

**Emerson Conrad-Rooney**  
**Ph.D. Candidate**

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**EDUCATION**

**Boston University, Boston, MA**, Ph.D. candidate in Biology, Graduate Program in Urban Biogeoscience and Environmental Health (BU URBAN Trainee), Biogeoscience Certificate Program, *expected graduation May 2026*, GPA: 4.0.

**Wellesley College, Wellesley, MA**, B.A. 2020, *cum laude*, major in Biological Sciences with Departmental Honors, minor in Environmental Studies, GPA: 3.65

**Participant in Harvard Forest Summer Research Program in Ecology (REU), Petersham, MA, Summer 2019**

**Marine Biological Laboratory, Ecosystems Center**, Woods Hole, MA, Semester in Environmental Science Program, *Fall 2018*, GPA: 3.75

**PROFESSIONAL APPOINTMENTS AND RESEARCH EXPERIENCE**

**Intern, U.S. Global Change Research Program and ICF, Washington, DC** (*remote internship*), *November 2022-April 2023*

- Completed internship as part of Boston University Graduate Program in Urban Biogeoscience and Environmental Health (BU URBAN)
- Reviewed nature-related content in Third Order Draft of Fifth National U.S. Climate Assessment (NCA5)
- Shared feedback via public comments and internal memos to NCA5 and U.S. National Nature Assessment (NNA1) leadership
- Invited to present feedback at NNA1 Federal Steering Committee meeting and NCA5 All Author Meeting
- Presented findings at the American Geophysical Union (AGU) and Ecological Society of America (ESA) annual meetings and wrote an invited publication in the journal *Climatic Change*, Special Issue: Advancements in U.S. Climate Assessments

**Lab Manager/Senior Research Technician, Templer Lab, Boston University, Boston, MA**, *June 2020 – August 2021*

- Managed research projects evaluating the effects of climate change and urbanization on forest biogeochemistry, including electrical system management and data communication across institutions for long-term soil warming Climate Change Across Seasons Experiment (CCASE)
- Supervised students processing leaf litter samples, managed lab budgets, ordered supplies, and conducted long-term data file management
- Wrote code to make R Shiny Dashboard for lab website (<https://ccase.bu.edu/>) to show real time soil temperature and moisture data from CCASE

**Undergraduate Research Assistant in Templer Lab, Boston University, Boston, MA**  
*Spring 2019 – Spring 2020*

**Botanic Gardens Assistant, Wellesley College Botanic Gardens, Wellesley, MA**, *Fall 2019 – Spring 2020*

**Undergraduate Research Assistant in Matthes Ecolab, Wellesley College, Wellesley, MA**  
*Fall 2016 – Spring 2020*

**Undergraduate Research Assistant, Hubbard Brook Experimental Forest, Woodstock, New Hampshire**, *Summer 2018*

**PUBLICATIONS IN PEER REVIEWED JOURNALS**

**Conrad-Rooney E**, AB Reinmann, PH Templer. 2025. Declining winter snowpack offsets carbon storage enhancement from growing season warming in northern temperate forest ecosystems. *Proceedings of the National Academy of Sciences*, 122:e2412873122.

<https://doi.org/10.1073/pnas.2412873122>.

\*Covered in over 250 media outlets, including the *Boston Globe* and the American Geophysical Union (AGU)'s *Eos Magazine*

**Conrad-Rooney E**, C Avery, G Bowser, A Crimmins, A Grade, P McElwee, and P Templer. 2025. Analysis of nature-related themes and terminology in U.S. climate assessments. *Climatic Change*, Special Issue: Advancements in U.S. Climate Assessments, 178:86. <https://doi.org/10.1007/s10584-025-03899-3>.

Templer P, KF Atherton, **E Conrad-Rooney**, H Ho, LR Hutyra, CF Ianniello, DR Kashian, JI Levy, D Meshoulam, MC Urban. 2023. Strengthening graduate education and addressing environmental challenges through solutions-oriented partnerships and interdisciplinary training. *Sustainable Earth Reviews*, 7(3). <https://doi.org/10.1186/s42055-024-00074-x>.

