

## Jaclyn Hatala Matthes

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### 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**, Program in 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
- **Research Assistant**, Moorcroft Ecology Lab, Harvard University, 2007-2009
- **Research Scientist**, Yellowstone Ecological Research Center, Bozeman, MT, 2007

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

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

- [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 CO<sub>2</sub> 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*, Early Online, 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*, 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 CO<sub>2</sub> and CH<sub>4</sub> 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 CO<sub>2</sub> 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 (CO<sub>2</sub> and CH<sub>4</sub>) 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 CH<sub>4</sub> 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 (CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>O) 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.

- Submitted & In Review -

- Farrell, K. J., K. C. Weathers, S. Sparks, J. Brentrup, C. C. Carey, M. C. Dietze, J. Foster, K. Grayson, **J. H. Matthes**, M. SanClements. Training macrosystems scientists requires both interpersonal and technical skills. In Revision at *Frontiers in Ecology & Environment*.
- Lang, A. K.\*, F. Jevon\*, M. Ayres, **J. H. Matthes**. Higher soil respiration under arbuscular mycorrhizal trees in a hardwood northeastern forest is driven by associated soil properties. In Revision at *Ecosystems*.
- Paradiso, E., F. V. Jevon\*, **J. H. Matthes**. Root respiration rate scales with morphological traits, not species identity, in a diverse northeastern forest. In Review at *Ecosphere*.

### *Invited Book Chapters*

- [1] **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**

*Funded (Total Award Value = \$1,588,957; To Matthes = \$372,507)*

- [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, 02/01/17-01/31/23, 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**

### **Awards & Fellowships**

- Samuel and Anna Pinanski Prize for Excellence in Teaching, Wellesley College, 2019

- National Ecological Observatory Network Data Education Fellow, 2018
- Early Career Participant Award, NSF Office of International Science and Engineering, 'Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories', 2018
- National Science Foundation Graduate Research Fellowship, 2010-2013
- Environmental Protection Agency Science to Achieve Results Fellowship, 2010 (declined)

### **Invited Seminars & Talks at Professional Meetings** (*Jaclyn A. Hatala before 2013*)

- "Putting bugs into models: Forecasting the ecosystem impacts of insects and pathogens," J. H. Matthes, forthcoming 2019
  - **Indiana University**, Environmental Science Seminar, O'Neill School of Public and Environmental Affairs, Bloomington, IN
  - **University of Wisconsin**, Climate, People, and Environment Seminar, Nelson Institute for the Environment, Madison, WI
  - **Virginia Commonwealth University**, Biology Department Seminar, Richmond, VA
- "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.
- "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 headquarters**, 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**, Washington, DC., 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, LA, 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”
  - Wellesley College, Biological Sciences Seminar, 2015
  - Chatham University, Women in Global Change Science Series, 2016
- “The Breathing of the Biosphere: Why Ecosystem Metabolism Matters in the Anthropocene”, **Massachusetts Institute of Technology**, MIT Media Lab Seminar, 2015.
- “Constraining Centennial-Scale Ecosystem-Climate Interactions with a Settlement-era Forest Reconstruction across the Upper Midwest and Northeastern United States”, Co-authors: D. J. Moore, A. Fox, S. Goring, B. Poulter, T. Quaife, K. Schaefer, J. Steinkamp, J. McLachlan, M. C. Dietze, **American Geophysical Union Fall Meeting**, San Francisco, CA, 2014.
- “Constraining the historic biosphere-atmosphere carbon cycle: Modeling centennial-scale ecological interactions between U.S. forests and climate,” Co-authors: D. J. Moore, A. Fox, S. Goring, B. Poulter, T. Quaife, K. Schaefer, J. Steinkamp, J. McLachlan, M. C. Dietze, **2nd Conference on Atmospheric Biogeosciences, American Meteorological Society**. Abstract 5.1, Portland, OR, 2014.
- “Plant and microbial carbon flux coherence in managed and agricultural wetlands”
  - Plymouth State University, Environmental Science Colloquium, 2014
  - University of Vermont, Plant and Soil Science Seminar, 2014
  - The Ohio State University, Environmental Sciences Seminar, 2014
- “Managing, measuring, and modeling ecosystem carbon flows: Lessons from the California Delta”
  - Marine Biological Laboratory, Ecosystems Center Seminar, 2014

