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## Report

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# The Butterflies (Lepidoptera: Rhopalocera) of Tabin Wildlife Reserve, Sabah, Malaysia, II

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### Abstract

Results are presented here of our investigation into the butterfly fauna of the Tabin Wildlife Reserve in Sabah, Malaysia carried out after the Tabin Scientific Expedition and Inventory 1998. The collections were made during two periods: December 2-10, 1998 and June 2-6, 1999. Nine genera and 36 species were newly added to the butterfly fauna, and consequently, 278 species belonging to 134 genera were recorded from the Tabin Wildlife Reserve.

**Key words:** butterflies, Tabin Wildlife Reserve, Sabah, Borneo, Malaysia

### Introduction

It is obvious that collecting butterflies throughout the year in every habitat is the most basic and important work needed to clarify the butterfly fauna of a certain region. Our knowledge of the butterfly fauna of the Tabin Wildlife Reserve is limited because butterflies of this region had been investigated only once before, in February and March during the Tabin Wildlife Reserve Scientific and Inventory Expedition 1998.

After this expedition, we carried out general collecting twice at the reserve. A. Nakanishi, Y. Hashimoto, and Mohd. Fairus Jalil engaged in the collection of butterflies from December 2-10, 1998, with Nakanishi and Hashimoto also collecting June 2-6, 1999. We were thus able to collect butterflies in four different months, although the number of days spent collecting in each month was not enough.

In the present paper we provide a list of the butterflies collected in December and June at the Tabin Wildlife Reserve.

### Materials and Methods

The collecting was carried out mainly in the following habitats.

- A: gap within forest around the Lipad Mud Volcano near the Headquarters (some sunshine).
- B: within the secondary forest (humid and without sunshine).
- C: old logging roads near the Core Area (narrow truck road abandoned long ago, partly sunny and partly humid).
- D: forest road to the Core Area (broad old truck road not used any longer, roadsides usually faced toward secondary forest, sunny).
- E: edge of the secondary forest at the end of siteD (sunny).
- F: roadsides along secondary forest between the Headquarters and 8 km point to Tomannong (wide and now used as truck road).
- G: Headquarters (open field; sunny).

Butterflies were collected with netting and preserved in triangular paper envelopes. All the butterflies

**Table 1.** Number of butterfly species recorded at the Tabin Wildlife Reserve.

	Borneo		Sabah (Tabin Wildlife Reserve)	
	Ôtsuka <i>et al.</i> , 1988,1991	Mohd. Fairus, <i>et al.</i> , 1999	Nakanishi, <i>et al.</i> , 2001	Total, 1999~2001
Papilionidae	44	22 (50%)	9 (20%)	23 (52%)
Pieridae	41	27 (66%)	14 (34%)	27 (66%)
Danaidae	27	21 (78%)	11 (41%)	22 (81%)
Satyridae	48	17 (35%)	14 (29%)	17 (35%)
Amathusiidae	24	9 (38%)	4 (17%)	11 (46%)
Libytheidae	1	0 (0%)	0 (0%)	0 (0%)
Nymphalidae	137	55 (40%)	31 (23%)	60 (44%)
Riodinidae	16	6 (38%)	1 (6%)	6 (38%)
Lycaenidae	379	55 (15%)	33 (9%)	70 (18%)
Hesperiidae	214	30 (14%)	19 (9%)	42 (20%)
Total	931	242 (26%)	136 (15%)	278 (30%)

% value in parenthesis is the percentage compared to the species number of each family found in Borneo.

collected were brought back to Japan and then relaxed and set. Nakanishi and Saigusa identified the butterflies, referring mainly to the following books: Otsuka (1988); Maruyama and Ohtsuka (1991); Seki, Takanami and Ohtsuka (1991); D'Abbrera (1982, 1985, 1986); Corbet and Pendlebury (1992); Fleming (1983); Aoki, Yamaguchi and Uemura (1982); Tsukada and Nishiyama (1980); Tsukada (1985, 1991); Yata and Morishita (1981); and Evans (1949).

## Results

A total of 136 species assigned to 82 genera was collected during the research periods. These comprise 9 species of Papilionidae, 14 of Pieridae, 11 of Danaidae, 14 of Satyridae, 4 of Amathusiidae, 31 of Nymphalidae, 1 of Riodinidae, 33 of Lycaenidae and 19 of Hesperiidae. The list below provides details about our collections.

