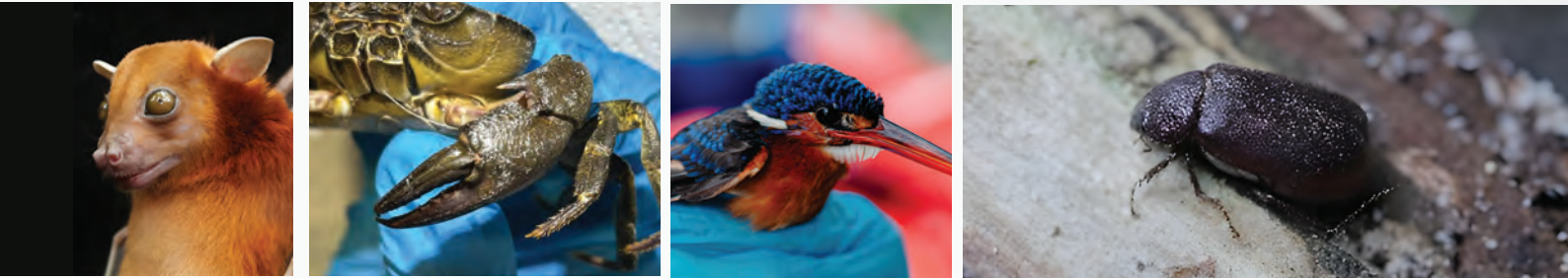
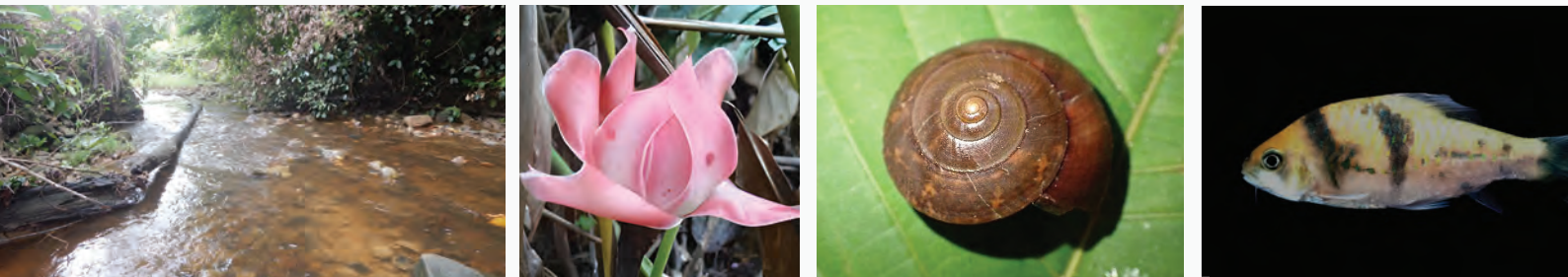


EXPLORING NATURE'S RECOVERY



BIODIVERSITY RESILIENCE



SABAL FOREST RESERVE

Edited By

Mohd Zacaery Khalik, Dayang Nuriza Abang Abdillah, Azahari Omar,
Runi Anak Sylvester Punga, Meekiong Kalu, Faisal Ali Anwarali Khan

BIODIVERSITY

EXPLORING NATURE'S RECOVERY

SABAL FOREST RESERVE

RESILIENCE



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MESSAGE FROM THE MINISTER



It gives me great pleasure to extend my heartfelt congratulations on the publication of this scientific book on the Sabal Forest Reserve. This publication reflects the strong commitment of the Government of Sarawak and its partners to advancing scientific knowledge, strengthening conservation efforts, and promoting sustainable forest management.

Aligned with the aspirations of the Post COVID-19 Development Strategy 2030 (PCDS 2030), Sarawak continues to prioritise environmental sustainability as a central pillar of its development agenda. Our forests are invaluable natural assets that harbour rich biodiversity, provide essential ecosystem services, and contribute significantly to the socio-economic well-being of our people. The conservation of forest reserves such as Sabal is therefore critical to ensuring these natural capital assets are preserved and responsibly managed for present and future generations.

Scientific expeditions play a vital role in generating comprehensive and reliable biodiversity data. Systematic documentation of flora and fauna, ecosystem functions, and habitat conditions contributes to the development of a robust scientific database. Such big data are essential for guiding evidence-based policymaking, enhancing conservation planning, and strengthening the management of forest ecosystems and wildlife habitats throughout Sarawak.

In the context of global climate change, the importance of forest conservation remains paramount. Forest ecosystems serve as significant carbon sinks, regulate climatic conditions, and enhance resilience to environmental disturbances. Conservation initiatives in areas such as the Sabal Forest Reserve therefore contribute directly to climate change mitigation and adaptation strategies, while supporting Sarawak's broader transition toward a green economy and the advancement of green energy.

This publication also underscores the importance of collaboration among government agencies, academic institutions, and local communities. Such partnerships are fundamental to advancing conservation initiatives, fostering knowledge sharing, and ensuring development proceeds in a balanced and sustainable manner.

I applaud all contributors for their dedication and commitment in making this publication a success. It is my sincere hope that this book will serve as an important reference and continue to support informed decision making and effective conservation efforts in Sarawak.

Thank you.

A stylized, handwritten signature in black ink, belonging to Yang Berhormat Datuk Amar Awang Tengah Ali Hasan.

