



## ASSOCIATIONS OF DOMINANT TREE SPECIES OF LAOKHOWA WILDLIFE SANCTUARY IN ASSAM, INDIA

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### ABSTRACT :

The protective areas like National Parks, Wildlife Sanctuaries and reserve forests have attracted worldwide attention to study vegetation, floral diversity and other wild lives for their conservation, sustainable use and also for proper management of bio resources. Laokhowa wildlife sanctuary has most ideal habitat for Indian one horned rhinoceros and is one of its representative area in Brahmaputra flood plain. The sanctuary is one of the rich and ecological habitat for the wild variety of animals and plants species. The natural vegetation of the area is mainly contributed by forests of tall trees, grassland and wetland vegetation. The wood land provides food and shelter to a variety of animals and the grassland is the heaven for a variety of herbivores. Besides these the wetlands and aquatic bodies provides food and shelter to avifauna, fish fauna and other wildlife. The present paper deals with the vegetation present in the sanctuary. The vegetation comprises (a) Low alluvial savannah woodland (*Salmariaalbizzia*) (b) Western Wet alluvial grasslands (c) Riparian Fringing Forests (d) *Barringtonia* Swamp forests (e) Wet lands (f) Plantation areas (g) Degraded Forests. About 40sq km area is grass land; 6 sq km area is occupied by alluvial grass land in the sanctuary.

**KEY WORDS :** *Wildlife sanctuaries, Flora, National Park, Wilde life and Bio - diversity*

### INTRODUCTION:

The protected areas like National Parks Wildlife sanctuaries and reserve forests play a vital role to conserve biodiversity. These areas may vary considerably in size, design, purpose and effectiveness of management, but together form a

solid basis of conservation of biological diversity. Our natural environment has been altered due to development and other factors and now it is ripe to conserve forest cover and natural vegetation from further destruction. Therefore it has become essential to conserve biodiversity in sizable natural areas for scientific, educational, ecological, recreational and economic development.

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Our earlier knowledge on the flora of Assam started with the observation and contribution of J.D. Hooker's "Flora of British India" (1872 - 1897) and the first regional flora, "Flora of Assam" by Kanjilal and his colleagues (1934 - 1940) had focused the floristic composition of this region. Some other pioneer botanical workers of North - East includes (Buchanan - Hamilton, *et al.*, 1820; Roxburgh, *et al.*, 1832; Robinson, 1841; Hooker, 1872 - 97; Bor, 1938; Rajkhowa, *et al.*, 1961 and Das, *et al.*, 1942) etc. Some of the recent floristic studies of Assam are the outcome of Ph.D. works viz. "Angiosperms of Kamrup District" (Barua, 1992), "Systemic studies on the Dicotyledonous plants of Lakhimpur District" (Singh 1993), "Herbaceous plants of Karbi- Anglong District" (Sarkar, 1993), "Floristic composition of Tinsukia District" (Gogoi, 1997), *etc.*

A number of floristic works have been carried out in the protected areas i.e. National Parks and Wildlife Sanctuaries of Assam in different period. Floristic study was conducted on Kaziranga and Manas National Park (Hajra, 1978). In the latter period, some remarkable contribution was made on Orang Wildlife Sanctuary of Assam which included primarily floristic works (Nath and Choudhury, 1994; Nath, 1999; and Barua, 1998). Vegetation dynamics and periodic migration of animal population in relation to flood and fire in Kaziranga National Park and Ecological study of Gibbon Wildlife Sanctuary was done (Bujarbarua, 2002).

The Laokhowa wildlife sanctuary is one of the protected areas that are an ideal habitat for Indian one-horned Rhinos and other wildlife's. The vegetation of this area is complex deciduous forests grasslands. Wetlands provide an ideal habitat for herbivores, including avifauna, fish fauna and other animals. The area with varied vegetation types, wetlands, flora and fauna can support helping in developing various disciplines like ethno botany, ecology, genetics, forestry, conservation biology *etc.* In this context this study of biodiversity in this areas, is most important and have significant appearance.