Tatsumi C, KF Atherton, SM Garvey, **E Conrad-Rooney**, LL Morreale, LR Hutyra, PH Templer, and JM Bhatnagar. 2023. Urbanization and edge effects interact to drive mutualism breakdown and the rise of unstable pathogenic communities in forest soil. *Proceedings of the National Academy of Sciences*, 120 (36): e2307519120. <https://doi.org/10.1073/pnas.2307519120>.

**Conrad-Rooney E**, J Gewirtzman, Y Pappas, VJ Pasquarella, LR Hutyra, and PH Templer. 2023. Atmospheric wet deposition in urban and suburban sites across the United States. *Atmospheric Environment*, 305. <https://doi.org/10.1016/j.atmosenv.2023.119783>.

**Conrad-Rooney E**, A Barker-Plotkin, VJ Pasquarella, J Elkinton, JL Chandler, JH Matthes. 2020. Defoliation severity is positively related to soil solution nitrogen availability and negatively related to soil nitrogen concentrations following a multi-year invasive insect irruption. *AoB PLANTS*, 12:6. <https://doi.org/10.1093/aobpla/plaa059>.

**OTHER PUBLICATIONS**

**Conrad-Rooney E**. 2020. Defoliation severity is positively related to soil solution nitrogen availability and negatively related to soil nitrogen concentrations following a multi-year invasive insect irruption. *Wellesley College Repository*, Senior Honors Thesis in Biological Sciences.

Bloemendaal LH, J Wright, **E Conrad-Rooney**, A Tendler. 2021. POV: Takeaways, Hopes, and Disappointments from COP26: Four BU grad students who attended the Glasgow conference virtually reflect on what they learned. *BU Today*, Boston University, Boston, MA.

<https://www.bu.edu/articles/2021/pov-takeaways-hopes-and-disappointments-from-cop26/>.

**ACADEMIC HONORS AND AWARDS**

- Boston University Biogeoscience Symposium Presentation Award, Boston, MA, *Spring 2025*
- American Association for the Advancement of Science 2025 Graduate Student E-Poster Competition in the Environment and Ecology category winner, Boston, MA, *Spring 2025*
- Ecological Society of America (ESA) Biogeosciences Section New Phytologist Innovation Grant for a Graduate Student Presentation, Long Beach, CA, *Summer 2024*
- ESA Katherine S. McCarter Graduate Student Policy Award, *Spring 2024*
- Adelaide Niles Belyea Prize in Botany, Wellesley College, Wellesley, MA, *Spring 2020*
- Sigma Xi Scientific Research Honor Society, Wellesley College, Wellesley, MA, *Spring 2020*
- Marine Biological Laboratory Associates Award, Woods Hole, MA, *Fall 2018*

**FELLOWSHIPS / SCHOLARSHIPS / GRANTS**

- National Science Foundation Graduate Research Fellowship (\$102,000), *Sept. 2023-Aug. 2026*
- ESA Long-term Studies Section JT Callahan Memorial Student Travel Award (\$400), *Summer 2025*
- BU Biology Department Travel Grants, Boston, MA (\$549), *Spring 2023 and 2024*
- BU Biogeoscience Travel Grants, Boston, MA (\$515), *Spring 2022 and 2024*
- American Geophysical Union Student Travel Grant (\$1,000), *Fall 2023*
- BU URBAN NSF NRT Stipends (\$51,004) and Travel Awards (\$2,000), *Fall 2022-Summer 2023*
- Dean's Fellowship (\$12,260), Biology Department, Boston University, Boston, MA, *Fall 2021*
- Youth Environmental Alliance in Higher Education (YEAH) Fellow (\$6,500), *Fall 2020-Spring 2021, Spring 2022*
- Thoreau Scholar for the Environment, Henry David Thoreau Foundation (\$20,000), Somerville, MA, *Fall 2016-Spring 2020*

**INVITED PRESENTATIONS**

**Conrad-Rooney E.** "Nature in National Climate Assessments." Climate, Biogeoscience, and Health: Transformative Science to Real-World Action Symposium, Boston University, Boston, MA, *December 6, 2024*.

