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Species Diversity of Non-Volant Small Mammals Between Lowland and Highland of Gunung Serapi, Kubah National Park, Sarawak

HAZIQ IZZUDDIN MUHAMAD AZMAN[1], ROBERTA CHAYA TAWIE TINGGA[*2] & MADINAH ADRUS[1]

[1]Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia; [2]Centre for Pre-University Studies, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia
*Corresponding author: trctawie@unimas.my
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ABSTRACT

The study of non-volant small mammals was conducted at Kubah National Park (KNP), Sarawak for eight days between November 2018 until February 2019. The objective of this study was to determine the species diversity of non-volant small mammals at the highland (>750 – 805 m a.s.l.) and lowland (<200 m a.s.l.) at KNP. The elevation of Gunung Serapi is 911 m a.s.l. but the highest accessible area is at 805 m a.s.l. The distance between two sampling sites is approximately 4.5 km. Humidity and temperature measurement were also recorded at both sites. A total of 50 cage traps were set up at the highland and 50 cage traps at the lowland. The baits that were used in this study were oil palm and banana. A total of 26 individuals from 11 species, eight genera and four families were captured. However, there is no significant difference in species diversity between low and high elevations because the elevation of KNP was not high enough to distinguish species that are highland or lowland specialist.

Keywords: Abundance, diversity, elevations, Kubah National Park, non-volant small mammals

INTRODUCTION

Non-volant small mammals are categorized as mammals that are incapable of flying. These animals are grouped as small mammals where the adult weight of the body is less than 1000 g (Lim & Pacheco, 2016). In Borneo, there are approximately 288 species of mammals reported whereby, 182 species belong to small mammal. Both order Chiroptera (102 species) and Rodentia (61 species) are the most dominant small mammals. Although Borneo consists of the largest biodiversity in Southeast Asia, excessive logging has significantly brought down the number individuals of non-volant small mammals (Wells *et al*., 2007). Their study also stated that, the species diversity and species richness of non-volant small mammals were lower in logged forest compared to unlogged forest.

The type of fauna surrounding the forest can be estimated by identifying the non-volant small mammal species and its food through their feces (Wells *et al*., 2009). Chen *et al*. (2017a) concluded that small mammals are important for the forest landscape and environment because they act as seed dispersers. Hence, the decreasing number of non-volant small mammals will decrease the distribution of seed for several plant species in the forest. Other than that, non-volant small mammals are also consumers of small invertebrate (Heaney, 2001; Chen *et al*., 2017a) such as insect. Thus, they played a role in controlling the insect populations (Jones *et al*., 1998). Apart from being the predator, they also play an important part in a local food chain for larger animal such as hawk and owl (William & Fargo, 2002).

Climate is one of the factors whereby both the temperature and humidity can affect the species richness of certain organisms. The higher the temperature, the higher the number of species there is (McCain & Grytnes, 2010). It indicates that non-volant small mammals are more favorable to the habitat with higher temperature. Norton (1985) reported, that temperature will change about 9.8 ^{o}C per 1000 m. The faunas from two different altitudes can also be the benchmark for the different range