

Serangga 12(1-2): 61-65

ISSN 1394-1530 © 2007, Centre for Insect Systematics, UKM & Department of Museums Malaysia

A short notes

**A LIST OF HAWK-MOTHS (LEPIDOPTERA:
SPHINGIDAE)
FROM GUNUNG MURUD, SARAWAK**

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ABSTRACT

A list of 22 species of hawk-moths (Lepidoptera: Sphingidae) sampled along a small-scale altitudinal gradient on Gunung Murud (GM) is presented. These moths comprised of three tribes, namely Sphingini (4 species), Smerinthini (6 species) and Macroglossini (12 species). *Panacra psaltria* is the only Bornean endemic sphingid collected on GM. Most of the species from this study are reported for the first time for GM, having been previously only recorded from Gunung Kinabalu in Sabah, Gunung Api in Sarawak and Bukit Retak in Brunei. All these represent an extension of range over 1,000 km to the South-West of Borneo. Two rare species are *Ambulyx joiceyi* and *Dolbina krikkeni*. Both are distributed in the lower and upper montane zone of GM. Forty-four percent (5 species) of the species recorded on GM were considered as lowland forest or open habitat species while the majority were the lower to upper montane species. The *Dolbina*

krikkeni and *Gehlenia fakata* seemed to be the montane dominant species.

ABSTRAK

Senarai 22 spesies rama-rama Sphingidae telah disampelkan di sepanjang cerun altitud berskala kecil di Gunung Murud telah disediakan. Rama-rama ini terdiri daripada tiga tribus, iaitu Sphingini (4 spesies), Smerinthini (6 spesies) dan Macroglossini (12 spesies). *Panacra psaltria* merupakan satu-satunya spesies sphingid yang endemik di Borneo yang juga terdapat di Gunung Murud. Kebanyakan spesies daripada kajian ini adalah rekod yang pertama daripada Gunung Murud, yang mana sebelumnya spesies ini telah direkodkan di Gunung Kinabalu Sabah, Gunung Api Sarawak dan Bukit Retak Brunei. Rekod taburan ini menunjukkan lanjutan julat taburan spesies sphingid tersebut melebihi 1,000 km ke barat-daya Borneo. Dua spesies langka ialah *Ambulyx joiceyi* dan *Dolbina krikkeni*. Kedua-dua spesies ini tertabur di kawasan pergunungan rendah dan tinggi di G. Murud. Dari jumlah keseluruhan spesies sphingid yang dilaporkan di G. Murud, 44% (5 spesies) merupakan spesies di hutan pamah atau habitat terbuka manakala selebihnya adalah spesies yang terdapat di kawasan pergunungan rendah hingga tinggi. Dua spesies yang dominan di pergunungan ialah *Dolbina krikkeni* and *Gehlenia fakata*.

INTRODUCTION

Gunung Murud, in north-west Sarawak, at 2 423 m, is the highest mountain in Sarawak. Because of its relative inaccessibility, the plant and animal life of these mountains has remained poorly known. A study on the macromoth distribution along a small scale altitudinal gradient on Gunung Murud (GM) was carried out as part of a project attempting to assess the biodiversity of GM, Sarawak from 2-16 May 2003 and 13-18 Oct 2003, in order to gather baseline data on species occurrence and habitat use for targeted plant and animal groups.

This paper briefly gives an account on the sphingid moth fauna sampled from GM from transects and quadrats established

along altitudinal and disturbance gradients on Gunung Murud. This covers both the lower (1000m-1800m) and upper montane zone (1800 m–2220 m). Altogether, 15 nights of field sampling were conducted at three study sites selected at different altitudes, namely Reked Maligan (= Church Camp) (03.55.36.2N; 115.30.49.9E; 2,100 m), Pa' Rabata (03.57.40.9N; 115.33.51.0E; 1,520m) and Ravenscourt (04.05.24.8N; 115.28.05.1E; 1,300 m). Specimens were identified to species according to Holloway (1987b).

Altogether, a total of 107 specimens representing 22 sphingid species were successfully collected (Table 1). The tribe Macroglossini has the largest number of species (12) and individuals (74), followed by Smerinthini (6 species and 24 individuals) and Sphingini (4 species and 9 individuals). Prior to this study, most of these species have been previously reported from Gunung Kinabalu, the Crocker Range massifs in Sabah, Gunung Mulu and Gunung Api in Sarawak, and Bukit Retak in Brunei (Holloway, 1987b). All these represent extension range of over 1,000 km to the South-West of Borneo.

