

CURRICULUM VITAE

Dr. Tandra D Fraser

School of Global Environmental Sustainability, Colorado State University
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EDUCATION

Ph.D. Land Resource Science (2015)

School of Environmental Sciences - University of Guelph, Canada
Dissertation: Soil bacterial communities influence phosphorus cycling in agro-ecosystems

M.Sc. Soil Microbiology (2008)

College of Agriculture and Bioresources, University of Saskatchewan, Canada
Thesis: Influence of pulse crops on arbuscular mycorrhizal fungi in a durum-based system

B.Sc. (Agr.) Environmental Science/Agri-Business (2003)

College of Agriculture and Bioresources, University of Saskatchewan, Canada

RESEARCH INTERESTS

I am interested in the dynamics and bioavailability of nutrients in terrestrial ecosystems as affected by soil biology, soil treatments, management practices and land-use change. This extends from using analytical techniques to characterize nutrients and monitor changes to focusing on the contribution of soil biological communities important in biochemical cycling.

EMPLOYMENT

Executive Director / Postdoctoral Researcher (Aug 2014 – Present), Global Soil Biodiversity Initiative, School of Global Environmental Sciences and Department of Biology - Colorado State University, USA

- Facilitating collaborations among a network of international participants
- Promoting the translation of expert knowledge on soil biodiversity into actionable science for environmental policy and sustainable land management

Teaching Assistant (Jan 2011- Dec 2012), School of Environmental Sciences - University of Guelph, Canada

- Environmental Issues/Agricultural and Landscape Management, Soil and Water Conservation, Introduction to Environmental Stewardship

Research Technician / Lab Manager (Apr 2009 – Jul 2010)

Department of Soil Science – University of Saskatchewan, Canada

- Collaborated with local organic farmers for collection, analysis and interpretation of soil and plants to complete a province wide survey of nutrient levels in organically managed soils
- Investigated greenhouse gas emissions and nutrient cycling of long-term manure amendments

Organic Agriculture Specialist (May 2007 - Jul 2008)

CUSO Latin America and the Caribbean - Tomalá, Lempira, Honduras

- Technical assistance and promotion of organic agriculture to small-scale farmers

Research and Development Assistant (July 2005, Jul 2006)

Premiere Biotechnologies, Swift Current, Canada

- Root sampling and analysis to determine the effectiveness of on-farm mycorrhizal inoculants

Research Assistant / Graduate Student – M.Sc. (May 2004 – May 2008)

Department of Soil Science – University of Saskatchewan, Saskatoon, Canada

- Investigated the impact of legumes in crop rotations on soil biological quality through a combination of field, greenhouse and laboratory experiments

SELECTED AWARDS & GRANTS

- Queen Elizabeth II Scholarship in Science and Technology (2013)
- 1st place student oral presentation - Canadian Society of Soil Science (2013)
- 3rd place student poster - Canadian Society of Soil Science (2013)
- Student travel award - Canadian Society of Soil Science (2013)
- 1st place student poster - Canadian Society of Agronomy (2011)
- Dean's Graduate Scholarship (2010, 2011, 2012)
- College of Graduate Studies Research and Travel Award (2006)
- University President/Student Award (2006)
- Education Enhancement Grant (2006)
- 1st place student poster - Soils and Crops (2006)
- Graduate Student Honours Scholarship (2006)
- 1st place student poster - Great Plains Inoculum Forum (2005)

ACADEMIC SERVICE

- Graduate student representative of the Organic Agriculture of Canada Board of Directors
- Reviewer: European Journal of Soil Science, Canadian Journal of Microbiology, Soil Research, Plant and Soil

SELECTED PUBLICATIONS

Fraser T, Lynch DH, Entz MH, Dunfield KE (2015). Soil bacterial *phoD* gene abundance and expression in response to applied phosphorus and long-term management. *Soil biology and Biochemistry*, *In review*.

Fraser T, Lynch DH, Entz MH, Dunfield KE (2014). Linking alkaline phosphatase activity with bacterial *phoD* gene abundance in soil from a long-term management trial. DOI: <http://dx.doi.org/10.1016/j.geoderma.2014.10.016>.

Woodley AL, Audette Y, **Fraser T**, Arcand MM, Voroney P, Knight JD, Lynch DH (2014). Nitrogen and phosphorus management in organic field crop production. In: MacRae R, Martin RC (Eds.) *Managing energy, nutrients and pests in organic field crops*, CRC Press.

Fraser T, Nayyar A, Ellouze W, Perez JC, Hanson K, Hamel C (2009). Arbuscular Mycorrhizae: Where Nature Meets Industry. In: Khasa D, Piché Y, Coughlan A (Eds.) *Advances in Mycorrhizal Science and Technology*, NRC-CNRC, Ottawa ON.

SELECTED PRESENTATIONS

Fraser T (2014). Biological transformations of phosphorus in a long-term management trial. Lancaster Environment Centre Departmental Seminar. Lancaster, England, Dec 11.

Fraser T, Wall DH, Bardgett RD, Gardi C, van der Putten WH, Six J (2014). The GSBI and soil biodiversity advances. Joint 2014 Annual Meeting British Ecological Society and Société Française d'Ecologie. Lille, France, Dec 9-12.

Fraser T, Lynch D, Entz M, Dunfield K (2014). Abundance and diversity of *phoD* bacterial communities as influenced by long-term agricultural management. World Congress of Soil Science, Jeju, Korea, June 8-23.

Fraser T, Lynch D, Nimmo J, Entz M, Dunfield K (2013). Phosphorus uptake by ryegrass in response to rate and type of P amendment in soils under long-term organic, organic manure amended, conventional and native prairie management. Canadian Society of Soil Science, Winnipeg, Canada, July 22-25.

Fraser T, Lynch D, Entz M, Dunfield, K (2013). Soil phosphorus turnover in long-term organic and conventional management systems. Organic Phosphorus 2013. Integration across Ecosystem, Panama City, Panama, February 4-7.

SELECTED CONFERENCE PAPERS

Fraser T, Lynch D, Entz M, Dunfield K (2014). Abundance and diversity of *phoD* alkaline phosphatase genes and transcripts in soil bacteria. First Global Biodiversity Conference, Dijon, France, Dec 2-5.

Fraser T, Lynch D, Dunfield K (2011). A farm survey of bulk and rhizosphere soil bacterial communities in organic soybean plots across Prince Edward Island. Canadian Society of Microbiology, St. Johns, Canada, June 20-23.

Fraser T, Farrell R, Lemke R, Schoenau J (2010). Nitrous oxide emissions from long-term cattle and swine manure amended soils in the Black soil zone of SK. Canadian Society of Soil Science, Saskatoon, Canada, June 20-24.