



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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INTRODUCTION

Sarawak government has voluntarily set aside more than 2.6 million hectares of lands and water bodies as conservation areas under the Heart of Borneo (HOB) Initiatives. The Sarawak's HOB area stretch from the north in Limbang Division to the south at Tanjung Datu that boundaries with Sabah, Brunei and Kalimantan, Indonesia. Of the total HOB area, approximately 441,000 hectares are totally protected area comprising national parks, wildlife sanctuaries and nature reserves. The southern part of the HOB contains 10 protected areas many of which are tourism hotspots such as Bako National Park, Kubah National Park, Gunung Gading National Park, Matang Wildlife Centre and Tanjung Datu National Park.

Bungo Range is located at 10° 16' latitude and 110° 9' longitude of the southern side of the HOB, about 500 meter above the sea level. The mountainous primary forest of the area was gazetted as Bungo Range National Park on 26th February 2009 covering 8,096 heactares (**Figure 1.1**). Bungo Range is an important water catchment area in the upstream of the Sarawak Kiri River and Sarawak Kanan River, where the Bengoh Dam is built to provide water supply for Kuching population. The southern end of the Bungo Range is the boundary of West Kalimantan, Indonesia.

In 2017, a multidisciplinary expedition to Bungo Range was conducted as one of the activities organized in conjunction with UNIMAS's Silver Jubilee Celebration. The Institute of Biodiversity and Environmental Conservation had led the expedition with the support of Forest Department Sarawak and other Institutes as well as Faculties within the university. The goal of the expedition was to increase the visibility of UNIMAS not just to the Tringgus community, but also to answer the call of the Sarawak government that wants to emphasise the implementation of Digital Biodiversity

in this state. The expedition was conducted for two weeks with the launching of the event held on 5th December 2017 at Tringgus settlement area.

Despite the earliest exploration in the area back to year 1880s, there is a lack of information pertaining to biodiversity and socio-economy, which are necessary to enhance biodiversity conservation, and boost local economic activities in the area. The expedition had produced substantial baseline data for the management of Bungo Range National Park, and highlight the area as a tourism destination, which eventually would benefit the local community in the area. The findings of the expedition are compiled herewith, comprising historical exploration in Bungo Range, water resource, aquatic biodiversity, floristics, mammals, birds, reptiles, amphibians, insects, and health and socio-economics of the locals. In summary, this book reported a total of 313 species of plants mainly orchids and zingers, and 298 species of wildlife among others are 105 birds, 39 mammals, 92 insects, 27 reptiles, 17 amphibians, and 59 aquatic lives. Additionally, the use of natural resources by local community in Tringgus is also presented in this book.

Because the expedition had only covered a small area of the southern section of the Bungo Range, gaps of information in this edition are expected, which suggest more explorations are needed in the near future. In this regard, the editors would like to acknowledge the contribution of the authors of each article in this edition. This edition may not stop here, and we wish to be working with you all again!

