Malays. Appl. Biol. (2018) 47(1): 121–129

ELEVATIONAL DISTRIBUTION PATTERNS OF UNDERSTOREY FOREST BIRD IN WESTERN SARAWAK, MALAYSIAN BORNEO

HANIS DAMIA ELYNA LIT[1*] and JAYASILAN MOHD-AZLAN[1]

[1]*Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia*
[*]*E-mail: azlan@unimas.my*

Accepted 30 January 2018, Published online 31 March 2018

ABSTRACT

The elevational distribution pattern of understorey avian communities of mountainous region in western Sarawak was studied between March 2016 and April 2017 using mist-nets with total effort of 2,800 net-days. This has resulted in 1,039 individuals from 28 families and 112 species, which includes four Bornean endemic and two montane endemic species. Species accumulation curve shows that there is no additional species recorded which suggest sampling saturation. Number of bird species recorded at the four elevations ranges were 82 (<300 m), 78 (300 – 599 m), 40 (600 – 899 m), 30 (900 – 1200 m), of which 17 species were recorded exclusively at elevation <300 m, 11 at 300 – 599 m, five at 600 – 899 m, and seven at 900 – 1200 m. The highest bird species diversity and richness occurred between of 300 – 599 m asl. Of the 112 species recorded, two (1.8%) of the species are listed as Vulnerable, 30 (26.8%) species as Near Threatened and 80 (71.4%) species as Least Concern by IUCN (2017). A total of 15 species (13.4%) are protected under the Sarawak Wild Life Protection Ordinance 1998. This study also revealed some differences in terms of species composition between elevations.

Key words: Altitude, assemblage, distribution, diversity

INTRODUCTION

Sarawak is one of the Malaysian states located in the island of Borneo (743,330 km^2) beside Sabah (Hazebroek & Abang-Morshidi, 2006). The effect of elevational gradient on species richness has long been acknowledged in ecology (MacArthur, 1972; Lomolino, 2001). It has commonly been assumed that the species diversity and community composition of birds will change rapidly along elevational gradients particularly in tropical and subtropical regions (Wu *et al*., 2010). Species richness has been considered to decrease monotically with increasing elevation because of reduced temperature and the resultant decrease of productivity (Rohde, 1992). However, the effect of elevation on variations in avian communities differs among regions. For example, bird species richness usually declines with elevation on Halmahera in Indonesia, increasing below 900 m and declines above 900 m (Poulsen, 2000). Bird species richness shows a hump-shaped relationship with elevation in Taiwan, increasing with elevation from sea level to 2000 m and then decreasing above that elevation (Lee *et al*., 2004). The hump-shaped and decreasing patterns are usually respectively accounts for about 50% and 25% of all cases of bird richness distribution along elevation gradients (McCain, 2005). Nevertheless, our understanding of the relation between elevation and species richness still appears to be inconclusive and some issues regarding humid mountains that shows mid-elevational peaks in diversity, remains uncertain (McCain, 2009). Avian group is generally used as a study subject not only because they are relatively easy to study, but their distribution and diversity are also influenced by microclimate, elevation, habitat types and food resources (Lack, 1971). The purpose of this study was to determine patterns of understorey forest bird species composition and richness across the elevational gradients in four selected sites in western part of Sarawak.

MATERIALS AND METHODS

The study was conducted at Kubah National Park (01º36’ 42.3’N 110º26’ 39.3’E) which covering an

* To whom correspondence should be addressed.