Jonathan Gewirtzman

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Research focus: Tree microbiomes, ecosystem biogeochemistry, and forest greenhouse-gas exchange.

Academic Appointments

2026– **Stanford University**, Dept. of Earth System Science—*Palo Alto, CA.*
Postdoctoral Fellow, Stanford Science Fellows Program.

2024 **Harvard Forest**—*Petersham, MA.*
Research Fellow

2024 **Connecticut College**—*New London, CT.*
Adjunct Faculty, Department of Botany

Education

2020–2026 **Yale University** School of the Environment—*New Haven, CT*
Ph.D., Ecosystem Ecology and Biogeochemistry, *May 2026*
M.Phil., Forestry & Environmental Studies, *2023*
National Science Foundation Graduate Research Fellow

2014–2017 **Brown University**—*Providence, RI*
B.Sc. (Hons.), Environmental Science

2012–2013 **Haverford College**—*Haverford, PA*

Research Experience

2017-2020 **Boston University**—*Boston, MA. Lab Manager & Senior Research Technician*, *Templer Lab, Dept. of Biology*

2017 **Toolik Field Station**—*North Slope, AK. Research Assistant*

2015-2017 **Marine Biological Laboratory**—*Woods Hole, MA*
Research Assistant (2017), *Thesis Student (2016-2017)*, *Research Intern (2015)*

2015-2017 **Climate and Development Lab,** Brown University—*Providence, RI. Research Associate*

Publications

†equal contribution; *mentored trainee.

Peer-Reviewed Publications

[1] C. L. Doughty, Q. Ying, E. Ward, E. Delaria, G. M. Wolfe, S. L. Malone, D. E. Reed, T. Troxler, J. S. Kominoski, E. Castañeda-Moya, W. B. Shoemaker, D. Yannick, G. Starr, S. F. Oberbauer, A. Barenblitt, A. Campbell, S. Charles, L. Fatoyinbo, **J. Gewirtzman**, T. Hanisco, R. Hannun, S. Kawa, D. Lagomasino, L. Lait, A. Lindquist, P. Newman, P. Raymond, J. Rosentreter, K. Thornhill, D. Vaughn, and B. Poulter, "Compounded effects on wetland greenhouse gas fluxes from climate change and water management along a saline to freshwater gradient," *Proceedings of the National Academy of Sciences*, vol. 123, no. 8, e2513685123, 2026. DOI: 10.1073/pnas.2513685123.

[2] **J. Gewirtzman**, "The global woody surface: A planetary interface for biodiversity, ecosystem function, and climate," *Global Change Biology*, vol. 32, no. 1, e70699, 2026. DOI: 10.1111/gcb.70699.

[3] **J. Gewirtzman** and N. Fetcher, "Soil drying induces widespread productivity loss but unequal climate vulnerability among ecotypes of a foundational Arctic sedge," *Functional Ecology*, vol. 40, no. 7, pp. 2301–2317, 2026. DOI: 10.1111/1365-2435.70367.

[4] **J. Gewirtzman**†, W. Arnold†, P. A. Raymond, M. C. Duguid, C. R. Brodersen, C. Brown*, N. Norbraten*, Q. Wood*, M. A. Bradford, and J. Peccia, "A diverse and distinct microbiome inside

living trees," *Nature*, vol. 644, pp. 1039–1048, Aug. 2025, † *Authors contributed equally.* DOI: 10.1038/s41586-025-09316-0,

Selected media coverage: *Science*; *Nature Reviews Microbiology*; *Cell Host & Microbe*; *Nature Podcast*; *Scientific American*; *The New York Times*

[5] C. Hettwer, K. Savage, **J. Gewirtzman**, R. Ruzol, J. Wason, H. Cadillo-Quiroz, and S. Fraver, "Methane flux from living tree stems in a northern conifer forest," *Biogeochemistry*, vol. 168, no. 4, p. 66, Aug. 2025. DOI: 10.1007/s10533-025-01257-0.

[6] J. H. Matthes, A. Reinmann, H. Naughton, **J. Gewirtzman**, and N. Pederson, "Impacts and legacies of extreme precipitation on temperate forests during critical ecological windows," *Annual Review of Ecology, Evolution, and Systematics*, vol. 56, 2025, ISSN: 1543-592X. DOI: 10.1146/annurev-ecolsys-102723-042035.

[7] R. Dubey, A. Telles, J. Nikkel, C. Cao, **J. Gewirtzman**, P. A. Raymond, and X. Lee, "Low-cost CO_2 NDIR sensors: Performance evaluation and calibration using machine learning techniques," *Sensors*, vol. 24, no. 17, 2024. DOI: 10.3390/s24175675.

[8] **J. Gewirtzman**†, W. Arnold†, P. Raymond, M. Bradford, C. Butler, and J. Peccia, "A method for sampling the living wood microbiome," *Methods in Ecology and Evolution*, 2024, † *Authors contributed equally.* DOI: 10.1111/2041-210X.14311.

[9] C. Pan, V. Patel, **J. Gewirtzman**, I. Richardson, R. Dubey, K. Caylor, A. Dollar, and E. Forbes, "Fluxbot: The next generation - design and validation of a wireless, open-source mechatronic CO_2 flux sensing chamber," *Proceedings of the 7th ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies*, COMPASS '24, pp. 85–96, 2024. DOI: 10.1145/3674829.3675063.

[10] S. Caron, S. M. Garvey, **J. Gewirtzman**, K. Schultz, J. M. Bhatnagar, C. Driscoll, L. R. Hutyra, and P. H. Templer, "Urbanization and fragmentation have opposing effects on soil nitrogen availability in temperate forest ecosystems," *Global Change Biology*, vol. 29, no. 8, pp. 2156–2171, 2023. DOI: 10.1111/gcb.16611.

[11] E. Conrad-Rooney, **J. Gewirtzman**, Y. Pappas, V. J. Pasquarella, L. R. Hutyra, and P. H. Templer, "Atmospheric wet deposition in urban and suburban sites across the United States," *Atmospheric Environment*, p. 119 783, 2023, ISSN: 1352-2310. DOI: 10.1016/j.atmosenv.2023.119783.

[12] F. V. Jevon, **J. Gewirtzman**, A. K. Lang, M. P. Ayres, and J. H. Matthes, "Tree species effects on soil CO_2 and CH_4 fluxes in a mixed temperate forest," *Ecosystems*, vol. 26, no. 7, pp. 1587–1602, 2023. DOI: 10.1007/s10021-023-00852-2.

[13] B. Poulter, F. M. Adams-Metayer, C. Amaral, A. Barenblitt, A. Campbell, S. P. Charles, R. M. Roman-Cuesta, R. D'Ascanio, E. Delaria, C. Doughty, T. Fatoyinbo, **J. Gewirtzman**, T. F. Hanisco, M. Hull, S. R. Kawa, R. Hannun, D. Lagomasino, L. Lait, S. Malone, P. Newman, P. Raymond, J. Rosentreter, N. Thomas, D. Vaughn, G. M. Wolfe, L. Xiong, Q. Ying, and Z. Zhang, "Multi-scale observations of mangrove blue carbon ecosystem fluxes: The NASA Carbon Monitoring System BlueFlux field campaign," *Environmental Research Letters*, vol. 18, no. 7, p. 075 009, 2023. DOI: 10.1088/1748-9326/acdae6.

