

Christine Sierra O'Connell

CONTACT INFORMATION	Macalester College Dept. of Environmental Studies Olin-Rice Science Center, Rm. 248 St Paul, MN 55105	<i>E-mail:</i> coconnell@macalester.edu <i>Voice:</i> (240) 888-4189 <i>WWW:</i> http://christinesoconnell.com/
EMPLOYMENT	Macalester College , St. Paul, Minnesota Assistant Professor, Department of Environmental Studies	2019-ongoing
	University of California, Berkeley , Berkeley, California Postdoctoral Researcher, Silver Lab	2015-2019
EDUCATION	University of Minnesota-Twin Cities , Minneapolis, Minnesota Ph.D., Ecology, Evolution & Behavior	November 2015
	<ul style="list-style-type: none">• Dissertation Topic: "Ecological Tradeoffs of an Agricultural Amazonia"• Advisors: Sarah Hobbie, Stephen Polasky, Jonathan Foley	
	Stanford University , Stanford, California B.S. with Distinction in Earth Systems, concentration in Biology	2008
	<ul style="list-style-type: none">• Honors in Environmental Science, Technology and Policy• Including study at:<ul style="list-style-type: none">– Stanford University in Australia, Brisbane, Australia– Stanford University Hopkins Marine Station, Monterey, California	
RESEARCH INTERESTS	Ecosystem ecology; conservation biology; global change; quantitative methods; ecosystem services	
PUBLICATIONS	Barcellos, D., O'Connell, C. S. , Silver, W. L., Meile, C., Thompson, A. "Hot spots and hot moments of soil moisture explain fluctuations in iron and carbon cycling in a humid tropical forest soil." <i>Soil Systems (Accepted)</i> .	
	O'Connell, C. S. , Ruan, L., Silver, W. L. "Drought drives rapid shifts in tropical rainforest soil biogeochemistry and greenhouse gas emissions." <i>Nature Communications</i> (2018).	
	O'Connell, C. S. , Carlson, K. M., Cuadra, S., Feeley, K., Gerber, J., West, P., Polasky, S. "Balancing tradeoffs: Reconciling multiple environmental goals when ecosystem services vary regionally." <i>Environmental Research Letters</i> (2018).	
	Jankowski, K., Neill, C., Davidson, E. A., Macedo, M. N., Costa Jr., C., Galford, G. L., Maracahipes Santos, L., Lefebvre, P., Nunes, D., Cerri, C. E. P., McHorney, R., O'Connell, C. S. , Coe, M. T. "Deep soils modify environmental consequences of increased nitrogen fertilizer use in intensifying Amazon agriculture." <i>Scientific Reports</i> (2018).	
	Tallis, H., Hawthorne, P., Polasky, S., Reid, J., Beck, M., Brauman, K., Bielicki, J., Binder, S., Burgess, M., Cassidy, E., Clark, A., Fargione, J., Game, E., Gerber, J., Isbell, F., Kiesecker, J., McDonald, R., Metian, M., Molnar, J., Mueller, N., O'Connell, C. S. , Ovando, D., Troell, M., Boucher, T., McPeck, B. "An attainable global vision for conservation and human well-being." <i>Front Ecol Environ</i> (2018).	

Carlson, K.M., Gerber, J.S., Mueller, N.D., Herrero, M., MacDonald, G., Brauman, K. A., Havlik, P., **O'Connell, C.S.**, Johnson, J., Saatchi, S., West, P. C. "Greenhouse gas emissions intensity of global croplands." *Nature Climate Change* (2017).

Balmford, A., Chen, H., Phalan, B., Wang, M., **O'Connell, C.S.**, Tayleur, C., Xu, J. "Getting Road Expansion on the Right Track: a Framework for Smart Infrastructure Planning in the Mekong." *PLOS Biology* (2016).

Gerber, J.S., Carlson, K.M., Makowski, D., Mueller, N.D., Garcia de Cortazar Atauri, I., Havlik, P., Herrero, M., Launay, M., **O'Connell, C.S.**, Smith, P., West, P.C. "Spatially explicit estimates of N₂O emissions from croplands suggest climate mitigation opportunities from improved fertilizer management." *Global Change Biology* (2016).

