

Jaclyn Hatala Matthes

Assistant Professor, Dept. Biological Sciences, Wellesley College

106 Central Street, Wellesley, MA 02481

Email: jmatthes@wellesley.edu, Web: <http://matthesecolab.com>

Education

- **Ph.D. University of California – Berkeley**, Environmental Science, Policy, & Management, Ecosystem Sciences Division, 2013
- **A.B. Harvard University**, Environmental Science & Public Policy, 2007

Professional Appointments

- **Assistant Professor**, Dept. Biological Sciences, Wellesley College, 2016-present
- **Advisory Faculty**, Dept. Environmental Studies, Wellesley College, 2016-present
- **Adjunct Assistant Professor**, Ecology, Evolution, Ecosystems, & Society (EEES) Ph.D. Program, Dartmouth College, 2016-present
- **Assistant Professor**, Dept. Geography, Dartmouth College, 2014-2016
- **Adjunct Assistant Professor**, Dept. Biological Sciences, Dartmouth College, 2014-2016
- **Postdoctoral Researcher**, Dept. Earth & Environment, Boston University, 2013-2014

Awards & Fellowships

- Ecological Society of America Early Career Fellow, 2021
- Samuel & Anna Pinanski Prize for Excellence in Teaching, Wellesley College, 2019
- National Ecological Observatory Network Data Education Fellow, 2018

Peer-Reviewed Publications *(published as Jaclyn A. Hatala before 2013)*

*Grey highlighted = mentored undergraduate student; * = mentored Ph.D. student*

[32] **Smith-Tripp, S.**, A. Griffith, V. Pasquarella, **J. H. Matthes**. Impacts of a regional multi-year insect defoliation event on seasonal runoff ratios and instantaneous streamflow characteristics. *Ecohydrology*, In Press.

[31] Jevon, F. V.*, A. K. Lang*, M. Ayres, **J. H. Matthes**. Limited evidence that larger acorns buffer *Quercus rubra* seedlings from density dependent biotic stressors. *American Journal of Botany*, In Press.

[30] Delwiche, K.B., ... **J.H. Matthes** and 112 additional co-authors ..., R. B. Jackson. FLUXNET-CH4: A global, multi-ecosystem database and analysis of methane seasonality from freshwater wetlands. *Earth System Science Data*, In Press.

[29] Lang, A. K.*, F. V. Jevon*, **C. Vietorisz**, M. Ayres, **J. H. Matthes**. 2021. Fine roots and mycorrhizal fungi accelerate leaf litter decomposition in a northern hardwood forest

- regardless of dominant tree mycorrhizal associations. *New Phytologist* 230(1): 316-326, doi:10.1111/nph.17155.
- [28] Farrell, K. J., K. C. Weathers, S. H. Sparks, J. A. Brentrup, C. C. Carey, M. C. Dietze, J. R. Foster, K. L. Grayson, **J. H. Matthes**, M. D. SanClements. 2021. Training the next generation of macrosystems scientists requires both interpersonal and technical skills. *Frontiers in Ecology & Environment* 19(1): 39-46, doi:10.1002/fee.2287.
- [27] Jevon, F. V.*, S. Record, J. Grady, A. K. Lang*, D. Orwig, M. Ayres, **J. H. Matthes**. 2020. Seedling survival declines with increasing conspecific density in a common temperate tree. *Ecosphere* 11(11): e03292, doi:10.1002/ecs2.3292.
- [26] Conrad-Rooney, E., A. Barker Plotkin, V. J. Pasquarella, J. Elkinton, J. L. Chandler, **J. H. 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): 1-9, doi:10.1093/aobpla/plaa059.
- [25] Pastorello, G. Z., ... **J. H. Matthes**, ... 284 additional co-authors, D. Papale. 2020. The FLUXNET2015 dataset and the ONEFlux processing pipeline for eddy covariance data. *Scientific Data* 7:225, doi:10.1038/s41597-020-0534-3.
- [24] Russell, S. J., C. D. Vines, G. Bohrer, D. R. Johnson, J. A. Villa, R. Heltzel, C. Rey-Sanchez, **J. H. Matthes**. 2020. Quantifying CH₄ concentration spikes above baseline and attributing CH₄ sources to hydraulic fracturing activities by continuous monitoring at an off-site tower. *Atmospheric Environment* 228: 117452, doi:10.1016/j.atmosenv.2020.117452.
- [23] Lang, A. K.*, F. V. Jevon*, M. Ayres, **J. H. Matthes**. 2019. Higher soil respiration rate beneath arbuscular mycorrhizal trees in a northern hardwood forest is driven by associated soil properties. *Ecosystems*, doi.org/10.1007/s10021-019-00466-7.
- [22] Paradiso, E., F. V. Jevon*, **J. H. Matthes**. 2019. Fine root respiration is more strongly correlated with root traits than tree species identity. *Ecosphere* 10(11): e02944, doi:10.1002/ecs2.2944.
- [21] Jevon, F. V.*, A. W. D'Amato, C. W. Woodall, K. Griffin, M. Ayres, **J. H. Matthes**. 2019. Tree basal area and conifer abundance predict soil carbon stocks and concentrations in an actively managed forest of northern New Hampshire, USA. *Forest Ecology & Management* 451: 117534, doi:10.1016/j.foreco.2019.117534.
- [20] **Matthes, J. H.**, A. K. Lang*, F. V. Jevon*, S. Russell. 2018. Tree stress and mortality from emerald ash borer does not systematically alter short-term soil carbon flux in a mixed northeastern U.S. forest. *Forests* 9(1): 37, doi:10.3390/f9010037.
- [19] Rollinson, C., Y. Liu, A. Raiho, D. Moore, J. McLachlan, D. Bishop, A. Dye, A. Hessel, T. Hickler, **J. H. Matthes**, N. Pederson, B. Poulter, T. L. Quaipe, K. Schaefer, J. Steinkamp, M. Dietze. 2017. Emergent climate and CO₂ sensitivities of net primary productivity in ecosystem models do not agree with empirical data in temperate forests in Eastern North America. *Global Change Biology*, 23: 2755–2767, doi: 10.1111/gcb.13626.
- [18] Knox, S. H., I. Dronova, C. Sturtevant, P. Oikawa, **J. H. Matthes**, J. Verfaillie, D. Baldocchi. 2017. Using digital camera and Landsat imagery with eddy covariance data to model

