

Scientific Journey Through Borneo: Loagan Bunut

A Scientific Expedition
on the Physical, Chemical, Biological, and Sociological Aspects

A.A. Tuen, A.K. Sayok, Toh A.N. and G.T. Noweg
Editors



PSF Technical Series No. 5



Ministry of Natural Resources
and Environment



Sarawak State Government



Published by

**Peat Swamp Forest Project, UNDP/GEF Funded (MAL/99/G31),
Sarawak Forests Department, and
Institute of Biodiversity and Environmental Conservation,
Universiti Malaysia Sarawak, Kota Samarahan, Sarawak.**

Copyright ©2006 Peat Swamp Forest Project, UNDP/GEF Funded (MAL/99/G31), Sarawak Forest Department and Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak.

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

The views expressed are those of the respective authors, and not necessarily of those from the Peat Swamp Forest Project, UNDP/GEF Funded (MAL/99/G31), Sarawak Forest Department and Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak.

First published 2006

ISBN 983-41877-6-9

Scientific Journey Through Borneo: Loagan Bunut. A Scientific Expedition on the Physical, Chemical, Biological, and Sociological Aspects. Edited by A.A. Tuen, A.K. Sayok, Toh A.N. and G.T. Noweg.

TABLE OF CONTENT

	Page
List of Abbreviations	i
Preface	ii–iii
Introduction	iv–xi
Summary	xii–xvi

PHYSICAL ENVIRONMENT

1. Landscape Development Around Loagan Bunut National Park, Sarawak
Hunt, C., H. Singh, D. Badang, R.M. Banda and G. Rushworth 1–23
2. The Soils of Peat Swamp Forest and Their Role in Regulating
the Baseflow to the Loagan Bunut Lake
Wan Sulaiman, W.H., N. Bessaih, A.K. Sayok, Murtedza M. and S. Lau 24–29
3. Channel Profiles and Hydrodynamics of Streams and Lake at the
Loagan Bunut National Park, Sarawak
Murtedza, M., N. Bessaih, Wan Sulaiman W.H., A.K. Sayok and E. Efransjah 30–35
4. The Water Quality Status of Loagan Bunut National Park, Sarawak
Lau, S., Murtedza M., K. Apun, A. C.H. Bong, M.G. Tay and A.K. Sayok 36–44
5. Estimation of Sediment Yield in the Loagan Bunut
Noweg, G T., Wan Sulaiman W.H., Murtedza M., N. Bessaih and A.K. Sayok 45–50
6. Organic Matter and Heavy Metal Contents in the Sediment of Loagan Bunut
Lau S., S.F. Sim, K. Devagi, A.C.H. Bong and A.K. Sayok 51–58

BIOLOGICAL ENVIRONMENT (PLANT)

7. Macro-fungi of Loagan Bunut National Park
*Sepiah, M., Noreha M., Norhayati A. S., Mohamad Rezuan, S. and
Mohd Azlan J.* 59–64
8. Flora of the Peat Swamp Forest of Loagan Bunut National Park, Sarawak
Tawan, C.S., I. Ipor, I. Jusoh, P. Bulan and M. Demies 65–72
9. Stand Characteristics of Loagan Bunut Peat Swamp Forests
Jusoh, I., M. Demies, I. Ipor, C.S. Tawan and P. Bulan 73–82

10. Floristic Composition and Structure of Riverine Forest at Sungai Bunut, 83–87
 Loagan Bunut National Park
Ipor I., P. Bulan, I. Jusoh, C.S. Tawan and M. Demies
11. Tropical Seed Bank Management: Germination and Nutrients Composition of the Seeds and Fruits of Several Wild Riverine Trees in Loagan Bunut National Park 88–93
Bulan, P., C.S. Tawan, I. Ipor, I. Jusoh, M. Demies and A.K. Sayok
12. S.W.O.T. Analysis for Determining Potential and Constraints of Agroforestry in Loagan Bunut National Park 94–101
Jiwan, M., P. Lepun, I. Johan and I. Dahlan

BIOLOGICAL ENVIRONMENT (FISH & WILDLIFE)

