

PELAGUS NATIONAL PARK

Biodiversity Above the Rapids





Life from Headwaters to the Coast

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Edited by

Andrew Alek Tuen, Indraneil Das
Karen Lee Suan Ping and Jayasilan Mohd-Azlan



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Andrew Alek Tuen, Indraneil Das, Karen Lee Suan Ping and Jayasilan Mohd-Azlan

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Half-title page: The Rapids of Pelagus, as seen in August 2003. Photo: I. Das
Frontispiece: *Megophrys nasuta*, the Bornean Horned Frog. Photo: Pui Yong Min
Foreword page and across: Aerial view of Pelagus Kaki Wong. Photo: Tonny Ganyai.

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FOREWORD

Prof. Datuk Dr. Mohamad Kadim Suaidi
Vice Chancellor, Universiti Malaysia Sarawak

Since its humble beginnings in 1992, Sarawak's first public university, Universiti Malaysia Sarawak (UNIMAS), has put natural resource management and biodiversity conservation at the forefront of its research agenda. This includes the setting up of the Faculty of Resource Science and Technology and the Institute of Biodiversity and Environmental Conservation. The



location of UNIMAS on the island of Borneo has given us a unique opportunity to study its biodiversity, one of the most diverse in the world. Over the years, university researchers have discovered new species and uncovered new facets of the biology of numerous threatened species and landscapes, contributing to the conservation of species and habitats in Sarawak and beyond.

To be globally relevant and forward looking, UNIMAS has established linkages and collaborated with like-minded individuals and institutions within Malaysia and overseas. On 24 September 2013, we formalised a research collaboration with Sarawak Energy, to embark on the first in-depth study of the 2,041-hectare Pelagus National Park. As a result of this collaboration, significant new findings have come to light and have been featured in this book.

I would like to congratulate the authors, editors and publishers for their hard work and perseverance, to help unravel the wonders of biodiversity of Pelagus, and make this place of magic and mystery accessible to the world.

MESSAGE

Datu Haji Sharbini Suhaili

Group Chief Executive Officer, Sarawak Energy Berhad

Congratulations to all those who are part of this important publication. Your contribution will enhance knowledge and understanding of Sarawak's biodiversity areas in general and the Pelagus National Park in particular.

In mid-2020, it was announced by the Sarawak government that Sarawak will become a high-income economy by 2030 through the two core principles of a digital economy and environmental sustainability, and Sarawak Energy is fully aligned to this vision.

We are developing our energy resources sustainably to deliver greater access to affordable, reliable and sustainable energy for Sarawak and its people, in alignment with Goal #7 of the United Nations Sustainable Development Goals (SDG) 2030.

Just over a decade ago, Sarawak made a strategic decision to reduce our dependence on thermal resources of coal, gas and diesel through the Sarawak Corridor of Renewable Energy.

As a result, Sarawak Energy is now the largest renewable energy developer and provider in Malaysia through our investments in large renewable hydropower as well as solar and micro-hydro for remote areas.

As a member of the International Hydropower Association, we are a strong advocate of sustainable hydropower and are working to integrate a robust sustainability agenda into our business. It is estimated that less than 2% of our land area will be affected when we fully harness our hydropower potential to ensure a sustainable energy future for our state and beyond.

To conserve biodiversity in line with SDG #15, we are working with various state agencies, higher learning institutions, local communities and stakeholder groups on efforts to mitigate any negative impact and maximise the positive impact of our projects and operations.

Initiatives include the implementation of sustainable management of forest types which are important water catchments. We also contribute to



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the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services. Our partnerships so far have yielded encouraging successes.

1. The Batang Ai National Park and catchment area, located within the area of the 35-year-old Batang Ai Hydroelectric Plant (HEP), serve as a buffer zone that supports the regeneration of the surrounding environment. The area is now home to a sustainable population of the Bornean orangutan in Sarawak and forms part of the transboundary conservation area with Indonesia's Betung Kerihun National Park.
2. For the Murum HEP project, the Wildlife Monitoring and Rescue (WiMoR) operation with the Sarawak Forestry Corporation rescued and relocated wildlife in significant numbers to safer areas before impoundment.

