

**A. Peyton Smith, PhD**  
Assistant Professor, Soil Carbon Dynamics

**Education**

- 2013 Ph.D. Soil Science, University of Wisconsin
- 2008 MS. Environmental Science, Yale University
- 2004 BS. Wildland Conservation, University of Washington

**Professional History**

- 2018 – current Assistant Professor, Department of Soil and Crop Sciences, Texas A&M University, College Station, TX.
- 2014 – 2018 Postdoctoral Research Associate, Biological Sciences Division, Pacific Northwest National Laboratory (PNNL), Richland, WA.
- 2008 – 2013 Graduate Research Assistant, Departments of Geography and Soil Science, University of Wisconsin, Madison, WI.
- 2010 – 2011 Project Assistant, Wisconsin Program for Scientific Teaching, University of Wisconsin, Madison, WI.
- 2006 – 2008 Editorial Assistant, Journal of Sustainable Forestry, New Haven, CT

**Significant 5-year Accomplishments**

**Grants**

- 2016 – 2018 Pacific Northwest National Laboratory (PNNL) EBSD LDRD: At the fringe of a shifting C paradigm with Climate change: Unlocking the organo-mineral controls on the bioavailability of C at the terrestrial-aquatic interface. Co-PI (Lead PI: R. Renslow), PNNL, \$297,000
- 2016 – 2018 Environmental Molecular Science Laboratory (EMSL), PNNL Science Theme User Proposal: Pore- to Core-Scale Research to Inform Ecosystem-Scale Soil C Biogeochemistry. Co-PI (Lead PI: V. Bailey), PNNL, \$71,730 (equivalent value)

**Invited Talks**

- 2018 A.P. Smith, *et al.* How the soil matrix governs molecular, microbial and mineral interactions to shape soil carbon dynamics. Research Seminar, Dept. of Soil and Water Systems, University of Idaho, Moscow, ID.
- 2017 A.P. Smith, *et al.* Interacting molecular, microbial and soil matrix processes govern soil carbon vulnerability. Research Seminar, Signature Sciences & Technology Colloquium, Physical Sciences Division, Pacific Northwest National Laboratory, Richland, WA
- 2015 A.P. Smith, *et al.* Unlocking the physiochemical controls on organic carbon dynamics from the soil pore- to core-scale. 49th American Geophysical Union (AGU) Fall Meeting, San Francisco, CA.
- 2014 A.P. Smith, *et al.* Variations in microbial structure and function among soil organic matter aggregates, 99th Ecological Society of America (ESA) Annual Meeting, Sacramento, CA.

**Synergistic Activities**

- 2019 Symposium Organizer, A multiscale approach to identifying abiotic and biotic interactions that shape C dynamics in the soil-atmosphere continuum and across latitudes, Soil Science Society of America, International Soils Meeting, January 6-9, San Diego, CA
- 2018 Inspire & Organized Oral Session Organizer, Demystifying paradigms of soil organic matter formation through microbe-mineral interactions, Ecological Society of America, Annual Meeting, August 5-10, New Orleans, LA.

- 2018 Summer NSF REU Mentor, Ecohydrology of tropical montane forests – diversity in science, interdisciplinary breadth, and global awareness, Ecosystem Science and Management and the Centro Soltis, Texas A&M, June 26 – July 30, Costa Rica.
- 2016, 2018 Reviewer, Department of Energy (DOE), Environmental System Science, Terrestrial Ecosystem Science, proposal review, May 5-6<sup>th</sup>, Washington, D.C.
- 2016 – 2017 Undergraduate Research Mentor, SULI program, Pacific Northwest National Laboratory, Richland, WA.
- 2013 – 2018 Reviewer for student presentations & early career mentor at American Geophysical Union (AGU), Ecological Society of America (ESA), and Soil Ecology Society (SES) annual meetings.

## Publications

- Rod, K., **A.P. Smith**, W. Leng, S. Colby, R. Kukkadapu, M. Bowden, K. Parker, O. Qafoku, W. Um, M. Hochella, V. Bailey, and R. Renslow. *In Review*. Climate change implications of nano-colloid formation aiding release of riparian soil carbon. *Nature Communications*
- Seeley\*, M., **A.P. Smith** and E. Marín-Spiotta. *In Revision*. Land change effects on tropical soil microbial communities: Emerging patterns and knowledge gaps. *Biotropica* \*undergraduate author
- Yan, Z., T. Wang, L. Wang, X. Yang, **A.P. Smith**, M. Hilpert, S. Li, V. Bailey, and C. Liu. *In Press*. Microscale water distribution and its effects on organic carbon decomposition in unsaturated soils. *Science of the Total Environment*.
- Smith, A.P., B. Bond-Lamberty, B. Benschoter, M. Tfaily, C.R. Hinkle, C. Liu and V.L. Bailey. 2017. Shifts in pore connectivity from precipitation versus groundwater rewetting increases soil carbon loss after drought. *Nature Communications*, 8:1335. <https://www.nature.com/articles/s41467-017-01320-x>
- Bailey, V.L., **A.P. Smith**, M. Tfaily, S. Fansler, and B. Bond-Lamberty. 2017. Differences in the complexity of soluble organic carbon in pore waters sampled from different pore size domains. *Soil Biology and Biochemistry*, 107: 133-143; [doi.org/10.1016/j.soilbio.2016.11.025](https://doi.org/10.1016/j.soilbio.2016.11.025)
- Dohnalkova, A.C., M.M. Tfaily, **A.P. Smith**, et al. 2017. Molecular and Microscopic Insights into the Persistence of Soil Organic Matter in a Red Pine Rhizosphere. *Soils*, 1(1), 4; [doi:10.3390/soils1010004](https://doi.org/10.3390/soils1010004)
- Bond-Lamberty, B., **A.P. Smith**, and V.L. Bailey. 2016. Running an open experiment: Transparency and reproducibility in soil and ecosystem science. *Environmental Research Letters*, 11: 084004; [doi.org/10.1088/1748-9326/11/8/084004](https://doi.org/10.1088/1748-9326/11/8/084004)
- Bond-Lamberty, B., **A.P. Smith**, and V.L. Bailey. 2016. Temperature and moisture effects on greenhouse gas emissions from deep active-layer boreal soils. *Biogeosciences*, 13: 6669-6681; [doi.org/10.5194/bg-13-6669-2016](https://doi.org/10.5194/bg-13-6669-2016)
- Smith, A.P., E. Marín-Spiotta, and T. Balsler. 2015. Successional and seasonal variations in soil and litter microbial community structure and function during tropical post-agricultural forest regeneration: A multi-year study. *Global Change Biology*, 21: 3532-3547; [doi:10.1111/gcb.12947](https://doi.org/10.1111/gcb.12947)
- Smith, A.P., M.A. De Graaf, E. Marín-Spiotta, and T. Balsler. 2014. Microbial community structure varies across soil organic matter aggregate pools during tropical land cover change. *Soil Biology and Biochemistry*, 77: 292-303; [doi.org/10.1016/j.soilbio.2014.05.030](https://doi.org/10.1016/j.soilbio.2014.05.030)

## Published Datasets

- [doi.org/10.6084/m9.figshare.5349082.v3](https://doi.org/10.6084/m9.figshare.5349082.v3)
- [doi.org/10.6084/m9.figshare.5031362.v1](https://doi.org/10.6084/m9.figshare.5031362.v1)
- [doi.org/10.6084/m9.figshare.4519226.v1](https://doi.org/10.6084/m9.figshare.4519226.v1)
- [doi.org/10.6084/m9.figshare.4240232.v2](https://doi.org/10.6084/m9.figshare.4240232.v2)