Biodiversity Seminar Series

The Biodiversity Seminar Series is pleased to announce

Dr. Gustavo S. Betini

from the Department of Integrative Biology, University of Guelph,

presenting the talk

Climate change impacts on freshwater organisms: the Limnotron facility as a model system

Abstract:

Global warming and recent changes in water chemistry in freshwater ecosystems are triggering a number of ecological impacts on primary producers and creating cascade effects across entire aquatic food webs. To approach this problem, I study the ecological and evolutionary responses of green algae and the cladoceran freshwater *Daphnia magna* to increasing temperature and declining in calcium concentrations in the water. I manipulate temperature and calcium levels to investigate whether these conditions can trigger ecological and evolutionary changes in a predator-prey system. I then try to understand if these changes could affect the spatial structure that arises at the population level caused by the movement of individuals. To achieve these goals, I am using a combination of benchtop experiments and the world's largest aquatic mesocosm facility. This facility, located at BIO, consist of 6 tanks with capacity for 28,000 litres of water where light and temperature can be manipulated. This offers a unique opportunity to mimic natural conditions that are relevant to lake ecosystems and changes in these conditions that are expected to happen as a consequence of climate change. The first results have demonstrated that, contrary to what is usually assumed, predators can inhibit (instead of promoting) self-organized spatial structures. Secondly, we have uncovered that single algae populations can show rich dynamics caused by the interaction between demographic rates and nutrient loads. Finally, we have found significant changes in age structure and body size as a function of increasing temperature.

Brief Bio:

After completing my Master's degree in Forest Science at the University of Sao Paulo, Brazil, I worked for almost 6 years as an environmental consultant conducting bird and mammals surveys for environmental impact assessment studies in the Atlantic Forest, one of the most threatened habitats in the world. During this period, I collaborated with the private and public sectors to improve the conservation of terrestrial fauna in Atlantic Forest and Savannah in southeastern Brazil. In 2014, I obtained my PhD in Ecology at the Department of Integrative Biology, U of G. I then worked as a postdoc with Prof. Ryan Norris, Prof. Andrew McAdam and Prof. Cort Griswold. In the last year, I have being working with Prof. John Fryxell in the Limnotron at BIO.

I am broadly interested in eco-evolutionary feedbacks, life-history theory, population dynamics and animal behaviour. My research program aims to understand how organisms survive and reproduce in a world that is constantly changing. I try to understand what are the morphological, physiological and behavioral traits that allow organisms to live in an ever-changing world and whether or not evolution will keep pace with climate change. I approach these problems by combining lab experiments, field observation and theory.

More information at www.uoguelph.ca/~betinig/

When: Thursday June 23rd 2016 at 12:00 pm

Where: Visualization Theatre, Room 1009
Biodiversity Institute of Ontario

For scheduling and more information on the seminars, please visit:
http://biodiversitygenomics.net/resources/seminar-series/