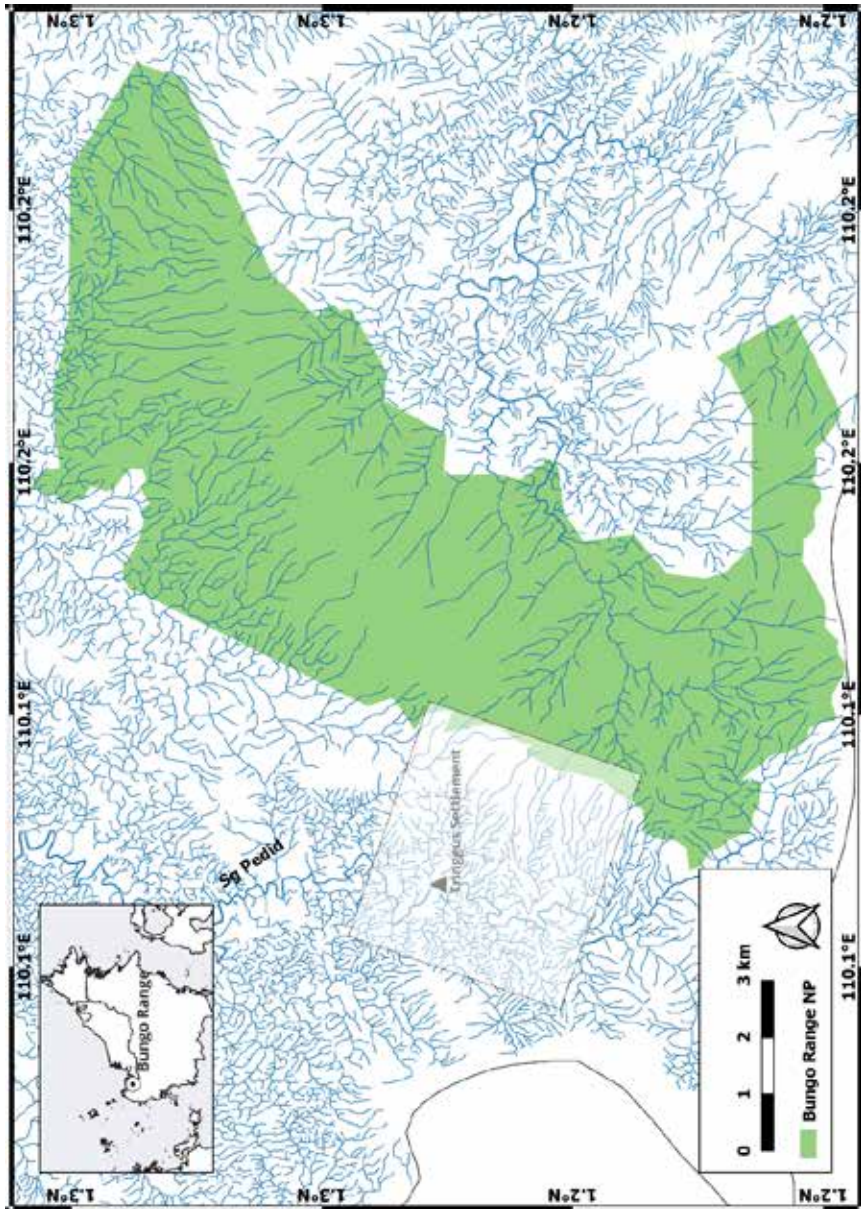


Figure 1.1. Map of Bungo Range National Park and the expedition area (shaded box).



THEME:
**GEOLOGICAL STUDY
AND ZOOLOGICAL
EXPLORATION**

HISTORICAL ACCOUNT OF ZOOLOGICAL EXPLORATIONS

Indraneil Das and Faisal Ali Anwarali Khan

The Bungo Range, in western Sarawak, is a distinct, semicircular ridge. The Range is associated with hills and plains, representing a complex mosaic of limestone and sandstone formations (**Figure 3.1**). Despite its proximity to major urban centres of Bau and Kuching, few explorers have investigated areas close to the Range. This may be due to the steep, karst towers at its periphery, lack of roads and location of its remote settlements. The situation is further complicated with the location of the Bungo Range at a poorly-demarcated area on the international border.

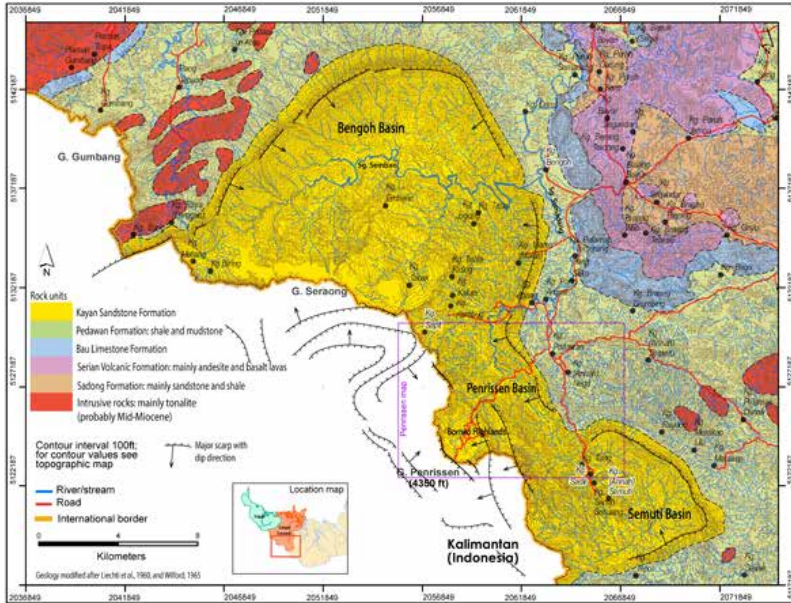


Figure 3.1. Map of western Sarawak, showing location of the Bungo Range. Copyright: Hans Hazebroek.

The National Park was established with a proposed headquarters to the north-west of the Range. Nonetheless, all historical information on zoological collections relate to Pangkalan Ampat, an important boat-landing centre on the old Rajah Brooke route to the interior of western Sarawak, located to the extreme south-eastern edge of the Range. Pangkalan Ampat, today, is a nearly 60 km away from the Park Headquarters using the motorable road. However, if one follows the uncharted semicircular ridgeline on a map, it is a mere 14 km away to the north-west.

