

Biodiversity in the Eastern Himalayas

Conservation through Dialogue

Editor
Chen Guangwei



International Centre for
Integrated Mountain Development

about ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) is an international organisation devoted to development of the Hindu Kush-Himalayan region covering all or parts of eight sovereign states:  Afghanistan,  Bangladesh,  Bhutan,  China,  India,  Myanmar,  Nepal, and  Pakistan. The Centre is located in Kathmandu, Nepal. The primary objective of the Centre is to promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations.

Biodiversity in the Eastern Himalayas

Conservation through Dialogue

**Summary Reports of Workshops on Biodiversity
Conservation in the Hindu Kush-Himalayan Ecoregion**

Chen Guangwei

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Foreword

Nature blooms, sings, crawls and prances in abundance in the Hindu Kush-Himalayas (HKH). Successions of forests adorn its valleys and flanks – from the tropical hardwoods to an astounding array of rhododendrons in alpine splendour. Tigers prowl at lower reaches while snow leopards mark their territories across high elevations. Giant pandas and small red pandas live on the rich variety of bamboo species. The world's greatest variation in altitudes combined with meteorological and geological convergences have created some of the world's richest and most beautiful biological diversity in the Eastern Himalayan region.

This wealth of biodiversity has helped support a rich diversity of human cultures and spurred the development of vast storehouses of indigenous knowledge on the use and care of nature's products. This has led to the identification, modification and cultivation of a variety of plants and animals, which help feed and keep healthy populations around the world. Himalayan biodiversity also provides ecosystem services within and below the mountains in the regulation of climate and water regimes, the safeguarding of present and future genetic assets, and the glorification of mountain, rivers, lakes, and caves held sacred.

Unfortunately, mutually beneficial and benign human interactions with mountain biological diversity are only part of the complex story of peoples and nature in the HKH. Throughout most of this fragile mountain region, biodiversity is being lost through over-exploitation of land, conversion to agriculture, pasture and settlements and resource degradation.

Governments have responded to this tragic threat by enacting new laws and policies for biodiversity protection, setting aside large areas of land as protected areas, and designating or strengthening government organs for policy implementation. International and national NGOs have played a key role in supporting, and sometimes leading, these conservation efforts.

Given the increased economic and political pressures to destructive short-term use of these mountain natural resources, these actions are remarkable achievements.

However, this has clearly not been enough to remove the threats. It is now overwhelmingly evident that effective conservation and long-term sustainable use of biodiversity in the HKH requires site specific approaches centered around the active leadership and willing participation of local mountain populations. Appropriate and strong local institutions — such as those set up for community forestry, buffer zone management, and eco-development — are critical to long-term access to these commonly used resources. Programme and policy approaches such as sharing proceeds from ecotourism, economic incentives for conservation, and strict enforcement of violations — especially those emanating from outside — are necessary. Building the scientific and people skills among forest and park department staff for applying new tools in geographic information systems, remote sensing, stakeholder analysis, and the facilitation of local action play a central role in enabling these new approaches to work — and seeing if in fact they do work.

Painstakingly prepared by Professor Chen Guangwei, Head of the Mountain Natural Resources Division of ICIMOD, this publication addresses these and related issues in the conservation of biodiversity in the HKH. It is a major output of the workshops and programmes carried out by the International Centre for Integrated Mountain Development (ICIMOD) to increase regional

understanding and cooperation, build capacity, improve policy, and enhance implementation of conservation in the HKH. These include: 'Sub-Regional Consultation on Conservation of Hkakaborazi Mountain Ecosystems in the Eastern Himalayas'; 'Preparing a Model Management Plan for Pidaung Wildlife Sanctuary'; 'Report of Collaboration on and Integrated Management of Mountain Ecosystems in Hongqiang, Chuxiong, Yunnan Province of China; 'Nepal/Tibet Autonomous Regional Transboundary Cooperation for Conservation'; and 'Biodiversity Assessment and Conservation Planning for Eastern Arunachal Pradesh'.

