Abstract

Wanagama I Forest has many types of land use that distinguished by a combination of agroforestry systems. The aim of the research is to determine the conservation value based on the bird diversity in each of the land use types and to understand the effect of vegetation structure and composition on bird diversity. The conservation value was measured using two factors, namely diversity index ($H'$) and conservation value index (CVI). Bird diversity was estimated using point counts method, while vegetation structure and composition was observed using systematic nested sampling. The highest $H'$ and CVI were found at the old growth forest ($H' = 2.328$, CVI = 2.556) while the lowest were detected at the bush ($H' = 1.607$, CVI = 1.941). Rehabilitation effort significantly increased bird diversity. In accordance, vegetation structure and composition i.e. cover density, the number of species, dominance, and canopy strata, significantly affected the bird diversity ($F = 2.979$, $P = 0.005$). However, canopy strata ($B = 0.20$, $P = 0.001$) and density of vegetation at sapling level ($B = 0.12$, $P = 0.036$) were the most significant factors. Dominant species such as *Gliricida sepium* and *Tectona grandis* were causative factors that attracted the olive-backed sunbird (*Nectarinia jugularis*) and insectivorous (*Pycnonotus aurigaster* and *Orthotomus sepium*).