Spring 2021 ECL 290 004: *Paradigms in Predator-Prey Interactions Across Spatial Scales*

Ellie Bolas & Olivia Feldman with Dr. Justine Smith

Date & Time: TBD **CRN:** 39742

Predator-prey interactions are a fundamental relationship in ecology, with implications for the behavior, habitat use, fitness, and demography of the focal species and for composition and functioning of the ecosystem as a whole. We will examine paradigms in predator-prey relationships across taxa (including humans) from the individual to ecosystem level and across diverse ecosystems and spatial scales, with a particular focus on how behavior and space-use are modified by predator-prey interactions. We will begin by examining fine-scale individual behaviors that occur in response to predator-prey interactions such as hunting strategy, vigilance, or anti-predator behavior. We will then investigate broader-scale individual responses such as movement and habitat selection. From there, we will scale to population-level responses to predator-prey interactions, including both nonconsumptive effects (behavioral changes that influence populations) and density-mediated impacts on population demography. Finally, we will look at how predator-prey interactions influence ecosystem processes including nutrient cycling and trait-mediated or density-mediated indirect effects (i.e., trophic cascades).

Possible topics for discussion include disease ecology and parasitism in a predator-prey framework, optimal foraging theory, working landscapes, humans as apex predators, predator-prey relationships and nutrient cycling, the impacts of disturbance on predator-prey relationships, cues of safety and risk, estimating encounters between predators and prey, and linking conservation to predator-prey theory.

Check out a proposed schedule and possible papers here: Scales of Predator-Prey Interactions

Photo by: Cristobal Briceño of WCS Chile.