As an independent, regionally focused mountain learning and knowledge centre, Professor Chen and ICIMOD colleagues have worked closely with its many partners in the HKH to develop this publication. These include government line agencies, research and educational institutes and non-government organisations. Among the most active partners are the Forest Department of the Ministry of Forests, Country Programme Coordinator of the Wildlife Conservation Society (WCS), and University of Yangon in Myanmar. In Nepal the International Union for Conservation of Nature (IUCN), King Mahendra Trust for Nature Conservation (KMTNC), the Mountain Institute (TMI), and the Worldwide Fund for Nature Conservation (WWF), Department of National Parks and Wildlife Conservation, Ministry of Forest and Soil Conservation as well as many at the grass roots' level have been key partners. In China the Kunming Institute of Botany, Chinese Academy of Sciences made key contributions.

We are grateful to Prof. Chen Guangwei, not only for all the hard work that went into this publication, but also for his dedication and commitment in working with his colleagues and partners in promoting sustainable natural resource management in the HKH. We are also grateful to the editorial staff for their strong contribution.

J. Gabriel Campbell
Director General

Editorial Preface

Recording families and species across different countries and language groups will inevitably lead to variations in spelling, particularly of scientific names. We have tried our best to identify the flora and fauna recorded here. Thanks to the help and advice of Dr. Tirtha Bahadur Shrestha, most of the flora and fauna have been identified and affirmed according to their scientific names. Those that have been resistant to scrutiny and research have been kept in the text and marked with an asterisk. In all probability over the years the Latin spelling has been subject to differentiation from the intended original, but obviously, within the areas in which the flora and fauna are located, they are known by these names to local scholars. It is our intention not to lose valuable records by simply omitting what we cannot verify.

In relation to references, the reader will note the number of documents in other languages, and documents that were written over 50 years ago. In such cases references may not be complete: publishers and place of publication may not have been available in our archives or through research.

We have kept all titles given by authors, even when they have not been cited in the text. This area of Asia has received such limited coverage globally that the editors believe themselves justified in doing so.

The Editors

Acknowledgements

First I would like to express my appreciation to the John D. and Catherine T. MacArthur Foundation for providing financial support to ICIMOD so that biodiversity conservation projects in the eastern Himalayas could be undertaken.

I also extend my thanks to the following people: Ms Camille Richard fulfilled the role of Project Coordinator in 1999; Mr Ajay Rastogi, invited as a consultant, conducted research work in India and helped prepare the workshop in Myanmar in 1999; Professor Li Bosheng, of the Botany Institute, Chinese Academy of Sciences, gave a valuable presentation in Putao; Professor Long Chunlin, of the Kunming Institute of Botany, Chinese Academy of Sciences, led the activities in Yunnan, China; Mr U. Shwe Kyaw, Deputy Director of the Forest Department, Ministry of Forests, Myanmar, played an important role in organising workshops in north Myanmar; Mr U. Saw Tun Khaing, the Wildlife Conservation Society Country Coordinator for Myanmar, presented his very valuable reports in the two workshops in north Myanmar; Mr U. Htun Nyo, Deputy Director of the Nature and Wildlife Division, Department of Forests, Myanmar, jointly conducted the workshop for Pidaung Wildlife Sanctuary.

I would like to give special thanks to Ms Daw Kala Ya Lu of Myitkyina University who prepared papers for the workshops in both Putao and Myitkyina. The participants at the workshops in Myanmar made a great effort to make them a success and I would like to express my heartfelt thanks to them. I thank Dr Binayak Bhadra, the Director of Programmes of the International Centre for Integrated Mountain Development (ICIMOD), for providing advice to the projects and the Secretariat of Mountain Natural Resources, ICIMOD – Reeta Rana, Sarita Joshi, and Govinda Shrestha – who assisted in the documentation and daily management of the projects.

Chen Guangwei

Abstract

This publication presents information about ICIMOD's activities and findings in biodiversity conservation during the period leading up to the new millennium.