- gross primary production in restored wetlands. *Agricultural and Forest Meteorology*, 237-238: 233-245, doi:10.1016/j.agformet.2017.02.020.
- [17] Goring, S. J., D. J. Mladenoff, C. V. Cogbill, S. Record, C. J. Paciorek, S. T. Jackson, M. C. Dietze, A. Dawson, **J. H. Matthes**, J. S. McLachlan, J. W. Williams. 2016. Novel and lost forests in the Upper Midwestern United States, from new estimates of Settlement-Era composition, stem density, and biomass. *PLoS One* 11(12): e0151935. doi:10.1371/journal.pone.0151935.
- [16] Poindexter, C. M., D. D. Baldocchi, **J. H. Matthes**, S. H. Knox, E. A. Variano. 2016. Overlooked methane transport process controls significant portion of a wetland's methane emissions. *Geophysical Research Letters* 43(12): 6276-6284, doi:10.1002/2016GL068782.
- [15] Baldocchi, D. D., S. H. Knox, I. Dronova, J. Verfaillie, P. Oikawa, C. Sturtevant, **J. H. Matthes**, M. Detto. 2016. The impact of expanding flooded land area on the annual evaporation of rice. *Agricultural and Forest Meteorology* 223: 181-193, doi:10.1016/j.agrformet.2016.04.001.
- [14] Knox, S. H., **J. H. Matthes**, C. Sturtevant, P. Oikawa, J. Verfaillie, D. D. Baldocchi. 2016. Biophysical controls on interannual variability in ecosystem scale CO₂ and CH₄ exchange in a California rice paddy. *Journal of Geophysical Research – Biogeosciences* 121(3): 978-1001, doi: 10.1002/2015JG003247.
- [13] Anderson, F. E., B. Bergamaschi, C. Sturtevant, S. Knox, L. Hastings, L. Windham-Myers, M. Detto, E. L. Hestir, J. Drexler, R. L. Miller, **J. H. Matthes**, J. Verfaillie, D. Baldocchi, R. L. Snyder, R. Fujii. 2016. Variation of energy and carbon fluxes from a restored temperate freshwater wetland and implications for carbon market verification protocols. *Journal of Geophysical Research – Biogeosciences* 121(3): 777-795, doi: 10.1002/2015JG003083.
- [12] **Matthes, J. H.**, S. Goring, J. W. Williams, M. C. Dietze. 2016. Benchmarking historical CMIP5 land-climate feedbacks across the Upper Midwest and Northeastern United States. *Journal of Geophysical Research – Biogeosciences* 121(2): 523-535, doi: 10.1002/2015JG003175.
- [11] Sturtevant, C., B. Ruddell, S. H. Knox, J. Verfaillie, **J. H. Matthes**, P. Oikawa, D. D. Baldocchi. 2016. Identifying scale-emergent, non-linear, asynchronous processes of wetland methane exchange. *Journal of Geophysical Research – Biogeosciences*, 121(1): 188-204, doi:10.1002/2015JG003054.
- [10] **Matthes, J. H.**, S. H. Knox, C. Sturtevant, O. Sonnentag, J. Verfaillie, D. D. Baldocchi. 2015. Predicting landscape-scale CO₂ flux at a pasture and rice paddy with long-term canopy hyperspectral reflectance measurements. *Biogeosciences* 12: 4577-4594, doi:10.5194/bg-12-4577-2015.
- [9] Petrescu, A. M. R., A. Lohila, J.-P. Tuovinen, D. D. Baldocchi, A. Desai, N. Roulet, T. Vesala, A. J. Dolman, W. Oechel, B. Marcolla, T. Friborg, J. Rinne, **J. H. Matthes**, L. Merbold, A. Meijide, G. Kiely, M. Sottocornola, T. Sachs, D. Zona, A. Varlagin, D. Lai, E. Veenendaal, F.-J. Parmentier, U. Skiba, M. Lund, A. Hensen, J. van Huissteden, L. Flanagan, N.

