

DIVERSITY AND FUNCTIONAL GUILD OF UNDERSTOREY BIRDS IN DIFFERENT TYPES OF FOREST IN ULU BARAM, SARAWAK

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ABSTRACT

The difference on diversity of understory and functional guild of understory birds were examined in three types of forest relatively undisturbed primary, secondary and agro forest in Ulu Baram, Sarawak. A total of 64 mist nets were set up in each forest type for four days. A total of 140 individuals representing 38 species were caught in primary forest, 201 individuals (50 species) in secondary forest and 216 individuals (47 species) in agro forest. Shannon-Wiener Diversity Index showed that secondary forest has the highest bird diversity ($H' = 3.518$) followed by agro (3.312) and primary forest (3.249). The relative abundance of the insectivores was the highest in primary forest, frugivores, granivores and nectarivores were highest in the agro forest while the omnivore guild dominated the secondary forest. The granivores, frugivores and nectarivores were higher in agro forest suggesting that this forest provide resources for the persistence of these species. The results of this study showed the feeding guild and diversity of understory birds were influenced by the habitat type.

Key words: Diversity, functional guild, understory birds, Ulu Baram

INTRODUCTION

Land use by humans for agriculture and urbanization had changed the natural landscapes. Generally, it has been considered a local environment issue but it is becoming the strength of global importance (Foley *et al.*, 2005). Sarawak, the largest state in Malaysia has a land area of 12.4 million hectares (ha) where 65% of the land is estimated to be still occupied by forest (SFD, 2017). Roughly 27 million ha of forest in the tropics were cleared mostly for timber between 2000 and 2005 and agricultural plantations. Over time, almost 398 million ha were allocated for logging (Bryan *et al.*, 2013). Protected areas in Sarawak covered only 4% whereas 35.2% are earmarked for logging activities (SFD, 1997). Logged forest are usually converted into oil palm and rubber estate. Approximately 1.25 million ha of Sarawak land area were occupied by oil-palm plantations and this number is rising while

untouched primeval forest is dispersed in small patches (Ichikawa, 2007).

Changes of landscape and vegetation affects the birds' diversity and their functional guild. The forested areas are thinning obviously due to forest resources harvesting for human use (Griffin & Muick, 1990), which then leads to the changes in vegetation structure and composition (Block & Brennan, 1993; Chettri *et al.*, 2002) thus, affecting the occupancy and resource use patterns of birds (Block & Brennan, 1993; Chettri *et al.*, 2002). Therefore, the objective of this study is to determine the diversity and functional guild of understory birds in three types of forests in Ulu Baram area.

MATERIALS AND METHODS

Ulu Baram is located at the northern Borneo. Three types of forests in Ulu Baram were chosen as study sites consisting of primary, secondary and agro forest.

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