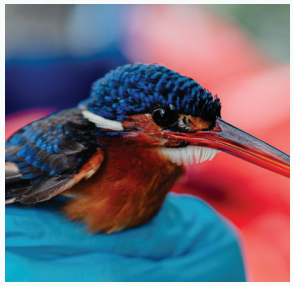
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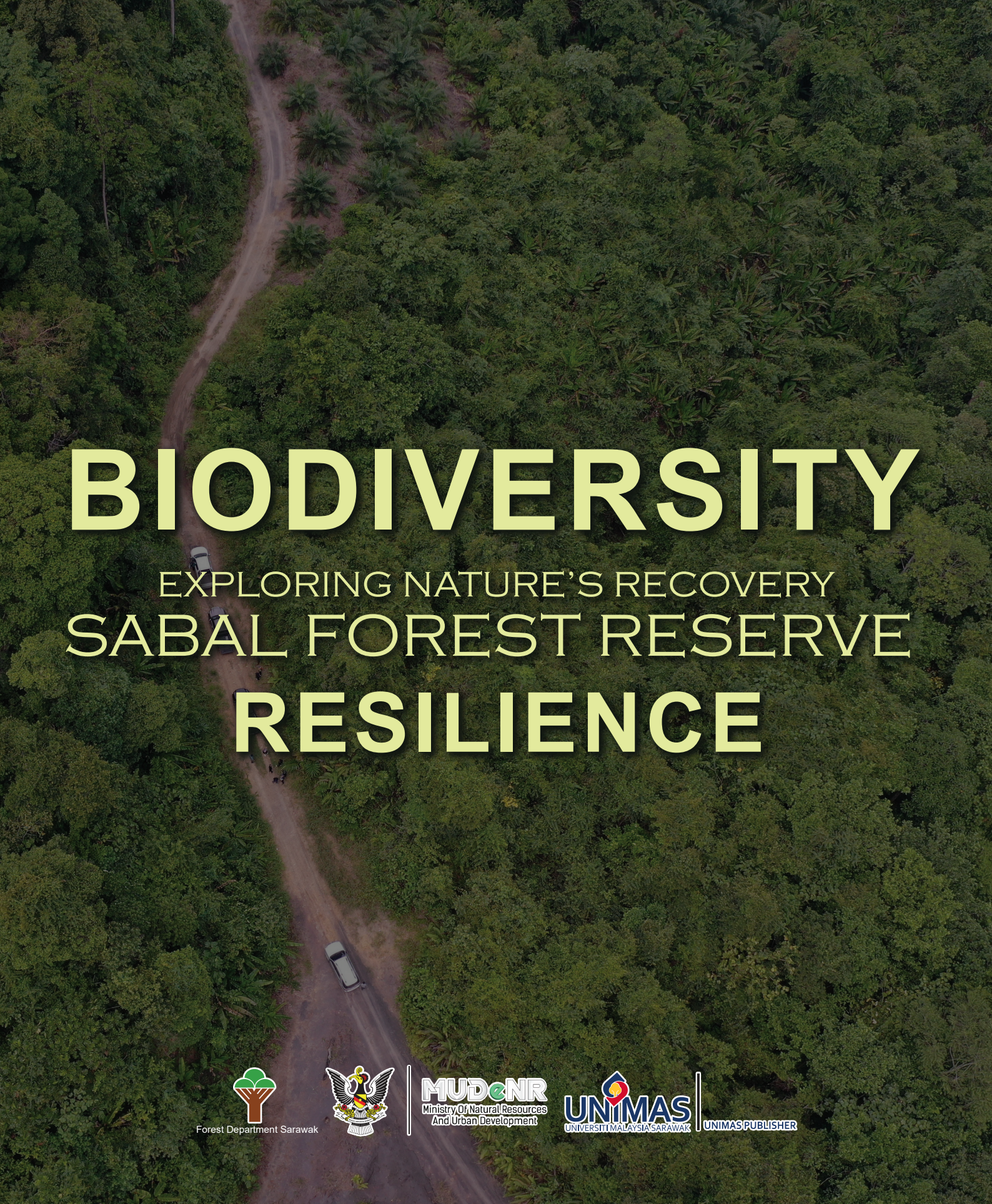





SABAL FOREST RESERVE

Edited By
Mohd Zacaery Khalik, Dayang Nuriza Abang Abdillah, Azahari Omar,
Runi Anak Sylvester Pungga, Meekiong Kalu, Faisal Ali Anwarali Khan

Forest Department Sarawak
MUDeNR Ministry Of Natural Resources And Urban Development
UNIMAS UNIVERSITI MALAYSIA SARAWAK



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Biodiversity Resilience: Exploring Nature's Recovery Sabal Forest Reserve

By
Mohd Zacaery Khalik, Dayang Nuriza Abang Abdillah, Azahari Omar, Runi Anak Sylvester Pungga, Meekiong Kalu, Faisal Ali Anwarali Khan