Species with an asterisk are newly recorded for this region, while those with two asterisks indicate that both the genus and species are newly recorded. The capital letters A-G in the list correspond to the habitats mentioned in the Materials and Methods section above.

### List of butterflies collected

#### Papilionidae

- Papilio memnon memnon* Linnaeus, 1758 1 ♂, 1 ♀, F, Dec. 7 & 8, 1998. 1 ♀, D, Dec. 4, 1998. 1 ♂, E, June 4, 1999.  
*Papilio demolion demolion* Cramer, [1776] 1

- ♂, D, Dec. 2, 1998. 4 ♂♂, C, June 3, 1999.  
 \* *Papilio helenus enganius* Doherty, 1891 4 ♂♂, C, June 3-6, 1999.  
*Papilio nephelus albolineatus* Forbes, 1885 2 ♂♂, C, June 5, 1999.  
*Graphium agamemnon agamemnon* (Linnaeus, 1758) 1 ♂, F, Dec. 7, 1998. 1 ♂, C, June 5, 1999.  
*Graphium evemon orthia* (Jordan, 1909) 1 ♀, C, June 6, 1999.  
*Graphium sarpedon sarpedon* (Linnaeus, 1758) 1 ♂, F, Dec. 7, 1998.  
*Lamproptera curius curius* Fabricius, 1787 1 ♂, D, Dec. 2, 1998. 2 ♂♂, F, Dec. 2 & 8, 1998.  
*Lamproptera meges meges* Zinken, 1831 1 ♂, D, Dec. 2, 1998.

#### Pieridae

- Gandaca harina elis* Fruhstorfer, 1910 3 ♂♂, 1 ♀, F, Dec. 7-8, 1998. 1 ♀, C, Dec. 9, 1998. 1 ♀, D, Dec. 4, 1998. 1 ♂, 3 ♀♀, E, June 3-5, 1999.  
*Eurema andersoni albida* Shirozu & Yata, 1982 1 ♂, E, June 4, 1999. 1 ♀, F, June 2, 1999.  
*Eurema hecabe hecabe* (Linnaeus, 1758) 2 ♂♂, D, Dec. 2-4, 1998. 2 ♂♂, C, Dec. 9-10, 1998. 5 ♂♂, F, Dec. 7-8, 1998.  
*Eurema nicevillei nicevillei* (Butler, 1898) 1 ♂, F, Dec. 7-8, 1998. 1 ♂, A, Dec. 5, 1998. 6 ♂♂, D, Dec. 2-3, 1998. 4 ♂♂, E, June 4-6, 1999.

- Eurema sari sodalis* (Moore, 1886) 1 ♂, F, Dec. 8, 1998. 4 ♂♂, E, June 3-6, 1999.
- Eurema simulatrix tecmesa* (de Niceville, [1895]) 1 ♂, D, Dec. 2, 1998.
- Catopsilia pyranthe pyranthe* (Linnaeus, 1758) 1 ♂, F, Dec. 8, 1998.
- Catopsilia pomona pomona* (Fabricius, 1775) 1 ♂, 1 ♀, F, Dec. 7, 1998. 7 ♂♂, C, June 5, 1999.
- Pareronia valeria lutescens* (Butler, 1879) 1 ♂, A, Dec. 5, 1998.
- Leptosia nina malayana* Fruhstorfer, 1910 1 ♂, 1 ♀, D, Dec. 2, 1998.
- Appias nero chelidon* (Fruhstorfer, 1905) 1 ♂, D, Dec. 4, 1998.
- Appias paulina athena* Fruhstorfer, 1902 1 ♂, F, Dec. 7, 1998. 1 ♂, C, June 5, 1999.
- Saletara panda distanti* Butler, 1898 2 ♀♀, C, June 6, 1999.
- Udaiana cynis pryeri* Distant, 1885 17 ♂♂, F, Dec. 7-8, 1998. 1 ♂, A, Dec. 5, 1998.
- Cepora iudith hespera* Butler, 1899 2 ♂♂, F, Dec. 7-8, 1998.

