STUDIES ON FLORA AND BIODIVERSITY IN PABITORA WILDLIFE SANCTUARY OF ASSAM IN NORTH EAST INDIA

(In Two Volumes)

By
PRANAB JYOTI BORA

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of the Degree of
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NORTH-EASTERN HILL UNIVERSITY

SHILLONG

CERTIFICATE

I, Mr. Pranab Jyoti Bora, hereby declare that the subject matter of the thesis entitled "Studies on Flora and Biodiversity in Pabitora Wildlife Sanctuary of Assam in North-East India" is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the North-Eastern Hill University for the award of the degree of Doctor of Philosophy in Botany.

(Head) 3/9/99

Head
Department of Botany
School of Life Science
N. E. H. U.
Shillong-793022

(Supervisor) 3/9/99

Dr. Yogendra Kumar
Botany Department
North-Eastern Hill University
Shillong-793022

(Candidate)

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(Pranab Jyoti Bora)

Department of Botany

NEHU, Shillong-2

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CHAPTER - I

GENERAL INTRODUCTION

Biodiversity is the variety of life and its processes in a given area. It is described in terms of genetic variation within species, the variety of species within a habitat or ecosystem and variety of habitats. It is commonly used to describe the number, variety and variabilities of living organisms. Management of biodiversity require measurement. It is wide spread practice to define and measure biodiversity in terms of genes, species and ecosystem corresponding to three hiearchically related level of Biodiversity. Species diversity is generally regarded as the most natural one around which to consider whole diversity. Species diversity is commonly used as a synonym of species richness which is the number of species in a given site or habitat. Species are also primary focus of evolutionary mechanism and the origin and extinction of species are the principal agent in governing biological diversity. It represents the basic sources of our economic development by providing essential bioresources.

The recent years have witnessed the destruction of our natural vegetation, resources and the environment which would be disastrous for our existence. Therefore, it is essential to protect and conserve the biological diversity as natural resources for prosperity. The protected areas like Biosphere Reserves, National Parks, Wildlife Sanctuaries and various Reserve forests can play a vital role in the Conservation of Biodiversity and maintaining natural ecosystems. Biological diversity is so complex that its conservation can not be measured without scientific analysis on specific elements and processes. The documentation and proper assessment of the diversity is needed in the respective areas and habitat. The study of plant

genetic resources in a smaller area is more valuable in biodiversity conservation strategies.

The North Eastern region is considered as one of the richest biodiversity centres of the Indian sub continent. According to Armen L. Takhtajan it is the primary centre of origin of Angiosperms i.e. the cradle of flowering plants. Moreover the North-East Region is considered as the home of many wild relatives of cultivated plants. Hence the taxonomic research in the natural protected areas like Wildlife Sanctuary which would represent as the local flora in this region is more essential. In this regards the publication of "Flora of British India" by J.D. Hooker (1872-1897) and the regional flora i.e." Flora of Assam" by Kanjilal *et al.* (1934-1940) has initiated the taxonomic study in our country and in North East Region in particular. Taxonomic study on smaller areas has more importance in comparison with the larger areas. Smaller areas can be explored thoroughly with critical spot observations to find the additional and exotic species which has been left out from the earlier large floras for various reasons. Due to the growing fragmentation of habitats and ecosystems because of various developmental programmes many earlier reported taxa become extinct, endemic, rare and endangered in nature. The necessity to focus the present existence, size, structures and localities of such taxa deserve more importance to study the local flora.

The taxonomic works of the smaller areas in light of revised taxonomic monographic work and recent taxonomic nomenclature it is important to establish of local herbaria. Moreover the local herbaria will be the centre of the sources of the informations for the local educational, allied research institutions and finally helpful for the revisionary work of the state, regional and national flora of our country.

Floristically, this recently declared wildlife Sanctuary is totally unexplored. The regional flora of Assam (Kanjilal *et al.* 1934-40) deal with the flora of composite Assam and it has strong bias towards woody species. Thus, herbaceous and monocot flora are almost excluded in this work (Kanjilal *et al.*) except Gramineae. Though the Eastern Circle of Botanical Survey of India has given much emphasis on the flora of North-eastern region as a whole, no collection appear to have been made from Pabitora Wildlife Sanctuary.

Keeping in mind the above facts the Pabitora Wildlife Sanctuary in Assam is selected to evaluate its plant diversity from taxonomic point of view as the main objective. The sanctuary has the immense importance in the international level for having the highest density of Indian one horned Rhinoceros in the world. The vegetation of sanctuary provides a ideal habitat for these herbivores including other wild lives. The wetlands of the sanctuary has drawn the international attraction due to its suitability for the migratory birds and other fish fauna beside Rhinoceros. As the wild lives are entirely depend on the vegetation and floristic compositions of the sanctuary, the present studies will be helpful for the management and conservation programs including the other related benefits.

PLATE-1

a) A Birds eye view of Pabitora Wildlife Sanctuary.

b) One of the watch towers inside the sanctuary.