

NEW RECORDS OF BUTTERFLY SPECIES FOR PULAU TIOMAN, PENINSULAR MALAYSIA

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ABSTRACT. - This paper presents a preliminary checklist of butterfly species (Class Insecta: Order Lepidoptera) recorded from the island of Pulau Tioman (Malaysia) from 25 to 28 June 1996, and from 24 to 27 June 1997. Our survey yielded 78 species belonging to 57 genera and 5 families. Of these species, 25 are possibly new records for the island.

KEY WORDS. - Pulau Tioman, butterflies, endemic species, inventory.

Pulau Tioman is an island in Malaysia of about 100 km² in area lying 20 km off the south-eastern coast of Peninsular Malaysia. About two hundred butterfly species (Class Insecta: Order Lepidoptera) have been known to occur on this island (Corbet & Pendlebury, 1992). Out of these, one species and twenty subspecies are endemic to Pulau Tioman (Corbet & Pendlebury, 1992). The subspecies of the butterflies present on the island generally are closer in appearance to the subspecies in Borneo than those on mainland Peninsular Malaysia (Stubbs, 1961). In general, the butterfly subspecies present on the island are darker than those on mainland Peninsular Malaysia (Stubbs, 1961).

A census of butterfly species was carried out from 25 to 28 June 1996 and from 24 to 27 June 1997 on Pulau Tioman. Our primary objective was to compile a preliminary list of butterfly species found in various locations on the island. We surveyed butterflies in: (1) village Tekek, (2) the Juara trail, (3) in village Paya, and (4) in village Asah. Village Asah was surveyed only in 1997 while the other three sites were surveyed in both years.

In the village of Tekek, there were the suburban areas and plantations. In the former, the sides of the tarmac road were occupied mainly by shophouses and chalets or by vegetation such as cherry tree (*Muntingia calabura*), grasses, ferns, *Melastoma* sp. and introduced ornamental plants e.g. *Ixora* sp., *Lantana* sp., *Bougainvillea* sp. and *Hibiscus* sp. In the plantations, banana plants (*Musa paradisiaca*) were among the major crops grown. Other plants include coconut trees (*Cocos nucifera*), mango trees (*Mangifera indica*), oil palm

(*Elaeis guineensis*), kangkong (*Ipomoea aquatica*), and ornamental flowering plants e.g. *Lantana* sp. and *Asytasia* sp. Most banana plantations were near the forest fringe. The Juara trail is a primary rainforest with many mature, large bore trees. The common trees included the Pulai tree (*Alstonia* sp.) and some representatives of the family Dipterocarpaceae. The forest at Asah was also mainly primary. In Paya, the secondary forest and the small remaining patch of mangrove were surveyed.

The butterflies were collected between 0800 and 1300h along the trails, roads or habitat edges, using standard insect collecting nets. Our survey was appropriate only for the butterflies that were flying between mid to lower canopy level.

We identified the butterflies using Fleming (1974), D'Abrera (1982), and Corbet & Pendlebury (1992). However, some field guides were used for initial identification (Morrell, 1977; Yong, 1984; Neo, 1996). Comparisons with butterfly specimens in the Zoological Reference Collection (ZRC at the National University of Singapore) were also made. All butterfly specimens are deposited in ZRC (now Raffles Museum of Biodiversity Research).

Our survey yielded 78 butterfly species belonging to 57 genera and 5 families (Table 1). This list of butterfly species is not exclusive. We found only three endemic butterfly subspecies on the island and failed to record the endemic species (*Hasora wilcocksii* Eliot). Our survey yielded 25 possible new records for the island (Table 1). It is unclear, however, if these newly recorded species have recently colonized the island or if these were missed for some reason by previous surveyors. Table 2 shows the comparison of records from this report with those listed in Corbet & Pendlebury (1992). Plate 1 illustrates some of the new records and endemic species collected during the survey.

Our preliminary study clearly shows that there is a need to carry out a comprehensive butterfly study on the island. Such a study will help in compiling a more recent and complete list of butterflies on the island and will also aid in determining the status of different species on the island. The latter may be critical because of the past and imminent future anthropogenic habitat changes on the island.

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LITERATURE CITED

- D'Abrera, B., 1982. *Butterflies of the Oriental Region Vol 1, 2 & 3*. Hill House, Australia. 672 pp.
- Corbet, A. S. & H. M. Pendlebury, 1992. *The butterflies of Malay Peninsula* (4th edition). Malayan Nature Society, Kuala Lumpur. 595 pp + 69 plates.
- Fleming, W. A., 1974. *Butterflies of West Malaysia and Singapore*. Vol 1 & 2. Longman, Kuala Lumpur. 148 pp + 92 plates.