Powers, J., Becklund, K., Gei, M., Iyengar, S., Meyer, R., **O'Connell, C. S.**, Schilling, E., Smith, C., Waring, B., Werden, L. "Nutrient addition effects on tropical dry forests: a mini-review from microbial to ecosystem scales." *Frontiers in Earth Science* 3 (2015): 34, 1-8.

Laurance, W. F., Clements, G. R., Sloan, S., **O'Connell, C. S.**, Mueller, N. D., Goosem, M., Venter, O., Edwards, D. P., Phalan, B., Balmford, A., Van Der Ree, R., Arrea. I. B. "A global strategy for road building." *Nature* 513 (2014): 229-232.

Foley, J. A., Ramankutty, N., Brauman, K., Cassidy, E., Gerber, J., Johnston, M., Mueller, N., **O'Connell, C. S.**, Ray, D., West, P., Balzer, C., Bennett, E., Carpenter, S., Hill, J., Monfreda, C., Polasky, S., Rockstrom, J., Sheehan, J., Siebert, S., Tilman, D., Zaks, D. "Solutions for a cultivated planet." *Nature* 478 (2011): 337-342.

McGlue, M. M., Soreghan, M. J., Michel, E., Todd, J. A., Cohen, A. S., Mischler, J., **O'Connell, C. S.**, Castaneda, O. S., Hartwell, R. J., Lezzar, K. E., Nkotagu, H. H. "Environmental controls on shell-rich facies in tropical lacustrine rifts: A view from Lake Tanganyikas littoral." *Palaios* 25 (2010): 426-438.

SUBMITTED / IN
PREP

Yamamoto, K.*, **O'Connell, C. S.**, Silver, W. L. "The effects of topography on leaf litter decomposition in a humid tropical forest ecosystem." *In preparation. *Honors Thesis advisee*

O'Connell, C. S., Macedo, M., Galford, G., Coe, M., Neill, C., Cerri, C., E., Hobbie, S., Davidson, E., Venterea, R. "Landscape-level greenhouse gas emissions from double-cropped agriculture in comparison to Amazonian forest." *In preparation.*

O'Connell, C. S. and Silver, W. L. "Hot spots and hot moments: Investigating the relationship between soil redox dynamics and greenhouse gas fluxes in a wet tropical forest." *In preparation.*

Costa, C., Galford, G., Coe, M. T., Macedo, M., Jankowski, K., **O'Connell, C. S.**, Neill, C. "Modeling nitrous oxide emissions from large-scale intensification of soybean-maize cropping systems in the Southern Amazon." *Submitted.*

HONORS THESES
ADVISED

Sadowski, A. "Short-term response to hurricane disturbance: Impacts of Hurricane Maria on biogeochemistry in Puerto Rico." *University of California, Berkeley (in progress).*

Yamamoto, K. "The effects of topography on leaf litter decomposition in a humid tropical forest ecosystem." *University of California, Berkeley* (2017).

Navarro Perez, E. "Drought effects on soil nitrogen cycling in El Yunque National Rainforest, Puerto Rico." *University of Puerto Rico, Rio Piedras* (2017).

HONORS AND
AWARDS

Fellowships

University of Minnesota Doctoral Dissertation Fellowship, 2014-2015
National Science Foundation Graduate Research Fellowship, 2011-2014
University of Minnesota Graduate School Fellowship, 2010-2011
Mellon Mays Undergraduate Fellowship, 2006-2008

Research Grants

University of Utah Isotope Camp Fellowship, 2015
Council of Graduate Students Conference Travel Grant, 2015
Dept. of Ecology, Evolution & Behavior Professional Development Grant, 2015
Council of Graduate Students Career Development Grant, 2015
Bell Museum of Natural History James W. Wilkie Fund for Natural History Fellowship, 2012
Mellon Mays Research and Travel Grant, 2012
Mellon Mays Graduate Studies Enhancement Grant, 2011
Stanford University Learning Expedition Grant, 2008
Stanford University Quarterly Research Grant, 2007
National Science Foundation Research Experience for Undergraduates (REU) Grant, 2006