- Shurpali, T. Grünwald, E. Humphreys, M. Jackowicz-Korczyński, M. Aurela, T. Laurila, C. Grüning, C. Corradi, A. Schrier-Uijl, T. Christensen, M. Tamstorf, M. Mastepanov, P. Martikainen, S. Verma, C. Bernhofer, A. Cescatti. 2015. The uncertain climate footprint of wetlands under human pressure. *Proceedings of the National Academy of Sciences of the United States of America* 112(15): 4594-4599, doi: 10.1073/pnas.1416267112.
- [8] Knox, S. H., C. Sturtevant, **J. H. Matthes**, L. Koteen, J. Verfaillie, D. D. Baldocchi. 2015. Greenhouse gas budgets (CO₂ and CH₄) of drained agricultural peatlands and restored wetlands in the Sacramento-San Joaquin Delta. *Global Change Biology* 21(2): 750-765, doi: 10.1111/gcb.12745.
- [7] Dietze, M. C. and **J. H. Matthes**. 2014. A general ecophysiological framework for modeling the impact of pests and pathogens on forest ecosystems. *Ecology Letters* 17(11): 1418-1426, doi:10.1111/ele.12345.
- [6] **Matthes, J. H.**, C. Sturtevant, J. Verfaillie, S. H. Knox, D. D. Baldocchi. 2014. Parsing variability in CH₄ fluxes at a spatially heterogeneous wetland: Integrating multiple eddy covariance towers with high-resolution flux footprint analysis. *Journal of Geophysical Research – Biogeosciences* 119(7): 1322-1339, doi:10.1002/2014JG002642.
- [5] **Hatala, J. A.**, M. Detto, D. D. Baldocchi. 2012. Gross ecosystem productivity causes a diurnal pattern in methane flux from rice. *Geophysical Research Letters* 39(6): L06409, doi:10.1029/2012GL051303.
- [4] **Hatala, J. A.**, M. Detto, O. Sonnentag, S. J. Deverel, J. Verfaillie, D. D. Baldocchi. 2012. Greenhouse gas (CO₂, CH₄, H₂O) fluxes from drained and flooded agricultural peatlands in the Sacramento-San Joaquin Delta. *Agriculture, Ecosystems & Environment* 150: 1-18, doi: 10.1016/j.agee.2012.01.009.
- [3] Ma, S., D. D. Baldocchi, **J. A. Hatala**, M. Detto, J. Curiel-Yuste. 2012. Are rain-induced ecosystem respiration pulses enhanced by legacies of antecedent photodegradation in semi-arid environments? *Agricultural and Forest Meteorology* 144-145: 203-213, doi:10.1016/j.agrformet.2011.11.007.
- [2] **Hatala, J. A.**, M. C. Dietze, R. L. Crabtree, D. Six, K. Kendall, and P. M. Moorcroft. 2011. An ecosystem-scale model for the spread of a host-specific fungal pathogen in the Greater Yellowstone Ecosystem. *Ecological Applications* 21(4): 1138-1153, doi:10.1890/09-2118.1.
- [1] **Hatala, J. A.**, K. Q. Halligan, R. L. Crabtree, and P. M. Moorcroft. 2010. Landscape-scale patterns of forest pest and pathogen damage in the Greater Yellowstone Ecosystem. *Remote Sensing of Environment* 114(2): 375-384, doi:10.1016/j.rse.2009.09.008.

