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**BUTTERFLY FAUNA (LEPIDOPTERA:
RHOPALOCERA) OF LUBUK TAPAH SECTOR OF
TAMAN NEGERA ENDAU ROMPIN, JOHOR**

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ABSTRACT

A total of 106 butterfly species under 5 families (Papilionidae, Pieridae, Nymphalidae, Lycaenidae, Hesperidae) was recorded for the Lubuk Tapah sector of Endau Rompin National Park, Johor. Of this total, 54 species form additional records for the park, including 4 species listed as protected, i.e. *Troides helena cerberus* (C. & R. Felder), *Troides brookiana trogon* Rothschild (Papilionidae), *Idea hypermnestra linteata* (Butler), and *Zeuxida aurelius aurelius* (Cramer)(Nymphalidae). The butterfly record of the park has thus increased, from the previous total of 179 species to the present total of 233 species. In this sector of the park, 2 species, i.e., *Papilio memnor agenor* Linnaeus (Papilionidae) and *Eurema simulatrix tecmessa* (de Niceville) (Pieridae) appeared to be the most common (found in all 5 sampling occasions), while 52 others species appeared rare (found with 1 individual only) including the species listed as protected with the exception of *I. hypermnestra linteata*. The most abundant species appeared to be *Eurema hecabe contubernalis* (Moore) (found in 4/5 sampling occasions with 22 total individuals; peak abundance in June),

followed by *Graphium sarpendon luctatus* (Fruthtofer) (Papilionidae) (found in 4/5 sampling occasions with 17 total individuals; peak abundance in May), *Eurema sari sodalis* (found in 4/5 sampling occasions with 16 total individuals; peak abundance in April), *E. simulatrix tecmessa* (found in 5/5 sampling occasions with 15 total individuals; peak abundance in May). In terms of composition based on family, species richness was highest for Nymphalidae (47 species; peak richness in July), followed by Lycaenidae (25 species; peak richness in May), Pieridae (18 species; peak richness in May), Papilionidae (15 species; peak richness in April/May) and Hesperidae (1 species in June). However, in terms of abundance, Pieridae (129 individuals; peak abundance in May) was highest, followed by Nymphalidae (93 individuals; peak abundance in June), Papilionidae (60 individuals; peak abundance in May), Lycaenidae (54 individuals; peak abundance in May) and Hesperidae (2 individuals in June). As a whole, both butterfly species richness and abundance appeared better-manifested in this sector of the park in May (51 species; 338 individuals) compared to April (24 species; 40 individuals), September (26 species; 37 individuals), June (36 species; 89 individuals) or July (46 species; 61 individuals). Analyses of Shannon-Weiner species diversity index (H') and evenness index (E') values indicated the following. In this sector of the park, species diversity was generally high, with its manifestation in May ($H'=3.56$; $E'=0.91$) being significantly higher ($p<0.05$) than in April ($H'=2.88$; $E'=0.91$), September ($H'=3.15$; $E'=0.96$) or June ($H'=3.31$; $E=0.92$) but not significantly higher ($p>0.05$) than in July ($H'=3.39$; $E'=0.94$). Cumulatively, the data obtained thus-far (with a total of 5 sampling occasions over the period from April to September 2002) was still quite insufficient to picture the high butterfly species diversity of the sector of the park, in view of the cumulative H' value obtained with all the 5 sampling occasions combined ($H'=4.86$) being still significantly higher compared to that obtained with 2, 3 or 4 earlier sampling occasions respectively combined ($H'=3.96, 4.38, 4.68$, respectively).

