

Academic Background

- 2008 – 2012 Doctor of Philosophy
University of California, Santa Barbara
Department of Ecology, Evolution, & Marine Biology
- 2005 – 2007 Master of Arts
Brown University, RI joint program with Marine Biological Laboratory, MA
Department of Ecology & Evolutionary Biology
- 2000 – 2004 Bachelors of Arts with High Honors in Biology, minor in Sociology/Anthropology
Swarthmore College, PA

Professional Experience

- 2019 – Present Assistant Professor, California Polytechnic Institute
Department of Natural Resources and Environmental Sciences

Affiliate Faculty, Hampshire College
- 2015 – 2019 Assistant Professor, Hampshire College
School of Natural Science

Associated Five-College Graduate Faculty, University of Massachusetts Amherst
Department of Organismic and Evolutionary Biology
- 2018 – 2019 NSF Polaris Program Visiting Scientist
- 2013 – 2015 NOAA Climate & Global Change Postdoctoral Fellow
University of California, Irvine
Department of Ecology & Evolutionary Biology
- 2008 – 2012 University of California, Santa Barbara
Department of Ecology, Evolution, & Marine Biology
- 2004 – 2005 Post-baccalaureate Intramural Research Training Award
National Institutes of Health

Publications

- 2019 Williams, N.E., **S. Sistla**, D. Kramer, K. Stevens, A. Roddy. Resource Users as Land-Sea Links in Coastal and Marine Socio-ecological Systems. *Conservation Letters* (In review).
- Pold, G., **S. Sistla**, K. DeAngelis. Metabolic tradeoffs and heterogeneity in microbial responses to temperature determine the fate of litter carbon in a warmer world. *Biogeosciences Discussion* (In revision).
- Pold, G. L. A. Domeignoz-Horta, E. Morrison, S. D. Frey, **S. Sistla**, K. DeAngelis. Carbon use efficiency and its temperature sensitivity co-vary in soil bacteria. *mBio* (In press).

Hu, Yan-Yu, **S. Sistla**, H.-W. Wei, Z. Zhang, S.-L. Hou, J. Yang, Z. Wang, J.-F. Wang, X.-T. Lü. Legacy effects of nitrogen deposition on plant stoichiometry in a temperate grassland. *Plant and Soil* (In press).

Sistla, S., S. Schaeffer, J. Schimel. Plant community regulates soil microbial response to freezing more strongly than the rate or intensity of the freezing process. *Ecosphere* 10(2) 1-14.

Fawcett, S., **S. Sistla**, M. Dacosta-Calheiros, A. Kahraman, A. Reznicek, R. Rosenberg*, E. von Wettberg. Tracking microhabitat temperature variation with iButton dataloggers. *Applications in Plant Sciences* 4 (e1237) 1 – 12.

* Undergraduate student co-author.

- 2017 Kramer, D., K. Stevens, N.E. Williams, **S. Sistla**, A. Roddy, G. Urquhart. Coastal livelihood transitions and their trans-ecosystem implications in a region undergoing rapid globalization. *PLoS ONE* 12(10): e0186683.

Hou, S.-L., J.X. Yin, **S. Sistla**, J.J. Yang, Y. Sun, Y.Y. Li, X.T. Lü. Long-term mowing did not alter the impacts of nitrogen deposition on litter quality in a temperate steppe. *Ecological Engineering* 102: 404-410.

- 2016 Crowther, T., et al. Quantifying global soil carbon losses in response to warming. *Nature*. 540(7631): 104-108.

Sistla, S., A. Roddy, N. E. Williams, D. Kramer, K. Stevens, S. Allison. Agroforestry practices promote biodiversity and natural resource diversity in Atlantic Nicaragua. *PLoS ONE* 11(9): e0162529.

Wang, X., **S. Sistla**, X. Wang, X. Han, X. Lü. Carbon and nitrogen contents in particle-size fractions of topsoil along a 3000 km aridity gradient in northern China. *Biogeosciences* 13: 3635–3646.

Spasojevic, M., C. Bahlai, B. Bradley, B. Butterfield, M.N. Tuanmu, **S. Sistla**, R. Wiederholt, K. Suding. Scaling up the diversity–resilience relationship with trait databases and remote sensing data: the recovery of productivity after wildfire. *Global Change Biology* 22: 1421–1432.

