Dr. Thomas J. Muratore Jr.

Environmental Studies, Dartmouth College, 6182 Steele Hall, Hanover, NH 03755, USA

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Degrees

2019-2024	Ph.D. Earth and Environmental Sciences (Training: Ecosystem Ecology and Soil Biogeochemistry), University of New Hampshire, Durham, NH. Advisor: Dr. Serita Frey
2017-2019	M.S. Plant and Soil Science (Training: Agronomy and Soil Science), University of Kentucky, Lexington, KY; Advisor: Dr. Dave McNear
2013-2017	B.S. Earth and Environmental Sciences, University of Mary Washington, Fredericksburg, VA; Advisor: Dr. Alan Griffith

Appointments and Research Experiences

2024-present	Postdoctoral Scholar, Environmental Studies, Dartmouth College, Hanover, NH.
2019-2024	Graduate Research Associate, Natural Resources and the Environment, University of New Hampshire. Dissertation title: *Climate Change in New England: The Influence of Soil Warming and Nitrogen Enrichment on Forest Carbon Cycling*.
2017-2019	Graduate Research Associate, Department of Plant and Soil Science, University of Kentucky. Thesis Title: *Long-term Land Management Practices and Their Effect on Soil Health and Crop Productivity*.
2013-2017	Undergraduate Research Assistant, Department of Department of Earth and Environmental Sciences, University of Mary Washington. Thesis Title: *The Effect of Micro-elevation Change on the Distribution of Tidal Freshwater Wetland Plant Communities*.

Teaching Experiences

2024	Teaching Assistant, Intro to Geographic Information System (GIS; 4 credits), University of New Hampshire. Professor: Dr. Russ Congalton
2023	Co-lecturer, Studio Soils (4 credits), University of New Hampshire.
2023	Teaching Assistant, Studio Soils (4 credits), University of New Hampshire. Professor: Dr. Serita Frey
2021	Teaching Assistant, Intro to Geographic Information System (GIS; 4 credits), University of New Hampshire. Professor: Dr. Russ Congalton
2020	Teaching Assistant, Studio Soils (4 credit), University of New Hampshire. Professor: Dr. Serita Frey
2020	Teaching Assistant, Intro to Geographic Information System (GIS; 4 credits), University of New Hampshire. Professor: Dr. Russ Congalton
2019	Teaching Assistant, Studio Soils (4 credits), University of New Hampshire. Professor: Dr. Serita Frey

2019	Teaching assistant, Fundamental of Soil Science (4 credits), University of Kentucky. Professor: Dr. Chris Matocha
2018	Teaching Assistant: Fundamentals of Soil Science (4 credits), University of Kentucky. Professor: Dr. Dave McNear

Fellowships and Awards

2022	Harvard Forest Graduate Research Fellow, Harvard University, Petersham, MA, USA.
2020	Harvard Forest Graduate Research Fellow, Harvard University, Petersham, MA, USA.
2020-2021	Summer Teaching Award Fellowship, University of New Hampshire, Durham, NH, USA
2016-2017	Elsa Von Müeller Leidecker Scholarship, University of Mary Washington, Fredericksburg, VA, USA.
2016-2017	Robert K. Ericson ’14 Student Research Fellowship, University of Mary Washington, Fredericksburg, VA, USA.

Research Publications

Knorr, M. A., Contosta, A. R., Morrison, E. W., **Muratore, T. J.,** Anthony, M. A., Stoica, I., Geyer, K. M., Simpson, M. J., & Frey, S. D. (2024). Unexpected sustained soil carbon flux in response to simultaneous warming and nitrogen enrichment compared with single factors alone. *Nature Ecology & Evolution*, 1–9. https://doi.org/10.1038/s41559-024-02546-x

Muratore T.J., Knorr M.A., Simpson M.J., Stephens R.B., Phillips R.P. , S.D. Frey. (2024) Response of root respiration to warming and nitrogen addition depends on tree species. Global Change Biology.

Chari, Nikhil, **Muratore, T.J.*,** B. Taylor, S.D. Frey. 2021 (*in press.* 2024). Long-term soil warming drives different belowground responses in arbuscular mycorrhizal and ectomycorrhizal trees. Global Change Biology. **(*co-first author).**

San Román, A. X., Srikanthan, N., Hamid, A. A., **Muratore, T. J.,** Knorr, M. A., Frey, S. D., & Simpson, M. J. (2024). Long-term warming in a temperate forest accelerates soil organic matter decomposition despite increased plant-derived inputs. *Biogeochemistry*. https://doi.org/10.1007/s10533-024-01165-9

Stoica, I., Tabatabaei Anaraki, M., **Muratore, T.J.,** Knorr, M., Frey, S. D., & Simpson, M. J. (2023). Chronic Warming and Nitrogen-Addition Alter Soil Organic Matter Molecular Composition Distinctly in Tandem Compared to Individual Stressors. *ACS Earth and Space Chemistry*, *7*(3), 609–622. https://doi.org/10.1021/acsearthspacechem.2c00380

Research Manuscripts

Muratore T.J., N.R. Chari, R.P. Phillips, B. Taylor, S.D. Frey, (*in prep 2024*) *Belowground plant carbon inputs mitigate elevated soil respiration observed under warming and nitrogen addition.* Nature Climate Change