Invited Book Chapter (not peer-reviewed)

- Matthes, J. H.** and E. H. Matthes. 2018. 'The Clean Plate Club? Food Waste and Individual Responsibility'. *The Oxford Handbook of Food Ethics*, Eds. A. Barnhill, M. Budolfson, and T. Doggett, Oxford University Press.

Research Grants & Contracts

External Funded Grants (Total Award Value = \$2,880,440; To Matthes = \$461,327)

- [5] 'Collaborative Proposal: Redefining the ecological memory of disturbance over multiple temporal and spatial scales in forest ecosystems', National Science Foundation, Division of Environmental Biology, DEB-1945910, Lead PI: Neil Pederson, Harvard University, Total Budget: \$992,099, To Matthes: \$88,820.
- [4] 'Collaborative Research: MSA: Incorporating Canopy Structured Complexity to Improve Model Forecasts of Functional Effects of Forest Disturbance', National Science Foundation, MacroSystems Biology, EF-1926454, 9/1/2019-8/31/2021, Lead PI: Brady Hardiman, Purdue University, Total Award: \$299,384, To Matthes: \$29,622.
- [3] 'MSB-ECA: A generalized framework for modeling the impacts of forest insects and pathogens in the Earth System', National Science Foundation, MacroSystems Biology and Early NEON Science, EF-1638406, 01/01/17-12/31/18, PI: J. H. Matthes, Total: \$133,533.
- [2] 'LTER: Long-Term Ecological Research at the Hubbard Brook Experimental Forest', National Science Foundation, Long Term Ecological Research, Lead PI: Gary Lovett (Cary Institute of Ecosystem Studies), LTER-1637685, 02/01/17-01/31/22, co-PIs: J. H. Matthes and 21 others, Total Award: \$1,127,000, To Matthes: \$55,740.
- [1] 'UNS: Collaborative Research: Measurement and modeling of the pathways of potential fugitive methane emissions during hydrofracking', National Science Foundation, Chemical, Bioengineering, Environmental, and Transport Systems, NSF-1509297, 08/15/15 – 08/14/18 *no-cost extension to 08/15/19*, Lead PI: Gil Bohrer (Ohio State Univ.), co-PI: J.H. Matthes, Total Award: \$328,424, To Matthes: \$153,612.

Small Grants for Research Travel & Pedagogical Development

- Pedagogical Travel Grant to attend Foundational Open Science Skills Workshop, Wellesley College Educational Research & Development, 2020, \$1794.
- Ann E. Maurer Speaking Intensive Course development grant, Wellesley College Office of the Provost, 2018, \$3500
- Paulson Ecology of Place Initiative Course Grant, Wellesley College Office of the Provost, 2018, \$2500
- Early Career Participant Award, NSF Office of International Science and Engineering, 'Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories', 2018.

Invited Seminars & Talks at Professional Meetings since 2016

- 'Forecasting the ecosystem impacts of moderate disturbances in Northeastern U.S. forests'
 - University of New Hampshire, Seminar in Dept. Natural Resources & Earth System Sciences, University of New Hampshire, Durham, NH, 2020.

- University of Connecticut, Seminar in Dept. Natural Resources and the Environment, Storrs, CT, 2020.
- 'Putting bugs into models: Forecasting the ecosystem impacts of forest insects and pathogens and climatic stress,' J. H. Matthes, Invited Talk, Ecological Society of America Annual Meeting, Virtual, 2020.
- 'Creating inclusive educational opportunities in ecological forecasting,' J. H. Matthes, Invited Talk, Ecological Society of America Annual Meeting, Virtual, 2020.
- 'Putting bugs into models: Forecasting the ecosystem impacts of insects and pathogens,'
 - Indiana University, Environmental Science Seminar, O'Neill School of Public and Environmental Affairs, Bloomington, IN, 2019.
 - University of Wisconsin, Climate, People, and Environment Seminar, Nelson Institute for the Environment, Madison, WI, 2019.
 - Virginia Commonwealth University, Biology Department Seminar, Richmond, VA, 2019.
- 'Recurrent defoliation from gypsy moth in southern New England forests structures near-term recovery thresholds,' J. H. Matthes, V. J. Pasquarella, S. Russell, Ecological Society of America Annual Meeting, Louisville, KY, 2019.
- 'Using NEON resources to inspire data literacy in introductory undergraduate courses,' J. H. Matthes, Ecological Society of America Annual Meeting, Louisville, KY, 2019.
- 'Plant-soil feedbacks and intraspecific competition drive mortality in *Quercus rubra* seedlings,' F. Jevon, S. Record, J. M. Grady, A. K. Lang, M. P. Ayres, J. H. Matthes, Ecological Society of America Annual Meeting, Louisville, KY, 2019.
- 'Species-specific patterns in leaf litter decomposition across a forest mycorrhizal gradient,' A. K. Lang, F. Jevon, C. Vietorisz, M. P. Ayres, and J. H. Matthes, Ecological Society of America Annual Meeting, Louisville, KY, 2019.
- 'Bridging engagement and practice: pathways toward an education in ecological forecasting,' J. H. Matthes, Invited Talk at the Ecological Forecasting Initiative Meeting, American Association for the Advancement of Science, Washington, DC, 2019.
- 'Putting bugs into models: Simulating insects and pathogens in the Earth System,' J. H. Matthes, Invited Seminar in the Department of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY, 2019.
- 'Concurrent defoliation and drought alter near-term carbon, water, and energy exchange and recovery trajectories in forests,' J. H. Matthes, V. J. Pasquarella, S. Russell, B44B-02, American Geophysical Union Fall Meeting, 2018.
- 'Interactions among defoliation, drought, and tree phenology determine ecosystem-atmosphere feedbacks in northeastern U.S. mesic forests,' Co-authors: S. Russell & V. Pasquarella, Ecological Society of America Annual Meeting, New Orleans, 2018.
- 'An app-based approach to developing simulation modeling skills in an introductory organismal biology course', Association of American Colleges & Universities Project Kaleidoscope Regional Meeting, Salem, MA, 2018.