- 2015 **Sistla, S.**, A. Appling, A. Lewandowska, B. Taylor, A. Wolf. Stoichiometric Flexibility in Response to Fertilization along Gradients of Environmental and Organismal Nutrient Richness. *Oikos* doi: 10.1111/oik.02385.

- 2014 Han, X., **S. Sistla**, X. Lü, Y. Zhang, X.G. Han. Hierarchical responses of plant stoichiometry to nitrogen deposition and mowing in a temperate steppe. *Plant and Soil* 382: 175 – 187.

Sistla, S., E. Rastetter, J. Schimel. Responses of a tundra system to warming using SCAMPS: A stoichiometrically coupled, acclimating microbe-plant-soil model. *Ecological Monographs* 84 (1): 151 – 170.

- 2013 **Sistla, S.** and J. Schimel. Seasonal patterns of microbial extracellular enzyme activities in an arctic tundra soil: Identifying direct and indirect effects of long-term summer warming. *Soil Biology & Biochemistry* 66: 119 – 129.

- Sistla, S.**, J. Moore, R. Simpson, L. Gough, G. Shaver, J. Schimel. Long-term warming restructures arctic tundra without changing net soil carbon storage. *Nature* 497 (7451): 615 – 18.
Recommended for *Faculty of 1000*. Featured in: *Scientific American online*, *Sciencenews.org*, *Anchorage Daily News*, *Redorbit.com*, *The International Polar Foundation*, *Science360*, and other publications.
- 2012 **Sistla, S.** and J. Schimel. Stoichiometric flexibility as a regulator of carbon and nutrient cycling in terrestrial ecosystems under change. *New Phytologist* 96 (1): 68 – 78.
- Sistla, S.**, S. Asao, J.P. Schimel. Microbial N-limitation in tundra soil and its detection: Implications for Arctic SOC cycling. *Soil Biology & Biochemistry* 55: 78 – 84.
- Gutiérrez, N., S. Valencia, T. Branch, D. Agnew, A. Stern-Pirlot, A. Smith, C. Nannes, R. Selden, J. Thorson, T. Essington, C. Costello, D. Hoggarth, P. Bianchi, **S. Sistla**, J. Cornejo, A. Larsen, S. Teck, O. Defeo, K. Sainsbury, R. Hilborn, K. Baum, N. Williams. Eco-labels: A reliable indicator of stock status for seafood consumers. *PLoS ONE* 7(8): e43765.
- 2010 Viola, D., E. Mordecai, A. Jaramillo, **S. Sistla**, L. Albertson, J. Gosnell, B. Cardinale, J. Levine. Competition-defense tradeoffs and the maintenance of plant diversity. *Proceedings of the National Academy of Sciences* 107 (40): 17217 – 17222.
- 2005 Cebra-Thomas J., F. Tan, **S. Sistla**, E. Estes, G. Bender, C. Kim, P. Riccio, S. Gilbert. How the turtle forms its shell: A paracrine hypothesis of carapace formation. *J. Experimental Zoology B*: 558 – 569.

Book chapters and other publications

- 2020 **Sistla, S.** *Exploring the Cost of Scientific Curiosity*. In: *Curiosity Studies: Towards a New Ecology of Knowledge*. University of Minnesota Press. Editors: Zurn, P. and A. Shankar (invited).
* Featured on the Podcast *Choose to be Curious*
- 2014 von Wettberg, E., J. Ray-Mukherjee, N. D'Adesky, D. Nesbeth, **S. Sistla**. The Evolutionary Ecology and Genetics of Stress Resistance Syndrome (SRS) Traits: Revisiting Chapin, Autumn and Pugnaire (1993). In: *Plant Ecology and Evolution in Harsh Environments*. NOVA Publishers. Editors: Rajakaruna, N., R. Boyd, T. Harris.
- 2013 **Sistla, S.** *Understanding the importance of terrestrial responses to climate change: an Arctic tundra case study*. Mundus Maris (invited). Available at: <http://work.mundusmaris.org/>
- 2003 Cho, M., M. Cohen, **S. Sistla**. *What is a "Normal" Phenotype?* DevBio: A Companion to Developmental Biology. Sinauer Associates. Editors: Gilbert, S.F. and E. Zacki.