Awards for Academic Achievement

Degree conferred with Distinction, Stanford University, 2008
Elected Phi Beta Kappa, Stanford University, 2008
Deans Award for Undergraduate Academic Achievement, Stanford University, 2008
Award for Outstanding Undergraduate Research, Stanford University, 2008
Chicano & Latino Community Awards, Stanford University, 2005/6/7/8
Presidents Award For Academic Excellence in the Freshman Year, Stanford University, 2005

INVITED TALKS /
CONFERENCE
PRESENTATIONS

Ecological Society of America. New Orleans, LA. 9 August 2018. "Short-term response and long-term trajectory of hurricane disturbance: Impacts of Hurricane Maria on forest biogeochemistry in Puerto Rico" (talk).

Luquillo Long-Term Ecological Research Program Public Symposium. Luquillo, Puerto Rico. 5 June 2018. "Short-term response and long-term trajectory of hurricane disturbance: Impacts of Hurricane Maria on forest biogeochemistry in Puerto Rico" (talk).

Macalester College. Research Seminar. St. Paul, MN. 14 November 2017. "Tropical forests in a changing world: investigating global change impacts in Amazonia and Puerto Rico" (invited seminar).

Sam Houston State University. Research Seminar. Huntsville, TX. 6 November 2017. "Tropical forests in a changing world: investigating global change impacts in Amazonia and Puerto Rico" (invited seminar).

Ecological Society of America. Portland, OR. 16 August 2017. "Hot spots and hot moments: Investigating the relationship between soil redox dynamics and greenhouse gas fluxes along a catena gradient in a wet tropical forest" (talk).

Department of Energy Ecosystem Science PI Annual Meeting. Potomac, MD. 25 April 2017. "Hot spots and hot moments: Investigating the relationship between soil redox dynamics and greenhouse gas fluxes along a catena gradient in a wet tropical forest" (invited talk).

Luquillo Long-Term Ecological Research Program Public Symposium. Luquillo, Puerto Rico. 31 March 2017. "How do drought and redox dynamics influence greenhouse gas fluxes in a wet tropical forest" (talk).

forest?” (poster).

Colby College. Research Seminar. Waterville, ME. 15 December 2016. “Tropical forests in a changing world: investigating global change impacts in Amazonia and Puerto Rico” (invited seminar).

American Geophysical Union. San Francisco, CA. 13 December 2016. “Drought drives rapid shifts in soil biogeochemistry and greenhouse gas emissions in a wet tropical forest” (talk).

Ecological Society of America. Fort Lauderdale, FL. 16 August 2016. “What about below ground? Investigating deep soil ecosystem properties at the forest-cropland interface in Southeastern Amazonia” (invited talk).

Luquillo Long-Term Ecological Research Program Public Symposium. Luquillo, Puerto Rico. 8 June 2016. “Drought in the rainforest: biogeochemical responses and feedbacks to climate change” (invited talk).

Luquillo Long-Term Ecological Research Program Public Symposium. Luquillo, Puerto Rico. 8 June 2016. “What lies below: Looking beneath the soil surface” (invited lightning talk).

Lawrence Berkeley National Laboratory. Climate Conversations Seminar. Berkeley, CA. 16 May 2016. “Tropical forests in a changing world: investigating global change impacts in Amazonia and Puerto Rico” (invited seminar).

University of California, Berkeley. Departmental Seminar Series, Dept. of ESPM, Berkeley, CA. 25 February 2016. “Tropical forests in a changing world: investigating global change impacts in Amazonia and Puerto Rico” (invited seminar).

Ecological Society of America. Baltimore, MD. 9-14 August 2015. “N₂O emissions in southeastern Amazonia: The effect of agricultural intensification” (invited talk).

Ecological Society of America. Baltimore, MD. 9-14 August 2015. “Disrupted Nitrogen Cycling in the Tropics: Tracking the Effects of Global Change Impacts on N Biogeochemistry from Soil to Stream” (session organizer).