[14] J. E. Rindy, E. A. Pierce, J. Geddes, S. M. Garvey, **J. Gewirtzman**, C. T. Driscoll, L. R. Hutyra, and P. H. Templer, "Effects of urbanization and forest fragmentation on atmospheric nitrogen inputs and ambient nitrogen oxide and ozone concentrations in mixed temperate forests," *Journal of Geophysical Research: Biogeosciences*, vol. 128, no. 12, e2023JG007543, 2023. DOI: 10.1029/2023JG007543.

[15] T. Ma, T. Parker, N. Fetcher, S. L. Unger, **J. Gewirtzman**, M. L. Moody, and J. Tang, "Leaf and root phenology and biomass of *Eriophorum vaginatum* in response to warming in the Arctic," *Journal of Plant Ecology*, vol. 15, no. 5, pp. 1091–1105, Mar. 2022, ISSN: 1752-993X. DOI: 10.1093/jpe/rtac010.

[16] T. Ma, T. Parker, S. Unger, **J. Gewirtzman**, N. Fetcher, M. L. Moody, and J. Tang, "Responses of root phenology in ecotypes of *Eriophorum vaginatum* to transplantation and warming in the Arctic," *Science of The Total Environment*, vol. 805, p. 149 926, 2022, ISSN: 0048-9697. DOI: 10.1016/j.scitotenv.2021.149926.

[17] S. E. Johnston, J. C. Carey, A. Kellerman, D. C. Podgorski, **J. Gewirtzman**, and R. G. M. Spencer, "Controls on riverine dissolved organic matter composition across an Arctic-boreal latitudinal gradient," *Journal of Geophysical Research: Biogeosciences*, vol. 126, no. 9, e2020JG005988, 2021. DOI:

10.1029/2020JG005988.

[18] J. C. Carey, **J. Gewirtzman**, S. E. Johnston, A. Kurtz, J. Tang, A. M. Vieillard, and R. G. M. Spencer, "Arctic river dissolved and biogenic silicon exports—current conditions and future changes with warming," *Global Biogeochemical Cycles*, vol. 34, no. 3, e2019GB006308, 2020. DOI: 10.1029/2019GB006308.

[19] **J. Gewirtzman**, J. Tang, J. M. Melillo, W. J. Werner, A. C. Kurtz, R. W. Fulweiler, and J. C. Carey, "Soil warming accelerates biogeochemical silica cycling in a temperate forest," *Frontiers in Plant Science*, vol. 10, 2019, ISSN: 1664-462X. DOI: 10.3389/fpls.2019.01097.

[20] **J. Gewirtzman**, S. Natson, J.-A. Richards, V. Hoffmeister, A. Durand, R. Weikmans, S. Huq, and J. T. Roberts, "Financing loss and damage: Reviewing options under the Warsaw International Mechanism," *Climate Policy*, vol. 18, no. 8, pp. 1076–1086, 2018. DOI: 10.1080/14693062.2018.1450724.

[21] J. T. Roberts, S. Natson, V. Hoffmeister, A. Durand, R. Weikmans, **J. Gewirtzman**, and S. Huq, "How will we pay for loss and damage?" *Ethics, Policy & Environment*, vol. 20, no. 2, pp. 208–226, 2017. DOI: 10.1080/21550085.2017.1342963.

Preprints and In Review

[22] K. Ferraro, G. A. Meyer, J. Roman, D. Orr, S. Leroux, A. Subalusky, E. Duvall, J. Monk, **J. Gewirtzman**, M. Rizzuto, A. Koltz, C. Owens, A. Abraham, C. Doughty, O. Schmitz, and E. Forbes, "A practical primer for zoogeochemistry: Essential biogeochemical methods for animal ecologists," In review at Journal of Animal Ecology.

[23] **J. Gewirtzman**, P. A. Raymond, H. Burrows*, L. Jeffrey, D. Maher, M. A. Bradford, and J. Hatala Matthes, "Ground-to-canopy tree methane fluxes: Implications for scaling and forest budgets," In review at Geophysical Research Letters. Preprint available at EarthArXiv.

[24] C. L. Doughty, Q. Ying, E. Ward, E. Delaria, G. M. Wolfe, A. Lindquist, A. Campbell, M. Chabba, S. Charles, A. Colwell, L. Fatoyinbo, **J. Gewirtzman**, R. Hannun, J. Kominoski, D. Lagomasino, S. L. Malone, E. Powell, P. Raymond, J. Rosentreter, T. Troxler, D. Vaughn, and B. Poulter, "Wetland emission factors using Earth observation for IPCC greenhouse gas inventories," 2026, In review.

[25] E. K. Evans, A. Polussa, S.-s. Liu, E. Forbes, **J. Gewirtzman**, T. Runge, M. Sheffer, J. Sanderman, E. E. Oldfield, and M. A. Bradford, "Regional impact of regenerative management of dairy systems on soil health.," *agriRxiv*, 2026, In review at Agriculture, Ecosystems & Environment. DOI: 10.31220/agriRxiv.2026.00445.

[26] S. H. Gan†, T. A. Walker†, R. J. Brokaw, A. M. S. Correa, M. Downs, G. Liang, C. López Lloreda, W. Wieder, Y. Xu, and **J. Gewirtzman**, "Long-term experiments reveal carbon cycling responses that diverge from short-term observations: Case studies from the LTER network," 2026, † *Authors contributed equally.* In review at Ecology Letters.

[27] **J. Gewirtzman**, N. Hegwood, H. Burrows*, M. Lutz*, G. Thompson*, B. Duncan*, M. Yang*, S. Jurado*, R. Marra, and J. Hatala Matthes, "Contrasting controls on tree methane emissions in upland and wetland forests," 2026, In review at Journal of Geophysical Research: Biogeosciences. Preprint on bioRxiv. DOI: 10.64898/2026.01.29.702553.

[28] **J. Gewirtzman**†, J. D. Watts†, H. Cadillo-Quiroz, D. Sihi, R. Tang, J. West, V. Leshyk, G. Burba, E. Davidson, M. Helbig, A. Malhotra, J. Matthes, Y. Oh, F.-J. W. Parmentier, B. Poulter, R. K. Varner, X. Xu, H. Zhao, J. Zheng, D. Baldocchi, R. Commane, Z. Dietrich, C. Hettwer, D. Kahn, B. Maglio, D. Monteverde, C. R. Perryman, T. Roychowdhury, B. R. K. Runkle, E. A. G. Schurr, R. Vargas, A. Virkkala, Q. Zhuang, C. E. Miller, and K. Savage, "Terrestrial methane oxidation: Climate implications and research priorities," *Nature Reviews Earth & Environment*, 2026, † *Authors contributed equally.* In revision (invited) at Nature Reviews Earth & Environment.

[29] L. Lamb-Wotton, M. F. Adame, J. Adams, V. B. Arifanti, M. S. Alvarado-Barrientos, T. Bornman, D. Buttner, Y. Castillo, L. Chen, D. Epron, B. D. Eyre, B. van Haastregt, J. Hoyos-Santillan, **J. Gewirtzman**, L. Human, N. Iram, G. Lin, W. Nakamura, S. K. Paul, Q. Peiyang, G. Qin, R. Ray, J. A. Rosentreter, J. A. Salas-Rabaza, Z. Shribman, J. Z. Sippo, F. Wang, J. Z.-Q. Yeo, and D. A. Friess, "Global patterns and environmental influences on mangrove soil greenhouse gas fluxes," 2026, In review at Nature Communications.

