

The background of the cover is a vibrant landscape photograph. At the top, a blue sky is filled with large, white, fluffy clouds. Below the sky, a range of dark, forested mountains stretches across the horizon. In the middle ground, a dense, green forest covers the slopes of the mountains. On the left side, a waterfall cascades over large, grey rocks. In the bottom right corner, a small village with colorful houses and a winding road is visible, partially obscured by a layer of white mist or low clouds that fills the lower portion of the image. The title 'BUNGO RANGE' is prominently displayed in the center, with 'BUNGO' in white and 'RANGE' in black, both in a large, bold, sans-serif font. The word 'BUNGO' has a slight gradient and a soft shadow. The word 'RANGE' is filled with a collage of nature-related images, including a toucan bird, a parrot, and various green leaves. Below the title, the subtitle 'BIODIVERSITY AND COMMUNITY' is written in a smaller, bold, black, sans-serif font. At the bottom, the names of the editors are listed in a smaller, bold, black, sans-serif font.

# **BUNGO RANGE**

**BIODIVERSITY AND COMMUNITY**

**EDITORS**

**GABRIEL TONGA NOWEG**

**FAISAL ALI ANWARALI KHAN**

**JONGKAR GRINANG**



# **BUNGO RANGE**

**BIODIVERSITY AND COMMUNITY**



# **BUNGO RANGE**

**BIODIVERSITY AND COMMUNITY**

EDITORS

GABRIEL TONGA NOWEG  
FAISAL ALI ANWARALI KHAN  
JONGKAR GRINANG

SUPPORTING EDITORS

CINDY PETER  
RUNI SYLVESTER PUNGG  
ANDREW ALEK TUEN

UNIVERSITI MALAYSIA SARAWAK

# BUNGO RANGE

BIODIVERSITY AND COMMUNITY

© UNIMAS Publisher, 2023

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher.

Photographs copyright 2023 with respective photographers.

Published in Malaysia by  
UNIMAS Publisher,  
Universiti Malaysia Sarawak,  
94300 Kota Samarahan,  
Sarawak, Malaysia.

Printed in Malaysia by

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

# CONTENTS

<b>Foreword</b>	ix
<b>Preface</b>	xi
<b>Introduction</b>	1
<b>Theme: Geological Study and Zoological Exploration</b>	5
Geology of Bungo Range, Bau	
Historical Account of Zoological Explorations	
<b>Theme: Water Quality and Aquatic Biota</b>	23
Water Quality of Pedid River and The Tributaries	
Fish Fauna of Pedid's Tributaries	
Macroinvertebrates of Pedid River and The Triburaies	
<b>Theme: Flora Environment</b>	45
Understorey Flora of Southwestern Bungo Range	
Hapaline (Araceae: Angiosperm) of Borneo	
Orchids of Bungo Range	
The Importance of Forest Regeneration in Protecting Economically Important Tree Species	
<b>Theme: Terrestrial Fauna Environment</b>	91
Odonata of Bungo Range	
Butterflies of Southwestern Bungo Range	
Bird Mites of Southwestern Bungo Range	
The Anurans of Southwestern Bungo Range	

The Reptiles of Bungo Range	
Birds of Southwestern Bungo Range	
Mammals of Southwestern Bungo Range	
Mid-Sized to Large-Bodied Terrestrial Mammals	
<b>Theme: Community, Culture and Health Environment</b>	167
A Brief Note on Tringgus	
In The Search of A Story: The Tringgus Oral Narrative	
Traditional Knowledge of Tringgus Community	
Tagang Systemon Pedid River	
Waterborne Parasites in Tringgus Villages	
<i>Burkholderia</i> from Selected Villages in Bungo Range	
Bungo Villagers' Rendition of Nose and Throat Cancer	
<b>List of Contributors</b>	241
<b>Editors Info</b>	255
<b>Index</b>	259



# 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 5<sup>th</sup> 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**

Director  
Institute of Biodiversity and  
Environmental Conservation  
Universiti Malaysia Sarawak