Out of the 22 species collected, three species could be considered as unique because two are rare species and one is endemic to Borneo. The two rare species are *Ambulyx joiceyi* and *Dolbina krikkeni*. Both are distributed in the lower and upper montane zone of GM. *Panaera psaltria* is the only Bornean endemic sphingid collected on GM. It was first discovered on Gunung Kinabalu, while other specimens had been documented from Gunung Api in Sarawak and Temburong in Brunei. The most abundant species on the upper montane zone of GM are *Cechenena lineosa* (44 individuals) and *Ambulyx pryeri* (18 individuals). As noted by Holloway (1987b), both *Cechenena lineosa* and *Ambulyx pryeri* apparently has a lowland to montane distribution. Both species had also been collected in abundance (140 and 24 individuals, respectively) in a similar study carried out in a lowland forest (514-534m a.s.l.) in the Kelabit Highlands (Merarap Camp: 04.35.57.9N; 115.45.72.3E).

Forty-four percent (5 species) of the species recorded for GM were considered as lowland forest or open habitat species while

Table 1. List of hawk-moths (Sphingidae) sampled on Gunung Murud

	Lower montane (1000-1600m)	Upper montane (1800-2200m)
Family Sphingidae		
Subfamily Sphinginae	26	7
Tribe: Sphingini	6	3
1. <i>Acherontia lachesis</i> Fabricius	0	1
2. <i>Dolbina krikkeni</i> Roesler & Koppers	1	1
3. <i>Megacorma obliqua</i> Walker	3	1
4. <i>Psilogramma menephron</i> Cramer	2	0
Tribe: Smerinthini	20	4
5. <i>Ambulyx canescens</i> Butler	0	1
6. <i>Ambulyx joiceyi</i> Clark	0	1
7. <i>Ambulyx pryeri</i> Distant	17	1
8. <i>Ambulyx canescens</i> Butler	0	1
9. <i>Amplypterus panopus</i> (Cramer)	2	0
10. <i>Daphnusa ocellaris</i> Walker	1	0
Subfamily: Macroglossinae	57	17
Tribe: Macroglossini	57	17
11. <i>Acosmeryx anceus</i> (Stoll)	3	0
12. <i>Cechenena helops</i> Walker	3	2
13. <i>Cechenena lineosa</i> Walker	38	6
14. <i>Daphnis hypothous</i> Cramer	0	6
15. <i>Elibia dolichus</i> Westwood	1	1
16. <i>Gehlenia falcate</i> Hayes	1	0
17. <i>Hippotion celerio</i> Linnaeus	0	1
18. <i>Panacra psaltria</i> Jordan	7	0
19. <i>Rhyncholaba acteus</i> Cramer	1	0
20. <i>Theretra latreillei</i> MacLeay	1	0
21. <i>Theretra nessus</i> Drury	1	1
22. <i>Theretra rhesus</i> Boisduval	1	0
22 species	83	24

the majority are lower to upper montane species. Predominantly, montane species include *Dolbina krikkeni* and *Gehlenia fakata*.

Generally, the Sphingidae are highly mobile and widely distributed moths. The family also has a wide range of host plant preferences, which enable them to occur in a wide range of habitats (Holloway, 1987a). These factors might also contribute to the considerable number of species on GM.

ACKNOWLEDGEMENTS

This project is supported by IRPA Grant (08-02-09-10007-EA0001) awarded to the first author. Thanks are due to Universiti Malaysia Sarawak, for logistic support and our field and laboratory assistants for their field assistance. Thanks are also due to the late YB Judson Sakai Tagal and the Bakelalan Community for their support and friendship, Samling Corporation and Ravenscourt Camp for transportation and logistics, and Hornbill Skyways for transportation.

Collection permit was provided by the Sarawak Biodiversity Centre- permit number SBC-RP-0070-ID.

REFERENCES

- Holloway, J.D. 1987a. Macrolepidoptera diversity in the Indo-Australian tropic: geography, biotopic and taxonomic variations. *Biol. J. Linn. Soc.* 30: 325-341.
- Holloway, J.D. 1987b. The Moths of Borneo: Superfamily Bombycoidea; families Lasiocampidae, Eupterotidae, Bombycidae, Brahmaeidae, Saturniidae, Sphingidae. Kuala Lumpur: Southdene.