[30] S. L. Malone, J. Matthes, C. Sturtevant, A. Chen, R. Commane, K. Delwiche, A. Desai, C. Florian, **J. Gewirtzman**, S. Jurado*, D. Reed, J. Chi, H. Iwata, E. Lundin, I. Mammarella, M. Peichl, A. Malhotra, J. Holst, M. Lu, J. Wang, and M. Ueyama, "Ecosystem-scale methane fluxes in terrestrial uplands diverge from soil-sink expectations," 2026, In review at Nature Communications. DOI: 10.21203/rs.3.rs-10705238/v1.

[31] S. L. Malone, J. H. Matthes, C. S. Sturtevant, A. Chen, R. Commane, K. B. Delwiche, A. R. Desai, C. R. Florian, J. D. Gewirtzman, S. A. Jurado*, D. E. Reed, J. Chi, H. Iwata, E. J. Lundin, I. Mammarella, M. Peichl, M. Ueyama, and C. Rey-Sánchez, "A continental benchmark dataset for evaluating ecosystem gradient-flux approaches across 47 NEON flux towers," *Earth System Science Data Discussions*, pp. 1–53, 2026, In review at Earth System Science Data. DOI: 10.5194/essd-2026-413.

[32] E. Powell, **J. Gewirtzman**, L. Xiong, D. Lagomasino, D. Morton, L. Fatoyinbo, C. Doughty, A. Campbell, E. Ward, S. Charles, H. Asmath, E. Castaneda, E. Delaria, G. M. Wolfe, and B. Poulter, "Evaluating automated plot-level reconstruction of mangrove structure and biomass using terrestrial laser scanning," 2026, In review at Remote Sensing of Environment.

[33] R. Tang, K. Savage, J. D. Watts, X. Xu, H. Cadillo-Quiroz, R. Z. Abramoff, **J. Gewirtzman**, D. Nguyen, S. Fraver, D. Kahn, and D. Sihi, "Soil pore structure and moisture-tolerance thresholds co-regulate soil methane uptake in a sub-boreal forest," *Journal of Advances in Modeling Earth Systems*, 2026, In review.

[34] G. Thompson*, M. P. Lutz*, T. K. Lucey, B. Duncan*, M. Yang*, S. Jurado*, J. Hatala Matthes, R. E. Marra, and **J. Gewirtzman**, "Internal decay in living trees: A quantitative tomography framework and its application in a temperate forest," *bioRxiv*, 2026, In review at Canadian Journal of Forest Research. DOI: 10.64898/2026.06.10.730433.

[35] **J. Gewirtzman**, A. Keiser, M. Nieland, C. Palmer, V. Patel, K. Caylor, and E. Forbes, "Low-cost autonomous chambers enable high spatial and temporal resolution monitoring of soil CO_2 exchange across landscapes," 2025, In review at Agricultural and Forest Meteorology. Preprint available at EarthArXiv. DOI: 10.31223/X5TB3F.

[36] **J. Gewirtzman**†, W. Arnold†, M. Taylor, H. Burrows*, C. Merenstein, D. Woodbury, N. Whitlock*, K. Kraut*, L. Gonzalez*, C. R. Brodersen, M. Duguid, P. A. Raymond, J. Peccia, and M. A. Bradford, "Tree microbiomes and methane exchange in upland forests," *bioRxiv*, 2025, † *Authors contributed equally.* In review at New Phytologist. DOI: 10.1101/2025.09.30.679632.

[37] S. S.-E. Tsao, T. J. Surhoff, G. Amatulli, M. Almaraz, **J. Gewirtzman**, B. Woollen, E. W. Slessarev, J. E. Saiers, C. T. Reinhard, S. Zhang, N. J. Planavsky, and P. A. Raymond, "A spatially explicit dataset of agriculture liming across the contiguous United States," *Earth System Science Data Discussions*, vol. 2025, pp. 1–32, 2025, In review at Earth System Science Data. DOI: 10.5194/essd-2025-411.

[38] D. Vaughn, J. Rosentreter, C. Doughty, S.-E. Tsao, **J. Gewirtzman**, B. Poulter, S. P. Charles, D. Lagomasino, and P. R. Raymond, "Seasonal variability of lateral dissolved carbon and water-air greenhouse gas fluxes from mangrove-fringed rivers in the Florida Everglades," 2024, Preprint available at SSRN. DOI: 10.2139/ssrn.4971581.

Book Chapters

[1] **J. Gewirtzman**, "Ecosystem dynamics," in *The SAGE Encyclopedia of Environmental Justice*, D. E. Taylor, Ed., Thousand Oaks, CA: SAGE Publications, Inc., 2026, pp. 318–324. DOI: 10.4135/9781071908006.n104.

Reports and Policy Briefings

[1] M. Ashton, G. Dunning, L. Felker, S. Santiago, L. O'Brien, W. Klipa, R. Lewis, W. Gardner, S. Kuebbing, M. Bradford, *et al.*, "What makes a high-quality forest carbon credit?" Yale Forest Forum, Tech. Rep., 2023.

[2] A. Durand, V. Hoffmeister, R. Weikmans, **J. Gewirtzman**, S. Natson, S. Huq, and J. T. Roberts, "Financing options for loss and damage: A review and roadmap," Deutsches Institut für Entwicklungspolitik, Tech. Rep., 2016.

[3] J. T. Roberts, R. Weikmans, I. Tellam, S. Gurwitt, **J. Gewirtzman**, K. Adams, D. Ciplet, S. Chokshi, M. Holloway, S. Natson, *et al.*, "Toward mutual accountability: The 2015 adaptation finance transparency gap report," Tech. Rep., 2015.

Grants & Fellowships

Research Grants & Awards

2025 Yale Institute for Biospheric Studies Grant: *Conventional vs. Regenerative Manure Management Greenhouse Gas Fluxes ($3,000).* Jon Gewirtzman, Elizabeth Forbes.

2025 The Everglades Foundation Research Enhancement Grant *($21,982)*

2025 Yale Institute for Biospheric Studies Dissertation Improvement Grant *($3,050)*

2025 Yale Planetary Solutions Initiation Grant *($25,000) Listening to the Forest: Designing Immersive Ecological Data-Driven Soundscapes.* Matthew Suttor, Judith Lichtman, Jonathan Gewirtzman, Roeland Hancock, Konrad Kaczmarek, Diego Ellis Soto

2021–2025 Kohlberg-Donohoe Research Fellowship, Yale-Myers Forest. *2025: $1,500; 2024: $3,390; 2023: $7,500; 2022: $5,000; 2021: $5,000.*

2025 Great Mountain Forest Taylor Research Fellowship *($19,500) Monitoring non-structural carbohydrates in American beech in response to beech leaf disease.* Jon Gewirtzman, Craig Brodersen, Helen Poulos, Susanna Kerio, Elisabeth Ward.

2025 NASA Connecticut Space Grant Consortium Graduate Research Fellowship *($10,000).*

2024 Planetary Solutions Project Seed Funding, Yale University *($99,985). Communicating environmental change through music with data sonification.* Matthew Suttor, Konrad Kaczmarek, Neal Baer, Richard Prum, Robert Kanoff, Timothy Gomer, Judith Lichtman, Diego Ellis-Soto, Jon Gewirtzman.