Key words: Lepidoptera, Rhopalocera, Johor

ABSTRAK

Sejumlah 106 spesies kupu-kupu dibawah 5 famili (Papilionidae, Pieridae, Nymphalidae, Lycaenidae, Hesperidae) telah direkodkan sebagai data awal di Lubuh Tapak, sektor Taman Negara Endau Rompin, Johor. Daripada jumlah ini, 54 spesies adalah daripada rekod tambahan taman ini, termasuk 4 spesies tersenarai sebagai terlindung, iaitu *Troides helena cerberus* (C.& R. Felder), *Troides brookiana trogon* Rothschild (Papilionidae), *Idea hypermnestra linteata* (Butler), dan *Zeuxida aurelius aurelius* (Cramer) (Nymphalidae). Rekod kupu-kupu untuk taman ini meningkat, daripada rekod terdahulu iaitu 179 spesies kepada jumlah terkini iaitu 233 spesies. Di sektor taman ini, 2 spesies, iaitu *Papilio memnor agenor* Linnaeus (Papilionidae) dan *Eurema simulatrix tecmessa* (de Niceville) (Pieridae) adalah spesies biasa berdasarkan temporal (dijumpai di kelima-lima kawasan persampelan), manakala 52 spesies adalah langka (dijumpai hanya 1 individu) termasuklah spesies yang tersenarai sebagai terlindung dengan pengecualian kepada *I. hypermnestra linteata*. Spesies yang paling melimpah ialah *Eurema hecabe contubernalis* (Moore) (dijumpai di 4/5 kawasan persampelan dengan 22 individu; kelimpahan memuncak pada bulan Jun), diikuti oleh *Graphium sarpendon luctatius* (Fruthtofer) (Papilionidae) (dijumpai di 4/5 kawasan persampelan dengan 17 individu; kelimpahan memuncak pada bulan Mei), *Eurema sari sodalis* (dijumpai di 4/5 kawasan persampelan dengan 16 individu; kelimpahan memuncak pada bulan April), *E. simulatrix tecmessa* (dijumpai di 5/5 kawasan persampelan dengan 15 individu; kelimpahan memuncak pada bulan Mei). Dilihat dari segi komposisi berdasarkan famili, kekayaan spesies tertinggi adalah pada famili Nymphalidae (47 spesies; kekayaan tertinggi pada bulan Julai), diikuti oleh Lycaenidae (25 spesies; kekayaan tertinggi pada bulan Mei), Pieridae (18 spesies; kekayaan tertinggi pada bulan Mei), Papilionidae (15 spesies; kekayaan tertinggi pada bulan April/Mei) dan Hesperidae (1 spesies pada bulan Jun). Walaubagaimanapun, dilihat dari segi kelimpahan, Pieridae (129 individu; kelimpahan memuncak pada bulan Mei) adalah tertinggi,

diikuti oleh Nymphalidae (93 individu; kelimpahan memuncak pada bulan Jun), Papilionidae (60 individu; kelimpahan memuncak pada bulan Mei), Lycaenidae (54 individu; kelimpahan memuncak pada bulan Mei) dan Hesperidae (2 individu pada bulan Jun). Pada sektor taman ini, kepelbagaian spesies adalah secara umumnya tinggi, dengan manifestasi pada bulan Mei ($H' = 3.56$; $E' = 0.91$) secara signifikannya tinggi ($p < 0.05$) berbanding bulan April ($H' = 2.88$; $E' = 0.91$), September ($H' = 3.15$; $E' = 0.96$) atau Jun ($H' = 3.31$; $E' = 0.92$) tetapi tidak signifikannya tinggi ($p > 0.05$) berbanding bulan Julai ($H' = 3.39$; $E' = 0.94$). Secara kumulatifnya, data yang diperolehi (dengan jumlah 5 kawasan persampelan disepanjang April hingga September 2002) adalah masih belum mencukupi untuk menggambarkan kepelbagaian spesies di sektor taman ini, berdasarkan gambaran kumulatif nilai H' ($H' = 4.86$) yang diperolehi daripada kelima-lima kawasan persampelan, namun masih signifikannya tinggi berbanding dengan nilai H' ($H' = 3.96, 4.38, 4.68$) yang diperolehi daripada persampelan yang diperolehi daripada kawasan persampelan yang awal iaitu 2,3 atau 4 sebelumnya.

Kata kunci: Lepidoptera, Rhopalocera, Johor

INTRODUCTION

In Peninsular Malaysia, Endau Rompin National Park, Johor, an area of 48,685ha of tropical rainforest, located in the district of Endau, Johore, is generally considered as the second best park after the National Park of Peninsular Malaysia (located within the 3 state-borders of Pahang, Kelantan and Terengganu). Endau Rompin National Park, Johore, is adjacently connected, to the north, to the up-coming popular Endau Rompin State Park, Pahang. It has great potentials as a location for research, education, recreation as well popular eco-tourism destination.

