

BUNGO RANGE

BIODIVERSITY AND COMMUNITY

EDITORS

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JONGKAR GRINANG

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FOREWORD

I am glad to note that this publication is another excellent milestone from Universiti Malaysia Sarawak through the Institute of Biodiversity and Environmental Conservation, in particular exploring and documenting the rich biodiversity and community in Sarawak. The biodiversity and environmental conservation is one of three niche areas of the university, which recognise the need to balance the biodiversity, habitats and human development. As such, the Research Innovation and Enterprise Centre, the university's centre responsible for research and innovation, has actively facilitated and supported research activities, and publications in various platforms available to scientific communities and the public.

I would like to thank staff of the Institute of Biodiversity and Environmental Conservation for continuously conducting good research and documenting crucial information that benefits many users including scientists across the region. It is well in line with the Institute's vision to become a leading center for research in tropical biodiversity and environmental conservation in Borneo and Southeast Asian region. I would like to congratulate the editors for their efforts in compiling and editing the data resulted from a multidisciplinary expedition in Bungo Range in December 2017 into a well indexed research book. I do believe that each article in this book serves its purpose as an important reference to academics, policy makers as well as public audiences. In particular, the findings would be a useful reference for the management plan of Bungo Range National Park that was gazetted on 26 February 2009.

To materialise the multidisciplinary expedition and the publication, the Institute had collaborated with various state agencies and local communities. Therefore, I am acknowledging their support and contribution (both financial and in-kind) to this project. They are Forest Department Sarawak, Sarawak Forestry Corporation,

Sarawak Biodiversity Centre, Sekolah Kebangsaan Tringgus, Pejabat Pendidikan Daerah Bau, Bau District Office, Bau District Council, Klinik Kesihatan Krokong, Bau District Police, Bau Fire and Rescue Station, Bau Hospital, and villagers from Tringgus settlement namely, Kg Bong, Kg Rotan and Kg Nguan. I hope similar collaborative efforts will be pursued in the near future to other protected areas in Sarawak.

To the authors, UNIMAS Publisher, and those who are involved in this publication, keep up with the good team spirit.

Finally, thank you for inviting me to pen my message in this great reading material.

Prof. Dr. Wan Hashim bin Wan Ibrahim
Deputy Vice Chancellor (Research and Innovation)
Universiti Malaysia Sarawak

PREFACE

This publication marks another significant output of the collaborative works between Universiti Malaysia Sarawak and Forest Department Sarawak on biodiversity study and conservation in the State.

In this book, the findings of multidisciplinary expedition to Bungo Range in December 2017 were compiled into 24 chapters covering biodiversity, environment and community under the theme “Bungo Range - Biodiversity and Community”. The theme signifies the importance of the pristine mountainous forest of the Bungo Range that supports rich species of flora and fauna, and the uniqueness of community and their customs as well as cultures. The involvement of academics, researchers and the villagers in the expedition has enhanced the exchange of knowledge, skill, and experience among the stakeholders, which are reflected in this book. In particular, the participation of the villagers in the expedition had indirectly conveyed the message of the Forest Department Sarawak on the importance of conserving the forest of Bungo Range and preserving local cultures. Ironically, the Bungo Range is becoming a popular tourism destination due to the outstanding sceneries such as mountains, waterfalls, reservoir, and the cultures (e. g., the last ring ladies). Indeed, this book will serve as a useful reading material for researchers, scientists and non-government organization in their research endeavour.

We would like to congratulate the editors, authors and those who contributed to the production of this book. We wish similar outputs shall be achieved from future collaborative work between Universiti Malaysia Sarawak and Forest Department Sarawak. Specifically, we would like to thank the community leaders and heads of department in Bau District for their support throughout the project. Yang Berhormat Miro Simuh for his strong supports of the expedition and launching of the event on 5th December 2017.

We hope this book serves the needs of the audiences either as academic reference or reading material in leisure time. Happy Reading!

Prof. Dr. Mohd Azlan Jayasilan

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BUTTERFLIES OF SOUTHWESTERN BUNGO RANGE

Muhamad Ikhwan Idris, Fatimah Abang, Christharina S Gintoron, Nur Azizuhamizah Idris, Ahmad Irfan Abdul Razak, Ratnawati Hazali, Wan Nurainie Wan Ismail, Raziman Imam Ghazali and Mohamad Jalani Mortada

Tropical rainforests are distinguished by the enormous biodiversity they support, within which, insects are the most diverse animal group. Spectacular insect groups such as the lepidopterans are among the best-known insects and serve as a good bioindicator group. An expedition to explore and document the diversity of butterflies in Bungo Range is essential as it is an important water catchment area that covers primary forest and secondary forest resulted from logging and agricultural activities years ago.