2023 Harvard Forest Long-Term Ecological Research (LTER) Student Award *($2,500)*

2022–2023 Yale Institute for Biospheric Studies Fellowship. *2023: $4,925; 2022: $8,000.*

2022 Yale Institute for Biospheric Studies Early Grant *($3,000)*

2022 Planetary Solutions Project Seed Funding, Yale University *($80,000). How does tree-mediated methane emission affect the climate mitigation potential of forests?.* Jordan Peccia, Peter Raymond, Mark Bradford, Craig Brodersen, Marlyse Duguid, Wyatt Arnold, Jon Gewirtzman.

2016 Geological Society of America, Stephen G. Pollock Undergraduate Research Grant *($1,500)*

2016 International Affairs Undergraduate Student Grant, Brown University *($700)*

Fellowships

2026–2027 Stanford Science Fellowship, Stanford University. *Awarded $303,000 over three years.*

2020 National Science Foundation Graduate Research Fellowship (NSF-GRFP) *($138,000)*

Travel Awards

2025 Leitner Fund International Conference Award *($750)*

2025 Doctoral Student Travel Award, Yale School of the Environment *($2,500)*

2022–2024 Graduate Student Assembly Conference Travel Fellowship, Yale University. *2024: $800; 2022: $500.*

2022–2024 Yale School of the Environment Conference Travel Award. *2024: $500; 2022: $500.*

Honors & Awards

2026 Katherine McCarter Policy Award
Ecological Society of America, Washington, DC

2025 Oak Spring Garden Foundation Interdisciplinary Residency
Oak Spring Garden Foundation, Upperville, VA

2022 Best Student Presentation / New Phytologist Trust Innovation Award
Ecological Society of America Biogeosciences Section

2017 L. Carpenter Prize for Outstanding Performance in Environmental Studies Concentration
Institute at Brown for Environment and Society, Brown University

2017 Elected to Sigma Xi
Sigma Xi Scientific Research Honor Society

Scholarships & Education Awards

2016 Environmental Science Summer Research Award, Brown University *($3,500)*

2016 Milton L. Shifman Endowed Scholarship, Marine Biological Laboratory *($5,400)*

2015 Charles and Phyllis Rosenthal Brown-MBL Partnership Award, Brown University *($4,500)*

2013 AmeriCorps Segal Education Award *($1,175)*

Mentoring & Advising

Doctoral Advisory Committees

2026– **Christian Hettwer** (Ph.D.), Department of the Geophysical Sciences, University of Chicago. Doctoral Committee Member.

2026– **Shoriful Islam**, Gazipur Agricultural University, Bangladesh. Ph.D. Advisory Committee Member; supervisor: Prof. Tofazzal Islam. Research: "Decoding the Microbiome of the World's Largest Mangrove Forest, the Sundarbans."

Thesis & Independent Study Advising

2025–2026 **Ashley Dawn**, Harvard University. Undergraduate thesis co-mentor, Harvard College (2025–2026); Research Experience for Undergraduates (REU) mentor, Harvard Forest (summer 2024).

2025–2026 **Hannah Adler**, Harvard College. Undergraduate thesis co-mentor.

2024–2025 **Kristen Tam**, Yale School of the Environment. Master's thesis mentor. Research: Quantifying the total greenhouse-gas budget of solid compost and liquid slurry manure application on a Hudson Valley regenerative dairy farm.

Spring 2023 **Naomi Norbraten**, Yale University. Primary advisor, Individual Study in Earth and Planetary Sciences (EPS 487). Project: Wood nonstructural carbohydrates as microbial substrates.

2022–2023 **Frannie Adams**, Yale School of the Environment. Master's thesis mentor. Research: Methane emissions from live and dead mangrove trees.

2022 **Qespi Wood**, Universidad Nacional de San Antonio Abad del Cusco (UNSAAC), hosted at Yale University. Visiting undergraduate thesis advisor (fall 2022); thesis: Vertical variability in methanogenesis in *Quercus velutina*. Research internship mentor (summer 2022); project: Microbial DNA extraction and analysis from tree cores.

Research Mentoring

2025–2026 **Grace Thompson and Max Lutz**, Harvard Forest research staff. Acting lead advisor; primary scientific advising and project supervision following their supervising principal investigator's departure.

2024–2025 **Megan Brueck**, Yale University undergraduate. Research supervisor, Environmental Studies Undergraduate Concentration (2024–2025); lab supervisor and mentor (summer 2024).

Summer 2024 **Nola Lai**, The Hotchkiss School (high school). Lab supervisor and mentor, Yale University.

2023–2024 **Harvard Forest REU mentoring**. Summer 2024: Bethany Duncan (Columbia University), Sonia McCollum (Mt. Holyoke College), and Masako Yang (Harvard University). Summer 2023: Sam Jurado (Cornell University) and Aerial Kruger (Portland Community College).

Winter 2024 **Annabelle Rayson**, Harvard College. Wintersession internship mentor, Harvard Forest.

2023–2024 **Hannah Burrows**, Harvard University. REU mentor, Harvard Forest (summer 2023); Wintersession internship mentor, Harvard Forest (winter 2024).

2021, 2023 **Ingalls Field Ecology Program**, Yale University: summer 2023 mentor to Leslie Gonzalez (Yale), Naomi Whitlock and Kendall Kraut (Wesleyan University); summer 2021 co-mentor to Les Welker, Ellie Jose, Marsh Hlavka, Camilla Ledezma, and Makenzie Birkey.

Summer 2022 **Cade Brown**, Yale University. Research internship mentor; project: Microbial DNA extraction and analysis from tree cores.

2017–2020 **Lab Manager and Research Technician**, Department of Biology, Boston University. Trained and mentored master's, undergraduate, and high school students and field technicians in field and laboratory methods, data analysis, and thesis research.
Master's students: Melissa Berry and Stephen Caron; also trained two field technicians.
Undergraduates: Alex White, Alexis Ahern, Beth Huselsenbeck, Eliza Puritz, Emily Hunter, Emma Conrad-Rooney, Fiona Harrigian, Jared Kannel, Koby Giglietti, Kyle Schultz, Kylie Blake, Marissa Lee, Megan Blagden, Meilin Chan, Sidney Hare, Somaya Laroussi, Vivian Shen, and Vivien Chen.
High school students: Anjani Patibandia, Ewan Henderson, Maxine Phillips, and Somaya Laroussi.

Teaching Experience

Instructor of Record

Spring 2024 **Plant Ecology** (BOT 315), Connecticut College. Designed and taught lecture and lab course spanning cells to landscapes, applied ecology, conservation, justice, and global change.

Teaching Fellowships/Assistantships — Yale University

Spring 2025 **Science for Policy and Practice** (ENV 697): seminar, 11 master's students.

Spring 2024 **Environmental Data Science in R** (ENV 730): seminar, 8 master's students.

2023 **Methane in Global Climate Disruption** (ENV 623): spring seminar, 10 master's students; fall seminar, 6 master's students.

Fall 2022 **Forest Dynamics** (EVST 360/ENV 660): lecture and field course, 166 undergraduate and graduate students.

Fall 2021 **Watershed Cycles and Processes** (ENV 724a): lecture course, 15 undergraduate and graduate students.

Guest Lectures & Course Consulting

Fall 2026 Guest lecturer, **Blue Carbon**, Utah State University (virtual).

Fall 2025 Guest field-lab instructor, **Ecosystem Measurements for Conservation and Restoration**, Yale University.

Fall 2024 Guest lecturer, **Global Wetlands**, Harvard University.

Fall 2022 Guest lecturer, **Forest Dynamics**, Yale University.