#### **STYDY AREA AND LOCATION:**

Laokhowa wildlife Sanctuary is situated in the Nagaon district of Assam, India between the latitudes 26°30' N to 26°32' N and longitude 92°40' E to 92°47' E in the flood plains of the river Brahmaputra. The Sanctuary is about 25km from Nagaon town, the district headquarter of the Nagaon district of Assam. It is located in the central part of the state of Assam and is situated in the extreme northern boundary of Nagaon district and the southern boundary of Sonitpur district. It is bounded by Burachapori Wildlife Sanctuary, Laokhowasuti, Haldiasuti, and Marasuti in the north, Nagaon - Silgh at PWD road in the east, Leterijan (water body) in the south and forest road in the west.

#### **GEOMORPHOLOGY:**

Geomorphologically, the sanctuary consists of basically a flat land and the monotony of the plain is to a certain extent broken by the presence of

Nallasand Beels. The land has gentle slope from south to north and east to west. It is a part of Brahmaputra valley. The soil of the area is mostly alluvial deposits of the river Brahmaputra. Soil is generally fertile, clay loam mixed with silt.

#### CLIMATE:

The climate of the sanctuary is characteristically monsoonal with a rhythm of changing season. It changes with respect to the changing climatic elements, which effectively controls the biodiversity of the area. The climate of the Laokhowa wildlife sanctuary can be treated as sub-tropical monsoonal type climate. Annual temperature of the sanctuary varies between 9.6°C (min) and 33.8°C (max). Average annual rainfall remains around 2000mm and about 70% occurs during June - September. The relative humidity varies between 65 - 95% and is lowest during the month of March.

#### ASSOCIATIONS OF DOMINANT TREE AND GRASS SPECIES:

Some of the dominant tree species are also found to be in association in the woodland community. They are of the following type:

1. Albizia - Lagerstroemia association : *Albizia procera* associates with trees viz. *Lagerstroemia reginae*, *Streblus asper*, *Trewianudiflora*, *Zizyphus mauritiana* etc.
2. Trewia - Lagerstroemia - Albizia association: *Trewianudiflora* associates with trees like *Lagerstroemia reginae*, *Albizia procera*, *Litsea monopelta*, *Streblus asper* etc.

3. Lagerstroemia - Trewia - Streblus association: *Lagerstroemia reginae* associates with trees like *Trewianudiflora*, *Streblus asper*, *Barringtonia acutangula*, *Bombax ceiba*, *Litsea monopelta* etc.
4. *Bombax albizia*- *Trewianudiflora* association: The species of *Bombax ceiba* associates with trees like *Albizia procera*, *Trewianudiflora*, *Lagerstroemia reginae*, *Dillenia pentagyna* etc.
5. Bischofia - Terminalia - Lagerstroemia association: The species like *Bischofia javanica* associates with *Terminalia myriocarpa*, *Lagerstroemia reginae* etc.
6. Barringtonia - Syzygium - Ficus association: The tree species like *Barringtonia acutangula* associates with *Syzygium cumini*, *Ficus glomerata*, *Trewianudiflora*, *Bombax ceiba* etc.

The flora of alluvial savannah wood lands is dominated by trees species like *Bombax ceiba*, *Albizia procera*, *Trewianudiflora*, *Lagerstroemia reginae*, *Dillenia pentagyna* etc and are associated with patches of *Phragmites* sedge, *Saccharum procerum*, *Erianthus ravennae* etc.

The floras of riparian fringing forests are dominated by *Bischofia javanica*, *Terminalia myriocarpa*, *Lagerstroemia reginae* etc. On the other hand *Barringtonia* swamp forests are dominated by *Barringtonia acutangula*, *Syzygium cumini*, *Ficus glomerata*, *Trewianudiflora* etc.

## RESULTS AND DISCUSSION:

The present study has given a clear picture on the associations of the vegetation particularly tree species of the Laokhowa wildlife sanctuary. The habitat of the area, a complex of deciduous forests, grasslands and wetlands with their rich biodiversity are swampy vegetation in association with deciduous trees are ideal habitat for wildlife particularly Rhinos.