**Conrad-Rooney E.** "Nature in National Climate Assessments." Boston University Graduate Program in Urban Biogeoscience and Environmental Health, Boston University, Boston, MA, *May 22, 2024*.

**Conrad-Rooney E.** "Interacting Effects of Growing Season and Winter Climate Change on Forest Carbon Sequestration." Invited speaker Zoom talk series for Lincoln Land Conservation Trust, Lincoln, MA (virtual), *February 11, 2024*.

**Conrad-Rooney E.** "Out in the Forest: Investigating Northeastern Forests and Climate Change." Invited guest scientist lecture for Pride Month Series, Museum of Science, Boston, MA, *June 17, 2023*.

**Conrad-Rooney E.** "One Health, One Planet." Boston University College of Arts and Sciences, New York City, NY (talk at fundraising dinner), *May 8, 2023*.

**Conrad-Rooney E**, A Bailey, P Templer. "Climate Change Across Seasons Experiment: Effects of Warmer Growing Seasons and Smaller Winter Snowpack on Northern Hardwood Forest Phenology." Hubbard Brook Quarterly Meeting, North Woodstock, NH (virtual), *April 13, 2023*.

**Conrad-Rooney E**. "Review of Nature-Related Topics in the 5<sup>th</sup> National Climate Assessment." 5<sup>th</sup> National Climate Assessment All Author Meeting, Washington, DC, *April 3, 2023*.

**Conrad-Rooney E**. "A Review of Nature in the 5<sup>th</sup> National Climate Assessment: Informing the National Nature Assessment." National Nature Assessment Federal Steering Committee Meeting, Washington, DC (virtual), *March 27, 2023*.

**Conrad-Rooney E**, A Reinmann, P Templer. "Climate Change Across Seasons Experiment: Response of tree growth." Annual Harvard Forest Ecology Symposium, Harvard Forest, Petersham, MA, *October 12, 2022*.

#### **CONTRIBUTED CONFERENCE PRESENTATIONS**

**Conrad-Rooney, E**, A Reinmann, P Templer. "Shifting Baselines at the Climate Change Across Seasons Experiment." Ecological Society of America Annual Meeting, Baltimore, MD, *August 12, 2025*.

**Conrad-Rooney, E**, P Templer. "Shifting Baselines at the Climate Change Across Seasons Experiment." Hubbard Brook Annual Meeting, North Woodstock, NH, *July 10, 2025*.

**Conrad-Rooney, E**, P Templer. "Impacts of climate change on tree growth in a northern hardwood forest." Boston University URBAN Annual Symposium, Boston, MA, *May 14, 2025*.

**Conrad-Rooney, E**, P Templer. "Shifting Baselines at the Climate Change Across Seasons Experiment." Boston University Biogeoscience Symposium, Boston, MA, *May 12, 2025*.

**Conrad-Rooney E**, J Sanders, A Reinmann, J Battles, P Templer. "Effects of Growing Season Warming and Winter Freeze/Thaw Cycles on Tree Growth" (Poster). Annual Harvard Forest Ecology Symposium, Harvard Forest, Petersham, MA, *March 18, 2025*.

**Conrad-Rooney E**, J Sanders, A Reinmann, J Battles, P Templer. "Effects of Growing Season Warming and Winter Freeze/Thaw Cycles on Tree Growth" (Poster). American Association for the Advancement of Science Annual Meeting, Boston, MA, *February 14, 2025*.

**Conrad-Rooney E**, J Sanders, A Reinmann, J Battles, P Templer. "Effects of Growing Season Warming and Winter Freeze/Thaw Cycles on Red Maple and American Beech Growth." Ecological Society of America Annual Meeting, Long Beach, CA, *August 8, 2024*.

**Conrad-Rooney E**, C Avery, A Crimmins, P Templer. "Nature Content Review of the Fifth National Climate Assessment (Third Order Draft)" (Poster). Ecological Society of America Annual Meeting, Long Beach, CA, *August 5, 2024*.