**Datu Hamden Haji Mohammad**

Director  
Forest Department Sarawak

# 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.

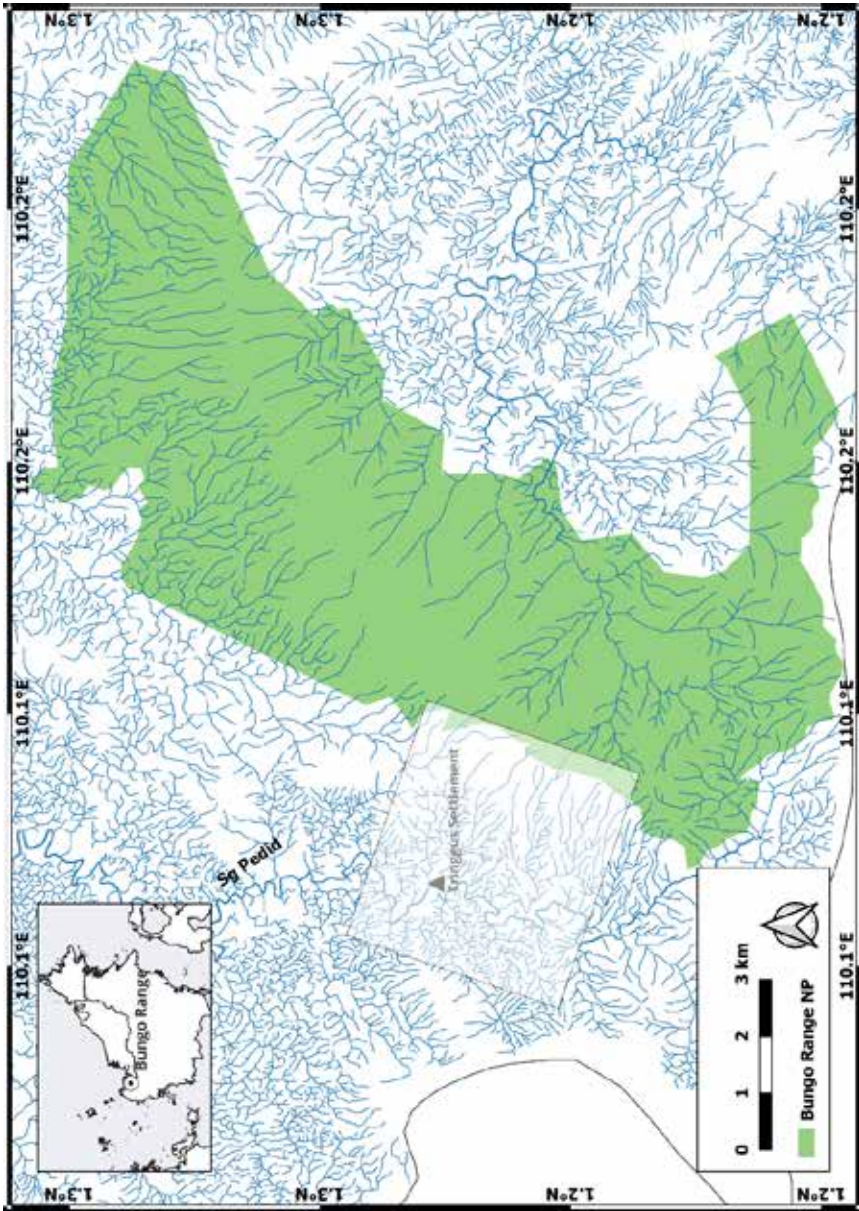
Bungo Range is located at 10° 16' latitude and 110° 9' longitude of the southern side of the HOB, about 500 meter above the sea level. The mountainous primary forest of the area was gazetted as Bungo Range National Park on 26<sup>th</sup> February 2009 covering 8,096 heactares (**Figure 1.1**). Bungo 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 5<sup>th</sup> 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**

# BIRDS OF SOUTHWESTERN BUNGO RANGE

Ng Wen Teng, Mohamad Fizl Sidq Ramji, Nadhirah Izzaty Selamat, Isa Sait, Rahah Mohd. Yakup, Mohd Hasri AL Hafiz Haba and Andrew Alek Tuen

Bungo Range National Park (BRNP) is part of the Sarawak Kiri Catchment bordering Malaysia and Indonesia on Borneo, with coordinates of 1°16'0" N and 110°9'0" E (**Figure 16.1**). The Park is located at an elevation of 300 to 950 meters above sea level, covered by hill-mixed dipterocarp forest and few patches of tropical heath forest. It is surrounded by several Bidayuh villages, including Kampung Puak and Tringgus. The sampling location is located at the eastern site of the range, where it can be accessed from Tringgus, Bau. The natural scenery and biodiversity of this national park has now become the potential attractions to both local and foreign visitors. However, the current knowledge on the bird diversity in the Bungo Range National Park remains undocumented.

