FERNS AND FERN-ALLIES OF NEPAL

Volume 2

C.R. Fraser-Jenkins
D.R. Kandel

Government of Nepal
Ministry of Forests and Environment
Department of Plant Resources
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FOREWORD

This book provides a wealth of critical and carefully researched information about the rich variety of ferns and fern-allies of Nepal, detailing their accepted names, synonyms, misapplied names, diagnostic characters, distribution and ecology of ferns. It is intended to be an authoritative base-line value for botanists, plant lovers, researchers, foresters and students who want to study and know the ferns of Nepal.

The authors have based the book on their extensive field-study in Nepal and adjacent Himalayan regions as well as on study of the great bulk of fern-specimens from Nepal deposited in many different herbaria of the world, representatives of which are cited in the book. It is thereby also hoped to be useful for herbaria where Nepalese specimens have been deposited.

The publication of this book helps to fulfill the department's plan to publish the complete inventory of floristic diversity of Nepal.

Ferns and fern-allies are rather overlooked plants in Nepal. But the indigenous people of the country use them as vegetables or medicines and several species have ornamental value. We should protect their habitat and understand which are rare, threatened and common.

It has become quite clear that full information about forest plants is essential for their sustainable management and utilization. I hope that with this book people can know the ferns of Nepal and that the book may generate awareness towards conserving them for their intrinsic value and usage.

I would like to thank Christopher Roy Fraser-Jenkins, Kathmandu, and Dhan Raj Kandel, Research Officer of the National Herbarium and Plant Laboratories, Godawari, for writing this type of book to help our understanding. I am thankful to Jyoti Joshi Bhatta, Deputy Director General of the Department of Plant Resources, Mohan Dev Joshi, Deputy Director-General of the Department of Plant Resources, Subhash Khatri, Chief of the National Herbarium and Plant Laboratories, Godawari and Dr. Keshab Raj Rajbhandari, senior taxonomist for their advice, support and cooperation during the preparation and publication of this book.

Sanjeev Kumar Rai
Director-General
Department of Plant Resources
Kathmandu

AUTHOR'S FOREWORD

Since the appearance of Vol. 1, the first author has had the opportunity to revisit Japan and China to work in detail through the very large and largely unstudied Nepalese holdings at Kyoto University (KYO); at Tokyo (TI) Hongo Campus; the large unincorporated material at Tokyo (TI) Koisikawa Botanical Garden; and at Tsukuba (TKB), as well as to restudy certain types in Beijing Academy of Science Garden (PE). A very large number of previously undetermined or uncritically determined specimens has thereby come to light, including major collections of H. Tabata, H. Ikeda, S. Matsumoto, T. Nakaike and of Japanese expeditions subsequent to the publication of Iwatsuki's (1988) Enumeration. All the previously unincorporated material at Godawari, Kathmandu (KATH), has also now been identified by the first author and D.R. Kandel and incorporated and the pteridophyte-herbarium put in order by the latter, including some interesting new records by Nepalese collectors, particularly K.R. Rajbhandari, though a few important published reports by N. Thapa remain without located voucher-specimens and further information about them could not be obtained. The first author's extensive and carefully prepared collections at Helsinki Botanical Museum (H) were also studied in detail and reidentified by C.R. Fraser-Jenkins for the first time in *c.* 20 years and provided much useful information.

A recent attempted classification, the PPG -1 group's (Schuettpelz & Schneider 2016) molecular cladonomic classification of lineages of descent, has been presented as if the accepted and definitive new classification, which many authors might therefore feel obliged to follow. But we do not find it appropriate and find that it has not dealt well with many groups. It did not take account of wider, more holistic morpho-taxonomic considerations and included much unnecessary splitting. Many sections and monophyletic groups were recognised at too high a rank, many as inappropriate and effectively indistinguishable clado-genera, which are not followed here, nor are some of the confused families. The more ephemeral and ever-changing recent cladonomies subsequent to the last successful one of Smith et al. (2006) are not considered here to be the equivalent of taxonomic classification and often have little value or meaning. Another highly misguided molecular-cladonomic paper by Liu (J. Syst. Evol. (Beijing) 54(4): 307-355. 2016) attempting to support Ching's on Asian pteridophyte families and many incorrect genera (and of course mistaken species) is another example of how ephemeral and unstable nearly all recent attempts at cladonomic classification are due to the absence

of taxonomic input and ability. But in this case the multiple regressive and obviously defunct conclusions cannot be taken seriously. It was combined with limited knowledge of a large number of the reliable important findings and appropriate synonymisation of Ching's names from India and elsewhere, including in China.

The problem of instability and describing false, supposed "conclusions" from cladonomy applies even more to an attempted classification by Christenhusz, Fay & Byng (2018), which contains abundant inaccuracies and errors as well as totally unacceptable genera not utilised by anyone (see the detailed corrections to this by Fraser-Jenkins, Gandhi & Kholia, An Annotated Checklist of Indian Pteridophytes 2: 449-470. 2018). We therefore prefer to use the more reliable and balanced conclusions of Smith et al., though with some modifications based on important morphology, as adopted in Vol. 1 and in the Annotated Checklist of Indian Pteridophytes.

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