

Urbanization has altered habitats, restructured avian communities, and influenced the range sizes and population dynamics of hundreds of bird species. While previous research has shown that urban habitats influence avian survival and community composition across the rural-to-urban gradient, little is known of the mechanisms that drive avian response to urbanization. In the proposed analysis, I examine the hypothesis that the response of birds to urban habitats is linked to the distribution of dietary resources in human-dominated landscapes, with birds that exhibit greater dietary plasticity expected to benefit from urbanization. I will sample birds from across the rural-to-urban gradient in greater Washington, D.C. and will examine ratios of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in avian feather, claw, and potential diet samples to measure avian diet and corticosterone (CORT) levels as an indicator of avian health in two species of birds, the Northern Cardinal (NOCA, *Cardinalis cardinalis*) and Carolina chickadee (CACH, *Poecile carolinensis*). Using δ -values, I will construct stable isotope mixing models to assess the composition and breadth of avian diets across the rural-to-urban gradient. To assess the effects of diet on avian health, I will measure CORT concentrations in feather and claw samples. CORT and isotopic ratios will be evaluated in response to local and regional scale habitat features, with the expectation that high quality local habitats may mediate avian response. Based on previous findings, I expect that increased urban land cover will lead to a decline in insectivory and increased niche width among NOCA but not CACH. Furthermore, I expect that CORT concentrations for NOCA will decline with increasing urban land cover and increase for CACH. The proposed research will be the first to directly examine the relationship between avian health and diet across the rural-to-urban gradient.