Part One provides some general background information on biodiversity conservation in the Hindu Kush-Himalayan Ecoregion and introduces the Regional Collaborative Programme for the Tibet Autonomous Region (RCP-II), the people involved in biodiversity conservation, the features of the biogeographical region of the Qinghai-Tibetan Plateau, the evolutionary trends of flora and fauna, and advances in biodiversity research and networking. Part Two provides fundamental data for the Hkakaborazi Mountain Ecosystem in Myanmar, including its physical conditions, flora, fauna, and socioeconomic environment. The socioeconomic and cultural surveys contribute first-hand information about the local communities; the status and threats to the survival of large mammals in north Myanmar; and rare data about markets and prices in the trade in animals. Part Three focuses on management of Pidaung Wildlife Sanctuary in Myanmar, its changing history since 1913, and its possible future. Part Four reports on the integrated management of mountain ecosystems in Hongqiang, Chuxiong, in China, with emphasis on community-based conservation and development.

Executive Summary

Biodiversity conservation is an important ecological issue and a key indicator of sustainable development. The Hindu Kush-Himalayan (HKH) region is extremely diverse biologically and successful conservation in this area has both local and global implications.

In recent years the efforts of the International Centre for Integrated Mountain Development (ICIMOD) towards biological conservation have been focused mainly on two projects in practical operation. This publication is concerned with one of these: 'Regional Collaboration for Biodiversity Management in the Eastern Himalayas and Models for Integrated Management of Himalayan Ecosystems'. The project (comprising of four sub-projects) has had support from the MacArthur Foundation and the United Nations Environment Programme (UNEP) and has been carried out in three countries, China, Myanmar, and Nepal.

Using research papers and workshop reports, this publication presents the key activities and findings of ICIMOD in the field of biodiversity conservation during the period from 1999-2001, together with discussion and analysis. After providing an overview of biodiversity conservation in the region (Part 1) the book focuses on three of the sub-projects. Part 2 is concerned with the sub-project 'Regional Collaboration in the Conservation of Hkakaborazi Mountain Ecosystem'. It presents and discusses information and data on Hkakaborazi National Park (in Myanmar) within the context of conserving its unique ecosystem and biodiversity. Most of the papers were presented at a workshop and the workshop report is also provided. Part 3 of the book is devoted to the sub-project 'Preparing A Model Management Plan for Pidaung Wildlife Sanctuary'. It examines biodiversity conservation in Pidaung Wildlife Sanctuary (in Myanmar) and focuses on the preparation of a management plan for the sanctuary, which can also be used as a model for other similar areas. The papers in this part were also presented at a workshop and the workshop report is included. Part 4 comprises a detailed report of the sub-project 'Biodiversity Collaboration and Integrated Management of Mountain Ecosystems in Hongqiang, Chuxiong, Yunnan' (China). The report was prepared as a post assessment of the project; it is based on two short-term field surveys and previous project progress reports.

This book provides a synthesis of information on the current status and future prospects for biodiversity and its conservation in the HKH region. The case studies serve as useful examples and provide an opportunity to share valuable experiences to help ensure that the management of ecosystems and their biodiversity in other areas is successful. Conserving this rich biodiversity will help local communities build up their capacity for integrated, sustainable development. It will also contribute towards the urgent global task of biodiversity conservation, which must be undertaken because ecosystems and the genetic material of the species they accommodate have direct and indirect potential value for all human beings both now and in the future.

Acronyms and Abbreviations

ACA	Annapurna Conservation Area (Nepal)
APEC	Asia Pacific Economic Cooperation
ATREE	Ashoka Trust for Research in Ecology and Environment
BGR	bio-geographic region (Note from ed: not a standard acronym)
CAMC	conservation area management committee (CAMC)
CBD	Convention on Biological Diversity
CF	community forestry
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNY	Chinese currency
DNA	Deoxyribonucleic Acid
DFO	District Forest Office
DFO	district forest officer
DNPWC	Department of National Parks and Wildlife Conservation (Nepal)
FAO	Food and Agriculture Organization
FPC	forest protection committee
FUG	forest user group
GEF	Global Environmental Fund
GIS	geographic information systems
GLORIA	Global Observation Research Institute for Alpine Environment
GO	government organisation
HCABC	Hongqiang Community Association for Biodiversity Conservation (China)
HKH	Hindu Kush-Himalayas
HMGN	His Majesty's Government of Nepal
ICF	International Crane Foundation
ICIMOD	International Centre for Integrated Mountain Development
INBAR	International Network for Bamboo and Rattan
INGO	international non-government organisation
IPGRI	International Plant Genetic Research Institute
IUCN	International Union for Conservation of Nature and Natural Resources
JFM	joint forest management
KIB-CAS	Kunming Institute of Botany, Chinese Academy of Sciences
KMTNC	King Mahendra Trust for Nature Conservation (Nepal)