- 'DisturbED: A generalized framework for modeling the impacts of insects and pathogens in the Earth System', Abstract B53A-0506, American Geophysical Union Fall Meeting, San Francisco, CA, 2017.
- 'The challenge of reconciling earth system models with ecological datasets across centuries', Invited Keynote, Gordon Research Conference: Unifying Ecology across Scales, Biddeford, ME, 2016.
- 'The Clean Plate Club? Food Waste and Individual Responsibility', University of Vermont, Food Ethics Workshop, 2016.
- 'Putting bugs into models: A generalized framework for modeling Earth system feedbacks with forest insects and pathogens', Cary Institute of Ecosystem Studies, Seminar, 2016.
- 'Ecosystems in Flux: How climatic, ecological, and anthropogenic disturbances shape ecosystem processes', Chatham University, Women in Global Change Science Series, 2016.

Student Poster Presentations at Refereed Conferences since 2016

*grey highlighted = mentored Wellesley undergraduate student; * mentored Ph.D. student*

- 'Red oak seedling leaf damage is higher nearby mature red oak trees and influences both leaf and stem biomass ratios,' D. De La Cruz, F. V. Jevon, **J. H. Matthes**, Ecological Society of America Annual Meeting, Virtual, 2021.
- 'Factors influencing red oak seedling survival at the northern edge of the species range', S. Wentzell-Brehme, N. Cleavitt, J. Battles, **J. H. Matthes**, Ecological Society of America Annual Meeting, Virtual, 2020.
- 'Assessing the role of ecosystem nitrogen cycling in insect defoliation and tree recovery across multiple scales during a severe invasive insect outbreak,' E. Conrad-Rooney, A. Barker-Plotkin, V. Pasquarella, **J. H. Matthes**, Ecological Society of America Annual Meeting, Virtual, 2020.
- 'Testing the effects of neighboring trees on temperate seedling survival and growth,' F. V. Jevon*, A. K. Lang*, D. De La Cruz, S. Record, J. Grady, D. Orwig, M. Ayres, **J. H. Matthes**, British Ecological Society Annual Meeting, Belfast, UK, 2019.
- 'Fine root respiration is more strongly correlated with an acquisition-conservation functional trade-off than tree species identity,' E. Paradiso, F. Jevon*, and **J. H. Matthes**, Ecological Society of America Annual Meeting, Louisville, KY, 2019.
- 'Responses of ecosystem hydrology to gypsy moth defoliation in streams and watersheds,' S. M. Smith-Tripp, A. Griffith, and **J. H. Matthes**, Ecological Society of America Annual Meeting, Louisville, KY, 2019.
- 'Variability in leaf litter decomposition across a forest mycorrhizal gradient', A. Lang*, F. V. Jevon*, C. Vietorisz, E. Conrad-Rooney, M. Ayres, **J. H. Matthes**, Abstract B33O-2882, American Geophysical Union Fall Meeting, Washington, DC, 2018