Grants (external funding)

- 2019 – 2021 NSF Office of Polar Programs. *The Polaris Project – Catalyzing Change in the Arctic Research Community*". Co-Investigator. PI: Sue Natali, Woods Hole Research Center. (\$1,007,985)
- 2019 – 2021 NSF Office of Polar Programs. *Projecting Arctic Soil and Ecosystem Responses to Warming Using SCAMPS: A Stoichiometrically Coupled, Acclimating Microbe-Plant-Soil model*. PI Sistla, Co-Investigator: Edward Rastetter, Marine Biological Laboratory (\$259,026)

- 2016 – 2020 DOE Systems Biology. *The “Who” and “How” of Microbial Control over Soil Carbon Dynamics: a Multiomics, Stable Isotope, and Modeling Approach*. Co-Investigator. PI Kristen DeAngelis, UMASS Amherst, Co-Investigators: Erin Conlon, UMASS Amherst, Serita Frey and Stuart Grandy, University of New Hampshire (\$1,887,107)
- 2012 NSF Doctoral Dissertation Improvement grant. *Exploring the impacts of long-term warming on Arctic soils: linking microbial communities with seasonal biogeochemical dynamics* Co-Investigator. PI Joshua Schimel, UC Santa Barbara (\$15,000)
- 2011 Integrated Network for Terrestrial Ecosystem Research on Feedbacks to the Atmosphere and Climate grant to support collaborative exchange (\$800)
- 2008 Explorer’s Club Exploration Fund (\$3,000)

Grants (institutional funding)

- 2018 – 2019 MacArthur Fund Development Grant (Hampshire College)
- 2016 – 2018 Stokes Foundation (Hampshire College)
- Dr. Lucy Innovation in Education Faculty Grants (Hampshire College)
- Faculty Development Grant (Hampshire College)
- 2013 *ScienceLine* Life Sciences award (UC Santa Barbara)
- 2011 Worster Grant, undergraduate research mentorship award (UC Santa Barbara)
- Luce Environmental Science to Solutions Fellowship (UC Santa Barbara/NCEAS)
- 2008 Leal Anne Kerry Mertes Grant (UC Santa Barbara)

Fellowships

- 2018 – 2019 American Association for University Women Research Fellowship
- 2013 – 2015 NOAA Climate & Global Change Postdoctoral Fellowship
- 2008 – 2012 DOE Global Change Program Graduate Fellowship
- 2004 NSF Research Experience for Undergraduates (University of AK, Fairbanks)
- 2003 Howard Hughes Medical Institute research fellowship (Swarthmore College)

Travel Grants

- 2019 Arctic Data Center Data Science Training workshop, NCEAS. Santa Barbara, CA.
- 2014 Natural Capital Project Annual Meeting and Training, Stanford University.
- 2013 Dissertations Initiative for the Advancement of Climate Change Research VIII Symposium. (Declined due to schedule conflict).
- 2011 27th New Phytologist Symposium: *Stoichiometric flexibility in terrestrial ecosystems under global change*. Biosphere 2, AZ.
- Enzymes in the Environment: Ecology, Activity, and Applications International Conference*. Young Scientist Award. Bad Nauheim, Germany.
- INTERFACE: *How Do We Improve Earth System Models: Integrating Earth System Models, Ecosystem Models, Experiments and Long-Term Data?* Captiva, FL.

Working Groups

- 2017 *Understanding the role of climatic and biological factors in regulating stoichiometric responses of organisms and ecosystems to nutrient enrichment*. Hanse-Wissenschaftskolleg Institute for Advanced Study (invited).
- 2014 *Playing dominoes with tipping points? Exploring the linkages between anthropogenically-driven shifts in marine and terrestrial biodiversity and ecosystem services in a rapidly globalizing coastal region within a biodiversity hotspot*. National Socio-Environmental Synthesis Center, German Centre for Integrative Biodiversity Research Halle-Jena-Leipzig (Co-PI with Daniel Kramer, MSU).
- Press coverage:** *Thinking across disciplines to drive science and policy*. Huffington Post (2015).
- 2014 *Woodstoich III: A Workshop to Advance Integration Across Biology*. Sydney, Australia.
- 2013 *Scaling Up: Population and Community Ecology Workshop for Early Career Scientists* (ESA).