A bird survey was conducted from 6<sup>th</sup> to 10<sup>th</sup> December 2017 along Jenai Trail 1 (1.3 km) and Jenai Trail 2 (1.2 km). Both trails comprises mainly secondary logged forest, where few patches of open areas were found along the Jenai Trail 1. These areas were mainly used for crop plantations by the villagers. Both mist-netting and direct observation were conducted with the aim to produce a preliminary bird checklist of Bungo Range National Park. Forty mist-nets and four high-nets were deployed along these two trails with a total sampling effort of 4356 net hours. A total of 105 species representing 32 families were documented during the survey, of which 40 bird species were recorded using mist-netting technique. Meanwhile, the direct observation yielded a comparatively high number of 87 species recorded throughout the survey. Munias, orioles, malkohas, owls, and hornbills were recorded via vocalisation and direct observation.

Based on the results, Jenai Trail 1 recorded a slightly lower number of bird captured (21 species) compare to Jenai Trail 2 (27 species), probably due to the presence of open areas such as orchards along the trail. The most frequently recorded family in this survey was Pycnonotidae (bulbuls), with a total of nine species captured. Grey-cheeked bulbul (*Alophoixus tephrogenys*), Hairy-backed bulbul (*Tricholestes criniger*), and Yellow-bellied bulbul (*Alophoixus phaeocephalus*) are the most common among the bulbuls recorded throughout the survey. The bulbul family is distributed across most of Africa and into the Middle East, tropical Asia to Indonesia, and Japan. The majority of bulbuls are frugivorous. They feed on various type of foods, ranging from fruit to seeds, nectar, and also supplement their diet with some arthropods. The most abundant species recorded was the Little Spiderhunter (*Arachnothera longirostra*) from the Nectariniidae family with 30 individuals mist-netted. The Little Spiderhunter is among the commonest understorey species that can be found in logged forest, from extreme lowland to montane forest at 1500 meters. They are widely distributed in the Himalayas and India, through South China and Southeast Asia to Peninsular Malaysia, Singapore, Sumatra, Borneo, Java and Central and South Philippines. This species is nectarivorous, where they also feed on fruits and small insects. The high abundance of Little Spiderhunter might be due to the availability of food sources such as the wild banana flowers and the flowers of *Amomums sp.*, a type of wild ginger that is diverse and widespread in Sarawak.

Out of the 105 species identified, White-crowned Hornbill (*Berenicornis comatus*) and Greater Green Leafbird (*Chloropsis sonnerati*) are listed as 'Endangered', whilst the Large-billed Blue-flycatcher (*Cyornis caerulatus*) is listed as 'Vulnerable' based on the recent IUCN Red Data List 2020. A total of 29 species of 'Near Threatened' birds are also listed in **Table 16.1**. Among the 29 birds recorded, the Chestnut-capped Thrush (*Geokichla interpres*) is well known as the uncommon but nomadic resident in Sarawak. It inhabits lowland forest, ranged from 400 to 1300 meters. This

shy and secretive bird is a ground forager, preferably to feed on invertebrates and fruits in understorey most of the time.

Two species are categorised as 'Totally Protected' under Sarawak Wildlife Protection Ordinance 1998, which are the Bushy-crested Hornbill (*Anorrhincus galeritus*) and White-crowned Hornbill. Four individuals of Bushy-crested Hornbill and three individuals of White-crowned Hornbill were spotted and identified along the trail to the Bungo Range summit. The Bushy-crested Hornbill are dark grey-brown in colour, has a blue face with black bill. The White-crowned Hornbill has a distinctive shaggy white head, breast, and tail. The wings are black, where black neck and underparts can be seen in female. They prefer to inhabit dense forests along rivers and streams at the foothills. Nevertheless, there were also few occasional sightings of hornbills in selectively logged forests, orchards, oil-palm and rubber plantations, where they mainly feed on various fruits, arthropods, lizards and frogs. The decline of hornbill populations are mainly due to poaching and extensive logging that destroyed their habitat.

