

CAITLIN E. HICKS PRIES

Lawrence Berkeley National Laboratory
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EDUCATION

- Ph.D. (2012) Biology, University of Florida, Advisor: Dr. Edward A. G. Schuur
M.S. (2007) Soil and Water Science, University of Florida, Advisor: Dr. K. Ramesh Reddy
B.A. (2004) Biology and Environmental Studies (*summa cum laude*), Middlebury College
Workshops Radiocarbon in Ecology and Earth System Science, UC Irvine, 2009
Semester in Environmental Science, Woods Hole Marine Biological Lab, 2003

RESEARCH EXPERIENCE

- 2013-Present Postdoctoral Fellow, Research area: *Responses and mechanisms of soil carbon cycling to whole-profile in situ soil warming*, Advisor: Dr. Margaret Torn, Lawrence Berkeley National Laboratory
2007-2012 Doctoral Student, Dissertation title: *Effects of permafrost thaw and warming on carbon cycling in Alaskan tundra*, Advisor: Dr. Ted Schuur, University of Florida
2005-2007 Masters Student, Thesis title: *Carbon pools and sources in a constructed mangrove and seagrass habitat*, Advisor: Dr. K. Ramesh Reddy, University of Florida
2004-2005 Research Assistant, Research area: *Landscape ecology of urban ecosystems and river/savanna boundaries*, Advisors: Drs. Steward Pickett and Mary Cadenasso, Cary Institute of Ecosystem Studies
2004 Undergraduate Research, Project title: *Stochastic modeling of *Caretta caretta* populations in the Southeastern United States*, Advisor: Dr. Stephen Trombulak, Middlebury College
2003 Sea Turtle Intern, Monitoring sea turtle nesting and hatching, Bald Head Island Conservancy, Bald Head Island, NC
2002 REU Intern, Research area: *Marine benthic ecology*, Advisor: Dr. Les Watling, Darling Marine Center, University of Maine
2001 Research Assistant, Research area: *Pollination ecology*, Advisor: Dr. Helen Young, Middlebury College

TEACHING EXPERIENCE

- 2008-2011 Teaching Assistant, University of Florida
Taught laboratory sections of Introductory Biology and upper level Ecology, as head Ecology TA trained fellow TA's and helped redesign lab experiments
2009-2011 NSF GK-12 Fellow, University of Florida and Westwood Middle School, Gainesville, FL
Developed inquiry-based lessons and taught eighth grade Physical Science
2006 Teaching Assistant, Wetland Biogeochemistry, University of Florida

- 2004 Teaching Assistant, Ecology, Middlebury College
- 2003 Sea Turtle Intern, Bald Head Island Conservancy, Bald Head Island, NC
Taught children and the general public about sea turtle biology and coastal ecology

MENTORING EXPERIENCE

- 2013-2016 Science Undergraduate Laboratory Interns (3 students), Lawrence Berkeley National Laboratory
- 2009-2012 Senior Thesis (2) and Independent Project Advisor (1), University of Florida
- 2008-2011 Supervisor to Undergraduate Volunteers (10), University of Florida

GRANTS AND FELLOWSHIPS

- 2016 Lawrence Berkeley National Laboratory Earth and Environmental Sciences Area Early Career Grant, *Physical structure and physical disturbance: How bioturbation affects soil aggregates, soil carbon storage, and microbial structure and function* (Pending)
- 2016 Advanced Research Projects Agency-Energy (ARPA-E), *Associated Particle Imaging (API) for Non-Invasive Determination of Carbon Distribution in Soil*, \$2.4 million for 3 years (Co-Investigator)
- 2014 Department of Energy, Office of Biological and Environmental Research, *Terrestrial Ecosystem Science Scientific Focus Area* at LBNL, \$3.3 million for 3 years (Contributor)
- 2011 University of Florida Graduate Student Research Abroad Program, *The effect of permafrost warming on arctic carbon balance*, \$9,995
- 2010 National Science Foundation Doctoral Dissertation Improvement Grant, *Carbon cycle changes in a changing climate: Using ¹³C and ¹⁴C to partition ecosystem respiration in tundra undergoing permafrost thaw*, \$14,941
- 2010 Denali National Park Murie Science and Learning Center Research Fellowship, *Carbon cycle changes in warming Alaska: Do plants or soil microbes drive changes in ecosystem respiration?*, \$4,580
- 2009 Science Partners in Inquiry-based Collaborative Education (SPICE) Fellowship, National Science Foundation GK-12 Program, \$33,000 total for stipend and tuition
- 2007 Alumni Graduate Fellowship, University of Florida, 2 years of \$18,000 total for stipend and tuition
- 2006 William K. Robertson Fellowship, University of Florida, Soil and Water Science Department, \$1,000

