

**OR077***The effect of urbanization on ant abundance and diversity***Grzegorz Buczkowski**

Numerous studies have examined the effect of urbanization on species richness and most studies implicate urbanization as the major cause of biodiversity loss. However, no study has identified an explicit connection between urbanization and biodiversity loss as the impact of urbanization is typically inferred indirectly by comparing species diversity along urban-rural gradients at a single time point. A different approach is to focus on the temporal rather than the spatial aspect and perform 'before and after' studies where species diversity is cataloged over time in the same sites. The current study examined changes in ant abundance and diversity associated with the conversion of natural habitats into urban habitats. Ant abundance and diversity were tracked in forested sites that became urbanized through construction and were examined at 3 time points - before, during, and after construction. On average,  $4.3 \pm 1.2$  unique species were detected in undisturbed plots prior to construction. Ant diversity decreased to  $0.7 \pm 0.8$  species in plots undergoing construction and  $1.5 \pm 1.1$  species in plots 1 year after construction was completed. With regard to species richness, urbanization resulted in the permanent loss of 17 of the 20 species initially present in the study plots. Recovery was slow and only 3 species were present right after construction was completed and 4 species were present 1 year after construction was completed. The second objective examined ant fauna recovery in developed residential lots based on time since construction, neighboring habitat quality, pesticide inputs, and the presence of invasive ants. Ant diversity was positively correlated with factors that promoted ecological recovery and negatively correlated with factors that promoted ecological degradation. Taken together, these results address a critical gap in our knowledge by characterizing the short- and long-term the effects of urbanization on the loss of ant biodiversity.