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Lepidoptera and Odonata

Ratnawati Hazali, Siti Nurlydia Sazali,
Liu Siew Ying, Rafiq Hakimi Faizal,
Gloria Chrissa Gabriel, Foo May Sian,
Nurfarida Anum Zainaddin, Nur Hidayatun Niesha Sapri,
Ameirah Natasya Asfaromey & Mohamad Jalani Mortada

Lepidoptera (comprising butterflies and moths) are among the well-known insects. They are diverse and constitute an important component of the Bornean rainforest fauna. Both butterflies and moths are highly dependent on specific host plants and vegetation types for the survival of their larvae. In addition to their ecological role as pollinators, butterflies are highly responsive to temperature fluctuations and other environmental changes, which makes them valuable bioindicators of ecosystem. Moths are also used as biological indicators in biodiversity assessments and documentation because of their sensitivity to environmental changes and habitat disturbances. Odonata, which comprises dragonflies and damselflies, is an ancient order of insects. Among aquatic insects, dragonflies are the most sensitive taxa as they are good biological indicators for both terrestrial and aquatic ecosystems.

A study on the diversity of Lepidoptera (butterflies and moths) and Odonata (dragonflies and damselflies) at Sabal Forest Reserve, Simunjan, Sarawak was conducted from 24-28 November 2024. Three methods of collection were carried out in this study: (i) Pennsylvania light trap, (ii) aerial-netting and (iii) baited trap.

A total of 33 species of butterflies from 25 genera, representing five families including Papilionidae, Pieridae, Nymphalidae, Lycaenidae and Hesperiidae, were documented (Table 1). The family Nymphalidae represented the highest number of butterfly in Sabal Forest Reserve with 22 species (66.7%). This was followed by Pieridae with six species (18.2%), Hesperiidae and Lycaenidae with two species (6.1%) each, and Papilionidae with one species (3.0%). *Leptosia nina malayana* was the most abundant species with 16 individuals recorded. For collection of moths, a total of 88 species from 58 genera and representing nine families were recorded (Table 2). Arctiidae represented the most diverse family with 34 species (38.6%), followed by Geometriidae with 24 species (27.3%). The Odonata was represented by three families namely, Aeshnidae, Libellulidae and Coenagrionidae, comprising of 24 species from 13 genera (Table 3). The family Libellulidae with 18 species represented the most diverse family recorded. Overall, the findings provide preliminary baseline data on insects in Sabal Forest Reserve and contribute to future biodiversity research and conservation studies in Sarawak.



Figure 1. *Hypolimnas bolina philippensis* (Nymphalidae)
(Photo by Siti Nurlydia Sazali).



Figure 2. *Ideopsis vulgaris interposita* (Nymphalidae)
(Photo by Badiozaman Sulaiman).

Figure 3. *Junonia atlites atlites* (Nymphalidae)
(Photo by Siti Nurlydia Sazali).



Figure 4. *Neurothemis fluctuans* (Libellulidae)
(Photo by Gloria Chrissa Gabriel).



Figure 5. *Orthetrum glaucum* (Libellulidae)
(Photo by Gloria Chrissa Gabriel).

Table 1. List of butterfly species recorded from Sabal Forest Reserve, Simunjan.

Family/Subfamily	Species	Number of Individuals
Papilionidae		
Papilioninae	*Graphium antiphates itamputi*	1
Pieridae		
Coliadinae	*Eurema andersoni borneensis*	1
	Eurema hecabe hecabe	10
	Eurema lacteola lacteola	2
	Eurema nicevillei nicevillei	1
Pierinae	*Appias olferna*	1
	Leptosia nina malayana	16
Nymphalidae		
Charaxinae	*Prothoe franck borneensis*	2
Danainae	*Danaus melanippus thoe*	1
	Ideopsis vulgaris interposita	1
	Parantica agleoides borneensis	2
Limenitidinae	*Bassarona dunya monara*	1
	Moduza procris agnata	1
	Neptis hylas sopatra	2
	Pandita sinope sinope	1
	Pantoporia paraka paraka	1
	Tanaecia aruna aparasa	2
	Tanaecia clathrata coerulescens	2
	Tanaecia munda munda	1
Morphinae	*Discophora necho cheops*	1
	Discophora sondaica symphronia	1
Nymphalinae	*Hypolimnas bolina philippensis*	2
	Junonia atlites atlites	1
Satyrinae	*Amathusia phidippus phidippus*	1
	Faunis stomphax stomphax	1
	Mycalesis fusca adustata	3
	Mycalesis mineus macromalayana	2
	Ypthima baldus selinuntius	2
	Ypthima pandocus sertorius	5
Hesperiidae		
Hesperiinae	*Notocrypta paralysos varians*	1
	Polytremis lubricans lubricans	1
Lycaenidae		
Polyommatinae	*Anthene emolus goberus*	3
	Jamides pura tenus	1
5 families	**33 species**	**74**

Table 2. List of moth species recorded from Sabal Forest Reserve, Simunjan.

