

## MSc Thesis Seminar

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*“Finding the precision and accuracy of the Random Encounter and Staying Time Model’s measure of species density”*

**Supervisor:** Dr. Eric Vander Wal

Monday, April 11<sup>th</sup> 2022, 2:30 p.m.

Virtual Meeting



### Abstract:

Species density is perhaps the most sought-after measurement in ecological research because it has a key role in conservation management practices and species monitoring. Camera-trap data can be used to derive density estimates using the Random Encounter and Staying Time (REST) model for species with non-distinguishable individuals. I mathematically recreated the REST model and derive the mean and variance using the first two mathematical moments from a probability distribution function. I use three different detection zone areas, research periods, and animal speeds to create confidence intervals for the density estimates based on the method of moments for a lognormal distribution. If all model assumptions have been met, The REST model’s density measurements are always going to be an accurate measure of true species density. Longer research periods, larger detection zones and faster moving animals give more precise density estimates. Given the growing popularity of camera traps for ecological surveys, our results highlight how REST model can be used to aid monitoring projects and conservation efforts.