquatic Sciences Meeting 2022
Improving estimates of wetland soil carbon beneath the forest canopy through a spatially explicit remote sensing approach

American Geophysical Union Fall Meeting 2021
Improving estimates of wetland carbon beneath a forest canopy through a spatially explicit remote sensing approach

North American Carbon Program Annual Meeting 2021
Wetland carbon stocks under forest canopy: a remote sensing approach

Hubbard Brook Ecosystem Study 57th Annual Cooperators Meeting, North Woodstock, NH 2020
Nitrogen cycle fluxes across hydropedological units: hots spots in watershed 3

Hubbard Brook Ecosystem Study 56th Annual Cooperators Meeting, North Woodstock, NH 2019
Taking a breath at depth: Soil oxygen in Hubbard Brook soils

Alaska Coastal Rainforest Center NSF RCN Workshop, Juneau, AK 2019
Transformation and Transport of Elements and Compounds from Terrestrial to Aquatic Systems Workshop

Hubbard Brook Ecosystem Study 55th Annual Cooperators Meeting, North Woodstock, NH 2018
Measuring Soil Oxygen at Variable Depths to Inform Denitrification Measurements

Northeastern Ecosystem Research Cooperative Conference, Saratoga, NY 2017
Land use change in the northeast United States: retaining forest structure and its soil hydraulic properties through silvopasture

American Water Resources Association Annual Conference, Orlando, FL 2016
Land use change in the northeast United States: retaining forest structure and its soil hydraulic properties through silvopasture

Funding and Awards

Assessing the climate change vulnerability of wetland habitats – WA DNR Interagency Agreement 2023

Student Research Support Funds – UW SEFS 2022

Instrumentation Discovery Travel Grant – CUAHSI 2021

Outstanding Student Presentation Award – 7th North American Carbon Program 2021

Datasets

Stewart, A.J., E.A. Kreitinger, P.M. Groffman, J.L. Morse, L.H. Pardo, L. Martell, and C.L. Goodale. 2020. Hubbard Brook Experimental Forest: Hourly soil oxygen, moisture and temperature across soil depths and an elevation gradient in the Bear Brook watershed; 2018-2019 ver 1. Environmental Data Initiative. https://doi.org/10.6073/pasta/7b3df681774e45523e37f47b9c744902