Assessing the Influence of Urban Greening on Urban Arthropods

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Green Heart is an urban greening experiment in Louisville, KY seeking to create new urban green spaces to ultimately increase air quality and improve human health. Changes in biodiversity in response to urban greening may influence human health via multiple hypothesized pathways including reducing harm (e.g. medicine provisioning), restoring capacities (e.g. reductions in stress), building capacities (e.g. increasing activity outdoors), and causing harm (e.g. zoonotic diseases). Arthropods are one component of diversity that may influence human health via each of these pathways. However, few studies have assessed the influence of Arthropod diversity on human health. Thus, the objective of our ongoing study is to assess how urban greening influences Arthropod diversity, abundances overall, and the diversity and abundances of herbivorous pests, which could negatively influence greening applications and long-term management, and Arthropods of human health significance. During the summers of 2019 – 2021, we sampled for Arthropods on road right aways within a 0.3 m^2 frame using a vacuum sampler at 140 sites inside (n = 34) and outside (n = 106) of an urban greening area within a residential neighborhood in Louisville, KY. Most of our sampling has occurred pre-greening and we will continue to sample as greening applications are completed throughout the neighborhood for at least the next 2 years. Our research and processing of the data is ongoing, and we will present preliminary data on the pre-greening Arthropod community we observed on our study site.