Table 1. A list of butterflies recorded at Pulau Tioman (Peninsular Malaysia) from 25 to 28 June 1996 and from 24 to 27 June 1997. The species in bold are possible new records for the island. The species with asterisk have the subspecies endemic to the island. Sampling sites refer to the location where the surveys were done in Pulau Tioman.

| Species | Sampling sites |
|---|--------------------------|
| PAPILIONIDAE | |
| <i>Troides amphrysus ruficollis</i> (Butler) | Juara |
| <i>Pachliopta aristolochiae asteris</i> (Rothschild) | Tekek, Juara, Paya, Asah |
| <i>Papilio demolion demolion</i> Cramer | Tekek |
| <i>Papilio polytes romulus</i> Cramer | Tekek, Juara, Paya, Asah |
| <i>Graphium sarpedon luctatius</i> (Fruhstorfer) | Tekek |
| <i>Graphium doson kajanga</i> (Corbet) | Tekek |
| <i>Graphium agamemnon agamemnon</i> (Linnaeus) | Juara |
| PIERIDAE | |
| <i>Delias hyparete metarete</i> Butler | Tekek |
| <i>Leptostia nina malayana</i> Fruhstorfer | Tekek, Paya |
| <i>Phrissura aegis cynis</i> (Hewitson) | Tekek, Juara |
| <i>Appias libythea olferna</i> Swinhoe | Tekek |
| <i>Saletara liberia distanti</i> Butler | Tekek |
| <i>Hebombia glaucippe aturia</i> Fruhstorfer | Asah |
| <i>Pareronia valeria lutescens</i> (Butler) | Juara |
| <i>Catopsilia pyranthe pyranthe</i> (Linnaeus) | Tekek, Juara, Asah |
| <i>Catopsilia pomona pomona</i> (Fabricius) | Tekek, Asah |
| <i>Catopsilia scylla cornelia</i> (Fabricius) | Tekek |
| <i>Eurema hecabe contubernalis</i> (Moore) | Tekek, Juara, Paya, Asah |
| <i>Eurema blanda snelleni</i> (Moore) | Tekek |
| <i>Eurema lacteola lacteola</i> (Distant) | Tekek, Juara, Paya |
| <i>Eurema sari sodalis</i> (Moore) | Paya, Asah |
| <i>Eurema tilaha</i> Horsfield | Juara |
| <i>Gandaca harina distanti</i> Moore | Tekek, Asah |
| <i>Gandaca harina aora</i> Moulton | Paya |
| NYMPHALIDAE | |
| <i>Danaus melanippus hegesippus</i> (Cramer) | Tekek |
| <i>Parantica luzonensis aurensis</i> Eliot | Juara, Paya |
| <i>Ideopsis juvena sitah</i> (Fruhstorfer) | Tekek, Juara, Paya |
| <i>Euploea crameri</i> Lucas | Tekek, Juara |
| <i>Euploea tulliolus</i> (Fabricius) | Tekek |
| <i>Elymnias hypermnestra agina</i> Fruhstorfer | Tekek, Paya |
| <i>Mycalesis janardana sagittigera</i> Fruhstorfer | Tekek |
| <i>Mycalesis perseus cepheus</i> Butler | Tekek |
| <i>Orsotriaena medus cinerea</i> (Butler) | Tekek, Asah |
| <i>Faunis canens arcesilas</i> Stichel | Juara |
| <i>Melanocyna faunula faunula</i> (Westwood) | Juara, Asah |
| <i>Taenaris horsfieldii birchi</i> Distant | Juara |
| <i>Cupha erymanthis lotis</i> (Sulzer) | Asah |
| <i>Phalanta phalantha phalantha</i> (Drury) | Tekek, Juara, Paya |
| * <i>Phalanta alicippe tiomana</i> Corbet | Juara, Asah |
| <i>Cirrochroa emalea emalea</i> (Guérin-Méneville) | Juara |
| * <i>Vindula dejone tiomana</i> (Pendlebury) | Tekek, Juara, Paya, Asah |
| <i>Cethosia biblis perakana</i> Fruhstorfer | Tekek, Juara |
| <i>Cethosia hypsea</i> Doubleday | Juara |
| <i>Junonia hedonia ida</i> (Cramer) | Tekek, Paya |