To ensure we understand the effectiveness of our efforts, research and development is an important part of our business. This creates greater understanding of the impact of our projects by enhancing the body of knowledge and enables us to make informed decisions in environmental management and conservation.

In 2013, we partnered with Universiti Malaysia Sarawak (UNIMAS) and rolled out the Hydropower Environmental Sustainability Programme with a focus on three objectives:

- i. To identify critical local environmental issues that warrant closer attention;
- ii. Collect necessary data in forming baseline knowledge particularly in the areas of aquatic and terrestrial ecology and biodiversity; and
- iii. Support the development of local research capability and capacity within Sarawak on related environmental topics.

The 2,041-hectare Pelagus National Park was identified as one of the study locations under this programme given its importance as a protected area. Significant findings have been established and are featured in this book.

We are pleased to support this book publication together with Universiti Malaysia Sarawak (UNIMAS) in line with SDG #17 which calls for multi-stakeholder partnerships that mobilise shared knowledge, expertise, technology and financial resources.

On behalf of Sarawak Energy, I would like to thank UNIMAS for this research collaboration and for sharing your expertise and resources.

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We are also fortunate to have collaborated with and gauged the support from like-minded organisations such as our higher learning institutions, Forest Department Sarawak and Sarawak Forestry Corporation in enabling Sarawak Energy to play a greater role in local environmental conservation efforts.

I would also like to congratulate Sarawak Energy's Research and Development team. I am confident that you have gained valuable experience and further exposure through this research as part of Sarawak Energy's hydropower development journey.



REPTILES

*Indraneil Das, Pui Yong Min, Adi Shabrani,
Benjamin R. Karin and Mohamad Paisal Wahab*

We report an inventory of reptiles recorded at the Pelagus National Park, between May 2014 and April 2015. Information from an earlier trip made in 2003 and a museum record have been included in the species list. Transect walks and visual encounter surveys were employed, but given the short periods available for sampling, limited pitfall-trapping could be conducted. A total of 26 species of reptiles were recorded, as presented. These include 21 lizards and four snakes, as well as unconfirmed reports of a crocodylian. A general impression of the reptile fauna at the Pelagus National Park is that it is a subset of the assemblage found in the widespread lowland Bornean hill dipterocarp forests. Nonetheless, a leaf litter skink of the genus *Sphenomorphus* is undescribed, and several others are recognised as belonging to taxonomically ‘problematic’ groups.

Of the species in the list, the Bornean Earless Monitor (*Lanthanotus borneensis*) is considered to be under threat, as it is subject to trade and also suffering from habitat loss and fragmentation. This lizard is ‘Totally Protected’ under Sarawak’s Wildlife Laws. The Earless Monitor was not encountered during our recent surveys within the boundaries of the Park, but was recorded from the site by Robert Shelford, English Curator of the Sarawak Museum, in the early part of the last century.

Four lizards belonging to taxonomically ‘problematic’ groups represent members of their respective species complexes. When taxonomic studies are completed, these are likely to be species endemic to the region or at least shown to have far more restricted species ranges than currently assumed. Since range size is an important determinant of IUCN’s conservation status ranking, reduction of species distribution ranges has the potential to heighten the threatened status of these lizards.

Turtle species are conspicuously absent from the Park’s reptile checklist, but a few species may be expected to appear in future surveys. These include the softshell turtles *Dogania subplana* and *Amyda cartilaginea*, as well as semi-terrestrial and terrestrial forms encountered at the nearby wet market of Kapit. These are *Cyclemys enigmatica* and *Cuora amboinensis*, and more rarely, *Manouria emys*.

The Estuarine Crocodile, *Crocodylus porosus*, although not observed in

REPTILES

recent surveys, was said to occur along the Pelagus bank of the Sungei Rajang, and downstream, from the Kapit region, both by local inhabitants as well as separate research teams during independent eye-shine surveys.

The limited species list for a tropical area is indicative of inadequate sampling efforts. Long-term field investigations, using multiple trapping techniques, have the potential to quadruple the species count, judging from species richness figures for similar lowland forest habitats on Borneo.

A Checklist of Reptiles

Species recorded from Pelagus National Park, Batang Rajang (current: 23 August 2020). IUCN Status (IUCN, 2020): NE – Not Evaluated, and LC – Least Concern.