#### Danaidae

- Anosia genutia intensa* Moore, 1883 2 ♂♂, 2 ♀♀, F, Dec. 8, 1998. 1 ♀, F, June 2, 1999. 1 ♀, A, Dec. 10, 1998.
- Tirumala septentrionis microstica* (Butler, 1874) 1 ♂, D, Dec. 2, 1998. 1 ♂, A, Dec. 5, 1998. 2 ♂♂, A, June 4, 1999. 1 ♂, 2 ♀♀, C, June 3, 5 - 6, 1999.
- Parantica agleoides borneensis* Staudinger, 1885 2 ♂♂, D, Dec. 9, 1998. 1 ♂, C, Dec. 9, 1998. 1 ♂, F, June 2, 1999.
- Parantica aspasia aspasia* (Fabricius, 1787) 1 ♂, 1 ♀, A, June 2-4, 1999.
- Ideopsis vulgaris interposita* Fruhstorfer, 1910 2 ♂♂, F, Dec. 7 & 10, 1998. 1 ♀, F, June 2, 1999. 1 ♂, D, Dec. 4, 1998. 4 ♂♂, A, Dec. 5, 1998. 1 ♂, 1 ♀, C, Dec. 9, 1998. 2 ♀♀, C, June 3 & 6, 1999. 2 ♀♀, A, June 2 and 4, 1999.
- Idea stolli virgo* Fruhstorfer, 1903 2 ♂♂, A, Dec. 5, 1998. 1 ♀, F, Dec. 7, 1998. 1 ♂, A, June 2, 1999. 2 ♀♀, C, June 3 & 6, 1999.
- Idea hypermnestra hypermnestra* (Westwood, 1848) 1 ♂, A, Dec. 5, 1998. 1 ♀, D, Dec. 4, 1998.

- Euploea mulciber portia* Fruhstorfer, 1904 1 ♂, C, Dec. 9, 1998.
- Euploea algea zonata* Druce, 1873 1 ♂, A, Dec. 5, 1998.
- Euploea camaralzeman scudderii* Butler, 1878 1 ♂, A, Dec. 5, 1998.
- \* *Euploea crameri crameri* Lucas, 1853 1 ♂, C, June 2, 1999.

#### Satyridae

- Melanitis leda leda* Linnaeus, 1758 1 ♂, A, Dec. 10, 1998.
- Elymnias nesaea hypereides* Fruhstorfer, 1902 1 ♂, D, Dec. 2, 1998. 1 ♂, A, Dec. 5, 1998.
- Neorina lowii lowii* (Doubleday, 1849) 1 ♂, C, June 6, 1999.
- Mycalesis horsfieldi hermana* Fruhstorfer, 1908 3 ♂♂, C, Dec. 9, 1998. 2 ♂♂, 1 ♀, A, Dec. 5, 1998. 1 ♂, F, Dec. 8, 1998. 4 ♂♂, 2 ♀♀, D, Dec. 2, 1998. 1 ♀, E, June 4, 1999.
- Mycalesis orseis borneensis* Fruhstorfer, 1906 1 ♂, A, Dec. 5, 1998. 1 ♂, B, Dec. 7, 1998. 6 ♂♂, F, Dec. 7-8, 1998.
- Mycalesis anapita fucentia* Fruhstorfer, 1911 3 ♂♂, 1 ♀, D, Dec. 2, 1998. 2 ♂♂, 1 ♀, A, Dec. 10, 1998. 3 ♂♂, 4 ♀♀, F, Dec. 8, 1998. 1 ♂, 1 ♀, C, Dec. 9, 1998. 2 ♂♂, 1 ♀, E, June 4, 1999.
- Mycalesis patiana patiana* Eliot, 1969 1 ♂, F, Dec. 8, 1998.
- Mycalesis fusca adustata* Fruhstorfer, 1906 1 ♀, C, June 3, 1999.
- Erites argentina argentina* Butler, 1868 1 ♀, B, Dec. 7, 1998.
- Erites elegans elegans* Butler, 1868 1 ♀, A, June 4, 1999.
- Ragadia makuta umbrata* Fruhstorfer, 1911 1 ♀, B, Dec. 8, 1998. 1 ♂, C, June 5, 1999.
- Ypthima pandocus sertorius* Fruhstorfer, 1911 4 ♂♂, D, Dec. 2, 1998. 1 ♂, F, Dec. 7, 1998. 1 ♂, F, June 2, 1999. 1 ♂, A, Dec. 5, 1998. 2 ♂♂, C, Dec. 9, 1998. 4 ♂♂, 1 ♀, C, 1999 June 3-5.
- Ypthima fasciata fasciata* Hewitson, 1865 7 ♂♂, A, Dec. 5, 1998. 5 ♂♂, A, Dec. 10, 1998. 1 ♂, F, Dec. 8, 1998. 1 ♂, F, June 2, 1999. 3 ♂♂, A, June 2-4, 1999. 4 ♂♂, C, June 3-5, 1999. 1 ♀, E, June 5, 1999.

