



School of Natural Resources and the Environment

Seminar Series: Fall 2018

THE SOCIOGENETICS OF BIOTURBATION AND BIOMASS PRODUCTION IN A GRANIVOROUS DESERT ANT

SPEAKER: **Christina L. Kwapich** *School of Life
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DATE: **Wednesday, October 3rd, 2018**

TIME: **3:00-4:00 pm**

LOCATION: **ENR2, Room S107**



ABSTRACT: *Veromessor pergandei* is a conspicuous seed harvesting ant of the Sonoran Desert. Colonies produce as many as 230,000 workers per year and convert an average of 3.4 Kg/ha of seeds into ant biomass annually. The biomass produced per colony varies considerably depending on colony genetic structure. Queens that mate with fewer males produce a wider range of worker sizes, and up to eight-times more workers as neighboring conspecifics. Using a novel application of network analysis, and subterranean nest casting, we showed that polymorphic colonies also excavate deeper and more complex nests than monomorphic colonies. The nests built by polymorphic workers were not only larger in absolute terms, but larger than expected based on the combined contributions of component size classes in isolation. Likewise, workers from different size-classes divided labor between particles of varying size in some soil types. We consider population-level trends in workers polymorphism and queen mating frequency, as they relate to soils across the range of *V. pergandei*. Our findings demonstrate how sociogenetic structure in ant societies can influence bioturbation on a landscape scale.