

## ***Variation of Avifaunal Composition along an Urbanization Gradient in the Kandy Region, Sri Lanka***

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Analysing fauna in ecosystems along urbanization gradients to investigate its effects on biodiversity is a fundamental pursuit of conservation research. The present study was carried out in three closely located, however, environmentally different sites, *viz.* Udawattakele Forest, Talwatta suburb and Kandy downtown, aiming to understand the impact of urbanization on local avifauna through quantitative investigation of its variation in selected ecosystems representing an urbanization gradient. These sites contained 2, 613, and 15,092 buildings per 1 km<sup>2</sup> respectively, harbouring 62, 2,981, and 324,074 people daily, indicating an increase in urbanization level from Udawattakele to Talwatta to Kandy. Sampling was carried out weekly from May to December 2023 using encounter transect method along two-kilometre transects in each ecosystem. The highest species richness was recorded from Udawattakele ( $S=69$ ; Simpson  $1-D=0.89$ ), suggestive of the possession of the highest number of niches. Talwatta recorded the highest diversity ( $S=58$ ;  $1-D=0.94$ ) with a rich, evenly abundant bird community, indicative of gaining of benefits from both natural and artificial resources. Kandy downtown showed the least diverse community with the lowest species richness, however, with the highest number of individuals ( $S=14$ ;  $1-D=0.67$ ). Based on Bray-Curtis Dissimilarity, Udawattakele and Talwatta were 72.92% dissimilar in avifaunal composition, while Kandy downtown was 94.84% dissimilar to them. Udawattakele and Talwatta housed four endangered (EN) species each, and three and one vulnerable (VU) species respectively, showing 67.63% dissimilarity in threatened species composition. Among these, one EN and three VU species from Udawattakele were endemic, while one EN species from Talwatta was endemic. Udawattakele showed a percentage endemism of 38.2% while Talwatta showed 26.5%, indicating 65.29% dissimilarity. Udawattekele and Talwatta attracted nine and seven migratory species respectively (73.00% dissimilarity), while Kandy downtown attracted one (89.33% dissimilarity). The study showed the importance of planning developmental activities sustainably in conserving local avifaunal diversity.

**Keywords:** Birds, Diversity, Endemic, Migratory, Threatened, Udawattakele