**Conrad-Rooney E**, J Sanders, A Reinmann, J Battles, P Templer. "Effects of Growing Season Warming and Winter Freeze/Thaw Cycles on Red Maple and American Beech Growth." Hubbard Brook Annual Meeting, Plymouth, NH, *July 10, 2024*.

**Conrad-Rooney E**, J Sanders, A Reinmann, J Battles, P Templer. "Effects of a Decade of Growing Season Warming and Winter Freeze/Thaw Cycles on Radial Growth in a Northern Hardwood Forest." Boston University Biogeoscience Symposium, Boston, MA, *May 13, 2024*.

**Conrad-Rooney E**, J Gewirtzman, Y Pappas, VJ Pasquarella, LR Hutyra, and PH Templer. "Atmospheric Wet Deposition in Urban and Suburban Sites Across the United States." Annual Harvard Forest Ecology Symposium, Harvard Forest, Petersham, MA, *March 19, 2024*.

**Conrad-Rooney E**, C Avery, A Crimmins, P Templer. "Nature Content Review of the Fifth National Climate Assessment (Third Order Draft)" (Poster). American Geophysical Union Annual Meeting, San Francisco, CA, *December 12, 2023*.

**Conrad-Rooney E**, A Reinmann, P Templer. "Interacting Effects of Growing Season and Winter Climate Change on Forest Carbon Sequestration." Ecological Society of America Annual Meeting, Portland, OR, *August 9, 2023*.

**Conrad-Rooney E**, A Reinmann, P Templer. "Interacting Effects of Growing Season and Winter Climate Change on Forest Carbon Sequestration." Hubbard Brook Annual Meeting, Plymouth, NH, *July 13, 2023*.

**Conrad-Rooney E**, A Reinmann, M Berry, D Powell, P Templer. "Effects of Growing Season and Winter Climate Change on Forest Carbon Sequestration." Boston University Biogeoscience Symposium, Boston, MA, *May 16, 2023*.

**Conrad-Rooney E**, A Reinmann, P Templer. "Climate Change Across Seasons Experiment: Interacting Effects of Growing Season and Winter Climate Change on Forest Carbon Sequestration" (Poster). Long Term Ecological Research Network All Scientist Meeting, Asilomar, CA, *September 20, 2022*.

**Conrad-Rooney E**, Y Pappas, P Templer. "Atmospheric Deposition is Elevated in Cities Relative to Background Rural Areas Across the United States and this Pattern is Strengthening Over Time." Ecological Society of America Annual Meeting, Montreal, Canada, *August 18, 2022*.

**Conrad-Rooney E** and P Templer. "Trends in Urban and Rural Deposition from the National Atmospheric Deposition Program Network." Hubbard Brook Annual Meeting, Plymouth, NH, *July 13, 2022*.

**Conrad-Rooney E**, Y Pappas, P Templer. "Atmospheric Deposition is Elevated in Cities Relative to Background Rural Areas Across the United States and this Pattern is Strengthening Over Time." Boston University Biogeoscience Symposium, Boston, MA, *May 17, 2022*.

**Conrad-Rooney E**, M Morales, A Murphy Pauletto, S Whipple, M Allen, G Bowser. “YEAH! Youth Environmental Alliance in Higher Education: A model for integrating the Sustainable Development Goals (SDGs) towards climate action.” Ecological Society of America Annual Meeting, Long Beach, CA (virtual conference), *August 4, 2021*.

**Conrad-Rooney E**, A Barker-Plotkin, VJ Pasquarella, JH Matthes. “Defoliation severity is positively related to soil solution nitrogen availability and negatively related to soil nitrogen concentrations following a multi-year invasive insect irruption” (Poster). Annual Harvard Forest Ecology Symposium, Harvard Forest, Petersham, MA (virtual conference), *March 16, 2021*.