To date, however, there has been no publication on butterfly fauna of Lubuk Tapah or any other sector of the park, except that covering Kuala Jasin, Janing Barat and Buaya Sangkut areas by Kirton and Kirton (1987). Thus, this study is the first which

provides a preliminary insight into the butterfly fauna of Lubuk Tapah sector of the park, and this is reported herewith.

MATERIALS AND METHODS

Samplings of butterflies within Lubuk Tapah sector of the park (latitude 002° 28' North and longitude 103° 13' East) were conducted over 5 occasions, in April, May, June, July and September 2002, respectively. Samplings were carried out with: 2 man-effort per day for 2 days in the 1st (April) and 5th (September) occasions; 3 man-effort per day for 6 days in the 2nd (May) and for 3 days in the 3rd (June) and 4th (July) occasions, respectively. In each occasion, the samplings were conducted covering accessible track areas from the entrance-border near Kg. Selai to base-camp area (near Lubuk Tapah sector of Selai River) and further upstream to the waterfall area, Lata Kasih. For each sampling day, the butterflies seen flying or resting within the above-mentioned areas between 900hrs and 1700hrs were manually caught using butterfly nets.

The butterfly specimens were each manually killed by thorax-pressing between the thumb and fore-finger, and separately kept in a transparent-paper envelope. Curing processes of the specimens, involving softening, pinning, wing-span spreading, oven-drying and labeling were carried out at the Centre of Insect of Insect Systematics, Universiti Kebangsaan Malaysia (CIS-UKM).

Identification, species naming and classification of the specimens were based on Corbet *et al.*, (1992). Presently, the specimens were all kept in the repository of CIS-UKM. The number of specimens of each butterfly species accumulated through the 5 sampling occasions was accordingly tabulated to facilitate visualization of some interesting aspects of the butterfly fauna manifested. These include the assessment of the butterfly species being as common, abundant or rare, and also the calculation and assessment of the butterfly species diversity and evenness (using a soft-ware by Robinson, 1991).

RESULTS AND DISCUSSION

The butterfly fauna for Lubuk Tapak sector of Endau Rompin National Park, Johor, presented below in the form of species checklist in Appendix 1. It is based on specimens collected over a total of 5 occasions, in April, May, June, July and September 2002.

As shown in Appendix 1, a total of 106 butterfly species under 5 families (Papilionidae, Pieridae, Nymphalidae, Lycaenidae, Hesperiiidae) was recorded for the Lubuk Tapah sector of Endau Rompin National Park, Johor. To date, there has been no previous publication on butterfly fauna of Lubuk Tapah or any other sector of the park, except that covering Kuala Jasin, Janin Barat and Buaya Sangkut areas by Kirton and Kirton (1987). Thus, butterfly species recorded in this study form preliminary records for Lubuk Tapah sector of the park. Comparison of records (Kirton and Kirton, 1987) indicated that of these 106 butterfly species, 54 species form additional records for the park, including 4 species listed as protected species under Wildlife Protected Species Act (Anon., 1991). The 4 species were *Troides helena cerberus* (C. & R. Felder), *Troides brookania trogon* Rothschild (Papilionidae), *Idea hypermnestra linteata* (Butler), *Zeuxida aurelius aurelius* (Cramer) (Nymphalidae). With these, the butterfly record of the park has thus increased, from the previous total of 179 species (Kirton and Kirton, 1987) to the present total of 233 species.

Other interesting aspects of the butterfly fauna of Lubuk Tapah sector of the park include the following. In this sector of the park, 2 species, i.e., *Papilio memnor agenor* Linnaeus (Papilionidae) and *Eurema simulatrix tecmessa* (de Niceville) (Pieridae) appeared temporally most common (found in all 5 sampling occasions), while 52 species appeared rare (found with 1 individual only) including the species listed as protected with the exception of *I. hypermnestra linteata* (Appendix 1).

The most abundant species appeared to be *Eurema hecabe contubernalis* (Moore) (found in 4/5 sampling occasions with 22 total individuals; peak abundance in June) (Appendix 1). This is

followed by *Graphium sarpendon luctatus* (Fruthtofer) (Papilionidae) (found in 4/5 sampling occasions with 17 total individuals; peak abundance in May), *Eurema sari sodalis* (found in 4/5 sampling occasions with 16 total individuals; peak abundance in April), *E. simulatrix tecmessa* (found in 5/5 sampling occasions with 15 total individuals; peak abundance in May) (Appendix 1).