AWARDS

- 2012 Graduate Student Mentoring Award, University of Florida, \$500
- 2012 Terrestrial Ecosystem Science Meeting Student Travel Grant, U.S. DOE, \$1,000
- 2012 Departmental Service Award, University of Florida, Biology Department, \$150
- 2011 Abisko Scientific Research Station Scholarship, \$1,300
- 2008 Best Masters Thesis, University of Florida, College of Agriculture and Life Sciences, \$600
- 2007 Best Masters Thesis, University of Florida, Soil and Water Science Department, \$150

- 2007 Grinter Fellowship, University of Florida, \$6,000
- 2006 Honorable Mention, Student Poster Contest at the 3rd National Conference on Coastal and Estuarine Habitat Restoration
- 2006 Best Student Poster at the 7th Annual Soil and Water Science Department Research Forum, \$500
- 2004 Phi Beta Kappa, Beta Chapter of Vermont
- 2004 Elbert C. Cole '15 Prize for Outstanding Biology Student, Middlebury College, \$2,000
- 2000 Henry David Thoreau Scholarship for Environmental Studies, \$30,000
- 2000 Big Y Scholarship, \$2,000

PUBLICATIONS

Refereed Journal Articles

- Hicks Pries, CE**, EAG Schuur, SM Natali, KG Crummer. 2016. Old soil carbon losses increase with ecosystem respiration in experimentally thawed tundra. *Nature Climate Change* doi:10.1038/nclimate2830
- Hicks Pries, CE**, RSP Logtestijn, EAG Schuur, SM Natali, JHC Cornelissen, R Aerts, E Dorrepaal. 2015. Decadal warming causes a consistent and persistent shift from heterotrophic to autotrophic respiration in contrasting permafrost ecosystems. *Global Change Biology* 21 (12), 4508-4519 doi: 10.1111/gcb.13032
- Torn, MS, A Chabbi, P Crill, PJ Hanson, IA Janssens, Y Luo, **CH Pries**, C Rumpel, MWI Schmidt , J Six, M Schrumppf, and B Zhu. 2015. A call for international soil experiment networks for studying, predicting, and managing global change impacts. *SOIL* 1, 575-582 doi:10.5194/soil-1-575-2015
- Natali, S.M., E.A.G. Schuur, E. E. Webb, **C.E. Hicks Pries**, K.G. Crummer. 2014. Permafrost degradation stimulates carbon loss from experimentally warmed tundra. *Ecology* 95 (3) <http://dx.doi.org/10.1890/13-0602.1>.
- Hicks Pries, C.E.**, E.A.G. Schuur, J.G. Vogel, S.M. Natali. 2013. Moisture drives surface decomposition in thawing tundra. *Journal of Geophysical Research-Biogeosciences*, doi: 10.1002/jgrg.20089.
- Hicks Pries, C.E.**, Schuur E.A.G., Crummer K.G. 2013. Thawing permafrost increases old soil and autotrophic respiration in tundra: Partitioning ecosystem respiration using $\delta^{13}\text{C}$ and $\Delta^{14}\text{C}$. *Global Change Biology* 19 (2) doi: 10.1111/gcb.12058.
- Hicks Pries, C.E.**, E.A.G. Schuur, and K. G. Crummer. 2012. Holocene Carbon Stocks and Carbon Accumulation Rates Altered in Soils Undergoing Permafrost Thaw. *Ecosystems* 12 (1): 162-173.
- Hicks Pries, C.E.** and J. Hughes. 2012. Inquiring into familiar objects: An inquiry-based approach to introduce scientific vocabulary. *Science Activities* 49 (2): 64-69.
- Hicks Pries, C.E.** and J. Hughes. 2011. Powering the Future: A wind turbine design competition. *Science Scope* 35 (4): 24-30.
- Natali, S. M., E.A.G. Schuur, C. Trucco, **C.E. Hicks Pries**, K. G. Crummer, and A.F. Baron Lopez. 2011. Effects of experimental warming of air, soil and permafrost on carbon balance in Alaskan tundra. *Global Change Biology* 17 (3): 1394-1407.

Non Refereed Articles and Book Chapters

- Schuur E.A.G., Carbone M.S., **Hicks Pries C.E.**, Hopkins F., Natali S.M. 2016. Radiocarbon in terrestrial systems *in* Radiocarbon in Ecology and Earth System Science. Schuur E.A.G. and S. Trumbore, editors.