**Conrad-Rooney E**, Z Ginn, C Hill, A Kurkierewicz, A Mikolitis, K Calizaya Torre, B Gardos Vargas, P Lopez Vargas, S Viscarra, Z Wu, C Zamora. “Effects of Deforestation on Marine Ecosystems and Biodiversity: Case Studies from the United States, Peru, and the United Kingdom.” 2<sup>nd</sup> International Conference of the Youth Environmental Alliance in Higher Education, Fort Collins, CO (virtual conference), *December 9, 2020*.

**Conrad-Rooney E**, A Barker-Plotkin, VJ Pasquarella, JH Matthes. “Defoliation severity is positively related to soil solution nitrogen availability and negatively related to soil nitrogen concentrations following a multi-year invasive insect irruption” (Poster). Ecological Society of America Annual Meeting, Salt Lake City, UT (virtual conference), *August 3-6, 2020*.

**Conrad-Rooney E**. “Outside in the forest: Studying insect outbreaks through hands-on field research at Harvard Forest.” Tanner Conference, Wellesley College, Wellesley, MA, *October 29, 2019*.

**Conrad-Rooney E**, M Anderson, T Michaud, JM Melillo, JE Hobbie. “Effects of chronic nitrogen addition on soil nutrient cycling and ectomycorrhizal fungi at the Harvard Forest” (Poster). Ecological Society of America Annual Meeting, Louisville, KY, *August 11-16, 2019*.

**Conrad-Rooney E**. “Does soil nitrogen increase [spongy] moth defoliation or aid tree recovery?” Harvard Forest Summer Research Program Student Symposium, Harvard Forest, Petersham, MA, *August 8, 2019*.

**Conrad-Rooney E**, JH Matthes. “Does soil nitrogen increase [spongy] moth defoliation or aid tree recovery?” (Preliminary thesis results poster). Science Center Summer Research Poster Session, Wellesley College, Wellesley, MA, *August 1, 2019*.

**Conrad-Rooney E**, E Huang. “Tree growth at Hubbard Brook: Interactions among tree species diversity, plot elevation, and mycorrhizal associations.” Ruhlman Conference, Wellesley College, Wellesley, MA, *May 1, 2019*.

**Conrad-Rooney E**. “Mycorrhizal colonization across an urban to rural gradient: Interactions with nitrogen and calcium cycles.” Independent Research Symposium: Semester in Environmental Science, Woods Hole, MA, *December 14, 2018*.

**Conrad-Rooney E**, A Lang, JH Matthes. "Investigating the impact of mycorrhizal fungi and tree roots on soil microbial activity." Science Center Summer Research Poster Session, Wellesley College, Wellesley, MA, *August 2, 2018*.

**Conrad-Rooney E**, E Huang, L Jones. "Searching below the surface: Impacts of soil texture and symbiotic fungi on forest root growth." Ruhlman Conference, Wellesley College, Wellesley, MA, *May 2, 2018*.

**Conrad-Rooney E**, I Chen. "Trees as storytellers: Analyzing tree rings to understand climate in the past, present, and future." Ruhlman Conference, Wellesley College, Wellesley, MA, *April 26, 2017*.

## TEACHING AND RESEARCH MENTORSHIP EXPERIENCE

### *Instructor of record:*

Boston University BI306: Biology of Global Change, 110 students, *Fall 2024*.

### *Teaching fellowship:*

Boston University BI306: Biology of Global Change Laboratory, 44 students, *Spring 2022*.

### *Invited guest lectures:*

"Interacting effects of growing season and winter climate change on forest carbon sequestration" at Harvard Institute for Learning in Retirement for Fredric Chanania's course New England Ecology - from Mountaintops to Oceans, *Virtual, March 3, 2025*.

"Interacting effects of growing season and winter climate change on forest carbon sequestration" at City University of New York for Dr. Andrew Reinmann's course PGEOG 38306/70506 Ecology of Global Change, *Virtual, March 13, 2024*.

### *Research mentorship:*

Committee Member for undergraduate honors senior thesis, University of Massachusetts Amherst, Amherst, MA, *Spring 2024-present*.

Mentor for Greater Boston Research Opportunities for Young People (GROW) program, Boston University, Boston, MA, *Summers 2024 and 2025*.