Spring 2024 Course consulting: "An introduction to mangrove restoration and blue carbon," online course, Environmental Leadership and Training Initiative, Yale School of the Environment.

Pre-College Teaching

Summer 2022 Guest instructor, Environmental Science & Sustainability High School Summer Program, National Student Leadership Conference.

Summer 2022 Enrichment course instructor, Yale Pathways to Science Summer Scholars Program.

Training Workshops & Student Development

2024, 2021 Applying for a PhD, Yale School of the Environment.

2024 Introduction to R for Ecology; Preparing for Graduate School, Harvard Forest Summer Research Program.

2024 Fieldwork Safety, Yale School of the Environment.

2022 Research Preparedness, Yale School of the Environment.

Teaching Qualifications

2020–2025 Certificate of College Teaching Preparation, Yale Poorvu Center for Teaching and Learning.

2025 Center for Integration of Research, Teaching and Learning (CIRTL) Associate.

Invited Talks

Department/Agency Seminars & Colloquia

2026 Invited seminar, Coastal Biogeochemistry Research Group, Southern Cross University (Australia), July 2026.

2026 University of Guelph MiPARC – Microbiome Preservation and Analysis Research Centre (Guelph, ON): "Tree microbiomes: insights into environmental and non-animal host systems"

2026 Lawrence Livermore National Laboratory Biogeochemistry Journal Club (Livermore, CA; Hybrid): "Tree microbiomes and methane cycling"

2026 Cary Institute of Ecosystem Studies (Millbrook, NY): "Tree microbiomes: a global frontier for ecology and climate"

2026 UK Department for Energy Security and Net Zero (London, UK; Virtual): "Methanogens, methanotrophs, and the caulosphere microbiome: microbial drivers of methane cycling in tree stems"

2026 University of Chicago Department of Ecology & Evolution (Chicago, IL): "Tree microbiomes and forest fluxes: Ecological controls on the global methane cycle"

2025 Woodwell Climate Research Center (Woods Hole, MA): "Tree-mediated methane emissions: From microbial drivers to global budgets"

2022 Yale Confluence Seminar Series (New Haven, CT): "Tree-mediated methane emissions: patterns, processes, and research directions"

Workshops, Symposia & Webinars

2026 Invited speaker, Global Carbon Project Global Methane Budget+ workshop, Peking University, Beijing, China. Topic: tree-mediated methane emissions and implications for the global methane budget.

2026 American Geophysical Union (AGU) Biogeosciences Section Early Career Spring Seminar (Virtual), May 2026. "The hidden life in trees: Wood microbiomes as a biogeochemical frontier."

2026 Environmental Leadership & Training Initiative Mangrove Webinar Series (Virtual): "Mangrove blue carbon: science, measurement, and monitoring for climate action"

2024 Methane Uptake and Dynamics Workshop, Orono, ME, Aug. 2024. “The role of trees and their microbiomes in forest methane cycling.”

2024 Harvard Forest Ecology Symposium, Petersham, MA, Mar. 2024. “Tree-mediated methane

cycling: microbial drivers, flux pathways, and novel measurement techniques."

2023 NASA Carbon Monitoring System BlueFlux Science Meeting, Washington, D.C., Sep. 2023. "Chamber measurements and ecosystem upscaling."

2023 Workshop: Observation Infrastructure for Natural Methane Emissions, New Haven, CT, Sep. 2023. "Tree-mediated methane emissions, drivers, and forest net fluxes."

Leadership & Service

Professional Leadership & Academic Service

2026-2027 **Chair, Ecological Society of America (ESA) Biogeosciences Section**

2023-2025 Secretary, ESA Biogeosciences Section

2023-2024 External Representative, Florida Coastal Everglades Long-Term Ecological Research (LTER) Student Executive Board

2021-2023 Yale University Sustainability Advisory Council

2022 Student Representative, ESA Biogeosciences Section Leadership Committee

2021-2022 Doctoral Committee (DocComm), Yale School of the Environment

2021-2022 Yale University Graduate Student Assembly

2021 Yale School of the Environment Assistant Dean of Diversity, Equity, and Inclusion Search Committee

2017 **Peer Mentor**, Brown University, Institute at Brown for Environment & Society. Designed and implemented a peer-to-peer mentorship program; liaison between students, faculty, and administration.

Symposia & Session Organization

2026 Co-Organizer, *Tropical Greenhouse Gas Fluxes: Improving Measurements, Processing, and Scaling*, AmeriFlux Annual Meeting

2025 Co-Organizer, *Bridging Science and Society: Community-Engaged and Participatory Research in the Biogeosciences*, ESA Annual Meeting

2023 Session Moderator, *Shifting Landscapes*, Yale School of the Environment Research Day

2021 Organizing Committee Co-Chair, Yale School of the Environment Research Day

Peer Review

Ad-hoc reviewer for: *Nature*, *Global Change Biology*, *New Phytologist*, *Nature Microbiology*, *Nature Communications*, *Communications Earth & Environment*, *ISME Communications*, *Global Biogeochemical Cycles*, *Journal of Geophysical Research: Biogeosciences*, *Biogeochemistry*, *EGU Biogeosciences*, *Soil Biology & Biochemistry*, *Ecosystems*, *Journal of Ecology*, *Geophysical Research Letters*, *Geoderma*, *Plant and Soil*, *Limnology & Oceanography*, *Environmental Microbiome*, *Planta*, *Arctic Science*, *European Journal of Forest Research*, *Canadian Journal of Forest Research*, *International Journal of Microbiology*, *Molecular Ecology*

Advocacy & Volunteering

2023-2024 Science for the People, New Haven, CT Chapter.

2022-2023 Local 33 Graduate Student Union organizer, Yale University.

2019-2020 Science for the People, Boston, MA Chapter. Served on administrative committee.

2015-2017 Rhode Island Student Climate Coalition, Chapter Coordinator.

2014-2015 City of Providence Sustainability Ambassador.

Diversity, Equity & Inclusion

2023–2026 Title IX Working Group, Yale School of the Environment

2021-2023 Diversity, Equity, and Inclusion Committee, Yale School of the Environment

2020-2021 Yale Anti-Racism Network (YARN)

2020 Yale School of the Environment Anti-Racism Training Series

2016-2017 Co-Founder, Environmental Justice @ Brown University.

Science Communication & Public Engagement

Public-Facing Writing & Media

2026 Scientific contributor and reviewer, "What Microorganisms Live Inside Wood?," *Science Journal for Kids* (October); adaptation of our tree microbiome study for middle and high school classrooms, with audio version and lesson resources. Article

2026 Featured radio interview, *Living on Earth*, "Tiny Microbes in Tree Bark" (September 25). Listen/read

2026 Expert interviews and research features: *Science News*, "Hidden Tree Bark Microbes Munch on Important Climate Gases" (January 8); *Great Mountain Forest*, "What Happens When We Lose the American Beech?" (February 10); and *The Boston Globe*, "In the Woods of Maine, Searching for an Answer to a Ticking Climate Bomb" (July 7).

2025 Research interviews and coverage of tree microbiome findings in *The New York Times*, *Science*, and *Scientific American*; interview on the *Nature Podcast*.

2024 Gewirtzman, J. and H. Burrows. "Measuring Methane in 4D: Tree Fluxes at Harvard Forest." *Long Term Ecological Research Network* (October 28). Article

2018 Gewirtzman, J. and T. Roberts. "Putting Our Money Where Our Mouth Is: Financing Loss and Damage." *Thomson Reuters Foundation* (April 16). Op-ed

Public Talks & Community Outreach

2026 Panelist, Everglades Foundation Fellowship Virtual Celebration Panel (October 13); discussed research findings and their relevance to Everglades science with a public audience.

