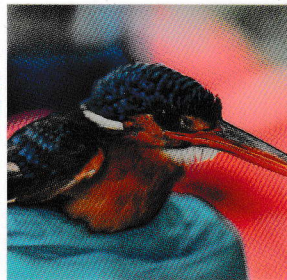
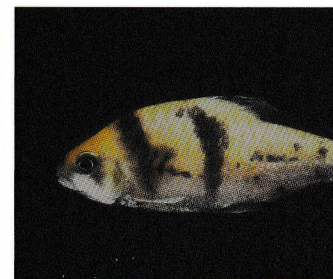
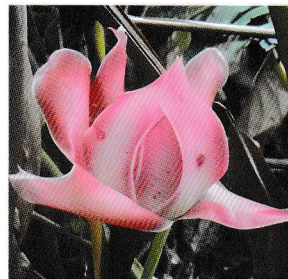


EXPLORING NATURE'S RECOVERY



# BIODIVERSITY RESILIENCE



## SABAL FOREST RESERVE

*Edited By*

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



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Recovery Sabal Forest Reserve

By

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# Wild Gingers (Zingiberaceae)

Meekiong Kalu, Mohd Akmal Mohd Raffi, Nur Sabrina Mohd Subri, Bernaddete Andriesse, Nurul Nurain, Johari, Charlene Joyce Chakiris, Yazid Kalbi & Nur Safinas Jelani



▲ *Etlingera elatior*

The Zingiberaceae family, commonly known as wild gingers, is a vital ecological and ethnobotanical component of tropical rainforests. In Sarawak, these plants are highly valued for their traditional medicinal uses and culinary applications among local communities. The Sabal Forest Reserve (FR) serves as a critical habitat for these species due to its complex ecosystems and diverse microhabitats. Documenting ginger diversity in this region is essential for understanding tropical biodiversity and aiding conservation efforts against threats like deforestation.

The study was conducted within the Sabal FR, with a stratified random sampling method to ensure comprehensive coverage across various habitats, including riverbanks, disturbed areas, and undisturbed forest floors. Over a six-day field survey,

specimens were collected and identified using taxonomic keys, while environmental parameters such as soil type, light availability, and moisture were recorded to analyze their influence on species distribution.

The expedition recorded a total of 35 ginger species across 12 different genera. While this represents only 17.5% of the total ginger species recorded in Sarawak, the reserve is a significant site for biodiversity due to the presence of potentially new taxa.

Genus	No. of Species	Notable Observations
<i>Alpinia</i>	5	One of the most diverse genera in the Sabal FR
<i>Etilingera</i>	5	Includes <i>E. coccinea</i> and <i>E. elatior</i> that prefers sunlight areas
<i>Zingiber</i>	4	Includes a potential new scientific discovery
<i>Globba</i>	2	Recorded species include <i>G. atosanguinea</i> and <i>G. pendula</i>
<i>Hornstedtia</i>	3	Typically found in areas with higher sunlight
<i>Sulettaria</i>	3	Includes the newly proposed species, <i>S. kimiana</i>

The distribution and density of wild gingers in Sabal are heavily dictated by environmental factors. Podzolic sandy soil (common in kerangas forests) generally hosts lower species diversity. However, the species found there, such as *Conamomum xanthophlebium*, are often unique to that specific soil type. Genera like *Etilingera* and *Hornstedtia* are adapted to sunlight areas. Conversely, most other genera (*Boesenbergia* and *Scaphochlamys*) thrive in shaded, high-moisture environments, particularly near streams or marshy areas. The overall low diversity (17.5%) is partly attributed to the fact that large portions of the Sabal FR consist of degraded areas with poor soil.



▲ *Etilingera coccinea*

The distribution of wild gingers in Sabal is dictated by a trade-off between light intensity and environmental moisture. While the overall diversity is relatively low due to soil degradation in parts of the reserve, specific microhabitats host distinct communities.

Habitat type	Characteristic Species	Light/Moisture Profile
Open Gaps/Edges	<i>Etilingera elatior</i> , <i>Hornstedtia scyphifera</i>	High light, moderate moisture
Stream Banks	<i>Alpinia aquatica</i> , <i>Plagiostachys albiflora</i>	Low light, very high moisture
Undisturbed Floor	<i>Zingiber puberulum</i> , <i>Meistera gyrolophos</i>	Shaded, high humidity
Kerangas Forest	<i>Conamomum xanthophlebium</i>	Sandy poor soil

The study concludes that the recorded diversity likely represents a conservative estimate. Expanding the research scope to include the mixed dipterocarp forests at the foot of the Kelingkang Range, which offer fertile, moist soil and numerous habitat niches, would likely increase the species count. As infrastructure development improves access to Sarawak's interior, there is a growing opportunity for local taxonomists to discover and document new species, thereby enhancing the preservation of the region's biological heritage.



▲ *Plagiostachys albiflora*



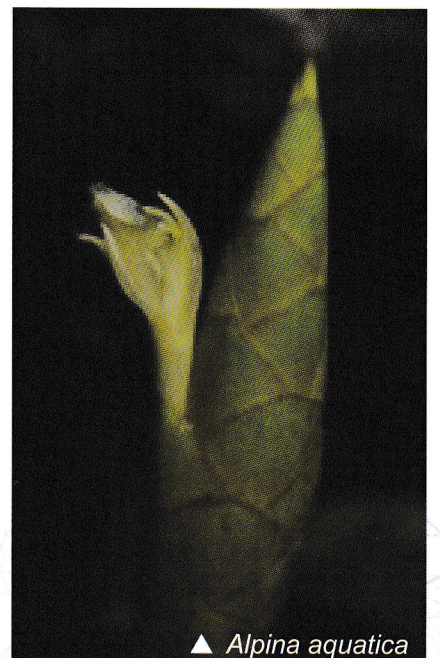
▲ *Hornstedtia scyphifera*



▲ *Etlingera foetens*



▲ *Zingiber puberulum*



▲ *Alpina aquatica*