

## **Investigating the relationship between abiotic factors, canopy openness and understory plant diversity in three forest types of the Osa Peninsula, Costa Rica**

Carly Heck, Jaynita Maru, Doris Audet\*, and Anne McIntosh\* (University of Alberta, Augustana Campus)

### *Poster Presentation Abstract:*

The Neotropical region stands as one of the most diverse places on earth, housing nearly 50% of the world's biodiversity. Various biotic and abiotic factors within the Costa Rican environment have rendered growth conditions conducive to over ten thousand plant species. Because of the high plant diversity in this region, a need for inventorying of understory composition exists. We investigated the relationship between canopy openness, soil moisture, leaf litter and organic layer depth and understory plant diversity within the Osa Conservation area of Costa Rica. We hypothesized there would be a difference in understory composition across three different forest types: old growth, secondary, and gallery forests. Data were collected during the region's dry El Niño season from February 12 - 24, 2016. Within each forest type, three 25m<sup>2</sup> sampling plots were marked along a 100m transect. Understory plants were recorded and identified down to the family level. We constructed rank cover graphs and calculated diversity indices to assess family richness and evenness. We conducted one-way ANOVAs to test for any significant differences in plant abundances and abiotic factors across the forest types. The diversity indices indicated highest diversity in old growth forest. Soil moisture was significantly higher in gallery forest compared to old growth. Certain plant families were more common in secondary forest, suggesting they are early successional plants. We will discuss further in our prepared poster. We hope that our report will positively contribute to the knowledge of the Osa Peninsula understory.

\* Indicates faculty mentor