- Dartmouth College, Biology Department, Cramer Seminar Series, 2014
- Purdue University, Dept. Forestry & Natural Resources, 2016
- “Incorporating spatial heterogeneity into the measurement of methane and carbon dioxide fluxes from a restored wetland,” J. A. Hatala, D. D. Baldocchi, N. Kljun, J. O’Connell, S. H. Knox, J. Verfaillie. **American Geophysical Union Fall Meeting**, Abstract B43J-02, San Francisco, CA, 2012.
- “Counting carbon: Methane and carbon dioxide emissions from agricultural and restored Delta peatlands,” J. A. Hatala, D. D. Baldocchi, S. H. Knox, J. Verfaillie. **7<sup>th</sup> Biennial Bay-Delta Science Conference**, Sacramento, CA, 2012.
- “Landscape-scale drivers of carbon dioxide and methane flux in agricultural and restored peatlands in the Sacramento-San Joaquin Delta, USA,” J. A. Hatala., M. Detto, D. Baldocchi. **14<sup>th</sup> International Peatland Congress**, Paper 209, Stockholm, Sweden, 2012.
- “An ecosystem model of blister rust spread in whitebark pine of the Greater Yellowstone Ecosystem,” J. A. Hatala, M. Dietze, R. L. Crabtree, P. M. Moorcroft, **10<sup>th</sup> Biennial Scientific Conference on the Greater Yellowstone Ecosystem**, Mammoth, MT, 2010.

### **Poster Presentations at Professional Meetings** (*Jaclyn A. Hatala before 2013*)

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

- “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
- “DisturbED: A generalized framework for modeling the impacts of insects and pathogens in the Earth System,” J. H. Matthes
  - Abstract B53A-0506, American Geophysical Union Fall Meeting, San Francisco, CA, 2016
  - MacroSystems Biology Annual Meeting, National Science Foundation, Washington, DC, 2017
- “Representations of historic vegetation dynamics in CMIP5 and MsTMIP models,” Matthes, J. H., M. C. Dietze, S. Goring, PaleON Team, MsTMIP Team. American Geophysical Union Fall Meeting. Abstract B11E-401, San Francisco, CA, 2013
- “Improving long-term forecasts of ecosystem-climate dynamics through community-based model-data fusion,” Matthes, J. H., T. Viskari, M. C. Dietze. Key Uncertainties in the Global Carbon Cycle: Perspectives across terrestrial and ocean ecosystems. National Center for Atmospheric Research, Boulder, CO, 2013
- “From tower to ecosystem: ‘Spatializing’ carbon fluxes using satellite data yields mechanistic insight for scaling ecosystem CH<sub>4</sub> flux,” J. A. Hatala, D. D. Baldocchi, N. Kljun, S. H. Knox, J. Verfaillie, NSF Research Coordination Network – Forecasts of Resource and Environmental Changes Conference, Woods Hole, MA, 2012
- “Water management controls net carbon exchange in drained and flooded agricultural landscapes in the Sacramento-San Joaquin Delta, CA,” J. A. Hatala, M. Detto, O. Sonnentag, J. Verfaillie, D. Baldocchi. American Geophysical Union Fall Meeting, Abstract B23A-0376, poster. San Francisco, CA, 2011
- “Interpreting trace gas fluxes through eddy covariance from different land management types in the Sacramento-San Joaquin River Delta peatlands,” J. A. Hatala, M. Detto, F. Andersen, J. Verfaillie, O. Sonnentag, D. Baldocchi. European Geophysical Union General Assembly, Abstract EGU2011-809, Vienna, Austria, 2011
- “Does summertime photodegradation prime plant litter for microbial respiration upon the fall rain pulse in a California oak savanna?” J. A. Hatala, R. Vargas, S. Ma, H. Kobayashi, D. D. Baldocchi, American Geophysical Union Fall Meeting, Abstract B11A-0337, San Francisco, CA, 2010
- “Integration of near-surface remote sensing and eddy covariance measurements: new insights on managed ecosystem structure and functioning,” J. A. Hatala, O.



Sonnentag, M. Detto, B. Runkle, R. Vargas, M. Kelly, D. Baldocchi, American Geophysical Union Fall Meeting, Abstract B31B-0349, San Francisco, CA, 2009

- "Development of a hierarchical Bayesian model to describe and predict the spread of blister rust in whitebark pine throughout the Greater Yellowstone Ecosystem," J. A. Hatala, M. Dietze, D. Six, K. Kendall, R. L. Crabtree and P.M. Moorcroft NASA Carbon Cycle and Ecosystems Joint Science Workshop, poster. Adelphi, MD, 2008