In terms of composition based on family, species richness was highest for Nymphalidae (47 species; peak richness in July) (Table 1). This is followed by Lycaenidae (25 species; peak richness in May), Pieridae (18 species; peak richness in May), Papilionidae (15 species; peak richness in April/May) and Hesperidae (1 species in June). However, in terms of abundance, Pieridae (129 individuals; peak abundance in May) was highest, followed by Nymphalidae (93 individuals; peak abundance in June), Papilionidae (60 individuals; peak abundance in May), Lycaenidae (54 individuals; peak abundance in May) and Hesperidae (2 individuals in June) (Table 1). As a whole, both butterfly species richness and abundance appeared better-manifested in this sector of the park in May (51 species; 338 individuals) compared to April (24 species; 40 individuals), September (26 species; 37 individuals), June (36 species; 89 individuals) or July (46 species; 61 individuals) (Table 1).

Analyses of Shannon-Weiner species diversity index (H') and evenness index (E') values indicated the following. In this sector of the park, species diversity was generally high, with its manifestation in May ($H'=3.56$; $E'=0.91$) being significantly higher ($p<0.05$) than in April ($H'=2.88$; $E'=0.91$), September ($H'=3.15$; $E'=0.96$) or June ($H'=3.31$; $E'=0.92$) but not significantly higher ($p>0.05$) than in July ($H'=3.39$; $E'=0.94$) (Table 2). Cumulatively, the data obtained thus-far (with a total of 5 sampling occasions over the period from April to September 2002) was still quite insufficient to picture the high butterfly species diversity of the sector of the park. This is in view of the cumulative H' value obtained with all the 5 sampling occasions combined ($H'=4.86$) being still significantly higher compared to that obtained with 2, 3 or 4 earlier sampling occasions

respectively combined ($H' = 3.96, 4.38, 4.68$, respectively) (Table 3).

CONCLUDING REMARKS

In view of the above, it can be deduced that more regular surveys, each conducted over longer duration and covering over more areas would provide a better representation of the butterfly fauna of this sector of the park than thus far. This would include not only in terms of species richness and composition but also the status of the species thus far noted as relatively more common (*P. memnor agenor* and *E. simulatrix tecmessa*) and more abundant (*E. hecabe contubernalis*). If such surveys could be conducted, it is envisaged that at least the current species checklist could be further extended. However, as for now, it would seem that Lubuk Tapah sector of the park harbors high diversity of butterflies and the amount of samplings conducted in this study was still insufficient to picture it.

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Table 1. Number of species (and individuals) of each butterfly family obtained for each of the monthly sampling occasion

No. of species (and individuals) obtained in the samplings of						
Family	April	May	June	July	Sept	Total
Papilionidae	7(13)	7(20)	4(11)	5(9)	6(7)	15(60)
Nymphalidae	6(6)	12(14)	15(30)	18(24)	13(19)	47(93)
Pieridae	9(19)	13(50)	12(37)	8(21)	2(2)	18(129)
Lycaenidae	2(2)	19(27)	4(9)	5(7)	5 (9)	25(54)
Hesperiidae	0(0)	0(0)	1(2)	0(0)	0(0)	1(2)
Total	24(40)	51(111)	36(89)	46(61)	26(37)	106(338)

Table 2. Species richness (S), Shannon-Weiner species diversity (H') and evenness (E') values for each of the monthly samplings

Sampling	S	H'	E'
April	24	2.88 ^c	0.91
May	51	3.56 ^a	0.91
June	36	3.31 ^b	0.92
July	36	3.39 ^{ab}	0.94
September	26	3.15 ^b	0.96

-Note: H' values marked with same letter are not significantly different (p>0.05)

Table 3. Shannon-Weiner species diversity (H') value calculated for the data of the first monthly sampling and with each subsequent monthly sampling combined

Sampling data of	H'
April only	2.88
April & May combined	3.96
April, May & June combined	4.38
April, May, June & July combined	4.68
April, May, June, July & September combined	4.86

-Note: H' values are significantly different ($p < 0.05$)

Appendix 1. No. of individuals of each species obtained in each of the 5 monthly samplings