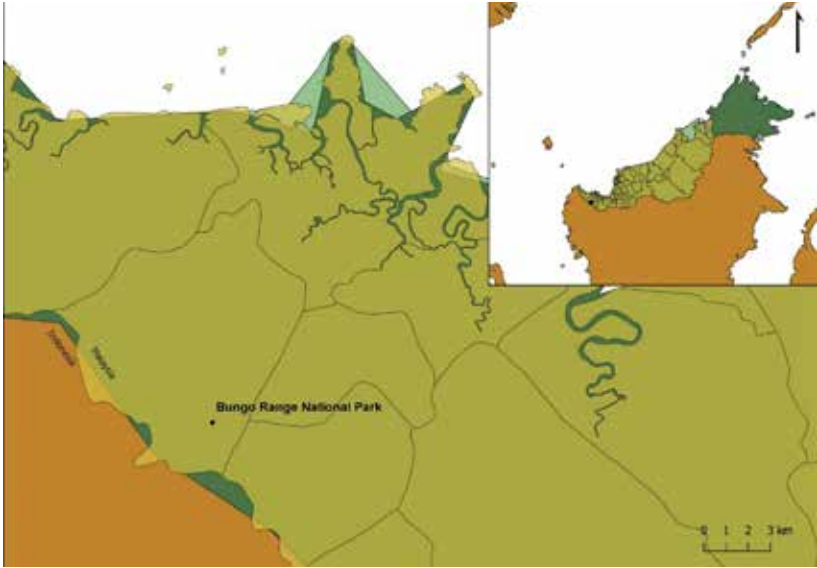
A total of 15 species recorded were listed as 'Protected Species' under Sarawak Wildlife Protection Ordinance 1998. Nine species were recorded from the direct observation, including the Crested Goshawk (*Accipiter trivirgatus*), Blue-breasted Quail (*Synoicus chinensis*), Banded Woodpecker (*Picus miniaceus*), Buff-necked Woodpecker (*Meiglyptes tukki*), Crimson-winged Woodpecker (*Picus puniceus*), Blue-crowned Hanging-parrot (*Loriculus galgulus*), Brown Hawk-owl (*Ninox scutulata*), Sunda Scops-owl (*Otus lempiji*), and Hill Myna (*Gracula religiosa*) while the Rufous-collared Kingfisher (*Actenoides concretus*) and Maroon Woodpecker (*Blythipicus rubiginosus*) were caught by mist-netting method. Four protected species including the Oriental Dwarf Kingfisher (*Ceyx erithaca*), Asian Paradise Flycatcher (*Terpsiphone affinis*), Rufous Piculet (*Sasia abnormis*), and Yellow-bellied Bulbul (*Alophoixus phaeocephalus*) were recorded using both methods.

Two Bornean endemics were recorded in BRNP namely the Dusky Munia (*Lonchura fuscans*) from Family Estrildidae and Bornean Frogmouth (*Batrachostomus mixtus*) from Family Podagridae. Four individuals of Dusky Munia were recorded from the direct observation, whilst the Bornean Frogmouth was caught in the mist-net. Dusky Munia is a common endemic species of Borneo, including a remote Philippine Island – Cagayan de Sulu that lies within Borneo coastal water. This species prefers to roost in pairs or small groups. Unlike the other munias, Dusky Munia prefers more heavily vegetated habitats. They feed on various grass seeds and fragments from the ground and nest in dense vegetation or crannies in the earth banks. On the other hand, the nocturnal Bornean Frogmouth is well-camouflaged by its buffish-white collar with bold white spots on the scapular and a distinctive large, flattened-hooked bill. The distribution of Bornean Frogmouths are restricted to Sabah, Sarawak, and Kalimantan. They commonly inhabit the lower montane and submontane forests, with elevation ranged from 610 to 1675 meters. These two endemic species are listed as ‘Non-protected Species’ under the Sarawak Wildlife Protection Ordinance 1998. Based on the latest IUCN Red Data List 2020, Dusky Munia is categorised as ‘Least Concern’ while Bornean Frogmouth is listed as ‘Near Threatened’. Bird Life International 2020 stated that the Bornean Frogmouth population is suspected to suffer from moderately rapid decline. The extensive forest destruction on lowland forest may have affected its general distribution on higher elevation.