Invited Talks

- 2019 **Sistla, S.** *Novel land use change drives ecological feedbacks*. The Harvard Forest LTER.
- Sistla, S.** *Unexpected impacts of land-based solar arrays: novel habitat heterogeneity formation and its influence on plant-soil interactions*. UMASS Amherst.
- Sistla, S.** *Unexpected impacts of land-based solar arrays: novel habitat heterogeneity formation and its influence on plant-soil interactions*. Bard College.
- 2018 **Sistla, S.** *Unexpected impacts of land-based solar arrays: novel habitat heterogeneity formation and its influence on plant-soil interactions*. Dartmouth College.
- Sistla, S.** Discussion leader for *Stoichiometry* session at Gordon Research Conference on *Unifying Ecology Across Scales*.

- Sistla, S.** *Ecology of the built environment: soil, plant, microbe feedbacks in the Anthropocene*. Ruderal Ecologies Symposium. Rensselaer Polytechnic Institute. Troy, NY.
- Sistla, S.** *Exploring the ecological impacts of utility-scale solar arrays: A New England case study*. University of VT and UMASS Amherst.
- 2017 **Sistla, S.** *Exploring the ecological impacts of utility-scale solar arrays: A New England case study*. University of New Hampshire.
- 2016 **Sistla, S.** *Exploring the Cost of Scientific Curiosity*. Curiosity in Multidisciplinary Perspective Symposium at the University of Pennsylvania.
- 2015 **Sistla, S.** *Ecological feedbacks to global change: A terrestrial ecosystems perspective*. UMASS Amherst.
- Sistla, S.** *New frontiers in soils: Future challenges and knowledge gaps*. Ecological Society of America.
- 2013 **Sistla, S.** *Arctic permafrost and carbon cycling: Implications for future carbon budget and climate scenarios*. Arctic Futures Symposium: Research to inform policymaking session. International Polar Foundation. Brussels, Belgium.
- Sistla, S.** *The scientific context of climate change: Deconstructing arguments denying the Anthropocene*. Soka University of America. Aliso Viejo, CA.
- Sistla, S.** *Understanding the effects of warming on Arctic systems*. St. Olaf College. Northfield, MN.
- 2012 **Sistla, S., E. Rastetter, J. Schimel.** *Exploring the effects of long-term warming on tundra plant-soil feedbacks through changes in community structure and extracellular enzyme activity using a modeling approach*. Enzymes in the Environment: Incorporating Enzyme Activities into Biogeochemical Models. Colorado State University. Fort Collins, CO.
- 2007 **Sistla, S.** *Climate change and its implication for Alaskan native cultures*. Haffenreffer Museum of Anthropology. Bristol, RI.
- 2006 **Sistla, S.** *Linking aboveground and belowground responses to chronic soil warming: Characterizing the determinants of the net C balance of a temperate forest in a warming world*. University of Rhode Island, Department of Natural Resources Science. Kingston, RI.
- Sistla, S.** *RI and Climate Change*. RI Chapter of the Sierra Club Member's Night. Brown University, Ladd Observatory. Providence, RI.

Recent Contributed Talks and Posters (selected)

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- 2019 * Henson, H.C., P. Mann, *A. Sanders, S. Natali, J.D. Schade, S. Ludwig, S. Sistla. *Influence of Land Slumping from Permafrost Thaw on Lake Methane Emissions in the Yukon-Kuskokwim Delta, Alaska*. American Geophysical Union Fall Meeting (poster).
- *Moubarak, M., S. Natali, B. M. Rogers, S. Sistla, S. Cooperdock, A.-K. Selbman, S. Ludwig, D. S. Ward. *Carbon loss and radiative forcings of gaseous emissions from tundra wildfires during the Yukon-Kuskokwim River Delta 2015 fire season*. American Geophysical Union Fall Meeting (poster).

*Williams, A., S. Natali, S. Ludwig, S. Sistla, P. J. Mann, J. D. Schade. Fire Increases Plant-Mediated Methane Flux in Yukon-Kuskokwim Delta Wetlands. American Geophysical Union Fall Meeting (poster).