LEAD	Leadership for Environment and Development
MNR	Mountain Natural Resources
MoU	memorandum of understanding
NCEA	National Committee for Environmental Affairs
NGO	non-government organisation
NPWC	National Park and Wildlife Conservation
NTFP	non-timber forest product
NWCD	Nature and Wildlife Conservation Division
OP	operational plan
PAS	protected area system
PPP	Parks and People Project
PRA	participatory rural appraisal
QNP	Qomolongma Nature Preserve
RCP-II	Regional Collaborative Programme 2
RMC	regional member country
RS	remote sensing
SFM	sustainable forest management
SSC	Status Survey and Conservation Action Plan
TAR	Tibet Autonomous Region
TMI	The Mountain Institute
TPA	totally protected area
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WCS	The Wildlife Conservation Society
WHS	World Heritage Site
WII	Wildlife Institute of India
WWF	Worldwide Fund for Nature
ZNR	Zixishan Nature Reserve

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INTRODUCTION TO PART 1

Conservation of Hindu Kush-Himalayan Mountain Ecosystems and Sustainable Development

The Hindu Kush-Himalayan (HKH) Ecoregion is highly diverse biologically, in terms of ecosystems, species, and genetic resources, due to extreme altitude differences and associated changes in climate and soil conditions, which create a vertical zonation in natural vegetation. There are many rare and endemic species to be found there. The eastern Himalayan region, influenced by a tropical monsoon climate, has the richest biodiversity of all the Himalayas and has been recognised as one of the 10 most biologically diverse areas in the world. This biodiversity is a substantial resource for the human population in this region, providing the basis for their survival through agriculture, animal husbandry, forestry, and industry; hence long-term, sustainable use of these biological resources is vital.

This part of the book examines several important aspects of biodiversity conservation in the region and provides a useful general background for the more specific parts of the book that follow. The first part gives a detailed overview of the HKH Ecoregion and its biodiversity; it addresses the reasons for conserving this biodiversity as well as the factors causing its decline. It also describes the important role of the International Centre for Integrated Mountain Development (ICIMOD) in this conservation. The second part focuses on the HKH member countries and local people as the main stakeholders of and important contributors to biodiversity conservation in the region, using examples to illustrate this. Pidaung Wildlife Sanctuary is introduced as a case study to illustrate how management can be improved to protect and conserve biodiversity and the importance of local people's participation in the successful management of the sanctuary. The third part discusses the unique biodiversity of the Grand Canyon of the Yarlung Zangbo River, located in the Qinghai-Tibetan Plateau in the eastern Himalayas. The diversified climates of the plateau and the moisture passage created by the grand canyon of the Yarlung Zangbo River splitting the south-eastern Qinghai-Tibetan Plateau (through which warm, wet air flows from the Indian Ocean and reaches the inner part of the plateau) give rise to a rich ecosystem and species' diversity, which are detailed in this part. The final part focuses on advances in biodiversity research and networking in the HKH Ecoregion. The concept of the Qinghai-Tibetan Plateau as a

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'new animal geographical area' is discussed and the evolution of flora and fauna to adapt to the harsh environmental conditions of the region is considered, with examples. Also addressed is the future of research into biodiversity in the region, which is hampered currently by a lack of funds, facilities, and personnel. Using the example of China, the benefits of research networks, which integrate national parks and reserves with research stations, is examined.