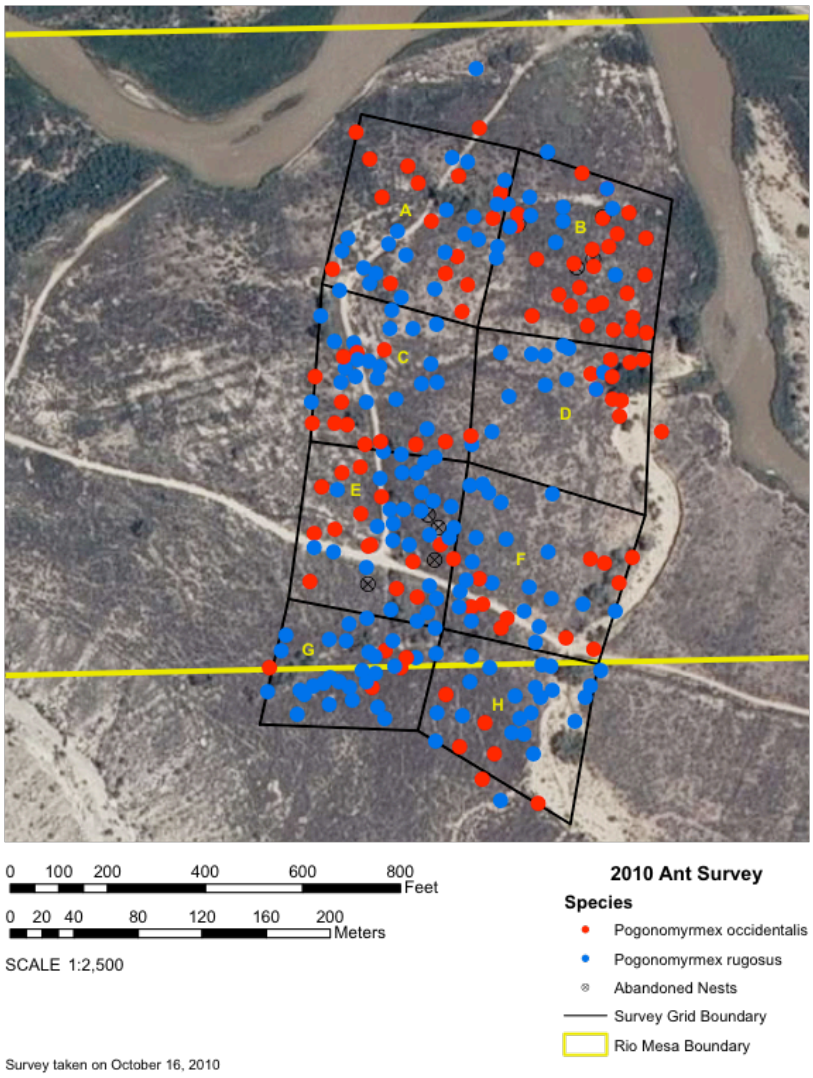
Community and Ecosystem Ecology of Two Species of Harvester Ants

Ants are a conspicuous component of virtually all ecosystems on Earth. Through their activities ants provide important ecosystem services; they aerate and fertilize the soil, they recycle nutrients by scavenging organic matter from their surrounding environment, they disperse seeds and protect plants from herbivore attack, and as generalized predators they often help to regulate the populations of pest species in both natural and human altered landscapes. Approximately 165 species occur in Utah and probably 30 or 40 species occur at the Rio Mesa Center, although a comprehensive survey still needs to be conducted.



Colonies of ant species that occur in the same general area often compete with one another for access to food. This competition over food may be subtle, with colonies never directly interacting with one another and simply trying to collect the food faster than they neighbors, or it can overt, with colonies literally fighting and killing one another's workers.

One way we can measure the effects of competition in communities of ant species is by quantifying the spacing between ant colonies. If colonies compete for food resources, then we might expect that colonies would be "over-dispersed" or "evenly" dispersed in the environment, simply because over-dispersion would reduce the number of confrontations among colonies. In contrast, if colonies do no compete for food, then we would expect that colonies would be "randomly" distributed or even "clumped" in the environment.

This study has mapped the colony distributions of two closely related species of seed-harvesting ants, *Pogonomyrmex occidentalis*, the northern seed harvester ant, and

Pogonomyrmex rugosus, the southern seed harvester ant, which co-occur at Rio Mesa Center. Following ant populations over time will allow us to understand long-term dynamics between these two species of ants at Rio Mesa Center.

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