- 'Partitioning sources of methane emissions near a hydraulic fracturing field in West Virginia using stable isotopes,' S. Russell, C. Vines*, A. R. Sanchez*, G. Bohrer, D. Johnson, **J. H. Matthes**, Abstract B41H-2812, American Geophysical Union Fall Meeting, Washington, DC, 2018
- 'Baseline methane concentrations using eddy covariance methods near a hydraulic fracturing site,' C. Vines*, C. R. Sanchez*, D. Johnson, **J. H. Matthes**, S. Russell, G. Bohrer, Abstract A43P-3364, American Geophysical Union Fall Meeting, Washington, DC, 2018
- 'The role of nitrate and oxygen diffusion in enhancing dissimilatory nitrate reduction to ammonium rates in agricultural soils,' A. Sama, S. Egenriether, **J. H. Matthes**, W. H. Yang, Abstract B21L-2497, American Geophysical Union Fall Meeting, Washington, DC, 2018
- 'Mycorrhizal communities and tree diversity effects on forest soil respiration,' A. K. Lang*, F. Jevon*, M. P. Ayres, **J. H. Matthes**, Ecological Society of America Annual Meeting, Portland, OR., 2017
- 'Tree species identity and diversity influence soil respiration in a mixed temperate forest,' Authors: F. Jevon*, A. K. Lang*, M. P. Ayres, **J. H. Matthes**, Ecological Society of America Annual Meeting, Portland, OR., 2017

Teaching Experience

Teaching at Wellesley College in the Dept. Biological Sciences (BISC) and the Dept. Environmental Studies (ES)

- **BISC 111:** Organismal Biology with Laboratory, *Spring 2017-2019, 2021*
- **BISC 113:** Exploration of Organismal Biology with Laboratory, *Spring 2019, 2021*
- **BISC/ES 150H:** Climate Change and Global Agriculture, *Spring 2021*
- **BISC 201:** Ecology with Laboratory, *Fall 2018, 2020*
- **BISC 204:** Biological Modeling with Laboratory, *Spring 2017 & 2018*
- **BISC/ES 307:** Ecosystem Ecology with Laboratory, *Fall 2016-2018, 2020*

Teaching at Dartmouth College in Dept. Geography (2014-2016)

- **GEOG 8:** Life in the Anthropocene, *Winter 2015-2016*
- **GEOG 3:** The Natural Environment, *Spring 2015*

Published Pedagogical Resources (non-peer-reviewed)

- **Matthes, J. H.** (2018). Outstanding Oaks: Quercus Phenology at NEON Sites. NEON Faculty Mentoring Network, Quantitative Undergraduate Biology Education and Synthesis. doi:10.25334/Q4HQ54
- **Matthes, J. H.** (2018), 'Modeling the Mechanisms of Evolution,' <https://qubeshub.org/resources/evopopulations>

- **Matthes, J. H.** (2018), 'Investigating Trade-offs among Mammal Traits,' <https://qubeshub.org/resources/mammaltraits>

Student Advising & Mentoring

Graduate Students

- **Dartmouth Ecology, Evolution, Environment, & Society Ph.D. Program:**
 - Chelsea Vario Petrenko, Dissertation Committee, Ph.D. awarded *June 2015*
 - Fiona Jevon, Ph.D. Dissertation Advisor, Ph.D. awarded *June 2020*
 - *Currently Postdoctoral Fellow at Yale University*
 - Ashley Lang, Ph.D. Dissertation Advisor, Ph.D. awarded *August 2020*
 - *Currently NSF Postdoctoral Fellow at Indiana University*

Undergraduate Students since 2014

- **Major Advisor for Senior Honors Theses at Wellesley College**
 - 2021 (Spring-Fall): Sarah Elizabeth Stockman, *Biological Sciences*
 - 2020-2021: Dayna De La Cruz, *Biological Sciences*; Sage Wentzell-Brehme, *Environmental Studies*
 - 2019-2020: Emma Conrad-Rooney, *Biological Sciences*
 - 2018-2019: Andrea Sama, *Biochemistry*; Sarah Smith-Tripp, *Geosciences*
 - 2017-2018: Emily Neel, *Environmental Studies*
- **Committee Member for Senior Theses at Wellesley College**
 - 2020-2021: Hanamei Shao, *Biological Sciences*; Isabella Valencia, *Environmental Studies*
 - 2019-2020: Eva Paradiso, *Environmental Studies*; Lauren Tso, *Biological Sciences*
 - 2018-2019: Nathalie Bolduc, *Environmental Studies*
- **Undergraduate Research Mentor** through the Wellesley Science Center Summer Program, Sophomore Early Research Program, Independent Study for Credit, or paid Work Study Positions
 - Amaya Allen '18, Summer 2017
 - Lacey Berg '21, Fall 2018 - Spring 2019
 - Sulaikha Buuh '20, Summer 2017 - Spring 2018
 - Irina Chen '18, Fall 2016 - Spring 2018
 - Jennifer Chien '19, Fall 2018 - Spring 2019
 - Emma Conrad-Rooney '20, Fall 2016 - Spring 2020
 - Abigail Conte '20, Fall 2017- Spring 2019
 - Kat D'Hennezel '21, Fall 2018 - Spring 2019
 - Amandine Fromont '17, Spring 2017
 - Caroline Harper '17, Fall 2016 - Spring 2017
 - Amanda Hernandez '18, Summer 2016