On the other hand, an uncommon visitor – the Eyebrowed Thrush (*Turdus obscurus*) was also recorded in the sampling. This bird is monotypic. It is best known as the passage migrant to Sabah, Sarawak and also Brunei, but no records from Kalimantan. The Eyebrowed Thrush inhabit lowland dipterocarp to montane forest that up to 3000 meters. It is often found in small flocks, and prefers to feed mainly on small insects and fruits. This bird often visits the fruit trees, but also tend to forage on the ground for fallen fruits and

invertebrates. The long and slightly curved white eyebrow gives this Eyebrowed Thrush an elegant appearance. Besides, the adult male has brown body with grey head and orangish underparts, while the female is olive-brown with significant white on throat.

Birds are one of the important biological indicators of a healthy forest by regulating important ecological services such as seed dispersal and plant reproduction, as well as natural insect population control. The findings above suggest that the Bungo Range National Park could serve as an important habitat to a diverse bird community of both lowland and hill slope specialist such as the White-crowned Hornbill and White-necked Babbler (*Stachyris leucotis*). The conservation significance of this protected area was highlighted by the sightings of two hornbill species. A total of four endangered as well as endemic species have also further highlighted the importance of Bungo Range NP to serve as the protected area for diverse avifauna. Hence, higher number of bird species is expected if more or longer surveys and mist-netting effort are to be considered in other areas of the park, particularly at higher elevation.



**Figure 16.1.** Bungo Range National Park located near the boundary of Malaysia – Indonesia.



**Plate 16.1.** Yellow-bellied Bulbul (*Alophoixus phaeocephalus*).



**Plate 16.2.** Grey-headed Babbler (*Stachyris poliocephala*).



**Plate 16.3.** Maroon Woodpecker (*Blythipicus rubiginosus*).





**Plate 16.4.** Orange-bellied Flowerpecker (*Dicaeum trigonostigma*).



**Plate 16.5.** Rufous-tailed Tailorbird (*Orthotomus sericeus*).



**Plate 16.6.** Bornean Frogmouth (*Batrachostomus mixtus*).



**Plate 16.7.** Rufous-winged Philentoma (*Philentoma pyrhoptera*).  
Photograph by Hilda Jelembai.



**Plate 16.8.** Green Broadbill (*Calyptomena viridis*).  
Photograph by Hilda Jelembei.



**Plate 16.10.** Yellow-breasted Flowerpecker (*Prionochilus maculatus*).  
Photograph by Hilda Jelembei.



**Plate 16.11.** Oriental Dwarf Kingfisher (*Ceyx erithaca*).  
Photograph by Hilda Jelembei.

**Table 16.1.** List of bird species observed in Bungo Range National Park, Sarawak (Note that WPO 1998 = Sarawak Wildlife Protection Ordinance 1998; TP = Totally Protected, P = Protected, NP = Not Protected, IUCN = IUCN Red Data list (2018); LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered, DS = Distributional Status; R = Resident, CR = Common Resident, SR = Scarce Resident, CNR = Common Nomadic Resident, UR = Uncommon resident, N = Native, M = Migrant, E = Endemic).

Family	Common name	Scientific name	WPO 1998	IUCN	DS
Accipitridae	Crested Goshawk	<i>Accipiter trivirgatus</i>	P	LC	CR
	Crested Serpent-eagle	<i>Spilornis cheela</i>	NP	LC	R
Aegithinidae	Asian Fairy Bluebird	<i>Irena puella</i>	NP	LC	CR
	Blue-winged Leafbird	<i>Chloropsis cochinchinensis</i>	NP	LC	CR
	Greater Green Leafbird	<i>Chloropsis sonnerati</i>	NP	EN	CR
Alcedinidae	Rufous-collared Kingfisher*	<i>Actenoides concretus</i>	P	NT	SR
	Oriental Dwarf Kingfisher*	<i>Ceyx erithaca</i>	P	LC	CR
Bucerotidae	Bushy-crested Hornbill	<i>Anorrhinus galeritus</i>	TP	NT	R
	White-crowned Hornbill	<i>Berenicornis comatus</i>	TP	EN	UR
Cisticolidae	Ashy Tailorbird	<i>Orthotomus ruficeps</i>	NP	LC	R
	Rufous-tailed Tailorbird	<i>Orthotomus sericeus</i>	NP	LC	R
Columbidae	Emerald Dove*	<i>Chalcophaps indica</i>	NP	LC	CNR
	Pink-necked Green Pigeon	<i>Treron vernans</i>	NP	LC	R
	Spotted Dove	<i>Streptopelia chinensis</i>	NP	LC	R
	Thick-billed Green Pigeon	<i>Treron curvirostra</i>	NP	LC	CR