The floristic composition of the sanctuary was found to be quite rich. It has been observed that the vegetation of Laokhowa wildlife sanctuary has district affinity with Indo - Malayan floristic elements by representing species like *Albizia procera*, *Barringtonia acutangula*, *Bombax ceiba*, *Cassia fistula*, etc.

The vegetation of Laokhowa wildlife sanctuary show similarity with Kaziranga National Park, Pabitora wildlife sanctuary, Orang wildlife sanctuary, Burachapori wildlife sanctuary as it lies on the migration route of one - horned rhinos and also protect similar natural habitat. The vegetation of the Laokhowa wildlife sanctuary is mainly regulated by natural and biotic factors along with abiotic factors. The sanctuary lies in the Brahmaputra flood plain, and is greatly affected by annual flood. These phenomenons play a major important role in the ecology of wildlife habitat of the sanctuary. The sanctuary is surrounded by many villages, so grazing, browsing and forcible fishing, felling of trees are the most important biotic factors that greatly influence the vegetation and wildlife sanctuary. The unfriendly

villagers of the surrounding village who are poor and illiterate are destroying the habitat of the wildlife. Conservation and protection of the biodiversity is the need of this hour which lies not only in the hands of Forest Department but also the local people.

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## REFERENCE:

1. Barua I., Systematic Study of the Angiosperms of Kamrup District, Assam. Ph.D. Thesis (Unpublished), Gauhati University, 1992.
2. Barua P. P., Vegetation dynamics and periodic migration of animal population in Kaziranga National Park in relation to flood and fire (Ph.D. Thesis, Gauhati University), 1998.
3. Bor N. L., A sketch of the vegetation of the Aka Hills, Assam. *India for Rec. (n.s.) Bot* 1938; 1(4).
4. Buchanan-Hamilton F., An account of Assam with some notices connecting the neighboring territories London, 1820.
5. Bujarbarua P., An ecological study of Gibbon Wildlife Sanctuary, Jorhat, Assam, India. Ph.D. Thesis, Gauhati University, 2002.

6. Das A., Floristics of Assam - A preliminary sketch. 150th Anv. Vol. *Roy. Bot. Gard. Calcutta*. 1942; 131 - 147.
7. Gogoi A. B., The study of the Herbaceous Plants of Tinsukia sub - div. of Dibrugarh District, Assam. To their Taxonomy & Utilization. M.Phil. Dissertation, Gauhati University, 1997.
8. Hajra P. K., Flora of Kaziranga National Park and Manas Wildlife Sanctuary of Assam (Ph.D. Thesis Gauhati University) 1978.
9. Hooker J. D., The Flora of British India, 1872-1879; 1-7
10. Kanjilal U. N., Kanjilal P. C., Das A. De, R. N. and Bor N. L., Flora of Assam, Govt. Press, Shillong 1934; 40; 1-5.
11. Nath S. M. and Chowdhury S., Study of the vegetation and Flora of Rajiv Gandhi wildlife sanctuary, Assam, *Ind. For.*, 1994; 120(10): 940 - 945.
12. Nath S.M., Floristic composition of Orang Wildlife Sanctuary of Assam: a Comprehensive study (Ph.D. thesis, Gauhati University) 1999.
13. Rajkhowa S., Forest types of Assam with special reference to the evergreen and semi-evergreen forests. *Ind. For.* 1961; 87: 520 - 541.
14. Robinson W., A Descriptive account of Assam. London, 1841.
15. Roxburgh W., Flora Indica. A description of Indian Plants. *Serampore*, 1820; 24.
16. Roxburgh W., Flora India (edt. W.Carey). *Today & Tomorrow's Print. and Publ., New Delhi*, 1932.
17. Sarkar, S., Studies on Herbaceous Plants of Karbi - Anglong District of Assam with reference to their Taxonomy & Economic Utilization. Ph.D. Thesis (Un-published), Gauhati University, 1993.
18. Singh R., Systematic Study on the Dicotyledonous Plants of Lakhimpur District Un-divided), Assam Ph.D. Thesis (Gauhati University), 1993.

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