- Diana Hernandez '21, Fall 2018 - Spring 2019
- Erica Huang '20, Fall 2017 - Spring 2019
- Carolina Jimenez '21, Fall 2018 - Spring 2019
- Lara Jones '18, Fall 2017 - Spring 2018
- Lyba Khan '20, Summer 2017 - Spring 2018
- Prapti Koirala '19, Summer 2016 - Spring 2017
- Annalise Michaelson '21, Fall 2018
- Marisy Nieto '24, Fall 2020 - present
- Eva Paradiso '20, Summer 2018 - Spring 2019
- Sarah Russell '17, Fall 2016 - Spring 2017, Post-Bacc 2017-2018
- Andrea Sama '19, Fall 2017 - Spring 2019
- Sarah Elizabeth Stockman '21, Fall 2020 - present
- Jaime Tracewell '23, Summer 2020 - present
- Lauren Tso '20, Summer 2018

Mentored Student Poster Presentations at Undergraduate Symposia since 2016

grey highlighted = mentored undergraduate student

- De La Cruz, D., S. E. Stockman, J. Tracewell, S. Wentzell-Brehme, 'Species Interactions, Diversity, Disturbances, and Climate Change in Northeastern Forests and Beyond,' Ruhlman Conference presentation, Wellesley College, MA, 2021.
- De La Cruz, D., F. V. Jevon, J. H. Matthes, 'Effects of Environmental Biotic Factors on Seedling Survival,'
 - Council on Undergraduate Research, Research Experiences for Undergraduates (REU) Symposium, Washington, DC, 2019.
 - Annual Biomedical Research Conference for Minority Students (ABRCMS), Anaheim, CA, 2019.
- De La Cruz, D., F. V. Jevon, J. H. Matthes, 'Effects of biotic factors on seedling survival,' Harvard Forest Summer Research Symposium, Petersham, MA, 2019.
- Conrad-Rooney, E., A. Barker Plotkin, J. H. Matthes, 'The role of nitrogen cycling in gypsy moth defoliation,' Harvard Forest Summer Research Symposium, Petersham, MA, 2019.
- Conrad-Rooney, E., S. Wentzell-Brehme, E. Paradiso, K. D'Hennezel, E. Huang, C. Jimenez, J. Chien, A. Conte, L. Berg, D. Hernandez, 'Biodiversity, climate, and disturbance in New England,' Ruhlman Conference presentation, Wellesley College, MA, 2019.
- Paradiso, E., F. Jevon, J. H. Matthes, 'The role of root morphology in predicting root respiration in six temperate tree species,' Harvard Forest REU Research Symposium, Petersham, MA, 2018

- Conrad-Rooney, E., A. Lang, J. H. Matthes, 'Investigating the impact of mycorrhizal fungi and tree roots on soil microbial biomass,' Science Center Summer Research Program Poster Presentation, Wellesley College, MA, 2018
- Huang, E., E. Conrad-Rooney, L. Jones, 'Searching Below the Surface: Impacts of Forest Landscape Structure and Belowground Mechanisms on Trees and their Symbiotic Fungi', Ruhlman Conference presentation, Wellesley College, MA, 2018.
- Buuh, S., L. Khan, E. Neel, 'Neighboring Nutrients: Investigating Sustainable Mulching Alternatives to Inorganic Fertilizers', Ruhlman Conference presentation, Wellesley College, MA, 2018.
- Chen, I., A. Conte, A. Sama, 'The Difference that Dirt Makes: Exploring the Impact of Soil Origin on Forest Diversity', Ruhlman Conference presentation, Wellesley College, MA, 2018.
- Allen, A., S. Buuh, L. Khan, L. Tso, J. H. Matthes, 'The Plots Thicken: How do greenhouse gas emissions change with different ecological communities in the Botanic Gardens,' Science Center Summer Research Program Poster Presentation, Wellesley College, MA, Winner, Best BISC Poster Award, 2017
- Hernandez, A., P. Koirala, J. H. Matthes, 'Assessing the impacts of climate change in the Northeast: the effect of moisture conditions on soil microbial respiration', Science Center Summer Research Program Poster Presentation, Wellesley College, MA., Winner, Best BISC Poster Award, 2016