*Ypthima baldus selinuntius* Fruhstorfer, 1911 1 ♂, A, Dec. 5, 1998. 3 ♂♂, D, Dec. 2, 1998. 1 ♂, F, Dec. 8, 1998. 2 ♂♂, F, June 2, 1999. 1 ♂, E, June 5, 1999.

### Amathusiidae

\* *Faunis kirata kirata* de Niceville, 1891 1 ♂, C, June 2, 1999.

\*\* *Xanthotaenia busiris burra* Stichel, 1906 1 ♂, B, Dec. 8, 1998.

*Amathusia phidippus phidippus* (Linnaeus, 1763) 1 ♂, F, Dec. 6, 1998. 1 ♂, A, Dec. 10, 1998. 2 ♂♂, A, Dec. 2-6, 1998. 1 ♂, D, Dec. 2, 1998.

*Thaumantis klugius lucipor* Westwood, [1851] 2 ♂♂, B, Dec. 7-10, 1998.

### Nymphalidae

*Cupha erymanthis erymanthis* (Drury, 1773) 2 ♂♂, C, June 5-6, 1999. 1 ♂, E, June 4, 1999.

*Vindula dejone dejone* (Erichson, 1834) 2 ♂♂, F, Dec. 7, 1998. 1 ♂, C, Dec. 9, 1998. 1 ♂, C, June 6, 1999.

*Cirrochroa satelita satelita* Butler, 1869 1 ♂, F, Dec. 7, 1998. 4 ♂♂, C, June 3, 1999.

*Cethosia hypsea hypsea* (Doubleday, 1847) 1 ♂, A, Dec. 5, 1998. 1 ♀, D, Dec. 2, 1998. 1 ♂, C, Dec. 9, 1998. 2 ♂♂, 1 ♀, C, June 3-6, 1999. 1 ♀, F, June 2, 1999.

*Symbrenthia lilaea marius* Fruhstorfer, 1904 1 ♂, D, Dec. 2, 1998.

*Hypolimnas anomala anomala* (Wallace, 1869) 1 ♂, C, Dec. 9, 1998. 1 ♂, C, June 5, 1999. 1 ♂, D, Dec. 2, 1998. 1 ♂, 1 ♀, A, Dec. 10, 1998. 3 ♂♂, C, June 2, 1999.

*Hypolimnas bolina philippensis* Butler, 1874 1 ♂, C, June 6, 1999.

*Junonia atlites atlites* (Linnaeus, 1763) 2 ♂♂, 2 ♀♀, A, Dec. 7, 1998. 4 ♀♀, C, June 5 - 6, 1999.

*Rhinopalpa polynice helionice* Fruhstorfer, 1912 1 ♂, C, Dec. 9, 1998.

*Cyrestis nivea borneensis* Martin, 1903 1 ♀, C, June 5, 1999.

\* *Chersonesia peraka peraka* Distant, 1884 2 ♀♀, D, Dec. 2, 4, 1998. 1 ♂, C, June 6, 1999.

\* *Pantoporia paraka paraka* Butler, 1879 1 ♂, C, June 3, 1999.

*Pantoporia hordonia dora* Eliot, 1969 1 ♀, F, Dec. 8, 1998. 1 ♀, D, Dec. 2, 1998.

*Pantoporia sandaka sandaka* Butler, 1892 1 ♀, C, June 5, 1999.