13. Fish Fauna of Loagan Bunut National Park, Sarawak 102–109
Nyanti, L., A.K. Sayok and E. Efransjah
14. Riverine Fishery in Loagan Bunut National Park: Present Status, Threats and Management Strategies 110–122
Nyanti, L., G.T. Noweg and A.K. Sayok
15. The Genetic Diversity of *Helostoma temminckii* Cuvier 1829 in Loagan Bunut Inferred Using Sequencing Analysis of Cytochrome c oxidase I mt DNA gene 123–130
Yuzine, E., K.P. Dennis and K.A.A. Rahim
16. The Herpetofauna of Loagan Bunut 131–154
Das, I. and K.A. Jensen
17. Quantifying Diversity of Macromoth in Loagan Bunut National Park 155–162
Laman, C.J., F. Abang, P. Meleng and J. Ngumbang
18. Quantifying the Diversity of Avifauna at Loagan Bunut National Park 163–172
Laman, C.J., D.F.A. Gawin and M.A. Rahman
19. Diversity and Abundance of Mammal in Loagan Bunut National Park 173–182
Mohd-Azlan J., A.A. Tuen, M. Khombi, I. Sait and M.T. Abdullah

ETHNICITY AND PUBLIC HEALTH

20. Negotiating Ethnic Boundaries and Resource Use Patterns in Loagan Bunut National Park 183–195
Egay, K., R. Malong and D. Ngidang
21. The Penan of Lower Tinjar, Baram, Sarawak: A Community at the Periphery 196–201
Salleh, M.S., Z. Hassan, A.M. Abdullah, S.D. Chandran, W.S.M. Osman and S.B.K. Kiai

22. Medicinal Plants of Loagan Bunut National Park, Sarawak 202–207
Noweg, G.T., A. M. Razip, E. Tipot and J. Liam
23. Environmental Isolation of Burkholderia Species and Seroepidemiology of Melioidosis Among Indigenous Communities in the Periphery of Loagan Bunut National Park, Sarawak 208-212
Abdul Karim, R.H., T.J.J. Inglis, I. Ibrahim, S.D. Puthucheary and H. Bohari

ARTS, CULTURE & TOURISM

24. Loagan Bunut: An Artistic Exploration—The Significance of Loagan Bunut to the Berawan Community 213–220
Wan Jamarul, I., Z. A. Zulkarnain, A. Ayob, A. Hamdan and S. Mohamad
25. The Musical Styles of the Berawan People within the Upper Reaches of Sungai Bunut, Sarawak, East Malaysia 221–226
Ng, S.A., A.R. Dim, R. Lawrence, and W. Satot
26. Loagan Bunut Inspirations: Works Given by Nature. Traditional Costume and Motifs of Berawan Women 227–233
Jussem, S.W., N. Shaari, K.A.A.A Rahman, M. Shanat, N. Suleiman and I. Sarbini
27. Potentials of Ecotourism Interpretive Products in Loagan Bunut National Park 234–239
Manohar, M., Noor Azlin Y., Roslina M., Azyyati A.K. and Azman A. R.

LG
 173
 S3
 S
 4 5

LIST OF ABBREVIATIONS

AAS	Atomic Absorption Spectrophotometry
ABaF	Alan Batu Forest
ABuF	Alan Bunga Forest
AN	Ammoniacal Nitrogen
BOD	Biochemical Oxygen Demand
Btg.	Batang @ Major River
cm	centimetre
COD	Chemical Oxygen Demand
DBH	Diameter at Breast Height
DO	Dissolved Oxygen
DOF	Department of Fisheries
Figs.	Figures
FO	Fruit Orchard
FRIM	Forest Research Institute Malaysia
GEF	Global Environment Facility
ha	hectare
HUMS	Herbarium Universiti Malaysia Sarawak
INWSM	Interim National Water Quality Standards
ITRI	Interpretative Trail Resource Inventory
IUCN	International Union for Conservation of Nature
KF	Keruntum Forest
kg	kilogram
km	kilometre
KOH	Potassium Hydroxide
LBNP	Loagan Bunut National Park
LOI	Loss-on-ignition
m	metre
MDF	Mixed Dipterocarp Forest
mg	milligram
MSF	Mixed Peat Swamp Forest
NCRs	Native Customary Rights
NO ₃ -N	Nitrate
NREB	Natural Resources Environment Board, Sarawak
PAF	Padang Alan Forest
PCR	Polimerase chain reaction
PPF	Padang Paya Forest
PSF	Peat Swamp Forest
Rh.	Rumah @ Longhouse/Kampung
SAR Herbarium	Herbarium (of the Sarawak Forest Department)
SFC	Sarawak Forestry Corporation
SFD	Sarawak Forest Department
Sg.	Sungai @ River/Stream
TSS	Total Suspended Solids
UNDP	United Nations Development Programme
UNIMAS	Universiti Malaysia Sarawak
WQI	Water Quality Index