Corvidae	Crested Jay	<i>Platylophus galericulatus</i>	NP	NT	CR
Cuculidae	Black-bellied Malkoha	<i>Phaenicophaeus diardi</i>	NP	NT	R
	Chestnut-bellied Malkoha	<i>Phaenicophaeus sumatranus</i>	NP	NT	UR
	Greater Coucal	<i>Centropus sinensis</i>	NP	LC	CR
	Lesser Coucal	<i>Centropus bengalensis</i>	NP	LC	CR
	Plaintive Cuckoo	<i>Cacomantis merulinus</i>	NP	LC	R
	Raffles's Malkoha	<i>Phaenicophaeus chlorophaeus</i>	NP	LC	CR
Dicaeidae	Orange-bellied Flowerpecker	<i>Dicaeum trigonostigma</i>	NP	LC	R
	Yellow-breasted Flowerpecker*	<i>Prionochilus maculatus</i>	NP	LC	R
	Yellow-vented Flowerpecker*	<i>Dicaeum chrysorrheum</i>	NP	LC	N
Dicruridae	Greater Racquet-tailed Drongo	<i>Dicrurus paradiseus</i>	NP	LC	R
Estrildidae	Black-headed Munia	<i>Lonchura malacca</i>	NP	LC	CR
	Dusky Munia	<i>Lonchura fuscans</i>	NP	LC	E
	White-bellied Munia	<i>Lonchura leucogastra</i>	NP	LC	UR
Eurylaimidae	Javan Broadbill	<i>Eurylaimus javanicus</i>	NP	NT	CR
	Black-and-red Broadbill*	<i>Cymbirhynchus macrorhynchus</i>	NP	LC	R
	Black-and-yellow Broadbill	<i>Eurylaimus ochromalus</i>	NP	NT	R
	Green Broadbill*	<i>Calyptomena viridis</i>	NP	NT	CR
Hirundinidae	Pacific Swallow	<i>Hirundo tahitica</i>	NP	LC	R

Megalaimidae	Blue-eared Barbet	<i>Megalaima australis</i>	NP	LC	R
	Brown Barbet	<i>Calorhamphus fuliginosus</i>	NP	LC	CR
	Gold-whiskered Barbet	<i>Megalaima chrysopogon</i>	NP	LC	CR
	Red-crowned Barbet	<i>Psilopogon rafflesii</i>	NP	NT	R
	Red-throated Barbet	<i>Psilopogon mystacophanos</i>	NP	NT	R
	Yellow-crowned Barbet	<i>Psilopogon henricii</i>	NP	NT	R
Meropidae	Red-bearded Bee-eater	<i>Nyctornis amictus</i>	NP	LC	CR
Monarchidae	Asian Paradise Flycatcher*	<i>Terpsiphone affinis</i>	NP	LC	CR
	Black-naped Monarch*	<i>Hypothymis azurea</i>	NP	LC	CR
Muscicapidae	Grey-chested Jungle Flycatcher*	<i>Cyornis umbratilis</i>	NP	NT	CR
	Chestnut-naped Forktail*	<i>Enicurus ruficapillus</i>	NP	NT	CR
	Hill Blue Flycatcher	<i>Cyornis banyumas</i>	NP	LC	UR
	Large-billed Blue-flycatcher*	<i>Cyornis caeruleatus</i>	NP	VU	CR
	Malaysian Blue Flycatcher	<i>Cyornis turcosus</i>	NP	NT	CR
	Rufous-chested Flycatcher*	<i>Ficedula dumetoria</i>	NP	LC	R
	White-rumped Shama*	<i>Copsychus malabaricus</i>	P	LC	R