*Lasippa tiga empat* Tsukada & Kaneko, 1985 1 ♀, C, June 5, 1999.

*Neptis hylas sopatra* Fruhstorfer, 1907 4 ♂♂, F, Dec. 8, 1998. 1 ♂, 1 ♀, F, June 2, 1999. 2 ♂♂, A, Dec. 7, 1998. 1 ♀, A, Dec. 9, 1998. 6 ♂♂, 1 ♀, D, Dec. 2, 4, 1998.

\* *Neptis duryodana duryodana* Moore, 1858 1 ♀, F, Dec. 8, 1998. 1 ♀, A, June 2, 1999. 1 ♂, A, Dec. 7, 1998. 1 ♂, C, Dec. 9, 1998. 1 ♀, C, June 6, 1999.

\* *Neptis ilira cindia* Eliot, 1969 1 ♀, C, June 6, 1999.

*Athyma pravara pravara* Moore, 1857 1 ♂, 1 ♀, F, Dec. 8, 1998. 1 ♂, F, June 2, 1999. 1 ♀, C, Dec. 9, 1998. 1 ♂, C, June 6, 1999.

*Athyma kanwa kanwa* Moore, 1858 1 ♀, B, Dec. 7, 1998. 1 ♂, 1 ♀, C, June 5, 1999.

*Athyma nefte subrata* Moore, 1858 2 ♀♀, C, Dec. 2, 1998. 1 ♀, C, Dec. 9, 1998. 1 ♂, 2 ♀♀, C, June 5 - 6, 1999.

\* *Athyma reta reta* Moore, 1858 2 ♂♂, C, June 6, 1999.

*Moduza procris agnata* Fruhstorfer, 1896 1 ♂, F, Dec. 8, 1998. 2 ♂♂, C, June 3 - 6, 1999.

*Parthenos sylvia borneensis* Staudinger, 1889 1 ♂, 2 ♀♀, F, Dec. 7- 8, 1998. 1 ♂, 2 ♀♀, D, Dec. 2, 1998. 1 ♂, A, Dec. 5, 1998. 1 ♂, 2 ♀♀, C, June 3 - 6, 1999. 1 ♀, C, Dec. 4, 1998.

*Cynitia cocytina ambalika* (Moore, 1857) 1 ♀, C, June 5, 1999. 1 ♀, A, June 2, 1999.

*Tanaecia pelea djataca* Fruhstorfer, 1913 1 ♀, C, Dec. 9, 1998.

*Tanaecia clathrata coerulea* Grose-Smith, 1889 1 ♀, F, June 7, 1999.

*Euthalia monina bipunctata* Vollenhoeven, 1862 1 ♂, C, Dec. 9, 1998. 1 ♂, C, June 6, 1999. 1 ♂, 1 ♀, D, Dec. 2, 1998. 1 ♀, A, Dec. 5, 1998. 1 ♀, A, Dec. 10, 1998.

*Polyura athamas uraeus* Rothschild, 1899 1 ♂, D, Dec. 2, 1998.

*Euripus nyctelius borneensis* Distant & Pryer, 1887 1 ♂, A, Dec. 5, 1998. 1 ♀, A, Dec. 7, 1998.

**Riodinidae**

*Paralaxita orphna orphna* (Boisduval, 1836) 2 ♀♀, A, Dec. 5, 1998.

**Lycaenidae**

\* *Miletus heracleion arion* Eliot, 1961 1 ♂, A, June 2, 1999.

\* *Allotinus (Fabitaras) sarrastes* Fruhstorfer, 1913 1 ♂, A, Dec. 5, 1998. 1 ♀, A, Dec. 10, 1998.

\* *Allotinus (Fabitaras) fabius fabius* (Distant & Preyer, 1887) 1 ♀, A, June 2, 1999.

\*\* *Logania malayica malayica* Distant, 1884 4 ♂♂, A, Dec. 5-10, 1998.

\* *Logania regina regina* (H. Druce, 1873) 1 ♀, C, June 6, 1999.

*Discolampa ethion icenus* (Fruhstorfer, 1918) 1 ♂, D, Dec. 2, 1998. 1 ♂, C, June 3, 1999.

