



School of Natural Resources and the Environment

Seminar Series: Spring 2019

LIMITS TO ECO-EVOLUTIONARY INTERACTIONS: LESSONS FROM INVASIVE PLANTS AND CORAL REEFS

SPEAKER: Casey terHorst, *California State University,
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DATE: Wednesday, February 27th, 2019

TIME: 3:00-4:00 pm

LOCATION: ENR2, S107



ABSTRACT: Typically one thinks of evolution occurring over thousands of years, but evolution can occur very quickly, especially for organisms with short generation times. Many studies have now demonstrated that rapid evolution on ecological time scales can affect interactions between species. Rather than continuing to gather examples of this phenomenon, our lab has begun to ask when one might *not* observe strong effects of evolution on ecological processes. We are studying two systems: (1) interactions between an invasive plant, *Medicago polymorpha*, and herbivores, soil microbes, and competitors, and (2) interactions between corals and the endosymbiotic algae that provide them with essential carbon in nutrient-poor waters. In the invasive plant system, we find strong signatures of evolution during the invasion process in response to some ecological interactions. However, indirect effects among species in diverse communities may prevent strong selection on these invaders. In the coral system, we are interested in whether laboratory selection might produce heat-tolerant strains of symbionts that can rescue corals from climate change. Although we find lots of opportunity for evolution in the symbiont populations, the differences among algal genotypes are muted when grown inside a host. Both of these results suggest that eco-evolutionary dynamics are possible, but may be mediated by complex species interactions in natural communities.