- Trumbore, S., Sierra C.A., **Hicks Pries C.E.** 2016. Radiocarbon nomenclature, theory, models, and interpretation: Measuring age, tracing source pools, and determining cycling rates *in* Radiocarbon in Ecology and Earth System Science. Schuur E.A.G. and S. Trumbore, editors.
- E. Pegoraro and **C.E. Hicks Pries.** 2013. Decay in the Alaskan tundra: the effects of initial litter quality and leaching on long-term plant decomposition. *Journal of Undergraduate Research* 14(2). To access: <http://ufdc.ufl.edu/UF00091523/00657>.
- Mason C.M., **C.E. Hicks Pries,** and E. A. G. Schuur. 2010. Seasonal differences in nutrient allocation of arctic tundra vegetation. *University of Florida Journal of Undergraduate Research* 11(2). To access: <http://www.clas.ufl.edu/jur/201007/index.html>.
- Mayor J.R. and **C.E. Hicks.** 2009. Potential impacts of elevated CO₂ on plant interactions, sustained growth, and C cycling in salt marsh ecosystems *in* Human Impacts on Salt Marshes: A Global Perspective. Silliman B.R., M.D. Bertness, and E.D. Grosholz, editors.

Manuscripts in review or advanced preparation

- Hicks Pries C.E.,** Castanha C., Porras R.C., Torn M.S. The whole soil response to warming (*in review in Science*)
- Porras R.C., **Hicks Pries C.E.,** McFarlane K.J., Torn M.S. Association with pedogenic iron and aluminum: Effects on soil organic matter storage and stability in temperate forest soils (*in review in Biogeochemistry*)
- Hicks Pries C.E.,** Bird J.A., Castanha C., Hatton P.J., Torn M.S. Decomposition of plant litter and its retention as soil organic matter (*in review in Biogeochemistry Letters*)
- Castanha, C., Zhu B., **Hicks Pries C.E.,** Torn M.S. Compensatory effects of heating, rhizosphere, and depth on soil moisture mediate decomposition of root litter in a Mediterranean grassland ecosystem (*in prep*)

INVITED SEMINARS

- Hicks Pries, C.** 2014. How does litter become soil organic matter? Tracing the fate of needle- and root-derived soil organic matter through 10 years of decomposition. Soil Science Seminar, University of Zurich, Switzerland.
- Hicks Pries, C.** 2014. Terrestrial ecosystem carbon feedbacks in a warming world: Experiments in an Alaskan tundra and a California coniferous forest. Biology Department Seminar, Middlebury College, Vermont.
- Hicks Pries, C.** 2011. Beneath our feet: Soil carbon and ice dynamics and the future of our climate. Murie Science and Learning Center, Denali National Park, AK.
- Hicks, C.** 2007. Coastal ecosystems as carbon sinks: A case study from the Indian River Lagoon. Wetlands Seminar Series, University of Florida.

CONTRIBUTED PRESENTATIONS (RECENT)

- Hicks Pries CE,** Castanha C, Porras RC, Torn MS. Differential root decomposition across soil depths (*poster*). 2016. American Geophysical Union Fall Meeting, San Francisco, California.
- Hicks Pries CE,** Castanha C, Porras RC, Torn MS. Soil depth responses to in situ warming (*poster*). 2016. Department of Energy Environmental Systems Science PI Meeting, Potomac, Maryland.
- Hicks Pries CE,** Castanha C, Porras RC, Torn MS. Invariant temperature sensitivity of soil respiration with depth (*poster*). 2015. American Geophysical Union Fall Meeting, San Francisco, California.