*Caleta manovus* (Fruhstorfer, 1918) 1 ♂, A, Dec. 5, 1998. 1 ♂, F, Dec. 8, 1998.

*Caleta elna elvira* (Fruhstorfer, 1918) 2 ♂♂, A, Dec. 5, 1998. 1 ♂, F, Dec. 7, 1998. 1 ♂, C, Dec. 9, 1998. 2 ♂♂, 2 ♀♀, C, June 3 - 6, 1999. 4 ♂♂, D, Dec. 2, 1998. 1 ♂, A, June 2, 1999.

*Zizina otis otis* (Fabricius, 1787) 2 ♂♂, D, Dec. 4, 1998. 2 ♂♂, G, Dec. 3, 1998. 2 ♂♂, A, June 2, 1999.

*Neopithecops zalmora pertimidus* Toxopeus, 1930 1 ♂, A, Dec. 10, 1998.

\* *Acytolepis puspa mygdonia* (Fruhstorfer, [1917]) 1 ♀, D, June 3, 1999.

*Acytolepis ripte* (H. H. Druce, 1895) 2 ♂♂, C, Dec. 9, 1998. 2 ♂♂, 1 ♀, A, Dec. 5, 1998. 5 ♂♂, F, June 7-8, 1999.

*Jamides purra tenuis* (Fruhstorfer, 1915) 1 ♂, 2 ♀♀, A, Dec. 5, 1998. 1 ♂, A, Dec. 10, 1998. 5 ♂♂, 4 ♀♀, C, June 3, 5-6, 1999. 1 ♀, A, June 4, 1999.

\* *Jamides aratus adana* (H. Druce, 1873) 1 ♂, D, Dec. 2, 1998. 1 ♂, F, June 2, 1999.

\* *Jamides elpis pseudelpis* (Butler, [1879]) 1 ♀, F, Dec. 7, 1998. 1 ♀, A, Dec. 5, 1998. 2 ♀♀, D, Dec. 2, 1998.

*Jamides talinga* (Kheil, 1884) 1 ♀, A, Dec. 5, 1998. 1 ♂, C, June 5, 1999. 1 ♂, E, June 4, 1999. 1 ♀, A, June 4, 1999.

*Jamides celeno lawasa* (Moulton, 1912) 1 ♂, F, June 2, 1999.

*Nacaduba subperusia lysa* Fruhstorfer, 1916 1

♂, A, Dec. 5, 1998. 2 ♂♂, 2 ♀♀, C, June 5 - 6, 1999.

*Nacaduba beroe neon* Fruhstorfer, 1916 1 ♀, C, June 6, 1999.

\* *Prosotas dubiosa subardates* (Piepers & Snellen, 1918) 1 ♀, E, June 4, 1999.

*Arhopala aedias agnis* C. & R. Felder, 1865 1 ♂, E, June 4, 1999.

\* *Arhopala antimuta timana* Corbet, 1941 1 ♂, 1 ♀, C, June 5 - 6, 1999.

*Arhopala major major* Staudinger, 1889 1 ♀, C, June 3, 1999.

\* *Arhopala epimuta epimuta* (Moore, [1858]) 1 ♀, A, June 2, 1999.

\* *Arhopala abseus abseus* (Hewitson, 1862) 1 ♀, C, June 6, 1999.

\* *Arhopala belfhoebe cowani* Corbet, 1941 1 ♀, C, June 6, 1999.

\* *Eooxylides tharis tharisides* Fruhstorfer, 1904 2 ♂♂, F, Dec. 8, 1998. 1 ♂, A, Dec. 9, 1998. 1 ♂, A, June 2, 1999. 2 ♂♂, E, June 4, 1999. 1 ♀, F, June 5, 1999.

*Eooxylides etias* Distant & Pryer, 1887 1 ♀, C, June 5, 1999.

*Cheritra freja pallida* (H. Druce, 1873) 1 ♂, C, Dec. 9, 1998.

*Drupadia ravindra moorei* (Distant, 1882) 1 ♀, A, Dec. 5, 1998. 2 ♂♂, A, June 2, 1999.

*Drupadia cindi cindi* Cowan, 1974 1 ♂, C, June 5, 1999.

\* *Curetis santana malayica* (C. & R. Felder, 1865) 1 ♂, C, June 6, 1999.