Yang Berhormat Datuk Amar Awang Tengah Ali Hasan
Deputy Premier of Sarawak
Second Minister for Natural Resources and Urban Development
Minister for International Trade, Industry and Investment Sarawak

PREFACE 1 FROM FOREST DEPARTMENT SARAWAK



The publication of this scientific book on the Sabal Forest Reserve marks a significant milestone in the Forest Department Sarawak's continuing efforts to strengthen conservation and forest management through science based approaches, field research, and strategic collaboration.

Entrusted with the management of Sarawak's Permanent Forests, the Forest Department Sarawak upholds a core responsibility to ensure these forest resources are protected, managed, and used in a sustainable manner. Conservation is central to this duty, as it safeguards biodiversity, maintains ecological integrity, and supports the long term health of forest ecosystems that sustain both environmental stability and socio-economic development.

Sound scientific information is essential to effective conservation. Scientific expeditions enable the systematic collection of biodiversity data in areas that remain under documented or have experienced varying degrees of change. The insights generated from these efforts strengthen evidence based planning, monitoring, and management of our forest resources.

These expeditions also provide an important platform for collaboration. They bring together government agencies, academic institutions, researchers, and local communities, promoting the sharing of knowledge, expertise, and resources. The fieldwork offers valuable opportunities for students and young professionals to gain practical experience, fostering knowledge transfer and building capacity in conservation and forest management.

The Forest Department Sarawak expresses sincere appreciation to Universiti Malaysia Sarawak (UNIMAS) for its collaboration in this initiative, particularly for contributing complementary expertise and jointly undertaking data collection across multiple disciplines. Such partnerships are vital to advancing research, innovation, and conservation outcomes in Sarawak.

The Department acknowledges the financial support provided by the Ministry of Natural Resources and Environmental Sustainability through the Ecological Fiscal Transfer project under the Wildlife Assessment at Degraded Areas of Permanent Forests initiative. This support has enabled field assessments and the generation of scientific data that inform effective forest management. The Department also extends appreciation to the Ministry of Natural Resources and Urban Development for approving this project.

It is our hope that this publication will serve as a practical reference to guide future initiatives in conservation, research, and the sustainable management of Sarawak's forest resources.

Thank you.

YBhg. Datu Haji Hamden Mohammad
Director of Forests Sarawak

PREFACE 2 FROM UNIVERSITI MALAYSIA SARAWAK



It is with great pride and appreciation that I present this Sabal Expedition Book, a significant scholarly contribution arising from the collaborative scientific expedition at the Sabal Forest Reserve between Forest Department Sarawak (FDS) and Universiti Malaysia Sarawak (UNIMAS). This publication reflects UNIMAS enduring commitment to advancing knowledge, fostering research excellence, and contributing meaningfully to the conservation of Sarawak's rich natural heritage.

The Sabal Scientific Expedition stands as a testament to the strength of strategic partnerships, particularly between UNIMAS and the FDS. Through this collaboration, we have successfully brought together a diverse team of researchers, academicians, and students, unified by a shared vision to explore, document, and understand the ecological complexity of Sabal Forest Reserve. Such initiatives exemplify the role of universities not only as centres of learning but also as catalysts for impactful research and community engagement.

This book encapsulates the outcomes of an intensive and multidisciplinary effort, covering a wide spectrum of studies including biodiversity assessments, ecosystem evaluations, and environmental analyses. The findings presented herein highlight both the ecological significance of Sabal and the pressing need for informed conservation and sustainable management. It is particularly encouraging to see the active involvement of students, which underscores UNIMAS's dedication to nurturing future scientists and conservation leaders through experiential learning and field-based research.

In alignment with national aspirations and global sustainability agendas, including the Sustainable Development Goals (SDGs), this publication reinforces the importance of evidence-based decision-making in biodiversity conservation. The knowledge generated from this expedition will serve as a valuable reference for policymakers, researchers, and stakeholders involved in environmental management and conservation planning.

I would like to extend my sincere congratulations to all contributors, including the editors, researchers, students, and collaborating agencies, for their dedication and hard work in making this publication a reality. It is my hope that this book will inspire continued research, strengthen institutional collaborations, and contribute to the long-term preservation of Sarawak's invaluable forest ecosystems.

Thank you.

A handwritten signature in black ink, appearing to read 'Ahmad Hata Rasit', written over a faint, stylized graphic of a tree or plant.

YBhg. Professor Dr Ahmad Hata Rasit
Vice Chancellor
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Sabal Forest Reserve

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◀ Haji Azahari bin Omar is Head of the Constitution and Conservation Division, and Chair of the Sabal and Simunjan Scientific Expeditions. He focuses on expanding the Permanent Forest Estate (PFE) and strengthening conservation across Sarawak.



◀ Datin Runi anak Sylvester Pungga is a senior officer with the Forest Department Sarawak, with extensive experience in forestry research and conservation. She has contributed to various scientific expeditions and initiatives supporting sustainable forest management in Sarawak

▶ Meekiong bin Kalu is a senior lecturer in the Faculty of Resource Science and Technology of UNIMAS. His field of expert is in plant taxonomy (particularly in the Order Zingiberales and Dipterocarpaceae family) and ecology.



◀ Faisal Ali Anwarali Khan is a zoologist specialising in the systematics, evolution and taxonomy of small mammals, with particular emphasis on bats in Malaysia. His research is strongly grounded in field-based biodiversity studies, contributing to the documentation of bat diversity, species distributions, and community assemblages across tropical ecosystems particularly in Sarawak and wider Malaysia.

EXPLORING NATURE'S RECOVERY BIODIVERSITY RESILIENCE SABAL FOREST RESERVE

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