

## Thea Whitman

### Appointments

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- Current: **Postdoctoral Fellow**, University of California – Berkeley: *Mapping soil carbon from cradle to grave: drafting the molecular blueprint for C transformation from roots to stabilized soil organic C*; advisor Dr. Mary Firestone
- 2016: **Assistant Professor**, Soil Science, University of Wisconsin – Madison

### Research and Education

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- 2014: **Ph.D. Soil Science** (Cornell University, Ithaca, NY): *When is  $2+2 \neq 4$ ? Interactive priming of black carbon, soil organic carbon, and plant roots in natural and managed ecosystems*. Minors in microbiology and biogeochemistry; advisor Dr. Johannes Lehmann
- 2010: **M.S. Soil Science** (Cornell University, Ithaca, NY): *Biochar as a carbon sequestration mechanism: decomposition, modelling, and policy*. Minor in applied economics; included field research on farms in western Kenya; advisor Dr. Johannes Lehmann
- 2008: **B.Sc. Environmental Biology, Honours** (Queen's University, Kingston, Ontario): honours thesis on leaf size-number trade-off in herbaceous angiosperms; advisor Dr. Lonnie Aarssen
- 2013: **Strategies and Techniques for Analyzing Microbial Populations** 10-day course (Marine Biological Laboratory, Woods Hole, MA)
- 2012: **Microbial Diversity** 7-week course (Marine Biological Laboratory, Woods Hole, MA)

### Teaching and Consulting

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- 2014: **Teaching Assistant, Nutrient Management and Research in Agro-Ecosystems:** organized and taught weekly lab exercises, gave lectures, graded exams
- 2011, '13: **Teaching Assistant, Soil Ecology:** developed two new laboratories, organized and taught weekly lab exercises and field trips, gave lectures, graded lab reports
- 2010, '13: **Teaching Assistant, Soil Science:** supervised lab/field exercises, designed quizzes, graded lab reports and exams
- 2012: **Teaching Assistant, Sustainable Agriculture:** designed and graded homework assignments, gave lecture, assisted in field trips to diverse farming systems
- 2012: **Short Term Consultant, World Bank:** contributed to report on building response strategies to climate change in agricultural systems in the Middle East
- 2011: **Short Term Consultant, World Bank:** co-authored report on economic, social, and climate change mitigation and adaptation potential of biochar in developing countries
- 2008-09: **Teaching Assistant, Introductory Biology:** gave lectures and ran two laboratories a week, developed five midterm tests, graded research papers

### Awards and Grants

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- 2014: **SSSA Francis and Evelyn Clark Soil Biology Scholarship (\$2,000)**
- 2014: **NSF Doctoral Dissertation Improvement Grant (\$20,150)**
- 2013: **Environmental Molecular Sciences Laboratory User Proposal (\$95,664 in-kind)**
- 2013: **American Geophysical Union Outstanding Student Presentation Award**
- 2013: **American Geophysical Union Student Travel Award (\$500)**
- 2013: **Soil Ecology Society Student Oral Competition (Second Place)**
- 2013: **Soil Ecology Society Parkinson Travel Award (\$500)**
- 2013: **CALS Outstanding TA Award (“The Golden Apple”)**
- 2013: **Toward Sustainability Foundation Grant (\$8,000)**

## Thea Whitman

- 2013: **Cornell Sigma Xi Award (\$400)**  
2013, '11, '08: **Biogeochemistry and Environmental Biocomplexity Grants (\$4,000 ea.)**  
2012, '11: **Andrew W. Mellon Student Research Grants (\$1,000 ea.)**  
2012: **Canadian Soil Science Society Student Travel Award (\$600)**  
2008-12: **National Science and Engineering Research Council Postgraduate Scholarships - Doctoral (10-12) (\$42,000); Master's (08-10) (\$34,600):** national Canadian fellowship for high-calibre research scholars  
2011: **Barbara McClintock Award (\$1,500):** awarded to a graduate student in plant science with unique and outstanding contributions in research and teaching  
2010: **MacDonald/Musgrave Award (\$1,000):** awarded to a graduate student exhibiting excellence in crop and soil science

### Peer-Reviewed Publications

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- Whitman, T.,** Singh, B.P., and Zimmerman, A. (2015) Priming effects in biochar-amended soils: Implications of biochar-soil organic matter interactions for carbon storage. *In Biochar for Environmental Management*, Lehmann, J. & Joseph, S. (Eds.).
- Whitman, T.,** Enders, A., & Lehmann, J. (2014) Pyrogenic carbon additions counteract positive priming of soil carbon mineralization by plants. *Soil Biology and Biochemistry*, <http://dx.doi.org/10.1016/j.soilbio.2014.02.009>.
- Whitman, T.,** Hanley, K., Enders, A., & Lehmann, J. (2013) Predicting pyrogenic organic matter mineralization from its initial properties with implications for carbon management. *Organic Geochemistry*, 64: 76-83.
- Enders, A., Hanley, K., **Whitman, T.,** Joseph, S., & Lehmann, J. (2012) Characterization of biochars to evaluate recalcitrance and agronomic performance. *Bioresource Technology*, 114: 644-653.
- Whitman, T.,** Nicholson, C.F., Torres, D., & Lehmann, J. (2011) Climate change impact of a biochar cook stove in western Kenyan farm households: system dynamics model analysis. *Environmental Science and Technology*, 45(8): 3687-3694.
- Whitman, T. &** Lehmann, J. (2011) Systematic under- and overestimation of GHG reductions in renewable biomass systems. *Climatic Change*, 104(2): 415-422.
- Whitman, T.,** Yanni, S.F., & Whalen, J.K. (2011) Life cycle assessment of corn stover production for cellulosic ethanol in Quebec. *Canadian Journal of Soil Science*, 91(6): 997-1012.
- Whitman, T. &** Aarssen, L.W. (2010) The leaf size/number trade-off in herbaceous angiosperms. *Journal of Plant Ecology-UK*, 3(1): 49-58.
- Whitman, T.,** Scholz, S., & Lehmann, J. (2010) Biochar projects for mitigating climate change: an investigation of critical methodology issues for carbon accounting. *Carbon Management*, 1: 89-107.
- Whitman, T. &** Lehmann, J. (2009) Biochar - One way forward for soil carbon in offset mechanisms in Africa? *Environmental Science and Policy*, 12(7): 1024-1027.