No.	Taxa	Sampling occasion (2002)				
		Apr	May	Jun	Jul	Sept
	PAPILIONIDAE Papilioninae					
1	<i>Troides brookiana</i> (Wallace) <i>trogon</i> Rothschild * #	0	0	0	0	1
2	<i>Troides helena</i> (Linnaeus) <i>cerberus</i> (C.&R.Felder)	0	0	0	0	1
3	<i>Parides varuna varuna</i> (White) *	0	0	0	0	1
4	<i>Pachliopta aristolochiae</i> (Fabricius) <i>asteris</i> (Rothschild) *	0	0	3	3	0
5	<i>Chilasa paradoxa</i> (Zinken) <i>aenigma</i> (Wallace) *	0	2	0	0	0
6	<i>Papilio demolion demolion</i> Cramer *	0	1	0	0	0
7	<i>Papilio helenus helenus</i> Linnaeus	1	0	0	0	0
8	<i>Papilio iswara iswara</i> White	0	0	0	0	1
9	<i>Papilio memnor agenor</i> Linnaeus	1	1	3	1	1
10	<i>Graphium sarpedon</i> (Linnaeus) <i>luctatus</i> (Fruhstorfer)	4	7	3	3	0
11	<i>Graphium evemon</i> (Boisduval) <i>eventus</i> (Fruhstorfer)	0	3	2	1	2
12	<i>Graphium eurypylus</i> (Linnaeus) <i>mecisteus</i> (Distant)*	2	5	0	1	0
13	<i>Pathysa antipates</i> (Cramer) <i>itamputi</i> (Butler)	2	1	0	0	0
14	<i>Pathysa ramaceus</i> (Westwood) <i>pendleburyi</i> (Corbet) *	1	0	0	0	0
15	<i>Pathysa delessertii delessertii</i> (Guerin-Meneville)	2	0	0	0	0
	PIERIDAE Pierinae					
16	<i>Leptosia nina nina</i> (Fabricius) *	2	2	1	0	0
17	<i>Cepora iudith</i> (Fabricius) <i>malaya</i> (Fruhstorfer) *	0	0	1	0	0

Appendix 1 continue...

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18	<i>Appias lyncida</i> (Cramer) <i>vasana</i> Fruhstorfer	1	10	1	2	0
19	<i>Appias nero</i> (Fabricius) <i>figulina</i> (Butler)	1	1	0	0	0
20	<i>Appias albina albina</i> (Boisduval) *	0	1	0	0	0
21	<i>Appias paulina</i> (Cramer) <i>distanti</i> (Moore)	0	9	0	1	0
22	<i>Appias indra</i> (Moore) <i>plana</i> Butler	2	1	1	0	0
23	<i>Saletara liberia</i> (Cramer) <i>distanti</i> Butler	1	0	0	0	0
	Coliadinae					
24	<i>Catopsilia pomona pomona</i> (Fabricius) *	0	0	0	0	1
25	<i>Eurema hecabe</i> (Linnaeus) <i>contubernalis</i> (Moore)	1	7	8	5	0
26	<i>Eurema simulatrix</i> (Semper) <i>tecnessa</i> (de Niceville)	1	9	3	2	1
27	<i>Eurema blanda</i> (Boisduval) <i>snelleni</i> (Moore) *	0	1	1	0	0
28	<i>Eurema andersonii andersonii</i> (Moore)	1	0	4	5	0
29	<i>Eurema lacteola lacteola</i> (Distant) *	0	1	2	4	0
30	<i>Eurema ada</i> (Distant) <i>iona</i> Talbot	0	3	10	0	0
31	<i>Eurema sari</i> (Horsfield) <i>sodalis</i> (Moore)	9	4	2	1	0
32	<i>Eurema tilaha</i> (Horsfield) <i>nicevillei</i> (Butler)	0	1	0	0	0
33	<i>Gandaca harina</i> (Horsfield) <i>distanti</i> Moore	0	0	3	1	0
	NYMPHALIDAE Danainae					
34	<i>Danaus chrysippus chrysippus</i> (Linnaeus) *	0	0	0	0	1
35	<i>Parantica melaneus</i> (Cramer) <i>sinopion</i> (Fruhstorfer) *	0	1	0	0	0
36	<i>Ideopsis similes</i> (Linnaeus) <i>persimilis</i> (Moore) *	0	0	0	0	1

Appendix 1 continue...