Table 1. Continued

| Species | Sampling sites |
|---|--------------------|
| <i>Junonia orithya wallacei</i> Distant | Tekek |
| <i>Hypolimnas anomala anomala</i> (Wallace) | Tekek |
| <i>Hypolimnas bolina jacintha</i> (Drury) | Tekek |
| <i>Cyrestis themire themire</i> Honrath | Juara, Paya |
| <i>Chersonesia rahria tiomania</i> Pendlebury | Tekek, Juara |
| <i>Neptis ilira</i> Kheil | Tekek, Paya |
| LYCAENIDAE | |
| <i>Abisara savitri savitri</i> C.&R. Felder | Paya |
| <i>Allotinus unicolor unicolor</i> C.&R. Felder | Paya |
| <i>Curetis tagalica labuana</i> Evans | Asah |
| * <i>Caleta elna epeus</i> (Corbet) | Tekek |
| <i>Everes lacturnus rileyi</i> Godfrey | Tekek, Juara |
| <i>Neopithecops zalmora horsfieldi</i> Distant | Tekek |
| <i>Acytolepis puspa volumina</i> (Fruhstorfer) | Juara |
| <i>Zizina otis lampa</i> (Corbet) | Tekek, Juara |
| <i>Zizula hylax pypmaea</i> (Snellen) | Tekek |
| <i>Chilades pandava pandava</i> (Horsfield) | Paya |
| <i>Euchrysops cnejus cnejus</i> (Fabricius) | Tekek |
| <i>Catochrysops strabo strabo</i> (Fabricius) | Tekek |
| <i>Catochrysops panormus exiguus</i> (Distant) | Juara |
| <i>Lampides boeticus</i> (Linnaeus) | Tekek |
| <i>Jamides celeno aelianus</i> (Fabricius) | Juara, Asah |
| <i>Jamides philatus subditus</i> (Moore) | Tekek |
| <i>Jamides aratus adana</i> (H. Druce) | Tekek |
| <i>Nacabuda berenice</i> (Herrich-Schäffer) | Paya |
| <i>Anthene emolus</i> (Godart) | Asah |
| <i>Cheritra freja frigga</i> Fruhstorfer | Tekek |
| <i>Loxura atymnus</i> (Stoll) | Juara |
| <i>Drupadia ravindra moorei</i> (Distant) | Tekek, Juara, Paya |
| <i>Drupadia theda thesmia</i> (Hewitson) | Juara |
| <i>Hypolycaena thecloides thecloides</i> (C.&R. Felder) | Tekek |
| <i>Hypolycaena erylus</i> (Godart) | Paya |
| <i>Sinthusia malika amata</i> Distant | Juara |
| HESPERIIDAE | |
| <i>Celaenorrhinus ficulnea queda</i> (Plötz) | Juara |
| <i>Iambrix stellifer</i> (Butler) | Juara |

Table 2. Comparison of records from our survey with those listed in Corbet & Pendlebury (1992).

| Family of butterflies | Number of species recorded from the survey | Number of species listed in Corbet & Pendlebury (1992) |
|-----------------------|--|--|
| Papilionidae | 7 | 12 |
| Pieridae | 17 | 24 |
| Nymphalidae | 26 | 52 |
| Lycaenidae | 26 | 80 |
| Hesperiidae | 2 | 36 |
| Total | 78 | 204 |