### Presentations and Posters

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- Whitman, T.,** Buckley, D. & Lehmann, J. (December 2014) Pyrogenic and Fresh Organic Matter Effects on Soil Microbial Communities. American Geophysical Union, San Francisco, CA. Poster presentation.
- Whitman, T.,** Zhu, Z. & Lehmann, J. (October 2014) Relative carbon mineralizability determines interactive priming between pyrogenic organic matter and soil organic carbon. Soil Organic Matter 6, Kiawah Island, SC. Poster presentation.

## Thea Whitman

- Whitman, T. & Lehmann, J.** (December 2013) Three-way partitioning with two C isotopes: A field study of pyrogenic C, soil organic C, and plant root C and their interactions. American Geophysical Union Fall Meeting, San Francisco, CA. Poster presentation.
- Whitman, T.** (October 2013) Biochar and the priming effect on SOC. US Biochar Initiative Meeting, Amherst, MA. Oral Presentation.
- Whitman, T. & Lehmann, J.** (June 2013) When does  $2+2\neq 4$ ? Testing mechanisms for microbially-mediated priming of soil organic carbon by black carbon. Soil Ecology Society, Camden, NJ. Oral Presentation.
- Whitman, T., Zinder, S. & Buckley, D.** (May 2013) Investigation of anoxygenic phototroph activity in the pink layer of a salt marsh microbial mat by targeting the *pufM* gene with  $^{13}\text{C}$  stable isotope probing. ASM, Denver, CO. Poster presentation.
- Whitman, T. & Lehmann, J.** (June 2012) Black C effects on soil  $\text{CO}_2$  emissions: A methodological study. Canadian Society of Soil Science, Lac Beauport, QC. Oral presentation.
- Whitman, T. & Lehmann, J.** (October 2011) Black C effects on soil  $\text{CO}_2$  emissions: A methodological study. ASA-CSA-SSSA, San Antonio, TX. Oral presentation.
- Whitman, T., Torres, D., Nicholson, C.F., & Lehmann, J.** (December 2010) Climate change impact of a biochar cook stove in western Kenyan farm households: system dynamics model analysis. UNFCCC COP16, Cancún, Mexico. Oral presentation.
- Whitman, T., Torres, D., Nicholson, C.F., & Johannes Lehmann** (September 2010) Climate change impact of a biochar cook stove in western Kenyan farm households: system dynamics model analysis. IBI 2010, Rio de Janeiro, Brazil. Oral presentation.
- Whitman, T.** (August 2009) Carbon dynamics of a biochar cook stove system at a household level in western Kenya. North American Biochar Conference. Boulder, CO. Oral presentation and poster presentation.
- Whitman, T. & Whalen, J.K.** (August 2009) Corn stover production for cellulosic ethanol in Quebec: A life cycle assessment. Canadian Society of Soil Science, Canadian Society of Agronomy, and Canadian Society of Agricultural and Forest Meteorology National Conference. Guelph, ON. Poster presentation.
- Whitman, T. & Aarssen, L.W.** (May 2009) The leaf size/number trade-off in herbaceous angiosperms. Canadian Society for Ecology and Evolution (CSEE) & the Genetics Society of Canada National Conference. Halifax, NS. Oral presentation.

## Leadership and Service

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- 2011-present: **External reviewer:** *Agricultural Systems, Applied Soil Ecology, Bioenergy Research, Biogeosciences, Biology and Fertility of Soils, Environmental Impact Assessment Review, Environmental Science and Technology, Global Change Biology - Bioenergy, Journal of Agricultural Science, Pedobiologia, Soil Biology and Biochemistry*
- 2009-present: **Designing and running workshops:** Farmers' Workshop on Biochar (US Biochar Initiative Conference 2013); Science Communication in the Age of the Internet (Cornell, 2013); Building a Research Website (Cornell, 2013); Climate Science 101, Confronting Climate Skepticism (Powershift Canada 2012); Forests and Land Use (Powershift Canada 2009)
- 2009-13: **Guest lecturer at Cornell:** Nutrient Cycling and Management, Soil Ecology, Sustainable Agriculture, Environmental Conservation, Environmental Governance, Environment and Society
- 2008-11: **President; Vice President of departmental Graduate Student Association**

## **Thea Whitman**

**2008-10: Canadian Youth Delegation to UN Climate Change Conferences – Poznan (COP14), Copenhagen (COP15), and Cancún (COP16):** focused on climate policy and communication; created a daily 5-minute podcast that was distributed through iTunes, CitizenShift.org, Rabble.ca, and played on 22 radio stations across Canada

**Society Membership:** Soil Ecology Society; Soil Science Society of America; Canadian Soil Science Society; American Geophysical Union; American Society of Microbiology; American Association for the Advancement of Science