

Bird Diversity, Density and Foraging Activities in a University Campus Landscape in Sarawak

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ABSTRACT

A total of 77 species from 34 families was recorded from 11,863 observations from November 2012 to April 2013 (six months) within Universiti Malaysia Sarawak (UNIMAS) campus using line transect method. This bird list is dominated by Asian Glossy Starling (*Aplonis panayensis*) with 4,917 observations (41.45%) followed by Eurasian Tree Sparrow (*Passer montanus*) with 867 observations (7.31%) and Yellow-vented Bulbul (*Pycnonotus goiavier*) with 752 observations (6.34%). This study reports higher diversity ($H' = 2.5$) compared to previous studies. Density of bird was estimated at 6.24 individuals/ha. In order to explore the interspecific interactions between species, 19 bird species with (1,189 observations) most observations were subjected to bipartite network analysis. Based on the network analysis it appears that birds partition food resources spatially and by food type. The highest niche overlap occurs between foraging technique (0.61) while lower overlap was observed for height (0.44), types of food (0.42) and foraging substrate (0.42). This suggests that birds were exploiting similar resources but segregated spatially. Therefore birds are partitioning their niche to allow coexistence and to adapt to human modified landscape. This study has provided valuable information in characterising the assemblage and understanding the distribution of the birds in a campus landscape.

Keywords: bird diversity, density, line transect, foraging behavior, niche partitioning

INTRODUCTION

Studies on bird diversity are important to understand global conservation needs for avian community. Anthropogenic activities such as deforestation have resulted in avifauna losses (Sodhi, 2002) because some birds are very sensitive to rapid changes in their environment which causes habitat fragmented. Additionally forest birds are more sensitive to disturbance as their survival depends on the availability of forest resources (Zakaria & Zamri, 2008).

Therefore birds can be a good biological indicator to monitor biodiversity and environmental impact caused by anthropogenic activities (Sorace & Visentin, 2007). Degraded landscape often regarded as low value for conservation mainly due to its inability to support the full spectrum of biodiversity of a pristine environment. Nevertheless the importance of disturbed and degraded habitat such as in rural area for birds can ameliorate

some localised biodiversity loss (Peh *et al.*, 2006; Ramli *et al.*, 2012). Landscape change especially to urban areas may cause fluctuation in bird species numbers and change in the community structure due to resource utilization and niche partitioning. Consequently by understanding the foraging ecology, resource use and community structure, much can be inferred from the community's coexistence (Asokan & Ali, 2010).

The species richness and assembly of a local community within a defined habitat is generally determined by both species colonization with establishment of breeding populations and species loss through local extinction (Krebs, 2009). The composition of a local community is mostly determined by the characteristics of the source pool of species, which is sometimes influenced by random selections from regional pools (Wiens, 1989). Study on coexisting bird species, in tropical rainforest ecosystem; have

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