- Castanha, C., B. Zhu, **C. Hicks Pries**, K. Georgiou, M. Torn. 2015. Soil Warming and Rhizosphere Effects on Root Litter Decomposition at Two Depths in a Mediterranean Grassland Ecosystem (*oral*). American Geophysical Union Fall Meeting, San Francisco, California.
- C. Hicks Pries**, C. Castanha, R. Porras, B. Zhu, and M. S. Torn. 2015. Responses of soil organic carbon to experimentally warming the whole soil profile *in situ*. (*oral*). SubSOM Symposium, Raesfeld, Germany.
- C. Hicks Pries**, B. Zhu, C. Castanha, R. Porras, J. B. Curtis, and M. S. Torn. 2014. Deep soil carbon and its vulnerability to climate change. (*oral*). American Geophysical Union Fall Meeting, San Francisco, California.
- C. Hicks Pries**, B. Zhu, C. Castanha, R. Porras, C. West, J. B. Curtis, and M. S. Torn. 2014. Whole-profile soil carbon responses to warming and root carbon inputs in a coniferous forest. (*poster*). American Geophysical Union Fall Meeting, San Francisco, California.
- C. Hicks Pries**, B. Zhu, J. B. Curtis, C. Castanha, R. Porras, D. Herman, and M. S. Torn. 2014. The effects of whole profile soil warming on decomposition of native soil carbon and ¹³C-labeled root inputs. (*poster*). Department of Energy TES/SBR Joint Investigators' Meeting, Potomac, Maryland.
- C. Hicks Pries**, P.J. Hatton, C. Castanha, J.A. Bird, and M.S. Torn. 2014. How does litter become soil organic matter? Tracing the fate of needle- and root-derived soil organic matter through 10 years of decomposition. (*oral*). European Geosciences Union General Assembly, Vienna, Austria.
- M. S. Torn, **C. Hicks Pries**, B. Zhu, E. Brodie, J. Jansson, P. S. Nico, D. Herman, J.B. Curtis, C. Castanha, Y. Zhang. 2014. Understanding the response of soil organic carbon to warming throughout the whole soil profile. (*poster*). European Geosciences Union General Assembly, Vienna, Austria.
- C. Hicks Pries**, E. Dorrepaal, R. van Logtestijn, E. A. Schuur, H. Cornelissen. 2013. Declines In Old Soil Carbon Losses After 11 Years of Experimental Warming in a Subarctic Peatland (*oral*). American Geophysical Union Fall Meeting, San Francisco, California.
- C. Hicks Pries**, P. Hatton, C. Castanha, J. A. Bird, M. S. Torn. 2013. Where Is Needle- and Root-Derived Soil Organic Matter After 10 Years of Decomposition in a Temperate Forest? (*poster*). American Geophysical Union Fall Meeting, San Francisco, California.
- M. S. Torn, **C. Hicks Pries**, B. Zhu, C. Castanha, J. B. Curtis, E. Brodie, J. Jansson, P. S. Nico. 2013. Digging Deeper: controls and response of decomposition in the full soil profile. (*oral*). American Geophysical Union Fall Meeting, San Francisco, California.
- B. Zhu, **C. Hicks Pries**, J. Jansson, E. Brodie, P. S. Nico, D. Herman, J. B. Curtis, C. Castanha, Y. Zhang, M. S. Torn. 2013. The vulnerability of whole-profile soil organic carbon to in situ warming and root carbon inputs (*poster*). American Geophysical Union Fall Meeting, San Francisco, California.
- C.E. Hicks Pries**, M.S. Torn. 2013. Put down that ANOVA! Using regression-based experimental designs to deal with spatial heterogeneity (*oral*). 98th Annual Meeting of Ecological Society of America, Minneapolis, Minnesota.
- C.E. Hicks Pries**, M.S. Torn, J.A. Bird, and Pierre-Joseph Hatton. 2013. Tracing the fate of needle and fine root litter over 10 years in a coniferous forest soil (*poster*). 98th Annual Meeting of Ecological Society of America, Minneapolis, Minnesota.
- C.E. Hicks Pries**, B. Zhu, J. Jansson, E. Brodie, P. Nico, D. Herman, J.B. Curtis, C. Castanha, and M.S. Torn. 2013. The vulnerability of subsurface soil organic carbon to in situ warming and altered root carbon inputs (*poster*). Department of Energy TES/SBR Joint Investigators' Meeting, Washington, D.C.

SERVICE

Professional

- 2016 Scientific advisory board member, SPRUCE (Spruce and peatland responses under climatic and environmental change)
- 2013, 2016 AGU session organizer, Biogeosciences section
- Ongoing Reviewer (*Nature Climate Change*, *Global Change Biology*, *Ecology*, *Biogeosciences*, *JGR-Biogeosciences*; *Environmental Research Letters*, etc.)
- 2013, 2015 DOE Belowground Carbon Cycling Review Panel
- 2013, 2015 Ad-hoc reviewer for NSF Office of Polar Programs and DEB
- 2013 Organizer of “Mysteries of the Deep” soil carbon cycling workshop, Lawrence Berkeley National Laboratory

Departmental

- 2011-2012 Oversaw undergraduate research assistantship program, Department of Biology, University of Florida
- 2011-2012 Graduate committee representative, Department of Biology, University of Florida
- 2010-2011 Seminar committee representative, Department of Biology, University of Florida
- 2009-2010 Secretary, Biology Graduate Student Association, University of Florida
- 2008-2009 Student/Faculty Liaison, Botany Graduate Student Association, University of Florida

Community

- 2016 “Be A Scientist” project mentor to 7th grade students, Berkeley, CA
- 2016 BASIS (Bay Area Scientists in Schools) Volunteer, Berkeley and Oakland, CA
- 2006-2013 Alumni Interviewer, Middlebury College Admissions
- 2009-2012 Science Fair Judge, Alachua County School District, Florida

PROFESSIONAL SOCIETY MEMBERSHIPS

- 2009-Present American Geophysical Union
- 2007-Present Ecological Society of America

REFERENCES

Dr. Margaret Torn
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