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37	<i>Idea stollii</i> (Moore) <i>logani</i> (Moore) *	0	0	0	0	1
38	<i>Idea hypermnestra</i> (Westwood) <i>linteata</i> (Butler) *#	0	0	0	0	2
39	<i>Euploea mulciber mulciber</i> (Cramer)	0	0	1	1	2
40	<i>Euploea tulliolus</i> (Fabricius) <i>ledereri</i> C.&R. Felder	0	0	0	0	2
41	<i>Euploea radamanthus radamanthus</i> (Fabricius) *	1	0	0	0	2
	Satyrinae					
42	<i>Lethe chandica</i> Moore <i>namura</i> Fruhstorfer *	0	1	0	0	0
43	<i>Neorina lowii</i> (Doubleday) <i>neophyta</i> Fruhstorfer	1	0	0	0	0
44	<i>Xanthotaenia busiris busiris</i> Westwood	1	0	1	0	0
45	<i>Mycalesis perseoides perseoides</i> (Moore) *	0	0	0	0	1
46	<i>Mycalesis oroatis</i> Hewitson <i>ustulata</i> Distant *	0	1	0	0	0
47	<i>Coelites euptychioides</i> C.&R.Felder <i>humilis</i> Butler	0	1	0	0	0
48	<i>Ypthima fasciata</i> Hewitson <i>torone</i> Fruhstorfer	0	0	2	1	0
49	<i>Ypthima baldus</i> (Fabricius) <i>newboldi</i> Distant	0	0	0	1	0
50	<i>Ypthima pandocus</i> (Moore) <i>corticaria</i> Butler	0	0	6	0	0
	Morphinae					
51	<i>Amanthusia masina</i> (Fruhstorfer) <i>malaya</i> Corbet&Pendleby*	0	0	0	0	1
52	<i>Amanthuxidia amythaon</i> (Doubleday) <i>dilucida</i> (Honrath)	1	0	0	0	0
53	<i>Zeuxida aurelius aurelius</i> (Cramer) *#	0	0	0	1	0
54	<i>Thaumantis noureddin noureddin</i> Westwood *	0	0	0	1	0
	Nymphalinae					
55	<i>Ariadne ariadne ariadne</i> (Linnaeus)	0	0	0	1	0

Appendix 1 continue...

...Appendix 1 continued

56	<i>Ariadne merione</i> (Cramer) <i>ginosa</i> (Fruhstorfer) *	0	0	1	0	0
57	<i>Ariadne isaeus isaeus</i> (Wallace)	0	0	3	0	0
58	<i>Laringa castelnaui castelnaui</i> (C.&R.Felder)	0	1	0	0	0
59	<i>Cupha erymanthis</i> (Drury) <i>lotis</i> (Sulzer)	0	1	2	1	0
60	<i>Phalanta alcippe</i> (Stoll) <i>alcesta</i> Corbet *	1	1	6	4	0
61	<i>Paduca fasciata fasciata</i> (C.&R.Felder) *	0	0	0	0	1
62	<i>Vindula erota</i> (Fabricius) <i>chersonesia</i> Pendlebury *	1	0	0	2	0
63	<i>Vindula dejone</i> (Erichson) <i>erotella</i> (Butler)	0	1	1	0	0
64	<i>Terinos clarissa</i> Boisduval <i>aurensis</i> Eliot *	0	0	1	1	0
65	<i>Terinos atlita</i> (Fabricius) <i>teuthras</i> Hewitson *	0	1	0	2	0
66	<i>Cethosia biblis</i> (Drury) <i>perakana</i> Fruhstorfer *	0	0	1	0	0
67	<i>Cethosia hypsea</i> Doubleday <i>hypsina</i> C.&R.Felder	0	0	0	1	0
68	<i>Junonia atlites atlites</i> (Linnaeus) *	0	0	0	0	3
69	<i>Hypolimnas bolina</i> (Linnaeus) <i>jacintha</i> (Drury) *	0	0	1	0	0
70	<i>Cyrestis themire themire</i> Honrath	0	0	0	1	0
71	<i>Chersonesia rahria rahria</i> (Moore)	0	3	1	0	0
72	<i>Neptis duryodana</i> Moore <i>nesia</i> Fruhstorfer *	0	0	0	1	0
73	<i>Neptis leucoporos</i> Fruhstorfer <i>resina</i> Fruhstorfer	0	1	0	1	0
74	<i>Athyma nefie</i> (Cramer) <i>subrata</i> Moore	0	0	0	1	0
75	<i>Moduza procris</i> (Cramer) <i>milonia</i> (Fruhstorfer)	0	0	1	0	0
76	<i>Tanaecia flora</i> M.R.Butler <i>andersonii</i> Moore *	0	0	0	1	0

Appendix 1 continue...