2025 Guest lecture, "The Hidden Life in Trees: Fungi and the Cross-Kingdom Microbiome of Living Trees," MycoConsortium Lecture Series, North American Mycology Club Consortium.

2025 Public lecture, "Trees: Nature's Unexpected Methane Machines," presented at five Connecticut venues: Peabody Museum of Natural History (New Haven); Friends of Hammonasset, Meigs Point Nature Center (Madison); Schiller Shoreline Institute for Lifelong Learning (Madison); Guilford Free Library (Guilford); and Ashlar Village (Wallingford).

2025 Joint NASA BlueFlux–Everglades Foundation Workshop and Partner Meeting, International Center for Tropical Botany, Miami, FL.

2023 Earth Day Open House, NASA and History of Diving Museum, Marathon, FL.

2022 "Trees and Methane," Quiet Corner Initiative Summer Seminar Series.

2022 NASA BlueFlux Community Day, Homestead Airport, Homestead, FL.

2020–2025 Skype a Scientist: classroom presentations to students in grades 3–12 at Rooftop K–8 School (San Francisco, CA); Episcopal Academy (Newtown Square, PA); Farmington STEAM Academy (Farmington Hills, MI); Bishop Leibold School (Dayton, OH); Robious Middle School (Richmond, VA); Center for Advanced Research and Technology (Clovis, CA); Voyager Academy Middle School (Durham, NC); Colonial Intermediate Unit 20 (Easton, PA); and Princeton Day School (Princeton, NJ).

Science Communication Projects

2026–2027 Co-lead, "Making & Mending: A Textile Community Circle," Stanford Arts Institute Pockets of Joy grant *($500)*; peer-led craft workshops for the Stanford community, including a session on botanical cyanotype printing. With M. Shea, M. Secchi, and A. Fitzgibbon.

2025 Collaborator, "Listening to Climate Change," Yale Center for Collaborative Arts and Media / Yale Planetary Solutions; interdisciplinary environmental-data sonification and community arts/science education project. Project feature

2024–2025 Peabody Museum Speakers Bureau, Yale Peabody Museum of Natural History; public science-communication training and outreach.

Working Groups, Workshops & Training

Synthesis Fellowships & Working Groups

2024-2025 **Long-Term Ecological Research (LTER) Synthesis Fellow**, Synthesis Skills for Early Career Researchers, Long-Term Ecological Research Network / National Center for Ecological Analysis and Synthesis

2025 Severo Ochoa Synthesis Action: First Workshop on Stem Methane Emissions. Centro de Investigación Ecológica y Aplicaciones Forestales, Barcelona, Spain

2024-2025 The Flux Gradient Project: Understanding the Methane Sink-Source Capacity of Natural Ecosystems. National Center for Ecological Analysis and Synthesis. Santa Barbara, CA

2024 Increasing Consensus on Best Practices for Additionality & Baselines in Forest Carbon Crediting Accounting, Yale Applied Science Synthesis Program. New Haven, CT

Research Workshops

2025 Workshop: Uniting modelers, microbiologists, and biogeochemists to improve wetland methane prediction, The Ohio State University, Columbus, Ohio

2025 Hudson Carbon Science Workshop, Hudson Carbon, Hudson, NY

2025 Workshop: Innovative sensors and applications in environmental research, Woodwell Climate Research Center, Woods Hole, MA

2024 Blue Carbon Ecosystems Workshop. Environmental Leadership & Training Initiative, Yale University. New Haven, CT

2024 Understanding Drivers and Magnitudes of CH4 Source-Sink Transitions in Climate-Sensitive Ecosystems. University of Maine and Woodwell Climate Research Center. Orono, ME

2023 Observation Infrastructure for Natural Methane Emissions. Yale Center for Natural Carbon Capture. New Haven, CT

Additional Training

2024 Pedagogical Approaches to Teaching the Environment, Yale School of the Environment / Poorvu Center for Teaching & Learning

2023 Microbiome Data Analytics Boot Camp, Columbia University Mailman School of Public Health

Professional Memberships

Ecological Society of America

American Geophysical Union

European Geosciences Union

British Ecological Society

Conference Presentations

Invited Conference Talks

[1] **J. Gewirtzman**, J. H. Matthes, P. Raymond, W. Arnold, and M. Bradford, "Microbial hotspots complicate scaling of methane emissions across tree surfaces," in *AGU Annual Meeting*, American Geophysical Union, New Orleans, LA, Dec. 2025.

[2] **J. Gewirtzman**, "Methane and other non-CO_2 radiative forcing agents complicate the relationship

between carbon credits and their climate impacts," in *ESA Annual Meeting*, Ecological Society of America, Long Beach, CA, Aug. 2024.

[3] **J. Gewirtzman** and W. Arnold, "How does tree-mediated methane emission affect the climate mitigation potential of forests?" In *Yale Clean Energy Conference*, Talk, New Haven, CT, Nov. 2022.

Contributed Talks & Posters

[4] H. van Asperen, J. S. da Silva, J. Melack, A. Hedgpeth, L. Krebs, J. Lamb, **J. Gewirtzman**, J. Shahan, J. Weitzman, R. Stern, D. Michelon, T. Gadelha, A. Fleischmann, A. Hoyt, and R. Jackson, "Seasonal and diurnal variability of dissolved CH_4 concentrations and diffusive CH_4 fluxes in an Amazon várzea floodplain," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[5] A. Dawn, **J. Gewirtzman**, N. M. Holbrook, C. F. Harvey, N. Bugher, M. Lutz, and J. H. Matthes, "Soil methane dynamics in a temperate forested wetland," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[6] **J. Gewirtzman**, E. Powell, F. Adams, S. Charles, L. Xiong, L. Carruthers, A. Stovall, C. Doughty, E. Delaria, G. Wolfe, A. Campbell, J. A. Rosentreter, D. Vaughn, S. S.-E. Tsao, M. Zhang, S. Malone, B. Poulter, D. Lagomasino, and P. Raymond, "Hurricane-induced mortality amplifies mangrove methane emissions and switches ecosystems from radiative carbon sink to source," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[7] **J. Gewirtzman**, E. Powell, F. Adams, S. Charles, L. Xiong, A. Stovall, C. Doughty, E. Delaria, G. Wolfe, J. Rosentreter, D. Vaughn, B. Poulter, D. Lagomasino, and P. Raymond, "Mangrove methane emissions intensified by hurricane disturbance in the Florida coastal Everglades," in *7th Mangrove, Macrobenthos and Management Conference (MMM7)*, Ishigaki, Okinawa, Japan, Jul. 2026.

[8] **J. Gewirtzman**, P. A. Raymond, H. Burrows, J. Lucas, D. Petticord, R. B. Jackson, A. Hedgpeth, L. Krebs, J. Lamb, A. Hoyt, A. Santos-Fleischmann, L. Jeffrey, D. Maher, M. A. Bradford, and J. H. Matthes, "Ground-to-canopy tree methane fluxes: Implications for scaling and forest budgets," in *2026 AmeriFlux Annual Meeting*, Berkeley, CA, USA, Sep. 2026.