**Hesperiidae**

\*\* *Hasora taminatus malayana* (C. & R. Felder, 1860) 1 ♂, F, Dec. 7, 1998.

\* *Hasora badra badra* (Moore, 1857) 1 ♂, F, Dec. 7, 1998.

\* *Hasora vitta vitta* (Butler, 1870) 1 ♂, 1 ♀, G, June 4, 1999.

*Celaenorrhinus ladana* (Butler, 1870) 1 ♀, E, June 4, 1999.

\* *Halpe ormenes vistula* Evans, 1937 1 ♂, C, June 5, 1999.

*Halpe sikkima* Moore, 1882 1 ♂, C, June 3, 1999.

\*\* *Idmon obliquans yamanta* (Fruhstorfer, 1910) 1 ♂, C, June 3, 1999. 1 ♂, A, June 2, 1999.

*Koruthaialos rubecula* (Ploets, 1882) 1 ♂, D,

Dec. 2, 1998.

- \* *Koruthaialos sindu sindu* (C. & R. Felder, 1860)  
1 ♂, C, June 5, 1999.
- Ancistroides nigrita othonias* (Hewitson, 1876)  
1 ♂, C, June 3, 1999.
- Notocrypta pria* (H. Druce, 1873) 1 ♀, C, June  
5, 1999.
- \*\* *Suada catoleucos* (Staudinger, 1889) 1 ♂, C,  
June 3, 1999.
- \* *Isma umbrosa umbrosa* (Elwes & Edwards,  
1897) 1 ♀, C, June 5, 1999.
- \*\* *Pemara pugnans* (de Niceville, 1891) 1 ♂, A,  
June 2, 1999.
- Pyronura derna* Evans, 1941 1 ♂, C, June 5,  
1999.
- \*\* *Pseudokerana fulgur* (de Niceville, 1894) 1 ♀,  
C, June 5, 1999.
- \*\* *Erionota acroleuca apicalis* Evans, 1932 1 ♂,  
E, Dec. 2-10 (at light), 1998.
- Oriens gola pseudolus* (Mabille, 1883) 1 ♀,  
C, June 6, 1999.
- \*\* *Caltois sirius kalparia* (Evans, 1937) 1 ♂, D,  
Dec. 2, 1998.

## Discussion

The butterfly fauna of the Tabin Wildlife Reserve, Sabah was reported by Mohd. Fairus Jalil *et al.* (1999), with 242 species belonging to 125 genera recorded.

In the present paper we added 9 genera and 36 species to the fauna. Consequently 134 genera and 278 species are now known to occur in the Tabin Wildlife Reserve now.

The newly recorded genera are seen in Amathusiidae (1 genus), Lycaenidae (1 genus) and Hesperidae (7 genera). The newly recorded species are found in the six families: Papilionidae (1 sp.), Danaidae (1 sp.), Amathusiidae (2 spp.), Nymphalidae (5 spp.), Lycaenidae (15 spp.), and Hesperidae (12 spp.).

In the families Papilionidae and Danaidae the newly recorded species are far fewer in number than in other big families, such as Nymphalidae, Lycaenidae, and Hesperidae.

Table 1 shows the number of species for each family that have been recorded so far from Borneo and Tabin Wildlife Reserve, along with the results of the present investigation.

From the Tabin Wildlife Reserve, a total of 278 butterfly species was counted. This corresponds to about 30 % of all species found in Borneo. When

compared to butterfly species by family, Papilionidae, Pieridae and Danaidae were recorded at high rates of 52 %, 68 %, and 81 %, respectively. Since they fly most often in open fields and are quite noticeable, more individuals in these families can be collected compared to other families. On the other hand, Lycaenidae and Hesperidae were recorded at low rates of 18 % and 20 %, respectively. These low rates may be attributed to the habits of forest living in Lycaenidae and swift flying in Hesperidae.

Since we have collected butterflies in only four months – February, March, June and December – and the information we have obtained is still insufficient, it is too early to discuss the butterfly fauna of Tabin. Collecting more butterflies in the remaining eight months, and gathering more information about them, is necessary to further expand overall knowledge and understanding of this fauna in the Tabin Wildlife Reserve.

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