

## FAUNISTIC COMPOSITION AND ECOLOGICAL DISTRIBUTION OF SWALLOWTAIL BUTTERFLIES (PAPILIONIDAE: LEPIDOPTERA) IN WESTERN SARAWAK

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### ABSTRACT

The faunistic composition and ecological distribution of the swallowtail butterflies in western Sarawak were studied using both voucher specimens deposited in the UNIMAS Insect Reference Collection (UIRC) and the Research Development and Innovation Division (RDID) of the Forest Department Sarawak, and specimens obtained from field sampling in western Sarawak. A total of 649 specimens were examined, representing three tribes, namely Troidini, Papilionini and Leptocircini. These specimens represent thirty-one species documented in western Sarawak and their most favourable ecological habitat is the lowland mixed-dipterocarp forest. The most abundant species is *Menelaides memnon* followed by *Papilio demoleus*. The least abundant species is *Chilasa slateri*, which is represented by a singleton, followed by *Papilio karna* and *Graphium procles*, each represented by a doubleton. The lowland mixed-dipterocarp forest supports the highest number of the Papilionidae species and individuals in Sarawak, probably due to the favourable habitats and high abundance of larval host plants and food sources.

**Key words:** Papilionidae, faunistic composition, ecological habitat, abundance

### INTRODUCTION

The biodiversity crisis is expected to severely impact insect species (Pimm & Raven, 2000). Over the past 600 years, approximately 40,000 insect species were already estimated to have gone extinct where only 70 have been documented, half which were Lepidoptera (Dunn, 2005). Among the lepidopterans, the spotlight was on the butterflies, because they had been one of the best studied insects in the world (Kühn *et al.*, 2008). Butterflies form an interesting study systems in evolution, behaviour, conservation biology and ecology (Watt & Boggs, 2003). Butterflies, in general and swallowtails, in particular are important ecological indicators (Brown, 1991; Kremen, 1992; Otsuka, 2001) by enabling prediction of changes in flora population and monitoring the recovery of natural habitat after drastic changes such as forest fires.

Swallowtail butterfly belongs to the family Papilionidae which is one of the most attractive

families of butterfly. It is widely distributed on earth and is abundantly found in the tropics where the ultimate size, beauty and the greatest variation of patterns and colouring can be achieved by the papilionids in the tropical regions (Wallace, 1865). Commercially, swallowtails have been widely used in fine art design and decoration (Tumuhimbise *et al.*, 2001). Well known for their high aesthetical value, this family is hunted by butterfly collectors all over the world (Arun, 2008). A total of 550 species of papilionid butterfly had been identified throughout the world (Collins & Morris, 1985). However, Hoskin stated in his website that up to 2012, there were 622 species of Papilionidae recorded all over the world. In Borneo, 44 species of Papilionidae had been described (Otsuka, 1988) while 38 species of Papilionidae had been documented in Sarawak (Abang, 2006). The family Papilionidae can be further divided into four tribes, namely Troidini, Papilionini, Teinopalpini and Leptocircini.

Butterflies are one of the highly plant-dependent groups of insects. While some butterflies

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