

## The EFFECTS of INTERSPECIFIC COMPETITION between TWO CO-EXISTING URBAN ANT SPECIES (HYMENOPTERA: FORMICIDAE) on TOXIC BAIT PERFORMANCE

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The Argentine ant, *Linepithema humile*, is an invasive species that is a serious agricultural, ecological, and urban pest. *L. humile* displaces native ant species and other arthropods, and also invades homes and other structures. *Monomorium minimum*, the little black ant, is also an urban pest that will enter homes in search of food.

Toxic baits are often used in an attempt to control urban pest ants. However, resource partitioning, due to interspecific competition, may reduce the level of toxicant received by the target ant. Therefore we carried out laboratory experiments to determine the effects of competition between two co-existing urban ant species, *L. humile* and *M. minimum*, on toxic bait performance. In the laboratory, we gave competing *L. humile* and *M. minimum* colonies access to a common foraging arena that contained toxic bait. Ants were provided an alternate food throughout the entire experiment. Percent mortality for each species in competition was compared with that of non-competing colonies. Ants were allowed to interact for three days before the toxicant was added and, as expected, ants in competition suffered significantly higher percent mortality than ants not in competition. However, competition between ants did not affect toxic bait performance against either species.

In an experiment where alternate food was not available, *L. humile* in competition suffered significantly less mortality than *L. humile* in the absence of competition during the period when the toxic bait was present. *M. minimum* percent mortality did not differ significantly for competing versus non-competing ants during this same time period. Our findings indicate that interspecific competition has minimal effects on toxic bait performance.

Before we can begin to reduce any effects that competition may have on toxic bait performance, we must first know how these two species interact in the field. Therefore, in a field study conducted during the summer, we determined the foraging activity of these two species. We determined the foraging pattern of each species in the presence and absence of the other. We found that *L. humile* alters the normal foraging activity of *M. minimum* during the morning and early afternoon hours. We also found that in the presence of *M. minimum*, *L. humile* forages ca. thirty minutes later than it normally would in the early afternoon hours. By adjusting the timing of bait placement we may be able to minimize any effects of competition on toxic bait performance.