Butterfly collection was conducted from 5th to 10th December 2017. Passive and active techniques of sampling were used, which include baited-traps and aerial nets. Our recent surveys have provided some information on the present occurrence of the butterfly species in Bungo Range. Twenty eight species comprised of five families were identified. The specimens were identified to species level based on Otsuka (1988), Seki et al. (1991), Otsuka (2001), and Abang (2006).

Observing the diversity in such a short period of time is not that conclusive. Undoubtedly, more sampling needs to be conducted to fill the gaps in the list of butterflies of Bungo Range. Thus, the biodiversity seen in this chapter is based on the trapping effort and this list does provide a snapshot of the butterfly species found here. The presence of species listed under Convention on

International Trade in Endangered Species of Wild Fauna and Flora (CITES) represented by papilionids *Trogonoptera* sp. and *Troides* sp. (Appendix II) in the area further illustrates the considerable importance of Bungo Range forests for conservation.

Checklist of Butterflies of Bungo Range

Family	Species	Common name
Papilionidae	<i>Papilio fuscus dayacus</i>	Canopus Swallowtail
	<i>Papilio nephelus albolineatus</i>	Black and White Helen
	<i>Papilio iswara araspes</i>	Great Helen
	<i>Papilio demoleus</i>	Lime butterfly
	<i>Papilio memnon memnon</i>	Great Mormon
	<i>Graphium agamemnon agamemnon</i>	Tailed-Jay
	<i>Graphium sarpedon sarpedon</i>	Common Bluebottle
	<i>Trogonoptera brookiana brookiana*</i>	Rajah Brooke's Birdwing
	<i>Troides helena mosyclus*</i>	Common Birdwing
Pieridae	<i>Eurema hecabe hecabe</i>	Common Grass Yellow
	<i>Leptosia nina malayana</i>	Psyche
Nymphalidae	<i>Cethosia hypsea hypsea</i>	Malay Lacewing
	<i>Neptis duryodana duryodana</i>	Common Sailer
	<i>Tanaecia munda munda</i>	
	<i>Faunis stomphax stomphax</i>	
	<i>Euploea mulciber portia</i>	Striped Blue Crow
	<i>Ypthima fasciata fasciata</i>	The Malayan Six-Ring
	<i>Ypthima pandocus sertorius</i>	Common Three-ring
	<i>Ragadia makuta umbrata</i>	Striped Ringlet
	<i>Coelites euptychioides euptychioides</i>	Purple-streaked Catseye
	<i>Mycalesis mnasicles mnasicles</i>	
	<i>Discophora necho cheops</i>	The Blue Duffer
	<i>Neorina lowii lowii</i>	Malayan Owl

Lycaenidae	<i>Anthene emolus goberus</i>	Ciliate Blue
	<i>Jamides celeno lawasa</i>	Common Cerulean
	<i>Euchrysops cnejus</i>	Gram Blue
	<i>Laxita teneta</i>	Gossamer-winged butterflies
Hesperiidae	<i>Ancistroides gemmifer dombya</i>	The Gem Demon

*CITES Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.



Plate 12.1. *Menelaides memnon memnon*.
 Photograph by Badiozaman Sulaiman.



Plate 12.2. *Trogonoptera brookiana brookiana*



Plate 12.3. *Cethosia hypsea hypsea*



Plate 12.4. *Neorina lowii lowii*.

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This book highlights the significant findings from the Multidisciplinary Expedition in Bungo Range conducted on 5-10 December 2017. The expedition was organized by the Institute of Biodiversity and Environmental Conservation, UNIMAS with support from the Forest Department Sarawak. This volume is illustrated in 24 chapters covering the historical exploration of Bungo Range, a geological feature of the mountain, water resources, aquatic biodiversity, floristics, mammals, birds, reptiles, amphibians, insects, and health and socio-economics of the Tringgus community. It is reported herewith in the book that there are a total of 313 species of plants mainly orchids and zingers, and 298 species of wildlife, among them 105 birds, 39 mammals, 92 insects, 27 reptiles, 17 amphibians, and 59 aquatic lives. Additionally, the use of natural resources by the local community in Tringgus is also presented. This book can serve as a useful reference for the development and management of Bungo Range National Park, and the communities living surrounding the area.