

SUMMARY

The present work on "Ferns of Assam" is divided into six chapters ; it has one appendix also.

CHAPTER I : Ferns and fern-allies, the seedless vascular plants, had a very flourishing past in dominating the vegetation of the earth about 280 - 230 million years ago. Although they are largely replaced by the seed bearing vascular plants in the extant flora today, yet they constitute a fairly prominent part of the present day vegetation of the world. As a constituent of the Indian flora of vascular plants, the ferns and fern-allies form only five percent part as far as the number of species is concerned, but due to their abundance in individuals as well as their conspicuousness in epiphytic vegetation and in the terrestrial vegetation along forest margins, roadsides, and forest floors, the contribution of ferns and fern-allies to the vegetational pattern in India ranks only next to the flowering plants.

A brief account of works done in India on taxonomy and systematics of Pteridophytes have been provided.

Early history of botanical collections in Assam is also mentioned in brief.

CHAPTER II : Since independence, the state of Assam has lost its considerable territory and now it has an area of 78,523 sq. km., which lies between 20°51'-27°58' N latitude and 89°49'-97°26' E longitude. Physiography, geology and minerals, soil and climate of Assam are briefly dealt with.

CHAPTER III : The only account of the flora of Assam by Kanjilal *et al* (1934 - 1940) deals only with dicotyledonous species (except Poaceae by N. L. Bor 1940) and Pteridophytes have been totally excluded in this work. The reorganisation of Botanical Survey of India with the establishment of a separate Regional Circle at Shillong in 1956, some studies have been made on plants of Assam but with a bias towards flowering plants. This is evident from the very few publications on fern and fern-allies of Assam that have appeared so far. Moreover, owing to several socio-cultural practices there has been a large scale alteration of the native flora of the state. It is therefore, not only essential but worth recording the plant diversity for proper exploitation of plant resources of the state before many of the species occurring in the state wiped out for ever. While emphasizing the need of a modern Pteridophytic flora of our country Bir (1987) stated that the compilation of an up to date and exhaustive Pteridophytic flora of India is a task which can not be ignored for long and for achieving this objective, it is essential to compile first the regional floras with exhaustive surveys of underexplored and unexplored regions.

Keeping the above aspects in mind that the present work was taken up with an aim to fill the gap in our knowledge on fern flora of Assam.

The present work is based on extensive collections made regularly from several areas in different parts of Assam during 1992 - 1996. Voucher specimens were collected along with notes observed during field works, which were properly identified with the help of literature and subsequent verification by matching with authentic herbarium specimens in Kanjilal Herbarium, Shillong (ASSAM), Central National Herbarium, Howrah (CAL), Herbarium of National Botanical Research Institute, Lucknow (NBG), Herbarium of North-East Hill University, Shillong and Herbarium of State Forest Research Institute, Arunachal Pradesh, Itanagar. The specimens were preserved

according to the conventional herbarium techniques. The specimens on which this study is based have been deposited in the Herbarium of Botany Department, Gauhati University with one duplicate set in Kanjilal Herbarium, Shillong (ASSAM) and another in the Herbarium of Botany Department, Mangaldai College, Mangaldai, Assam. However, some of the specimens collected during the present study could not be matched with already known species. Such materials were sent to well known Pteridologists for their comments and observations and some of these specimens were confirmed as new varieties or new species. Since the whole process to establish and publish new species or varieties requires considerable time, it is considered not proper to include these new taxa in the present treatise before these taxa are effectively published and therefore, not included in the present work.

The sequence of subject matter in the main systematic account of the thesis (i.e. Chapter IV) is described.

CHAPTER IV : The main part of the thesis which deals with the systematic accounts of ferns occurring in Assam. The account includes explicit keys to families, genera and species. In the enumeration of species, the account of each species has the accepted name, a detail description, and distribution in India and in the World. Only important synonym(s) which have a relevance to Indian works, including some monographs and revisions, and basionym if any have been provided. In general, the classification by Pichi-Sermolli (1977) has been followed with a little modification of Ching (1978). The genera and species are arranged alphabetically under each family and under each genus respectively. Illustrations based on voucher specimens for all the species recorded from Assam in the present study have also been provided.

CHAPTER V : The present treatise is the first systematic account of ferns occurring within the present political boundary of Assam and is based on extensive collections made during 1992-1996.

In all, 215 species spread over 87 genera and 43 families have been listed for Assam in the present study.

Of the total, 17 species viz. *Adiantum aeothropicum*, *Asplenium falcatum*, *Acystopteris tenuisecta*, *Cyathea henryi*, *Cyclosorus interruptus*, *Diplazium lobulosum*, *Dipteris wallichii*, *Oleandra musifolia*, *Ophioglossum vulgatum*, *Phymatopteris crenatopinnata*, *Phymatopteris rhynchophylla*, *Platynerium alcicorne*, *Pteris multiaurita*, *Pteris scabripes*, *Pronephrium articulatum*, *Spherostephanos subtruncatus* and *Tectaria wightii* have been recorded in Assam for the first time. Moreover, *Amphineuron immersum*, *Christella namburensis*, *Christella papyracea*, *Microsorium rubidum* and *Pleocnemia winitii* known to occur in India but restricted to Assam have also been recorded. Besides these, six species viz. *Adiantum assamicum*, *Diplazium pinnatifidopinnatum*, *Dipteris wallichii*, *Metathelypteris decipiens*, *Microlepia haflongensis* and *Pronephrium stenopodum* encountered in the present study are endemic to India. In addition to the above, sixteen species viz. *Angiopteris evecta*, *Asplenium nidus*, *Asplenium unilaterale*, *Cibotium barometz*, *Cyathea andersoni*, *Cyathea gigantea*, *Cyathea spinulosa*, *Drynaria propinqua*, *Drynaria quercifolia*, *Microsorium punctatum*, *Ophioglossum vulgatum*, *Osmunda regalis*, *Platynerium alcicorne*, *Pseudodrynaria coronans* and *Stenochlaena palustris* recorded in the present study are known to be rare and endangered species for Northeastern India.

Of the total 215 species recorded from Assam in the present study, 89 species also occur in Western Ghats, 96 species in Darjeeling and Sikkim, 77 species in North Western Himalayas, 120 species in Meghalaya, 143 species in Nagaland and 31 species common to Western Ghats, North

Western Himalayas, Darjeeling and Sikkim, Meghalaya and Nagaland.

CHAPTER VI: is the present summary.

APPENDIX : Deals with the publication undertaken during the present study.