[9] A. Hedgpeth, J. Melack, H. van Asperen, J. S. da Silva, L. Krebs, J. Lamb, **J. Gewirtzman**, T. Gadelha, J. Shahan, R. Stern, D. Michelon, A. Fleischmann, A. Hoyt, and R. Jackson, "Seasonal dynamics of methane ebullition and ecosystem water fluxes in a flooded Amazon forest," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[10] L. Krebs, J. Lamb, A. Hedgpeth, **J. Gewirtzman**, J. Melack, H. van Asperen, J. Shahan, J. S. da Silva, J. Weitzman, R. Stern, D. Michelon, T. Gadelha, A. Fleischmann, A. Hoyt, and R. Jackson, "Isotopic characterization of methane emissions from a seasonally flooded forest in the Brazilian Amazon," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[11] J. Lamb, **J. Gewirtzman**, L. Krebs, J. Melack, H. van Asperen, A. Hedgpeth, R. Stern, D. Michelon, T. Gadelha, A. Fleischmann, R. Jackson, and A. Hoyt, "Seasonal changes in tree stem methane emissions in an Amazonian flooded forest," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[12] L. Lamb-Wotton, M. F. Adame, J. Adams, V. B. Arifanti, M. S. Alvarado Barrientos, T. Bornman, D. Buttner, L. Chen, D. Epron, B. Eyre, J. Hoyos Santillán, **J. Gewirtzman**, L. Human, N. Iram, G. Lin, W. Nakamura, Q. Peiyang, G. Qin, R. Ray, J. Rosentreter, J. A. Salas-Rabaza, Z. Shribman, J. Sippo, B. Van Haastregt, F. Wang, J. Yeo, and D. Friess, "Global-scale patterns and drivers of mangrove soil carbon and nitrogen fluxes," in *7th Mangrove, Macrobenthos and Management Conference (MMM7)*, Conference abstract, Ishigaki, Okinawa, Japan, Jul. 2026.

[13] S. L. Malone, J. H. Matthes, C. S. Sturtevant, A. Chen, R. Commane, K. B. Delwiche, A. R. Desai, C. R. Florian, J. D. Gewirtzman, S. A. Jurado, D. E. Reed, J. Chi, H. Iwata, E. J. Lundin, I. Mammarella, M. Peichl, M. Ueyama, and J. Wang, "Ecosystem-scale observations reveal widespread methane emissions from upland terrestrial ecosystems: Implications for the global methane budget," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[14] D. Michelon dos Santos, R. Stern, T. Gadelha, L. Custodio, A. Zumak, S. H. Knox, J. Lamb, A. Hedgpeth, L. Krebs, H. van Asperen, J. Melack, **J. Gewirtzman**, J. Shahan, J. de Castro,

J. S. da Silva, F. da Silva Castro, A. M. Hoyt, R. B. Jackson, D. R. Roberti, and A. S. Fleischmann, "Methane emissions peak with rising floodwaters: First eddy covariance record from a central Amazonian várzea forest," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[15] E. Powell, **J. Gewirtzman**, L. Xiong, D. Lagomasino, D. Morton, and L. Fatoyinbo, "From point clouds to prop roots: Automated tree segmentation for estimating volume and surface area in tropical mangroves using terrestrial laser scanning," in *AGU Fall Meeting 2026*, American Geophysical Union, San Francisco, CA, Dec. 2026.

[16] J. A. Salas-Rabaza, J. L. Andrade, M. S. Alvarado-Barrientos, R. Collin, J. P. Cronin, M. Dannoura, D. Epron, D. Friess, V. Gauci, **J. Gewirtzman**, J. Huang, L. C. Jeffrey, E. Kristensen, L. Lamb-Wotton, C.-W. Lin, H.-J. Lin, M. Luo, J. P. Megonigal, S. R. Pangala, S. K. Paul, J. A. Rosentreter, F. Thalasso, and H. Zhou, "Tree-mediated greenhouse gas fluxes in mangrove forests: A globally overlooked pathway," in *7th Mangrove, Macrobenthos and Management Conference (MMM7)*, Ishigaki, Okinawa, Japan, Jul. 2026.

[17] M. Bartkus, Z. Dietrich, C. Hettwer, **J. Gewirtzman**, R. Ruzol, S. Fraver, D. Sihi, J. Watts, and K. E. Savage, "Tree stem methane fluxes show distinct trends across the landscape of a northern conifer forest," in *AGU Fall Meeting 2025*, Poster B23L-1910, American Geophysical Union, New Orleans, LA, Dec. 2025.

[18] **J. Gewirtzman**, W. Arnold, C. Brodersen, M. Duguid, J. H. Matthes, P. Raymond, and M. Bradford, "Tree methane emissions: An emerging challenge for forest-based climate solutions," in *SAF Annual Convention 2025*, Society of American Foresters, Hartford, CT, Oct. 2025.

[19] **J. Gewirtzman**, W. Arnold, P. Raymond, J. Peccia, and M. Bradford, "Species and tissue-specific microbiomes drive methane fluxes from trees," in *EGU General Assembly 2025*, European Geosciences Union, Vienna, Austria, May 2025. DOI: 10.5194/egusphere-egu25-14365.

[20] **J. Gewirtzman**, W. Arnold, P. Raymond, J. Peccia, J. H. Matthes, M. Duguid, C. Brodersen, C. Merenstein, and M. Bradford, "Species and tissue-specific microbiomes drive methane fluxes from trees," in *ESA Annual Meeting 2025*, Ecological Society of America, Baltimore, MD, Aug. 2025.

[21] **J. Gewirtzman**, A. Keiser, C. Palmer, M. Nieland, V. Patel, and E. Forbes, "Low-cost autonomous chambers enable high spatial and temporal resolution monitoring of soil CO_2 emissions across landscapes," in *AGU Fall Meeting 2025*, Poster B31H-1830, American Geophysical Union, New Orleans, LA, Dec. 2025.

[22] S. A. Jurado, S. Malone, J. H. Matthes, C. Sturtevant, D. E. Reed, A. R. Desai, C. Rey-Sanchez, R. Commane, S. Metzger, C. Florian, **J. Gewirtzman**, A. Helgeson, K. Delwiche, N. Lyon, and A. Chen, "Comparative analysis of eddy covariance and gradient flux methods for ecosystem CO_2 and H_2O exchange measurements," in *36th Conference on Agricultural and Forest Meteorology*, American Meteorological Society, Denver, CO, May 2025.

[23] J. H. Matthes, J. W. Munger, N. Hegwood, S. A. Jurado, and **J. Gewirtzman**, "From wetlands to woodlands: Adventures in scaling ecosystem-atmosphere fluxes across terrestrial-aquatic interfaces," in *2025 AMS Denver Summit*, Invited Presentation, American Meteorological Society, May 2025.

[24] J. H. Matthes, G. Thompson, H. Adler, A. Dawn, **J. Gewirtzman**, N. Hegwood, S. Jurado, E. Roelofs, C. Harvey, and N. M. Holbrook, "Scaling ecosystem methane flux across the soil-plant-atmosphere continuum in a spatially heterogeneous temperate forest," in *ESA Annual Meeting 2025*, Ecological Society of America, Baltimore, MD, Aug. 2025.

[25] C. Sturtevant, C. Rey-Sanchez, D. E. Reed, S. Metzger, J. Matthes, S. Malone, N. Lyon, S. A. Jurado, A. Helgeson, **J. Gewirtzman**, C. Florian, A. R. Desai, K. Delwiche, R. Commane, and A. Chen, "When and where the modified Bowen ratio works," in *36th Conference on Agricultural and Forest Meteorology*, American Meteorological Society, Denver, CO, May 2025.