Family	Species	Number of Individuals
Arctiidae		
Aganainae	*Asota albiformis*	1
	Asota heliconia	6
	Asota plana	1
Arctiinae	*Nyctemera baulus*	1
Lithosiinae	*Adites* sp.1	1
	Barsine complicata	1
	Barsine pallinflexa	1
	Brunia antica	1
	Brunia sarawaca	1
	Cabarda sequens	2
	Chrysoscota cotriangulata	1
	Cyana costifimbria	2
	Cyana inconclusa	5
	Cyana selangorica	4
	Darantasia cuneiplena	1
	Euconosia aspersa	1
	Eugoa inconspicua	1
	Eugoa obliquipuncta	1
	Eugoa sp. 1	1
	Eugoa sp. 2	1
	Lyclene acutiseriata	1
	Lyclene ashleigera	1
	Lyclene classeigera	1
	Lyclene cuneifera	1
	Lyclene pseudobunda	1
	Lyclene pudibunda	2
	Lyclene sp.1	1
	Macotasa sp.1	1
	Macotasa tortricoides	2
	Meteugoa obliquiata	1
	Nishada chilomorpha adunca	1
	Teulisna uniplaga	1
	Trischalis stomata	6
Syntominae	*Amata huebneri*	1
Cossidae	*Xyleutes strix*	1

Table 2. Cont...

Family	Species	Number of Individuals
Geometridae		
Desmobathrinae	*Eumelea ludovicata*	1
Ennominae	*Biston insularis*	2
	Cleora repetita	2
	Coremecis maculate	1
	Heterolocha pyreniata	1
	Hypomecis costaria	22
	Hypomecis separate	2
	Hyposidra infixaria	1
	Hyposidra picaria	1
	Hyposidra talaca	2
	Lulotrichia decursaria	3
	Petelia medardaria	8
	Synegia botydana	1
	Ugia viridior	2
Geometrinae	*Albinospila floresaria*	1
	Comibaena attenuata	1
	Comostola meritaria	1
	Dindica olivacea	2
	Pingasa lariaria	2
	Pingasa ruginaria	3
	Pingasa sp. 1	1
	Pseudocomostola cometocraspeda	1
	Spaniocentra megaspilaria	1
Sterrhinae	*Idaea craspedota*	1
Lasiocampidae	*Trabala* sp. 1	1
Lymantriidae	*Arctornis dorsalineatus*	1
	Calliteara cerigoides	1
	Calliteara cox	2
	Ilema costiplaga	1
	Lymantria ganara	2
	Rhypotoses brooksi	3
	Spilosoma griseabrunnea	1
Noctuidae		
Amphipyrinae	*Callopistria ventralis*	1
Catocalinae	*Ercheia cyllaria*	1
	Ercheia sp. 1	1

Table 2. Cont...

Family	Species	Number of Individuals
	Pangrapta metagona	2
Herminiinae	*Bertula depressalis*	2
	Bertula erythrognatha	2
	Bertula micealis	1
	Bertula pallidicosta	1
	Bertula tespisalis	1
	Bosana manifestalis	1
	Hydriollodes sp. 1	1
	Hydriollodes sp. 1	1
	Isana albiscripta	1
	Polypogon albapex	1
	Simplicia bimarginata	1
	Simplicia sp. 1	1
	Simplicia sp. 2	1
Nolidae	*Ariola coelisigna*	1
	Carea varipes	1
Notodontidae	*Phalera javana albifrons*	1
Sphingidae	*Hippotion* sp. 1	1
9 families	**88 species**	**155 individuals**

Table 3. List of Odonata (dragonflies and damselflies) species recorded from Sabal Forest Reserve, Simunjan.

Suborder	Family	Species	Number of Individuals
Anisoptera	**Aeshnidae**	*Heliaeschna simplicia*	1
		Heliaeschna sp.	1
		Oligoaeschna sp.	1
	Libellulidae	*Brachydiplax farinosa*	1
		Brachydiplax sp.	2
		Crocothemis servilia	4
		Neurothemis fluctuans	12
		Orthetrum chrysis	10
		Orthetrum glaucum	13
		Orthetrum sp.	2
		Orthetrum testaceum	1
		Pantala flavescens	6
		Rhodothemis rufa	3
		Rhodothemis sp.	1
		Rhyothemis obsolescens	3
		Rhyothemis phyllis	4
		Trithemis aurora	9
		Trithemis festiva	6
		Trithemis sp.	1
		Tyriobapta laidlawi	2
		Tyriobapta sp.	1
Zygoptera	**Coenagrionidae**	*Agriocnemis femina*	3
		Agriocnemis rubescens	1
		Pseudagrion perfuscatum	1
	3 families	**24 species**	**89 individuals**

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