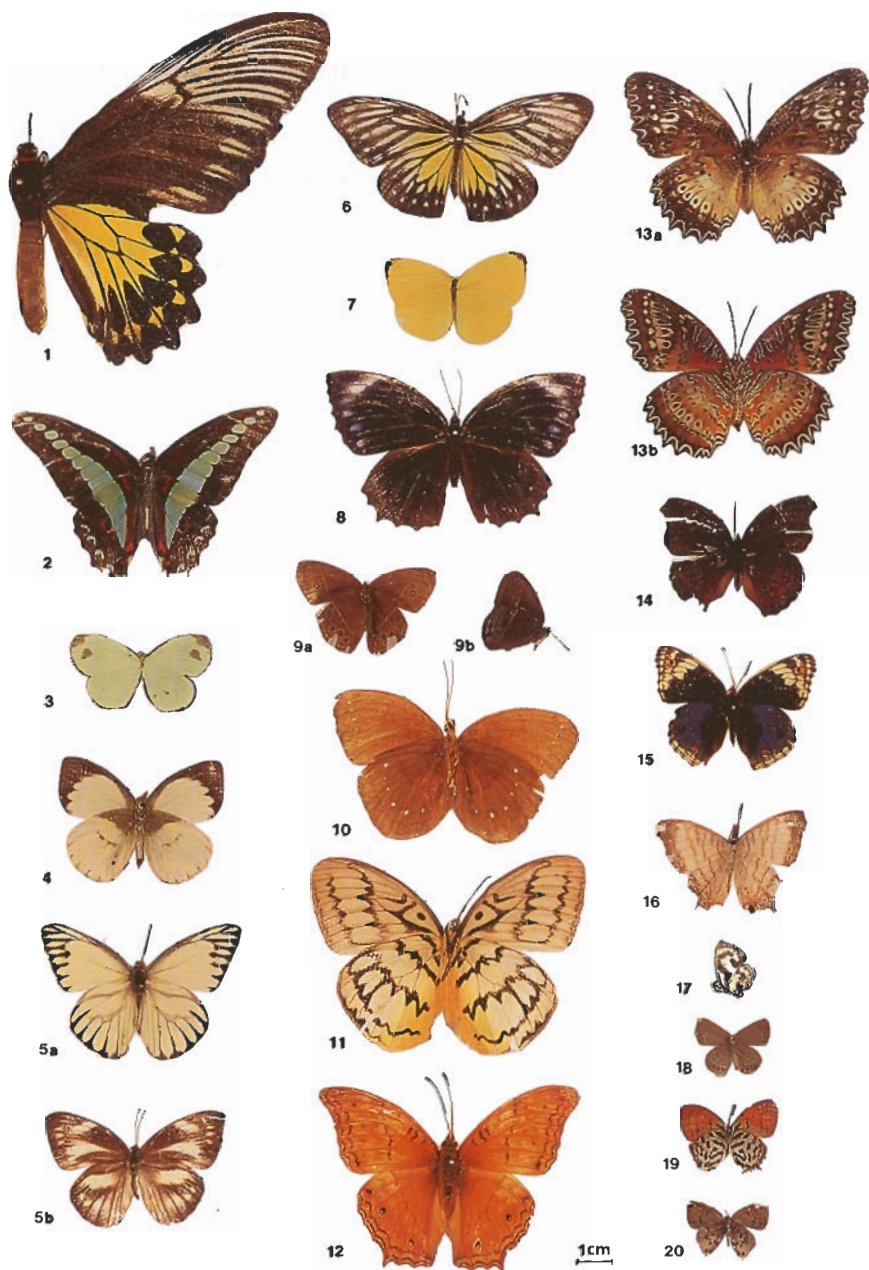


Plate 1. Some possible new records and endemic species of butterflies from Pulau Tioman. 1. *Troides amphrysus ruficollis* (Butler) 2. *Graphium sarpedon luctatus* (Fruhstorfer) 3. *Leptosia nina malayana* Fruhstorfer 4. *Phrissura aegis cynis* (Hewitson) 5a. *Appias libythea olferna* Swinhoe (Male) 5b. *Appias libythea olferna* Swinhoe (Female) 6. *Pareronia valeria lutescens* (Butler) 7. *Gandaca harina distanti* Moore 8. *Elymnias hypermnestra agina* Fruhstorfer 9a. *Mycalesis perseus cepheus* Butler 9b. *Mycalesis perseus cepheus* Butler 10. *Faunis canens arcesilas* Stichel 11. *Melanocyma faunula faunula* (Westwood) 12. *Vindula dejone tiomana* (Pendlebury) 13a. *Cethosia biblis perakana* Fruhstorfer (Ventral) 13b. *Cethosia biblis perakana* Fruhstorfer (Dorsal) 14. *Junonia hedonia ida* (Cramer) 15. *Junonia orithya wallacei* Distant 16. *Cyrestis themire themire* Honrath 17. *Caleta elna epeus* (Corbet) 18. *Euchrysops cnejus cnejus* (Fabricus) 19. *Drupadia ravindra moorei* (Distant) and 20. *Sinthusa malika amata* Distant.

Morrell, R. C. R., 1977. *Common Malaysian butterflies*. Longman, Kuala Lumpur. 64 pp.

Stubbs, G. C., 1961. Some island races of butterflies and their conservation. In: J. Wyatt-Smith & P. R. Wycherley (eds.), *Nature conservation in western Malaysia*, Pp. 240-243. Malayan Nature Journal (special issue), Malaysia.

Neo, S. S. H., 1996. *A guide to common butterflies of Singapore*. Singapore Science Centre. 168 pp.

Yong, H. S., 1984. *Malaysian butterflies*. Tropical press, Kuala Lumpur. 152 pp.