[26] H. Burrows, J. H. Matthes, **J. Gewirtzman**, N. Hegwood, and A. Rayson, "Variability of tree-stem methane emissions across wetland and upland environments in a temperate forest," in *ESA Annual Meeting*, Ecological Society of America, Long Beach, CA, Aug. 2024.

[27] N. Hegwood, J. H. Matthes, **J. Gewirtzman**, H. Burrows, A. Dawn, S. McCollum, C. F. Harvey, and N. M. Holbrook, "Cross-scale methane dynamics at terrestrial-aquatic interfaces in temperate forests," in

AGU Annual Meeting, American Geophysical Union, Washington, DC, Dec. 2024.

[28] W. Arnold, **J. Gewirtzman**, P. Raymond, M. Bradford, and J. Peccia, "Disentangling the origins of microbial methane emission from temperate forests," in *AEESP Research and Education Conference*, Association of Environmental Engineering and Science Professors, Boston, MA, Jun. 2023.

[29] **J. Gewirtzman**, "Upland trees modulate soil fluxes and offset ecosystem uptake of methane," in *Ameriflux Annual Meeting*, Gardner, MA, Oct. 2023.

[30] **J. Gewirtzman**, W. Arnold, P. Raymond, M. Bradford, and J. Peccia, "Wood microbiomes contribute to tree stem methane emissions from temperate forests," in *ESA Annual Meeting*, Late-breaking poster, Ecological Society of America, Portland, OR, Aug. 2023.

[31] D. Vaughn, **J. Gewirtzman**, A.-M. Francis, B. Poulter, D. Lagomasino, J. Rosentreter, S. Charles, and P. Raymond, "Seasonal variations in lateral carbon and greenhouse gas fluxes from Everglades tidal rivers," in *AGU Fall Meeting 2023*, American Geophysical Union, San Francisco, CA, Dec. 2023.

[32] **J. Gewirtzman**, P. Raymond, and M. Bradford, "Methane emissions from temperate forest tree stems across an upland to wetland gradient," in *ESA 2022 Annual Meeting (ESA+CSEE Joint Meeting)*, Talk, Ecological Society of America, Montreal, QC, Aug. 2022.

[33] S. C. Caron, P. H. Templer, L. Hutyra, K. Schultz, and **J. Gewirtzman**, "Combined effects of urbanization and forest fragmentation on nitrogen cycling in New England forests," in *ESA 2021 Annual Meeting*, Ecological Society of America, Virtual Meeting, Aug. 2021.

[34] J. Carey, S. Johnston, R. Spencer, and **J. Gewirtzman**, "Exploring linkages between dissolved organic matter and dissolved silicon in Arctic rivers influenced by a gradient of permafrost degradation," in *AGU Fall Meeting*, American Geophysical Union, Virtual Meeting, Dec. 2020.

[35] J. E. Rindy, E. A. Pierce, S. M. Garvey, **J. Gewirtzman**, L. Hutyra, and P. H. Templer, "Effects of urbanization and fragmentation on atmospheric nitrogen deposition, nitrogen oxides, and ozone in New England forests," in *National Atmospheric Deposition Program Annual Meeting*, NADP, Virtual Meeting, Oct. 2020.

[36] P. H. Templer, A. Reinmann, J. Harrison, and **J. Gewirtzman**, "Effects of warmer growing season temperatures and a reduced winter snowpack on carbon fluxes in a northern hardwood forest," in *Hubbard Brook Cooperators' Meeting*, Hubbard Brook Experimental Forest, North Woodstock, NH, Jul. 2020.

[37] **J. Gewirtzman**, J. Tang, T. Parker, and N. Fetcher, "Soil drying and active layer deepening decrease productivity across ecotypes of a dominant Arctic sedge," in *Arctic LTER Annual Meeting*, Talk, Woods Hole, MA, Feb. 2019.

[38] P. Templer, A. B. Reinmann, J. L. Harrison, and **J. Gewirtzman**, "Effects of climate change across seasons on tree growth and carbon sequestration in a northern hardwood forest," in *2019 ESA Annual Meeting*, Ecological Society of America, Louisville, KY, Aug. 2019.

[39] **J. Gewirtzman**, J. Tang, T. Parker, and N. Fetcher, "Plant productivity varies with experimental soil drying and active layer deepening across ecotypes of a dominant Arctic sedge," in *AGU Fall Meeting*, Poster, American Geophysical Union, Washington, D.C., Dec. 2018.

[40] S. Natson, J. T. Roberts, V. Hoffmeister, **J. Gewirtzman**, A. Durand, and R. Weikmans, "Innovative sources of finance: What has been proposed?" In *Workshop on Climate Risk Financing For non-Annex I Members Of The WIM Executive Committee*, Deutsches Institut für Entwicklungspolitik, Bonn, Germany, Mar. 2018.

[41] P. H. Templer, A. Reinmann, J. Harrison, and **J. Gewirtzman**, "Effects of warmer temperatures and reduced winter snowpack on aboveground productivity in a northern hardwood forest," in *Hubbard Brook Cooperators' Meeting*, Hubbard Brook Experimental Forest, North Woodstock, NH, Jul. 2018.

[42] P. H. Templer, A. Reinmann, J. Harrison, and **J. Gewirtzman**, "Winter vs. growing season climate effects on tree growth and carbon sequestration in a northern hardwood forest," in *AGU Fall Meeting*, American Geophysical Union, Washington, D.C., Dec. 2018.

[43] J. C. Carey, J. Tang, **J. Gewirtzman**, and R. Spencer, "Fluvial silica biogeochemistry across a 700 km latitudinal gradient in northern Alaska," in *Goldschmidt 2017*, Geochemical Society and the European

Association of Geochemistry, Paris, France, Aug. 2017.

[44] J. C. Carey, J. J. Tang, A. Kurtz, **J. Gewirtzman**, and R. Spencer, "Permafrost thaw and land cover change may alter Si exports to Arctic coastal receiving waters," in *24th Biennial CERF Conference*, Coastal and Estuarine Research Federation, Providence, RI, Nov. 2017.

[45] **J. Gewirtzman**, J. Carey, A. Kurtz, and J. Tang, "Effects of soil warming on silicate weathering and terrestrial biogeochemical silica cycling in a northern hardwood forest," in *Earth, Itself Symposium*, Poster, Institute at Brown for Environment and Society, Providence, RI, Apr. 2017.

[46] **J. Gewirtzman**, J. Carey, A. Kurtz, and J. Tang, "Soil warming increases biogeochemical silica mobilization and watershed export in a northern hardwood forest," in *Harvard Forest Symposium*, Poster, Harvard Forest, Petersham, MA, Mar. 2017.

[47] **J. Gewirtzman**, J. Carey, and J. Tang, "Controls on riverine silica export from the Alaskan Arctic," in *Arctic LTER Winter Meeting*, Poster, Marine Biological Laboratory, Woods Hole, MA, Feb. 2017.

[48] **J. Gewirtzman**, K. Adams, C. Avila, S. Chokshi, D. Ciplet, S. Gurwit, M. Holloway, M. Mitra, S. Natson, J. Roberts, and R. Weikmans, "Assessing developed countries' compliance toward UNFCCC climate finance transparency requirements," in *Earth, Itself Symposium*, Poster, Institute at Brown for Environment and Society, Providence, RI, Apr. 2016.