## Teaching Experience

### *Teaching at Wellesley College in Dept. Biological Sciences (2016 – present)*

- **BISC 111:** Organismal Biology with Laboratory, *Spring 2017, Spring 2018, Spring 2019*
- **BISC 113:** Exploration of Organismal Biology with Laboratory, *Spring 2019*
- **BISC 201:** Ecology with Laboratory, *Fall 2018*
- **BISC 204:** Biological Modeling with Laboratory, *Spring 2017, Spring 2018*
- **BISC 307:** Ecosystem Ecology with Laboratory, *Fall 2016, Fall 2017, Fall 2018*

### *Teaching at Dartmouth in Dept. Geography (2014 – 2016)*

- **GEOG 8:** Life in the Anthropocene, *Winter 2015, Winter 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, QUBES. 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, Ecosystems, & Society Ph.D. Program:**
  - Chelsea Vario Petrenko, Dissertation Committee, Ph.D. awarded *June 2015*
  - Fiona Jevon, Ph.D. Dissertation Advisor, expected graduation *June 2020*
  - Ashley Lang, Ph.D. Dissertation Advisor, expected graduation *June 2020*

### *Undergraduate Students*

- **Senior Honors Thesis**
  - 2019-2020: Emma Conrad-Rooney, *Biological Sciences*

- 2018-2019: Andrea Sama, *Biochemistry*; Sarah Smith-Tripp, *Geosciences*
- 2017-2018: Emily Neel, *Environmental Studies*, 2017-2018
- **Wellesley Sophomore Early Research Program**, Undergraduate Research Mentor
  - 2017-2018: Sulaikha Buuh '20; Lyba Khan '20
  - 2016-2017: Prapti Koirala '19
- **Wellesley Science Center Summer Research Program**, Undergraduate Research Mentor
  - 2019: Dayna De La Cruz '21, Emma Conrad-Rooney '20, Sage Wentzell-Brehme '21
  - 2018: Emma Conrad-Rooney '20, Eva Paradiso '20
  - 2017: Amaya Allen '18, Sulaikha Buuh '20, Lyba Khan '20, Lauren Tso '20
  - 2016: Amanda Hernandez '18, Prapti Koirala '19
- **Wellesley BISC 250H/350H: Independent Study**, Undergraduate Research Mentor
  - 2018-2019: Lacey Berg '21; Jennifer Chien '19; Abigail Conte '20; Katherine D'Hennezel '21; Diana Hernandez '21; Erica Huang '20; Carolina Jimenez '21, Sage Wentzell-Brehme '21
  - 2017-2018: Irina Chen '18, Emma Conrad-Rooney '20, Abigail Conte '20; Erica Huang '20; Lara Jones '18; Andrea Sama
  - 2016-2017: Irina Chen '18, Emma Conrad-Rooney '20, Sarah Russell '17; Amandine Fromont '17
- **Dartmouth Women in Science Program**, Undergraduate Research Mentor
  - 2015-2016: Mariko Whitenack '17
  - 2014-2015: Kennedy Jensen '18; Emma Rieb '18
- **UC Berkeley Biology Scholars Program; New Experience for Research & Diversity in Science; Sponsored Program for Undergraduate Research, 2009-2013**
  - Developed and advised 7 semester and year-long independent undergraduate research projects

### **Poster Presentations at Undergraduate Symposia from Mentoring**

*Jaclyn A. Hatala before 2013; ^ = mentored undergraduate student*

- 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
- 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*
- de la Cueva, C.^, J. A. Hatala, S. Knox, D. Baldocchi, Is NDVI or LAI a better indicator of photosynthesis during the summer growing season? Biology Scholars Program Research Symposium, poster. Berkeley, CA, 2012
- Jaquez, M.^, J. A. Hatala, D. Baldocchi. Developing a light emitting diode sensor to measure plant canopy phenology. AAAS Annual Meeting, Abstract 7760. Vancouver, Canada, 2012
- Sanchez, J. L.^, J. A. Hatala, J. Verfaillie, D. Baldocchi. Variance among leaf area measurements due to differences in measurement methods and canopy structure. Biology Scholars Program Research Symposium, poster. Berkeley, CA, 2011

## 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, 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, BIO 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
- Committee of Scientists, Hubbard Brook Long-Term Ecological Research site, 2014-present
- 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, Lake GHG Flux Workshop, Hyytiälä Forestry Field Station, Finland, 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*

- Member, Advisory Committee on Library and Technology Policy, 2016-2019
- Biological Sciences Major Advisor, 14 students, 2016 - present
- Environmental Studies Major Advisor, 4 students, 2016 - present
- Faculty Representative, Trustee Committee on Investment Responsibility, 2018 - present
- Biological Sciences Equity & Inclusion Subcommittee, 2018-2019
- Biological Sciences Tenure-Track Aquatic Ecologist Search Committee, 2018
- Biological Sciences Assessment Subcommittee, 2016-2018