Paulina Murray

PhD student
University of Vermont
Research Interests: Carbon cycling,
 forest ecology

INSPIRES

Student Profiles

PAULINA MURRAY has begun her graduate career on an ambitious yet uncommon path. As a first-year Ph.D. student at the University of Vermont (UVM), Rubenstein School of Environment and Natural Resources, she works as a graduate research assistant in three different labs as part of the NSF-funded INSPIRES project. Murray is co-advised by E. Carol Adair, Anthony D'Amato, and Aimée Classen of Biogeochemistry and Global Change Lab, Silviculture and Applied Forest Ecology Lab, and Ecosystem Ecology Lab, respectively.

Also, Murray is a Quantitative Evolutionary STEM Trainee (QuEST), an NSF-funded UVM program, where she's learning how to be a data scientist as well as incorporating critical conversations on diversity, equity, inclusion, and justice.

Murray recently moved to Vermont to attend UVM, with a background in natural science, conservation, and invasive species management, specifically plants. She also gained valuable research experience in biogeochemistry at the Cary Institute, which led her to choose UVM and the following three labs.

Each of the labs provides a different element: Adair's lab focuses on terrestrial biogeochemistry, while D'Amato's lab focuses on sustainable forestry methods—a new field of study for Murray—and Classen's lab works to understand and model complex ecosystems. When taken together, this interdisciplinary approach fuels the INSPIRES project.

Through her co-advisor Adair, Murray was introduced to INSPIRES. "Murray has been a truly excellent addition to our INSPIRES team—her interests and research have already taken off in exciting directions, first looking at the contribution of fungal community composition and activity to wood decomposition and carbon storage in forests," said Adair.

Murray is part of a team that's working with the Mayfly sensors, which measure soil VWC (moisture), air temperature, humidity, soil water potential, and PAR. Since fall 2021, two Mayfly sensors have been collecting data in Corinth, VT. Potential new sites in Corinth are also being identified as well as the building of the remaining sensors for deployment this summer.

UVM INSPIRES team on a site visit in Corinth, VT.

This summer, Murray is looking forward to processing and analyzing decay stakes—which have been deployed and decaying for three summers—for changes in nutrient contents (e.g., carbon, nitrogen, phosphorous) as well as working with the Frankenlog sensing network, similar to the Mayfly's technology. INSPIRES has created both opportunities for Murray within and outside the project.

Forestry and working with sensors are new fields of study for Murray. "While I did not actively study forestry, I've always been curious about forest ecology and have become increasingly interested in understanding how wood-decay fungi drive wood decomposition in Northeastern forests," explains Murray.

"I'm also interested in the sensors because I've always enjoyed learning about and working with Big Data. Joining Theme 1 of the INSPIRES project seemed like a very natural step in the process of understanding how environmental monitoring and Big Data contribute to the scientific process."

Murray was drawn to INSPIRES because of its mission:

"*Considering my interests in Big Data and forest ecology, I was immediately drawn to the project and its supporting network of professionals. The multi-regional collaborative aspect of the project was especially enticing because I knew I'd have access to a wealth of knowledge and a diversity of professionals with unique experiences and interests that could support me on my own academic journey.*"

INSPIRES interviews and profiles by Stefania Irene Marthakis, University of Maine Center for Research on Sustainable Forests

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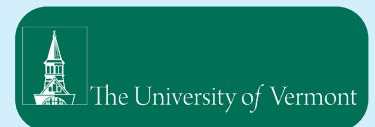
Smart Data for Resilient Forests

INSPIRES: Leveraging Intelligent Informatics and Smart Data for Improved Understanding of Northern Forest Ecosystem Resilience is an NSF-supported project that leverages unique expertise from the University of Maine, University of New Hampshire, and University of Vermont to construct a digital framework to better assess, understand, and forecast this complex forest at a resolution relevant to scientists, land managers, and policymakers.