Professional Service

Production of Science Scholarship

- **Editorial Board Member, *Agricultural and Forest Meteorology*,** 'an international journal for the publication of original articles and reviews on the inter-relationship between meteorology, agriculture, forestry, and natural ecosystems', 2016-present
- **Editorial Board Member, *Frontiers in Forests and Global Change*,** 'publishes rigorously peer-reviewed research across the field of forest science – spanning from molecules to ecosystems to the biosphere, to inform and promote the sustainable management of the worlds forests.', 2018-present
- **Peer Reviewer for Journal Articles:** *Agricultural and Forest Meteorology, Atmospheric Environment, Biogeosciences, Boreal Environmental Research, Ecological Applications, Ecology Letters, Environmental Informatics, Environmental Research Letters, Forest Ecology and Management, Functional Ecology, Geographic Research, Global Change Biology, Journal of Forest Research, Journal of Geophysical Research, Journal of Plant Nutrition and Soil Science, PLoS One, Remote Sensing, Remote Sensing of Environment, Soil Science Society of America Journal*
- **Peer Reviewer for External Grant Proposals:**
 - Ad-Hoc Reviewer, National Science Foundation, Mid-scale Research Infrastructure-2 Program, 2021

- Ad-Hoc Reviewer, National Science Foundation, BIO DEB Population and Community Ecology Cluster, 2017; SBE Geography and Spatial Sciences Program, 2018
- Reviewer, Estonian Research Council (ETAg) Basic Research Proposal, 2017
- Ad-Hoc Reviewer, Helmholtz Association, Helmholtz Young Investigators Group Research Proposals (German Early Career Award), 2017
- Ohio State Wetland Restoration Program, 2016
- National Science Foundation, Graduate Research Fellowship Program, 2015
- California State Dept. Fish & Wildlife, Wetlands Restoration for Greenhouse Gas Reduction Program, 2015

Professional Societies Service

- Member, American Geophysical Union, 2008-present
- Member, Ecological Society of America, 2008-present
- Primary Convener, B13L/B14D/B23E: Observing and Predicting Impacts from Ecological and Climatological Disturbances, AGU Fall Meeting 2014
- Outstanding Student Paper Award Liaison, Session B29A: Observing and Predicting Impacts from Ecological and Climatological Disturbances, AGU Fall Meeting 2014
- Co-Convener, Sessions B11H/B12A/B13K/B21A: Biosphere-Atmosphere Greenhouse Gas Fluxes in Terrestrial Ecosystems I/II/III/IV, AGU Fall Meeting 2013

Synergistic Activities

- Member, National Ecological Observatory Network (NEON) Science, Technology, & Education Advisory Council, 2018 - present
- Elected Member, Scientific Coordinating Committee, Hubbard Brook Ecosystem Study, 2019-present
- Member, Committee of Scientists, Hubbard Brook Ecosystem Study, 2014-present
- Lead Mentor (with K. Stack-Whitney), Data Access Equity & Inclusion Faculty Mentoring Network, Ecological Society of America, Quantitative Undergraduate Biology and Synthesis program, 2020
- Invited Participant, National Ecological Observatory Network Science Summit, Earth Lab, Boulder, CO, 2019
- Invited Participant, Environmental Data Science Inclusion Network (EDSIN) funded by NSF INCLUDES, National Ecological Observatory Network, Boulder, CO, 2019
- Participant, NSF Research Coordination Network, S3: Scenarios, Services, and Society, Workshop 1: Scenarios to Solutions, South Casco, ME, 2014
- Participant, National Center for Atmospheric Research (NCAR) Advanced Study Program Researcher Workshop, Key Uncertainties in the Global Carbon Cycle:

Perspectives across terrestrial and ocean ecosystems, 2013

- Participant, NSF Research Coordination Network, FORECAST: Promoting New Perspectives on Data Assimilation in Global Change Science, Woods Hole, MA, 2012

Wellesley College Service

- Elected Member, Academic Council Agenda Committee, 2020-present
- Biological Sciences Major/Minor Advisor, 17 students, 2016-present
- Environmental Studies Major/Minor Advisor, 10 students, 2016-present
- Faculty Representative, Trustee Subcommittee on Investment Responsibility, 2018-2020
- Member, Advisory Committee on Library and Technology Policy, 2016-2019
- Biological Sciences Equity & Inclusion Subcommittee, 2018-2019
- Biological Sciences Assessment Subcommittee, 2016-2018