...Appendix 1 continued

77	<i>Bassarona dunya dunya</i> (Doubleday)	0	0	0	2	0
78	<i>Lexias pardalis</i> (Moore) <i>dirteana</i> (Corbet)	0	1	2	0	0
79	<i>Lexias cyanipardus</i> (Butler) <i>sandakana</i> (Fruhstorfer)	0	0	0	0	1
	Charaxinae					
80	<i>Polyura athamas uraeus</i> (Rothschild) *	0	0	0	0	1
	L YCAENIDAE Riodininae					
81	<i>Stiboges nymphidia nymphidia</i> Butler *	0	0	0	0	1
82	<i>Paralaxita telesia</i> (Hewitson) <i>lycene</i> (de Niceville) *	0	0	0	1	0
	Miletinae					
83	<i>Allotius unicolor unicolor</i> C.&R. Felder*	0	1	0	0	0
	Curetinae					
84	<i>Curetis santana</i> (Moore) <i>malayica</i> (C.&R.Felder) *	1	0	0	0	0
	Lycaeninae					
85	<i>Discolampa ethion</i> (Westwood) <i>thalimar</i> (Fruhstorfer)	0	2	0	0	0
86	<i>Caleta roxus</i> (Godart) <i>pothus</i> (Fruhstorfer)	0	2	0	0	2
87	<i>Caleta elna</i> (Hewitson) <i>elvira</i> (Fruhstorfer)	1	2	0	0	0
88	<i>Megisba malaya</i> (Horsfield) <i>sikkima</i> Moore *	0	1	0	0	0
89	<i>Callenya lenya lenya</i> (Evans) *	0	1	0	0	0
90	<i>Acytolepis puspa</i> (horsfield) <i>lambi</i> (Distant)	0	2	0	0	0
91	<i>Celastrina lavendularis</i> (Moore) <i>isabeilla</i> Corbet *	0	2	0	0	0
92	<i>Catochrysops strabo strabo</i> (Fabricius) *	0	1	0	1	0
93	<i>Catochrysops panormus</i> (C.&R.Felder) <i>exiguus</i> (Distant) *	0	2	0	0	0

Appendix 1 continue...

...Appendix 1 continued

94	<i>Jamides celeno</i> (Cramer) <i>aelianus</i> (Fabricius)	0	2	0	0	0
95	<i>Jamides pura pura</i> (Moore)	0	2	0	0	0
96	<i>Jamides malaccanus</i> <i>malaccanus</i> (Rober)*	0	1	3	0	0
97	<i>Prosotas bhutea</i> (de Niceville) *	0	1	0	0	1
98	<i>Prosotas dubiosa</i> (Semper) <i>lumpura</i> (Corbet)*	0	1	4	3	4
99	<i>Una usta usta</i> (Distant) *	0	1	1	0	0
100	<i>Arhopala agesilaus</i> (Staudinger) <i>gesa</i> Corbet *	0	0	0	1	0
101	<i>Arhopala delta</i> (Evans) *	0	0	1	0	0
102	<i>Amblypodia anita anita</i> Hewitson *	0	1	0	0	0
103	<i>Eooxylides tharis</i> (Geyer) <i>distanti</i> Riley	0	1	0	0	0
104	<i>Drupadia ravindra</i> (Horsfield) <i>moorei</i> (Distant) *	0	1	0	0	1
105	<i>Drupadia theda</i> (C.&R.Felder) <i>thesmia</i> (Hewitson)	0	0	0	1	0
	HESPERIDAE Pyrginae					
106	<i>Celaenorrhinus ladana</i> Butler *	0	0	2	0	0
	No. of specimen per sampling occasion	40	111	89	61	37
	No. of species per occasion	24	51	36	36	26
	Total no. off specimen	338				
	Total no of species	106				

Notes: * = New record for Endau Rompin National Park, Johor

= Protected species under Wildlife Protection Act 76/72