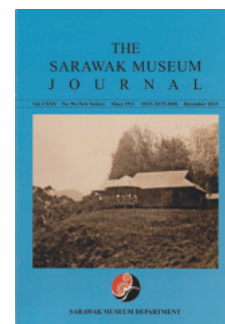




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A BRIEF NOTE ON THE FLIES AND MOSQUITOES OF SANTUBONG NATIONAL PARK, KUCHING (Diptera: Culicidae, Calliphoridae and Muscidae)

Wong Siew Fui and Leh Moi Ung

ABSTRACT

A collection of flies and mosquitoes were made at four different locations at different altitudes along the trail from the base to the summit of Gunung Santubong in Santubong National Park, Sarawak in November 2013. A total of 2,494 specimens of nine species of flies were collected comprising of families Calliphoridae and Muscidae. The species composition were *Chrysomya megacephala* (Fabricius, 1794) 53.3%; *Chrysomya chani* Kurahashi, 1979, 11.9%; *Chrysomya defixa* (Walker, 1856) 8.4%; *Ophyra spinigera* Stein, 1910, 6.8%; *Chrysomya rufifacies* (Macquart, 1843) 5.7%; *Ceylonomyia nigripes* (Aubertin, 1932) 5.5%; *Chrysomya villeneuvi* (Patton, 1922) 4.8%; *Ophyra chalcogaster* (Weidemann, 1824) 3.2%; and, *Hypopygiopsis violacea* (Macquart, 1835) 0.4%. of the flies, *C. megacephala* (Fabricius, 1794) is the most abundant species collected at different altitudes. Few mosquitoes of the family Culicidae were collected from tree holes along the trail. They consisted of four species namely *Aedes albolineatus*, *Anopheles* sp., *Uranotenia* sp. and *Tripteroidea* sp.

Keywords: flies, mosquitoes, Santubong National Park, *Chrysomya*

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INTRODUCTION

Flies and mosquitoes are common insects with worldwide distribution. Both insects occur in abundance in our tropical environment. There are 20 genera and 40 species of flies of family Calliphoridae in Sarawak and another new species was recorded for Malaysia in 2009 (Kurahashi and Leh 2009). The tribe Muscini house flies in the family Muscidae consisted of 18 genera with 350 species recorded worldwide (Nihei and Carvalho 2009).

There are nearly 3,200 species with 37 genera and subgenera of common mosquito species found world-wide and in Southeast Asia there are 992 species belonging to 21 genera of mosquitoes (Miyagi and Toma 2000). According to Miyagi *et al.* (2009), there were 56 species of mosquitoes collected at the various habitats comprising of primary forest, secondary forest and farms during their research in Sarawak, Malaysia from 2005 until 2006.

Flies and mosquitoes were collected with sweep nets and trapping experiments. These are safe and economical methods commonly used in monitoring insect populations (Chen *et al.* 2006). Similar studies were used to check the population density of flies and mosquitoes in forests in Europe, North America, Japan, Australia and Asia. Flies and mosquitoes are expected to have a higher rate of forest habitat exploitation in the tropics due largely to the higher temperatures in the tropics as compared to the temperate regions (Hanski 1981).

Gunung Santubong is located in Santubong National Park with 1,410 hectares of tropical rainforest. It was gazetted on 28th February 2007 (Fig. 1). Santubong National Park is located at the south western part of Sarawak (Tuen *et al.*, 2000). Santubong River mouth was an important trading post and port-city during the 7th century AD until the 14th century AD. The historical significance of Santubong will have a significant impact on the natural history of the national park (Said 1999; Tacon *et al.* 2010). After the 14th century, Santubong decline in importance as a trading post and was transformed into a fishing village today.

There were few research conducted on the flora and fauna of Gunung Santubong, prior to it being gazetted to a National Park (Tuen *et al.* 2000). Alfred Wallace was the first naturalist who conducted research at Santubong and he wrote the "Sarawak Law" at his bungalow atop a little hill in Kampung Santubong in 1854. Wallace stayed in Sarawak for 14 months (1st November 1854 to 12th January 1856) and he collected many insect specimens at Santubong (Loh 1967; Cranbrook and Leh 1983; Tuen *et al.* 2000).

In the past, the study of flies and mosquitoes are not considered as an important component of conservation and management of the protected area. This short study was conducted to identify the occurrence and abundance of flies and mosquito species and their distribution along the summit trail at Santubong National Park. The data will be useful for the management of the park so that visitors can be warned of the existing environment.

MATERIAL AND METHODS

STUDY SITE

The preliminary study was conducted during the beginning of the wet season in November 2013 in Santubong (01°44N, 110°19E, Fig. 1). Four locations along the well-used summit trail were selected for the sampling of adult flies at an elevation of 600 metres.