

Project Description

The San Diego Monitoring and Management Program (SDMMP) is working to identify and manage threats and stressors within conserved lands to protect the native plant and animal populations within them. The SDMMP is examining the areal extent and magnitude of impacts from identified threats and stressors within MSP conserved lands. One of the threats being evaluated by SDMMP is the Argentine ant, *L. humile* which broadly and negatively impacts a variety of plant and animal species, both directly and indirectly, depending on the species. As part of this effort, the USGS designed a study to evaluate how Argentine ant (*Linepithema humile*) occupancy is affected by different environmental variables. We categorized sites across San Diego County into ecoregions and from coast to foothills to determine spatial differences across the gradient, incorporating all previously known predictive/limiting factors such as distance from various water source and/or urban edge, and soil moisture within each region type. We created transects moving away from expected invasion points to assess impact of each edge type, distance from water source, and differences of these variables within each ecoregion.

A total of 72 sites were sampled for *L. humile* presence across conserved lands in San Diego County from August - October of 2015 and 2016. Each site was assigned to one of three regional categories, as determined by SDMMP Layer (E. Perkins): coastal, inland, and foothill. We implemented a stratified sampling design to select sites based on region and edge type (i.e. urban, road, or water source [lake/reservoir or creek/river]). Sampling points were located at 0, 50, 100, 250, 500, 750, 1000, and 1250 m on a linear transect. Transects began at either the edge of urban area, a paved road, or a water feature (lake or stream channel) near or within preserved lands and ended at 1250m from the edge point or until the preserve boundary or edge type was reached.

Results from this study would provide information to land managers on where to prioritize monitoring and better tailor their control efforts according to where preserve lands exist within the landscape. The study utilized a rapid assessment technique that readily detects *L. humile* presence in a cost effective manner and with relatively little field effort that could be easily implemented by land managers.