

THE DISTRIBUTION OF MEDIUM TO LARGE MAMMALS IN SAMUNSAM WILDLIFE SANCTUARY, SARAWAK IN RELATION TO THE NEWLY CONSTRUCTED PAN-BORNEO HIGHWAY

Jayasilan Mohd-Azlan¹, Lisa Lok¹, Marius Joscha Maiwald¹,
Shahira Fazlin¹, Tan Dick Shen¹, Sally Soo Kaicheen¹, Paschal Dagang²

¹Universiti Malaysia Sarawak, Malaysia

e-mail: azlan@unimas.my, lisalokchoyhong@gmail.com, marius.joscha.maiwald92@gmail.com,
nfazlinshahira@gmail.com, 62717@siswa.unimas.my, sallyskaicheen@hotmail.com

²Sarawak Forestry Corporation, Malaysia

e-mail: paschald@sarawakforestry.com

Received: 22.04.2020. Revised: 05.06.2020. Accepted: 01.09.2020.

Protected Areas in Borneo retain some of the best examples of biodiversity and are the last refuge for wildlife conservation in tropical rainforests. Therefore, understanding the species richness and composition in increasingly fragmented Protected Areas are crucial in wildlife monitoring and management. The recent road construction splitting the oldest wildlife sanctuary in Sarawak has warranted further investigation on the species distribution. Camera trap survey in Samunsam Wildlife Sanctuary (SWS), western Borneo resulted in 20 medium- to large-bodied mammals from 775 independent photos with 2001 camera trap nights from surveys done in 2013–2014 and 2019. SWS records the Endangered *Nasalis larvatus* and *Cynogale bennettii* in the current survey. Under the Sarawak Wild Life Protection Ordinance 1998, *Nasalis larvatus* was the only recorded species considered to be Totally Protected while 12 other species are listed as Protected and the remaining species were not listed. The most frequently recorded species were *Tragulus* spp. (n = 147 in 2013–2014 and n = 166 in 2019) followed by *Macaca fascicularis* in 2013–2014 with n = 109, and *Sus barbatus* (n = 93 in 2019). A similar species richness (n = 13) was recorded both near (< 1000 m) and further away from the road (> 1000 m). However, the mean species richness was higher further away from the road (> 1000 m). *Herpestes brachyurus*, *Hemigalus derbyanus*, and *Echinosorex gymnura* were only recorded near the road while *Cynogale bennettii*, *Hystrix brachyura* and *Nasalis larvatus* were only recorded further away from the road. Through the bipartite network analysis, the majority of the medium- to large-bodied mammals are distributed in the mixed dipterocarp forests. Species that have habitats within proximity to the road have a higher risk of mortality due to roadkill and other anthropogenic pressure. Encroachment is an issue in Samunsam Wildlife Sanctuary and calls for immediate action; stricter enforcement, regular wide-coverage patrols along the river, and on the road to prevent illegal logging, commercial planting, and hunting.

Key words: camera traps, enforcement, fragmentation, Protected Area, road, tropical rainforests

Introduction

Sarawak, belonging to the landmass of Borneo, has one of the most established networks of Protected Areas in Malaysia. It covers some of the most megadiverse mature rainforest in the world (Mohd-Azlan & Lawes, 2011). Among the Protected Areas are a total of five wildlife sanctuaries that have been established in Sarawak since 1978. These five areas total up to 2257.91 km² (1.8% of the land area of the entire state) (Forest Department Sarawak, 2020). Despite the sizeable coverage of these Protected Areas, these areas still face fragmentation and isolation due to land conversion, which affects the persistence of species. Wildlife Sanctuaries in Sarawak are entirely off-limits to the public, and entrance only permitted through the permission from the Controller of Wildlife. This is to prevent anthro-

pogenic activities that would bring adverse ecological effects onto the habitat. Wildlife Sanctuaries in Sarawak have been mainly gazetted to protect specific endangered, rare or threatened species (ERTs). Therefore, wildlife sanctuaries Sarawak are considered as category Ib (Strict Nature Reserve) under the IUCN Protected Area category which are important in preserving remnants of high quality ecosystems, species and geodiversity features.

Tropical rainforest in Borneo is experiencing threats from rampant forest conversion, selective logging, hunting for bushmeat, forest fire and wildlife trade (Taylor et al., 1999; Bennett et al., 2002; Kinnaird et al., 2003; Sodhi et al., 2004; Nakagawa et al., 2006; Linkie et al., 2007; Bernard et al., 2009; Gaveau et al., 2014; Brodie et al., 2015a). The proliferation of road construc-