Ant communities of temperate tree canopies along an urban-rural gradient

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Ant communities of tropical forest canopies are relatively well described, but few studies have examined ant communities in temperate forest canopies. Likewise, the effects of urbanization on arboreal ant species richness and species composition remain unexplored. We examined the structure of arboreal ant communities at four sites along an urban-rural gradient near metropolitan Louisville, Kentucky. The University of Louisville (UofL) Belknap campus functioned as a representative urban green space, Iroquois Park as an urban park, Horner Wildlife Sanctuary as a suburban forest, and Bernheim Arboretum as a more continuous forest. In total we surveyed 439 trees with at least 99 trees sampled at each site. We examined how location, tree genus, tree size, and the presence of vines influenced the ant species richness and composition. Ant species richness was higher in Iroquois compared to Horner and UofL and increased marginally with increasing tree size. Ant species composition also differed across the locations, with the more rural sites tending to have greater diversity of species. Ant composition also differed among tree genera within a site. These results contribute to our knowledge of ant diversity in Kentucky, and further our understanding of the effects of urbanization on arboreal ant communities.