Mentor for DaRin Butz Foundation Research Internship Program, Arnold Arboretum of Harvard University, Boston, MA, *Summers 2021 and 2024*.

Mentor for Harvard Forest Summer Research Program in Ecology (REU), Harvard Forest, Petersham, MA, *Summers 2021 and 2022*.

Mentor for the Biology Department Prospective Scholar Program, Boston University, Boston, MA, *Fall 2021*.

Mentor for undergraduate students in Templer Lab, some via Boston University's Undergraduate Research Opportunities Program (UROP), Boston University, Boston, MA, *Spring 2020-Summer 2021*.

**CONFERENCE AND SYMPOSIUM ORGANIZING ACTIVITIES*****Workshop and curriculum development:***

Organizer and Presenter for the “Advocacy for a Just Future: An Action-Oriented Workshop for Engaging with Policymakers” event, co-hosted with BU oSTEM, BU SACNAS and BU URBAN, Boston University, Boston, MA, *April 17, 2025*.

Workshop Organizer, Moderator, and Opening Host for “Youth Dialogues on the National Climate Assessment,” Youth Environmental Alliance in Higher Education, Fort Collins, CO (virtual workshop), *January 15, 2023*.

Workshop Organizer and Presenter for the “5<sup>th</sup> National Climate Assessment Review Party,” Boston University Science Policy Network and BU URBAN, Boston University, Boston, MA, *December 9, 2022*.

Workshop Organizer and Presenter for “Demystifying Policymaker Engagement: Tips for Early Career Scientists by Early Career Scientists,” Annual oSTEM Conference, Boston, MA, *November 12, 2022*.

Workshop Organizer and Presenter for “Research Proposal & Peer Review Workshop,” Harvard Forest Summer Research Program in Ecology (REU), Harvard Forest, Petersham, MA, *June 7, 2022*.

Workshop Organizer, Moderator, and Opening/Closing Host for “Youth Dialogues on the National Climate Assessment,” Youth Environmental Alliance in Higher Education, Fort Collins, CO (virtual workshop), *February 15, 2022*.

Youth Environmental Alliance in Higher Education (YEAH) Fellow, co-developed curricula guiding students to research applications of UN Sustainable Development Goals for Dr. Templer’s undergraduate course at Boston University, “Biology of Global Change,” *Fall 2020*.

***Symposium Organizer:***

Symposium Organizer and Moderator for URBAN Annual Symposium, Boston University, Boston, MA, *May 14, 2025*.

Symposium Organizer for Biogeoscience Symposium, Boston University, Boston, MA, *May 12, 2025*.

Symposium Organizer and Guest Panel Moderator for Biogeoscience Symposium, Boston University, Boston, MA, *May 13, 2024*.

Townhall Organizer and Moderator for Ecological Society of America Annual Meeting Townhall “The US National Climate and Nature Assessments: An Update for the ESA Community,” Montreal, Canada, *August 18, 2022*.

Moderator for the 5<sup>th</sup> International Youth Environmental Alliance in Higher Education on Environmental Conservation Virtual Conference on Global Action for Environment, Justice and Sustainability, Fort Collins, CO (virtual conference), *April 22, 2022*.

Conference Organizer for 3<sup>rd</sup> International Conference of the Youth Environmental Alliance in Higher Education on Environmental Conservation, Sustainability and Equity in 2021, Fort Collins, CO (virtual conference), *April 21, 2021*.

Conference Organizer and Closing Plenary Discussant for 2<sup>nd</sup> International Conference of the Youth Environmental Alliance in Higher Education, Fort Collins, CO (virtual conference), *Dec. 9, 2020*.

### **LEADERSHIP AND FOSTERING COMMUNITY**

President of BU oSTEM (Out in STEM), Boston University, Boston, MA, *Spring 2022-present*.

Member of Hubbard Brook Community Resources Committee, Hubbard Brook, NH, *Summer 2023-present*.

Communications Liaison for BU STEPUP (Science and Technology in Public Policy), Boston University, Boston, MA, *Fall 2022*.