Association of American Geographers. Chicago, IL. 21-24 April 2015. “GHG Emissions in Southeastern Amazonia: The Effect of Agricultural Intensification” (invited talk).

Graduate Climate Conference. Seattle, WA. 31 October-2 November 2014. “Saving forests for climate: How biophysical and biogeochemical forcing after deforestation alter climate and influence agricultural productivity” (poster).

Ecological Society of America. Sacramento, CA. 10-15 August 2014. “Balancing tradeoffs: Reconciling multiple environmental goals in an agricultural Amazonia” (talk).

Universidade Federal de Viçosa, SAGE Conference. Viçosa, Brazil. 13 March 2014. “Conserving Amazonia’s ecosystem services in the face of expanding agriculture” (invited talk).

James Cook University, Roads Symposium. Cairns, Australia. 31 October 2013. “You can’t always get what you want: Tradeoffs in Amazonia between agricultural production and key environmental variables” (invited talk).

Preliminary Oral Exam, public pre-thesis seminar, Dept. of Ecology, Evolution & Behavior. St. Paul, MN. 2 October 2013. “The ecological cost of doing agricultural business” (talk).

American Geophysical Union. San Francisco, CA. 5-9 December 2011. "Making Tropical Forests Count: Balancing ecosystem service delivery in Amazonia" (poster).

Ecological Society of America. Austin, TX. 7-12 August 2011. "Making things fit: modeling a sustainable, well-fed world in 2050" (poster).

American Association for the Advancement of Science. Washington, DC. 18-21 February. 2011 "Scaling up soil carbon change estimates in the wake of agricultural conversion" (poster).

TEACHING
INTERESTS

Courses in: ecosystem ecology; forest ecology; global change; quantitative methods; introductory biology/ecology

Pedagogical interests: scientific literacy; inclusive teaching; active learning via field and lab classroom experience; underrepresented group participation in STEM

TEACHING
EXPERIENCE
(HIGHER ED)

University of Minnesota-Twin Cities, Minneapolis, Minnesota

Graduate Assistant, Ecosystem Ecology, Prof. Sarah Hobbie **2014**
Department of Ecology, Evolution & Behavior, University of Minnesota
Led discussion sections for upper-level undergraduate students and graduate students. Assisted with grading and assignment creation. Recognition: Nominated by students for college-wide TA award; finalist.

Graduate Assistant, Undergraduate Course Trip, UN Climate Change Conference **2010**
Sustainability Studies Program, University of Minnesota
Acted as resource to undergraduate students participating in an environmental policy course on a week-long trip to the United Nations climate change negotiations conference in Cancun, Mexico.

Stanford University, Stanford, California

Teaching Assistant, Introduction to Earth Systems, Prof. Gary Ernst **2007, 2008**
Earth Systems Program, Stanford University
Communicated the science basis for contemporary environmental issues to majors and non-majors as a section leader. Created components of curriculum, wrote assignments with emphasis on student internalization and engagement with subject matter.

Student Leader, Harry Potter and the Arc of Storytelling, Prof. Judith Richardson **2008**
Department of English, Stanford University
Designed, proposed and implemented an English seminar on the topic of the Harry Potter novels through a student-initiated course program.

Course Assistant, Environmental Problems and Solutions, Prof. Paul Ehrlich **2007**
Department of Biological Sciences, Stanford University
Mediated discussion in a seminar concerning the politics and economics of environmentalism. Assisted with course design and grading.

TEACHING
EXPERIENCE
(K-12)

Teach For America Corps Member, New York City, New York

Biology Teacher and Teacher Leader, Williamsburg Charter High School **2008-2010**
Member of a national teacher corps of recent college graduates who commit to teaching in underserved public school districts across the nation. Designed curriculum and tracked student progress as a high school biology teacher at Williamsburg Charter High School, Brooklyn. In second year, served as curriculum and logistical coordinator for biology team of eight teachers.