Species	Common Name	Status	Endemism	Remarks
Squamata (Lizards)				
Agamidae				
<i>Bronchocela cristatella</i> (Kuhl, 1820)	Green Crested Lizard	NE	-	Member of a species complex
<i>Draco cornutus</i> Günther, 1864	Horned Flying Lizard	LC	+	
<i>Draco obscurus</i> Boulenger, 1887	Dusky Flying Lizard	LC	+	
<i>Draco quinuefasciatus</i> Hardwicke & Gray, 1827	Five-lined Flying Lizard	NE		
<i>Gonocephalus bornensis</i> (Schlegel, 1848)	Bornean Angleheaded Lizard	LC	+	
<i>Gonocephalus grandis</i> (Gray, 1845)	Great Angleheaded Lizard	LC	-	
<i>Pelturagonia</i> cf. <i>nigrilabris</i> (Peters, 1864)	Black-lipped Shrub Lizard	LC	+	Member of a species complex
Eublepharidae				
<i>Aeluroscalabotes felinus</i> (Günther, 1864)	Cat Gecko	LC	-	Member of a species complex
Gekkonidae				
<i>Cyrtodactylus consobrinus</i> (Peters, 1871)	Peters' Bow-fingered Gecko	NE	-	
<i>Cyrtodactylus hantu</i> Davis, Bauer, Jackman, Nashriq & Das, 2021	Pelagus Grooved Bow-fingered Gecko	LC	+	Member of a species complex

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Species	Common Name	Status	Endemism	Remarks
<i>Gekko horsfieldii</i> (Gray, 1827)	Horsfield's Flying Gecko	LC		
<i>Gekko monarchus</i> (Schlegel in: Duméril & Bibron, 1836)	Spotted House Gecko	NE	-	
Lanthanotidae				
<i>Lanthanotus borneensis</i> Steindachner, 1877	Borneo Earless Monitor	NE	+	
Scincidae				
<i>Dasia vittata</i> (Edeling, 1864)	Striped Tree Skink	LC	+	
<i>Eutropis multifasciata</i> (Kuhl, 1820)	Common Sun Skink	LC	-	
<i>Eutropis rudis</i> (Boulenger, 1887)	Striped Ground Skink	NE	-	
<i>Sphenomorphus</i> cf. <i>multisquamatus</i> Inger, 1958	Many-scaled Litter Skink	LC	+	
<i>Tropidophorus beccarii</i> Peters, 1871	Beccari's Water Skink	LC	+	
<i>Tropidophorus brookei</i> (Gray, 1845)	Brook's Water Skink	LC	+	
<i>Tythoscincus hallieri</i> (van Lidth de Jeude, 1905)	Hallier's Litter Skink	LC	+	
Varanidae				
<i>Varanus salvator</i> (Laurenti, 1768)	Water Monitor	LC	-	
Squamata (Snakes)				
Colubridae				
<i>Boiga drapiezii</i> (Boie, 1827)	White-spotted Cat Snake	LC	-	
<i>Boiga jaspidea</i> (Duméril, Bibron & Duméril, 1854)	Jasper Cat Snake	LC	-	
<i>Lycodon albofuscus</i> (Duméril, Bibron & Duméril, 1854)	Dusky Wolf Snake	LC	-	
<i>Opisthotropis typica</i> (Mocquard, 1890)	Corrugated Water Snake	LC	+	
Crocodylia (Crocodilians)				
Crocodylidae				
<i>Crocodylus porosus</i> Schneider, 1801	Saltwater Crocodile	LC	-	



Fig. 1. (a) *Draco obscurus*; (b) *Draco quinquefasciatus*; (c) *Pelturagonia* cf. *nigrilabris*; (d) *Aeluroscalabotes felinus*; (e) *Cyrtodactylus consobrinus*.



Fig. 2. (a) *Cyrtodactylus hantu*; (b) *Dasia vittata*; (c) *Lanthanotus borneensis*; (inset) *Lanthanotus borneensis*.

REPTILES



Fig. 3. (a) *Sphenomorphus* cf. *multisquamatus*; (b) *Tytthoscincus hallieri*; (c) *Varanus salvator*; (d) *Boiga drapiezzii*; (e) *Boiga jaspidea*.