*Lyles, E. S. Natali, S. Ludwig, S. Sistla, J.D. Schade, *R. MacArthur, *N. Baillargeon. *Changes in Berry and Leaf Production Following a Tundra Wildfire*. American Geophysical Union Fall Meeting (poster).

2018 Baillargeon N. *, R. MacArthur*, S. Natali, J. Schade and **S. Sistla**. *The impacts of fire on plant stoichiometry and nutrient cycling in the Yukon-Kuskokwim Delta, Alaska*. American Geophysical Union Fall Meeting (poster).

MacArthur R. *, N. Baillargeon*, **S. Sistla**, S. Natali, J. Schade, P. Mann, and S. Ludwig. *Aboveground biomass recovery after fire occurrence in the Yukon-Kuskokwim Delta, Alaska*. American Geophysical Union Fall Meeting (poster).

2017 ‡Rosenberg, R. *, J. DeChiara*, **S. Sistla**. Characterizing the ecological effects of utility-scale solar arrays on fallow farmland and other disturbed landscapes: Optimizing synergies in energy generation and terrestrial conservation goals. Ecological Society of America Annual Meeting.

Pold, G. †, **S. Sistla**, E. Kyker-Snowman, K. M. Geyer, S. Whitney, S. D. Frey, A. S. Grandy, E. Morrison and K. M. DeAngelis. All bacteria are not born *E. coli*: Incorporating physiological measurements and genomic signatures into soil carbon models. Ecological Society of America Annual Meeting.

† Graduate student author, * Undergraduate student author, ‡ Featured on VT public radio

Service

- BEACoN Mentor. Cal Poly (2019 – present)
- Ethics and Common Good committee member. Hampshire College (2015 – 2018)
- Co-facilitated workshop on *Race & Gender issues in STEM Fields*. Hampshire College (2017)
- Marlboro College external thesis examiner (2017)
- Consulting Editor: *Plant and Soil*. Reviewer: *Biogeochemistry*, *Biogeosciences*, *Climate Change Responses*, *Ecology*, *Ecosystems*, *FEMS Microbiology Ecology*, *Global Change Biology*, *Molecular Ecology*, *Geophysical Research Letters*, *Journal of Geophysical Research: Biogeosciences*, *Nature Geoscience*, *New Phytologist*, *Oecologia*, *PNAS*, *Science*, *Science Advances*, *Soil Biology and Biochemistry*, *NSF Geobiology and Low-Temperature Geochemistry Program*, *NSF Office of Polar Programs*, *NSF Division of Environmental Biology*
- Volunteer for the Climate Literacy and Energy Awareness Network (CLEAN), which is building a collection of peer-reviewed, freely available resources about climate and energy science (ongoing)
- Volunteer for *ScienceLine*. Answer science questions from K-12 students (2008 – 2013)
- Participant in: Integrated Network for Terrestrial Ecosystem Research on Feedbacks to the Atmosphere and Climate Network, Research Coordination Network: Enzymes in the Environment, NSF Arctic System Science Program's Changing Seasonality Initiative

Courses taught

Introductory Soil Science. Cal Poly (2019)

Environmental Conflict in the Anthropocene. Hampshire College (2016, 2018)

Biogeochemical Consequences of Global Change. Hampshire College (2018)

Global Change Ecology. Hampshire College (2017)

Innovations for Change: Problem Solving for the Future. Hampshire College (2015, 2017)

Ecosystem Ecology: A Biogeochemical Perspective. Hampshire College (2016, 2017)

Art & Ecology: Understanding Changing New England Environments. Hampshire College (2017)

Water, Carbon, and Nutrient Flow in a Living Building. Hampshire College (2015)

Ecosystem Processes. Instructor, UC Santa Barbara (2012)

Understanding a Changing World – From Molecules to Ecosystems. Instructor, UC Santa Barbara. NSF sponsored School for Scientific Thought program for high school students (2009)

Pedagogical development

Quantitative Undergraduate Biology Education and Synthesis. Faculty network participant (2017)

Sheridan Center Teaching Certificate I. Brown University (2007)

Students advised

Postdoctoral advisor

2019 - Present Grace Pold

PhD committee member

2016 – 2019 Grace Pold, UMASS Amherst

Senior thesis committee

2015 – 2019 Chaired eight Hampshire College Division III committees (senior thesis equivalent)
Member on six Division III committees