

GRADUATE STUDIES OPPORTUNITIES WITH THE BIODIVERSITY RESILIENCE NETWORK – UNIVERSITY OF GUELPH

Funding is available for multiple PhD and MSc students in the fields of ecology, evolution, physiology, climate change, and biomathematics to work in a highly collaborative multi-lab setting with the Biodiversity Resilience Network (BiRN) housed at the University of Guelph (<https://biodiversityresiliencenetwork.wordpress.com/>). If interested, please e-mail a brief statement of research interest, your CV, an unofficial transcript, and the names of 2 academic referees to Lori Ferguson, the Graduate Program Assistant in the Dept. of Integrative Biology (loriferg@uoguelph.ca). Positions can start winter, summer or fall 2018.

Research Problem

In 2014, the World Resources Institute Report (WRIR) concluded that the rising population, projected to be 9.6 billion people by 2050, will demand solutions to the simultaneous “balancing act” of three central global problems: (i) society must produce far more food, and quickly (**the agricultural problem**); (ii) society must provide economic opportunities for the hundreds of millions of rural poor (**the socio-economic problem**), and; (iii) society must reduce environmental impacts, including ecosystem degradation, nutrient imbalances, and high greenhouse gas emissions (**the ecological problem**). The nature of these three central problems is that they are embedded within one another such that solutions require simultaneous consideration by a multi-disciplinary group. In the next 7 years, the *Biodiversity Resilience Network (BiRN)*, one axis of the *Food from Thought (FFT)* research team, seeks to develop greater understanding of the trade-offs, and therefore potential solutions, to these critical global problems.

This complex issue demands a highly collaborative multi-disciplinary approach to research and we are expanding our network of researchers and graduate students working toward effective solutions. We are currently seeking recruits to this exciting team in a number of areas:

- (i) Diversity-function relationships and farm-based ecosystem services, with emphases on soil, insect, or plant dynamics.
- (ii) Synergistic effects of climate variation, pesticide toxicity and nutrient dynamics on productivity and food web interactions in terrestrial and aquatic ecosystems
- (iii) Big data analysis of global to local drivers of diversity and function
- (iv) Ecological buffering mechanisms to climatic variability
- (v) Dynamic interactions between ecological and socio-economic systems

The University of Guelph is consistently ranked as one of Canada's top research universities and our faculty attract more research dollars per capita than any other comprehensive university in Canada.