The adjacent Gunung Penrissen was an early objective of exploration. Alfred Hart Everett (1848–1898), who first came to Sarawak in 1877 as a professional collector, and later entered the service of Rajah Charles Brooke (1829–1917), made the trip to Penrissen, ‘during the wet season 1889–90’, and, among other mammals, collected the first two examples of the Bornean Mountain Ground Squirrel, *Sundasciurus everetti*. This species was named after him, as *Sciurus everetti* by Oldfield Thomas (1858–1929). A decade later, on another expedition to Penrissen, in 1899, led by Robert Campbell Shelford (1872–1912; **Figure 3.2**), Curator of Sarawak Museum (1897–1905), making a brief stop, collected a small series of crustaceans and vertebrates. Nonetheless, two of these- a crab and a snake, proved new to science. Over a century later, one sees a revival of interest in the biological diversity of the Bungo Range, and a scientific expedition organised by Universiti Malaysia Sarawak forms the contents of this book.



Figure 3.2. Portrait of Robert Campbell Shelford (1872–1912), Curator of the Sarawak Museum.

Arguably the first herpetological specimen from the Range is that of the holotype of the colubrid snake, *Xenelaphis ellipsifer* (the Natural History Museum London, BMNH 1946.1.7.38, collected 1891) in a “Dayak fish trap”. The earliest exploration of the Range was made by Shelford. Some of his collections from Pangkalan Ampat, where he stopped while on his expedition to Gunung Penrissen in 1899, are preserved in the Sarawak Museum’s zoological collection (currently maintained by the Forest Research Centre, Kuching), and include invertebrates, amphibians, reptiles, birds and mammals. A few types of his new species were donated to the British Museum (Natural History), London and other European institutions.

Few details are available of Shelford collection activities while at Pangkalan Ampat. It appears that his team used the base to explore areas further afield. At least five km away was the type locality of the crab, *Terrathelphusa kuchingensis*, collected by Shelford and given to describe by Giuseppe Nobili (1877–1908) a crustacean specialist at the University of Turin. A single amphibian specimen, the tree toad-*Rentapia hosii* (SM Da.3.1.6.d, collected 1899), from Pangkalan Ampat was personally collected by Shelford and deposited in the Sarawak Museum collection. The only reptile taken was a specimen of the Lined Pipe Snake, *Cylindrophis lineatus* (SM Cd.3.1.2a, collected in May 1899). Prior to the present century, the only other herpetological collection from the Range was made during the time of George Darby Haviland (1857–1901), a British surgeon and naturalist who specialised on plants. During his curatorship of the Sarawak Museum (1891–1893), a native collector, presumably in the Museum’s pay, collected the agamid lizard *Gonocephalus liogaster*. Haviland’s name is associated with taxonomic works on plants, although there is no evidence of his collections made from the Bungo Range.

The earliest records of birds of the Bungo Range, are contained in a checklist by Shelford and published in 1900 in the Journal of the Straits Branch of the Royal Asiatic Society. Of the specimens obtained during the expedition, Shelford wrote with a twinge of disappointment, “bird-life in general, except Barbets, was most noticeably scarce. I attribute this scarcity partly to the fact that the mountain has long been the happy hunting-ground of the Land Dyaks...”. Nonetheless, he appeared somewhat satisfied with the haul of “low-country birds was made at Pangkalan Ampat, at the head of the left-hand branch of the Sarawak river, and about 10 miles from the foot of Penrissen”. The most interesting species for Shelford was the Blue-banded Kingfisher, *Alcedo euryzona*, common in the highlands, and somewhat rare in the lowlands. Using contemporary nomenclature, a total of 30 bird species can be recognised as specifically collected from Pangkalan Ampat. An additional 16 species are inferred to occur in the lowlands, presumably at this site and its environs, that could be accessed on foot by native collectors in Shelford’s pay.

Mammal collections from the Range during the Shelford Expedition were meagre, amounting to only three specimens of two species. Two specimens of Slender Squirrel, *Sundasciurus tenuis* (SM 0104/3, collected 7.6.1899 and SM 0104/32, collected 3.6.1899) and a Slow Loris identified as *Nycticebus coucang* (SM 084/3, collected 30.8.1895). The Slender Squirrel has also been collected in western Sarawak at 1,650 m on Gunung Pueh, a distance of ca. 110 to the north-west, but is a common lowland and hill forest species, which is listed as a 'Least Concern' species in the IUCN Red List. Based on genetic and morphological data, the species *Nycticebus coucang* is now restricted to Peninsular Malaysia, Singapore, Sumatra and adjacent islands. On biogeographical grounds, the local species is likely to be Philippines Slow Loris (*N. menagensis*), but re-examination of the specimen is required for its reidentification and association with the appropriate species name.

In this essay, we reviewed past collections and observations made at Bungo Range, all being made over a century ago. The lack of baseline information on the faunal wealth suggests potential for future research in these and nearby hill ranges for years to come.

BUNGO RANGE

BIODIVERSITY AND COMMUNITY

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.