EDUCATIONAL
PROFESSIONAL
DEVELOPMENT

Classroom Guest Lectures

- U. of California, Berkeley; Introduction to Environmental Science; 2017

ongoing

- U. of California, Santa Cruz; Ecosystem Ecology; 2015
- U. of Minnesota; Honors Seminar: Tropical Forests: Conservation, Carbon, and Conflict; 2014
- Macalester College; Dirt and Development: The Relationship Between Humans and Soil; 2014
- U. of Minnesota; Ecology and Society; 2012

University of California, Berkeley, Berkeley, California

UC Berkeley Data Science Education Program, Data Science Pedagogy Short Course **2017**
 Summer short course to support instructors in incorporating data science teaching and learning approaches into their pedagogical practices.

University of Minnesota-Twin Cities, Minneapolis, Minnesota

Center for Writing workshop, Commenting on and Grading Student Writing **2014**
 Training in commenting techniques, how to teach students about writing and purposeful revision, grading approaches, and a general overview of writing pedagogy.

Preparing Future Faculty **2013**
 Participated in Semester One of the Center for Teaching and Learning's Preparing Future Faculty coursework. The curriculum included an overview of higher education pedagogy, including principles of inclusive teaching and active learning strategies. Developed syllabi and gave practice lessons; received feedback.

Teach For America, New York City, New York

Teaching Certificate Coursework, Pace University **2008-2010**
 Teach For America corps members enroll concurrently in higher education coursework that allows them to progress towards permanent K-12 teaching certification in New York. Courses included teaching in the sciences, literacy training, child learning and psychology and classroom management techniques.

Ongoing Classroom Observations, Williamsburg Charter High School **2008-2010**
 I was observed during classroom teaching approximately 1-2 times per semester by my principal, the head of the science department, and my Teach For America handler (3-6 observations per semester total). We would conduct a debrief after each evaluation, set teaching goals, and I would receive targeted mentorship to help me achieve those goals.

SERVICE AND
 OUTREACH

Peer Reviewer **ongoing**
 Frontiers in Ecology and the Environment, Nature Communications, Ecology and Society, Agronomy and Sustainable Development, Environmental Research Letters

University of California, Berkeley, Berkeley, California

Luquillo LTER mentoring **ongoing**
 Participation in the seminar series conducted for undergraduate volunteers each semester at the Luquillo LTER, Puerto Rico in addition to unstructured mentoring while onsite

Skills workshops **ongoing**
 Including workshops in quantitative skills in ecology (Introduction to R, Managing Data in Github, Monte Carlo Simulation in Ecology, Bayesian Statistics Overview)

Science Ambassador Scholarship Board, Cards Against Humanity **ongoing**
 Participate in the selection process for an annually-conducted full-tuition scholarship competition for undergraduate women in STEM

University of Minnesota-Twin Cities, Minneapolis, Minnesota

Volunteer teacher, Teaching SMART (Science, Math and Research Technology) **2010-2015**

Facilitated and designed research-driven lessons via Teaching SMART, a university group that brings graduate researchers into diverse classrooms around the Twin Cities.

NON-ACADEMIC
PUBLICATIONS

O’Connell, Christine S. “Don’t let uncertainty drive climate policy.” *The Minnesota Daily* 8 Dec 2010: letters page.

O’Connell, Christine S. “Support our domestic opportunities to regulate greenhouse gases.” *The Star Tribune* 13 Dec 2010: letters page.

O’Connell, Christine S. “Molluscan Shell Accumulations and Associated Ecological Dynamics: A case study in environmental change in Lake Tanganyika, East Africa.” Undergraduate Thesis. Stanford University, 2008. Advised by Vitousek, Peter.

O’Connell, Christine S., Alison J. Haupt and Stephen R. Palumbi. “Molecular and Morphological Characterization of Two Species of Sea Cucumber, *Parastichopus parvimensis* and *Parastichopus californicus*, in Monterey, CA.” *Stanford Undergraduate Research Journal* 7 (2008): 36-40.

PROFESSIONAL
AFFILIATIONS

American Geophysical Union
Earth Science Women’s Network
Ecological Society of America

Updated August 29, 2019