Nectariniidae	Brown-throated Sunbird	<i>Antheptes malacensis</i>	NP	LC	CR
	Crimson Sunbird	<i>Aethopyga siparaja</i>	NP	LC	R
	Little Spiderhunter*	<i>Arachnothera longirostra</i>	NP	LC	R
	Long-billed Spiderhunter	<i>Arachnothera robusta</i>	NP	LC	R
	Olive-backed Sunbird	<i>Nectarina jugularis</i>	NP	LC	CR
	Plain Sunbird*	<i>Antheptes simplex</i>	NP	LC	R
	Purple-naped Sunbird*	<i>Hyogramma hypogrammicum</i>	NP	LC	R
	Ruby-cheeked Sunbird	<i>Antheptes singalensis</i>	NP	LC	CR
Oriolidae	Black-and-Crimson Oriole	<i>Oriolus cruentus</i>	NP	LC	CR
	Dark-throated Oriole	<i>Oriolus xanthonotus</i>	NP	NT	CR
Pellorneidae	Black-capped Babbler*	<i>Pellorneum nigrocapitatum</i>	NP	LC	R
	Ferruginous Babbler*	<i>Trichastoma bicolor</i>	NP	LC	R
	Horsfield's Babbler*	<i>Malacocincla sepiaria</i>	NP	LC	CR
	Moustached Babbler*	<i>Malacopteron magnirostre</i>	NP	LC	CR
	Rufous-crowned Babbler*	<i>Malacopteron magnum</i>	NP	NT	CR
	Scaly-crowned Babbler*	<i>Malacopteron cinereum</i>	NP	LC	R
	Short-tailed Babbler*	<i>Trichastoma malaccense</i>	NP	NT	R
	White-chested Babbler*	<i>Trichastoma rostratum</i>	NP	NT	R
Phasianidae	Blue-breasted Quail	<i>Synoicus chinensis</i>	P	LC	CR



Picidae	Banded Woodpecker	<i>Picus miniaceus</i>	P	LC	CR
	Buff-necked Woodpecker	<i>Meiglyptes tukki</i>	P	NT	R
	Crimson-winged Woodpecker	<i>Picus puniceus</i>	P	LC	R
	Maroon Woodpecker*	<i>Blythipicus rubiginosus</i>	P	LC	CR
	Rufous Piculet*	<i>Sasia abnormis</i>	P	LC	R
Podargidae	Bornean Frogmouth*	<i>Batrachostomus mixtus</i>	NP	NT	E
Psittacidae	Blue-crowned Hanging-parrot	<i>Loriculus galgulus</i>	P	LC	R
Pycnonotidae	Black-headed Bulbul	<i>Pycnonotus atriceps</i>	NP	LC	R
	Grey-cheeked Bulbul*	<i>Alophoixus tephrogenys</i>	NP	LC	CR
	Hairy-backed Bulbul*	<i>Tricholestes criniger</i>	NP	LC	R
	Olive-winged Bulbul*	<i>Pycnonotus plumosus</i>	NP	LC	CR
	Puff-backed Bulbul*	<i>Euptilotus eutilotus</i>	NP	NT	N
	Red-eyed Bulbul	<i>Pycnonotus brunneus</i>	NP	LC	CR
	Streaked Bulbul*	<i>Ixos malaccensi</i>	NP	NT	UR
	Yellow-bellied Bulbul*	<i>Alophoixus phaeocephalus</i>	NP	LC	N
	Yellow-vented Bulbul	<i>Pycnonotus goiavier</i>	NP	LC	R
Rhipiduridae	Pied Fantail	<i>Rhipidura javanica</i>	NP	LC	R
	Spotted Fantail	<i>Rhipidura perlata</i>	NP	LC	CR
Strigidae	Brown Hawk-owl	<i>Ninox scutulata</i>	P	LC	R
	Sunda Scops-owl	<i>Otus lempiji</i>	P	LC	CR