Presentations, Talks, and Symposia

Muratore T.J., N.R. Chari, M.A. Knorr, R.P. Phillips, B. Taylor, S.D. Frey. 2024. Belowground Plant Carbon Inputs Mitigate Elevated Soil Respiration Observed Under Warming and Nitrogen Addition. American Geophysical Union Annual Conference, Washinton D.C. 2024

Muratore T.J., N.R. Chari, M.A. Knorr, R.P. Phillips, B. Taylor, S.D. Frey. 2024. Belowground Plant Carbon Inputs Mitigate Elevated Soil Respiration Observed Under Warming and Nitrogen Addition. 17th annual Plant Biology Initiative Symposium: Root-Microbe Interactions in a Changing World. Harvard University, Cambridge, Massachusetts.

Muratore, T.J., M. Knorr, S.D. Frey. 2024. Climate Change in New England: Overriding the Mycorrhizal Imprint on Soil Biogeochemistry. Harvard Forest Seminar, Petersham, Massachusetts. **Invited Talk**.

Muratore, T.J., M. Knorr, S.D. Frey. 2022. Root of the Matter: Unearthing the Role of Roots in a Warmer, More Fertile World. Harvard Forests Annual Symposium, Petersham, Massachusetts. **Invited Talk**.

Muratore T.J., N.R. Chari, M.A. Knorr, M.J. Simpson, R.P. Phillips, J.M. Melillo, B.N. Taylor, S.D. Frey. 2023. Long-term soil warming interactions with mycorrhizal tree type to constrain carbon loss in a mixed arbuscular mycorrhizal and ectomycorrhizal forest. Ecological Society of America, Portland, Oregon 2023

Chari, Nikhil, **T.J. Muratore,** S.D. Frey, B. Taylor. 2023 Long-term soil warming mediates relationships between root exudation and soil carbon dynamics. Ecological Society of America, Portland, Oregon 2023

Chari, Nikhil, **T.J. Muratore,** B. Taylor, S.D. Frey. 2022. Trade-offs between root exudation and respiration under long-term soil warming. All Scientists Meeting, Long Term Ecological Research Conference, Monterey, California.

San Roman, Atzin, N. Srikanthan, **T.J. Muratore,** M.A. Knorr, S.D. Frey, M.J. Simpson. 2022. Long-term Warming in Forests Alters the Molecular Biogeochemistry of Soil Organic Matter. American Geophysical Union Annual Meeting, Chicago, Illinois.

Muratore, T.J., R. S. Smith, S.D. Frey. 2021. Absorptive Roots and Mycorrhizal Fungi Mediate Changes to Soil Carbon Stocks in Response to Long-term Soil Warming and Nitrogen Addition. American Geophysical Union Annual Meeting, New Orleans, Louisiana.

Muratore, T.J., R. S. Smith, S.D. Frey. 2020. Root-mycorrhizal responses to soil warming and nitrogen addition in a temperate deciduous forest. Ecological Society of America Annual Meeting (virtual due to COVID-19).

Muratore T.J., J. Grove, D.H. McNear. 2019. Crop Type and Management Influence Monthly Pattern in Microbial Community Structure. Soil Science Society of America Conference, San Diego, California.

Muratore T.J. 2019. Long-term Land Management Practices and Their Effect on Soil Health and Crop Productivity. Master of Science Exit Seminar, Lexington, Kentucky.

Muratore T.J. 2019. Long-Term Land Management: Links Between Crop Rotation and Soil Biology. The University of Kentucky Don Sparks Symposium. The University of Kentucky, The Donald Sparks Symposium

Muratore T.J. 2017. The Effect of Elevation on the Distribution of a Rare Aquatic Plant" Symposium Talk. Undergraduate Honors Thesis Defense, Fredericksburg, Virginia.

Muratore T.J. 2016. The Effect of Elevation on the Distribution of a Rare Aquatic Plant" Symposium Talk. Summer Science Institute, Fredericksburg, Virginia.

Students Mentored

Undergraduates

2023-2024	Maxwell Leavitt, Senior Capstone Thesis,
2023	Isa Goojier, Harvard University, Harvard Forest Research Experience for Undergraduates
2023	Anisa Robinson, University of Pennsylvania, Harvard Forest Research Experience for Undergraduates
2023	Andre Chiang, University of New Hampshire, Lab Technician
2022	Cristina Winter, Humboldt State, Harvard Forest Research Experience for Undergraduates
2022	Gabby Martinez, Xavier University, Harvard Forest Research Experience for Undergraduates
2021	Max Desjardins, University of New Hampshire, Senior Capstone Thesis
2020	Cy Williamson, University of New Hampshire, Lab Technician
2019	Olivia LaChapelle, University of New Hampshire, Senior Capstone Thesis
2019	Emily Johnston, University of New Hampshire, Lab Technician

High school

2020	Annabel Evens

Outreach and Volunteer Service

2020-present	Fundamentals of Soil Science and Sustainable Land Management, Master Gardener Program, University of New Hampshire Extension
2020-present	Invited Judge, University of New Hampshire Undergraduate Research Symposium
2020-2023	Graduate Student Network Committee, Natural Resources and Earth System Science, University of New Hampshire