

Rachelle LaCroix

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Cornell University
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Education

Doctor of Philosophy, Soil and Crop Sciences

Aug. 2018-present

Cornell University, Ithaca, NY
Primary Advisor: Dr. Johannes Lehmann

Master of Science, Plant and Soil Sciences

May 2016-Aug. 2018

University of Massachusetts, Amherst, MA
Primary Advisor: Dr. Marco Keiluweit
Thesis title: Mineral and Redox Controls on Soil Organic Matter Cycling in Seasonal Wetlands

Bachelor of Science, Environmental Science

Aug. 2011-Dec. 2015

University of Massachusetts, Amherst, MA
Concentration: Soil Science

Research Experience

Molecular Diversity Controls on Soil Organic Carbon Persistence

Aug. 2018-present

Graduate Research Assistant, Cornell University
Principal Investigator - Dr. Johannes Lehmann (cl273@cornell.edu)
Committee members – Dr. Daniel Buckley, Dr. David Rossiter

Mineral and Redox Controls on Soil Organic Matter Cycling in Seasonal Wetlands

May 2016-Aug. 2018

Graduate Research Assistant, University of Massachusetts Amherst
Principal Investigator – Dr. Marco Keiluweit (keiluweit@umass.edu)
Committee members – Dr. Baoshan Xing, Dr. Justin Richardson

Lignin Decomposition Along Redox Gradients

Mar. 2015-Mar. 2016

Undergraduate Research Intern, University of Massachusetts Amherst
Principal Investigator – Dr. Lesley Spokas (mspokas@psis.umass.edu)

Publications

LaCroix, R., Walpen, N., Tfaily, R., Sander, M., Blanchard, J., and Keiluweit, M. 2020
Changing Redox Properties of Organic Matter in Response to Long-term Soil Warming. For Environmental Science & Technology Letters (*In review*)

Jones M., **LaCroix, R.**, Ziegler, J., Ying, S., Nico, P., and Keiluweit, M. Enzymes, Manganese, or Iron? Drivers of Oxidative Organic Matter Decomposition in Soils. *Environmental Science & Technology (In review)* 2020

LaCroix, R., Tfaily, M., McCreight, M., Jones, M., Spokas, L. and Keiluweit, M.: Shifting Mineral and Redox Controls on Carbon Cycling in Seasonally Flooded Mineral Soils, *Biogeosciences*, 2573–2589, 2019. doi: 10.5194/bg-16-2573-2019 2019

Professional and Personal Development

Leadership and Service:

Graduate student representative on the Soil Science Society of America (SSSA) Board of Directors *Nov. 2019-Jan. 2022*
Soil Science Policy SSSA committee member *Nov. 2019-present*
Agronomy, Crops, and Soils (ACS) tri-society graduate student committee member and SSSA Board of Directors liaison *Nov. 2019-present*
SSSA military veteran specialty group chair and discussion board moderator *Jan. 2020-present*

Workshops:

Multiscale Microbial Dynamics Modeling Summer School *July 6-10, 2020*
Environmental Molecular Sciences Laboratory (EMSL) and Pacific Northwest National Laboratory (PNNL), hands-on student, hosted virtually.
Tools in Biogeochemistry workshop *Aug. 11-16, 2019*
University of Tübingen, Germany.

Teaching experience:

Graduate teaching assistant – Soil Science, Cornell University *Fall 2020*
Graduate teaching assistant – The Art of Teaching, Cornell University *Fall 2019, Spring 2020*
Graduate teaching assistant – Soil Science, UMass Amherst *Fall & Spring 2016-2018*
Assistant Instructor – State Soil Evaluator certification course, NEWPCC *Aug. 2017-Nov. 2017*

Memberships:

Soil Science Society of America (SSSA) *2015-present*
Society of Soil Scientists of Southern New England (SSSNE) *2017-2019*

Funding and Awards

Schmittau-Novak Small Grant: **\$4,735** *2019-2020*
SUNY Diversity Fellowship: **\$70,000** *2018, 2020*
Cornell University Graduate School Deans Scholar Award *2018*
Brookhaven National Laboratory, Synchrotron Environmental Science Symposium 7, Graduate Student Support: **\$500** *2017*
Society of Soil Scientists of Southern New England Graduate Student Travel Grant: **\$1,500**

Professional Experience

United States Marine Corps (Reserves); honorable discharge *2007-2013*
Operation Iraqi Freedom (OIF 9.2) deployment *2009-2010*
Tactical air traffic controller, Al Asad Air Base, Iraq