Sturnidae	Asian Glossy Starling	<i>Aplonis panayensis</i>	NP	LC	R
	Hill Myna	<i>Gracula religiosa</i>	P	LC	CR
Timaliidae	Black-throated Babbler	<i>Stachyris nigricollis</i>	NP	NT	R
	Chestnut-backed Scimitar Babbler*	<i>Pomatorhinus montanus</i>	NP	LC	UR
	Chestnut-rumped Babbler*	<i>Stachyris maculata</i>	NP	NT	R
	Chestnut-winged Babbler*	<i>Stachyris erythroptera</i>	NP	LC	R
	Fluffy-backed Tit-babbler	<i>Macronous ptilosus</i>	NP	NT	R
	Grey-headed Babbler*	<i>Stachyris poliocephala</i>	NP	LC	CR
	Striped Tit-babbler	<i>Macronous gularis</i>	NP	LC	R
	White-necked Babbler	<i>Stachyris leucotis</i>	NP	NT	UR
	Diard's Trogon	<i>Harpactes diardii</i>	NP	NT	CR
	Scarlet-rumped Trogon	<i>Harpactes dauvaucelli</i>	NP	NT	CR
Turdidae	Chestnut-capped Thrush†	<i>Geokichla interpres</i>	NP	NT	UR
	Eyebrowed Thrush*	<i>Turdus obscurus</i>	NP	LC	M
Vangidae	Oriental Magpie-Robin	<i>Copsychus saularis</i>	NP	LC	R
	Rufous-winged Philentoma*	<i>Philentoma pyrrhoptera</i>	NP	LC	LR

\*Recorded from mist-net only.

## References

- Bird Life International. (2020). *The IUCN Red List of Threatened Species 2020*. Retrieved 18 May 2020.
- Bird Life International. (2020). *Species factsheet: Batrachostomus mixtus*. Retrieved 18 May 2020.
- eBird. (2020). *eBird: Eyebrowed Thrush Turdus obscurus*. Retrieved 18 May 2020.
- Karr, J. R., Robinson, S. K., Blake, J. G. & Bierregaard Jr, R. O. (1990). Birds of four Neotropical forests. In *Four Neotropical Rainforests*. Gentry, A. H. (ed.). Yale University Press. Pp. 237-272.
- Kemp, A. C., Kirwan, G. M. & Sharpe, C. J. (2018). Bushy-crested Hornbill (*Anorrhinus galeritus*). In *Handbook of the Birds of the World Alive*. del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. & de Juana, E. (eds.). Lynx Edicions, Barcelona.
- Marques, J. T., Ramos Pereira, M. J., Marques, T. A., Santos, C. D., Santana, J., Beja, P. & Palmeirim, J. M. (2013). Optimizing sampling design to deal with mist-net avoidance in Amazonian birds and bats. *PLoS ONE*, 8(9): 1-8.
- Myers, S. (2009). *A field guide to the birds of Borneo*. New Holland Publication, UK.
- Myers, S. (2016). *Helm field guides: Birds of Borneo (Second edition)*. Bloomsbury Publishing Plc, UK.
- Phillipps, Q. & Phillipps, K. (2014). *Phillipps's field guide to the birds of Borneo, Sabah, Sarawak, Brunei and Kalimantan*. Third edition. John Beaufoy Publishing Ltd, UK.
- Ramji, M. F. S., Rahman, M. A., Tuen, A. A., Amit, B. & Haron, K. (2016). Diversity of avifauna in peat swamp forest. In *Biodiversity of Tropical Peat Swamp Forests of Sarawak*. Mohd-Azlan, J. & Das, I. (eds.). Kota Samarahan, Universiti Malaysia Sarawak.
- Sodhi, N. S. (2002). A comparison of bird community of two fragmented and two continuous South East Asian forest. *Biodivers. Conserv.*, 11: 1105-1119.
- Tracewski, L., Butchart, S. H. M., Di Marco, M., Ficetola, G. F., Rondinini, C., Symes, A., Wheatley, H., Beresford, A. E. & Buchanan, G. M. (2016). Toward quantification of the impact of 21st-century deforestation on the extinction risk of terrestrial vertebrates. *Conserv. Biol.*, 30(5): 1070-1079.
- Zakaria, M. & Zamri, R. (2008). Immediate of selective logging on the feeding guild of understory bird species composition in Peninsular Malaysia. *Malaysian For.*, 71: 39-151.

# 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.