

THE STATUS OF LAOKHOWA WILDLIFE SANCTUARY, ASSAM, INDIA.

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ABSTRACT: 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 25 km from Nagaon town, the district headquarter of the Nagaon district. The Sanctuary is located just in the central part of the state of Assam. It is situated in the extreme northern boundary of Nagaon district and the southern boundary of Sonitpur district. It is bounded by Burachapori Wildlife Sanctuary, Lawkhowa suti, Haldia suti, and Mara suti in the north, Nagaon –Silghat PWD road in the east, Leterijan in the south and forest road in the west. The soil is mainly clayey loam mixed with silt. The soil is acidic and pH varies from 4.36-6.86. The average annual rainfall remains around 2000 mm and about 70% occurs during June-September. The relative humidity varies between 65-95% and is lowest during the month of March. The present paper deals with the present status of the Sanctuary. The present study reveals the presence of 373 species of Angiosperms. The dicotyledonous plants belong to 74 families, 178 genera and 267 species, and the monocotyledonous to 18 families, 80 genera and 106 species. In addition to this 16 species of ferns were identified these belong to 12 families and 15 genera. Poaceae is the largest family in the sanctuary followed by Euphorbiaceae and Papilionaceae as the 2nd and 3rd largest families respectively.

Key words: Laokhowa Wildlife, Sanctuary, Assam

INTRODUCTION

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 and is considered unique in terms of varied natural habitats for rich floral and faunal diversity. The Sanctuary is about 25 km from Nagaon town, the district headquarter of the Nagaon district. The Sanctuary is located just in the central part of the state of Assam. It is situated in the extreme northern boundary of Nagaon district and the southern boundary of Sonitpur district. It is contiguous to the recently declared Burachapori Wildlife Sanctuary. Laokhowa Wildlife Sanctuary is situated at more or less flat land with innumerable water bodies or beels with water remaining almost for the whole year. The land has gentle slope from south to north and from east to west. The elevation of the areas is from 60 to 75 metres above sea level. The area experiences a tropical monsoon type climate. The soil of the area is mostly alluvial deposits of the river Brahmaputra. The soil is mainly clayey loam mixed with silt. There are a number of villages that are in and around the geographical area of the Laokhowa Wildlife Sanctuary. The Forest villages and Taungya villages inside the Sanctuary are there since notification of the Sanctuary. Moreover, the sanctuary is surrounded by a large number of revenue villages.

Like other parts of Assam, The climate of the Sanctuary is characteristically monsoonal with 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 Sanctuary can be treated as sub-tropical monsoon type climate. Annual temperature of the Sanctuary varies between 9.6°C (min) and 33.8°C (max). Average annual rainfall remains around 2000 mm and about 70% rainfall occurs during June to September. The relative humidity varies between 65-95% and is lowest during the month of March.

Laokhowa Wildlife Sanctuary is placed under 9A North-East Brahmaputra valley bio- geographic province of India (Myers et al, 2000) and as proposed by (Rodgers and Panwar, 1992). Based on the present study the vegetation of Laokhowa Wildlife Sanctuary consists of (i) Low alluvial savannah woodland, (ii) Western wet alluvial grassland, (iii) Riparian fringing forest, (iv) Barringtonia swamp forest and (v) The aquatic ones. The whole area of the Sanctuary is covered with mixed forest, grasslands, and swampy and water bodies. The forests are primarily tropical semi-evergreen to moist deciduous type and mostly located towards the northern part, while the grasslands are tropical savannah type and are mostly located towards the southern part of the Sanctuary. The swampy and aquatic areas are located throughout the Sanctuary.

The studies on flora and vegetation of Wildlife Sanctuaries and National Parks are useful to bring out economically important plant species besides the floristic details. Keeping this view the Laokhowa Wildlife Sanctuary of Assam is selected to enumerate the useful plant resources excluding the common ones. The present contribution is the outcome of the extensive field study in the Wildlife Sanctuary.

Floristic works of protected areas of Assam reflects the biodiversity of Assam. Hajra (1978) conducted floristic study on Kaziranga and Manas National Park. In the latter period, Nath and Choudhury (1994), Bora (1999) made some remarkable contribution on Orang Wildlife Sanctuary and Pabitora Wildlife Sanctuary of Assam respectively, which included primarily floristic works. Barua (1998), worked on the vegetation dynamics and periodic migration of animal population in relation to flood and fire in Kaziranga National Park. Bujarbarua (2002), worked on the ecological study of Gibbon Wildlife Sanctuary. Baishya and Bora (2002), worked on the flora of Dibru-Saikhwa Biosphere Reserve. In this context with vast and biodiversity rich areas, these works appeared to be significant. Keeping this view the Laokhowa Wildlife Sanctuary of Assam is selected to enumerate the useful plant resources. The present contribution is the outcome of the extensive field study in the Wildlife Sanctuary.

METHODOLOGY

To record the vegetation of the study site, several collection trips were undertaken at monthly intervals throughout the year covering the study period. The specimens were collected, pressed and dried. After proper chemical treatment species were pasted into the herbarium sheets. Collected specimens were identified and confirmed at Botany Department Herbarium, G.U. and Regional Herbarium "ASSAM" of Botanical Survey of India, Eastern Circle of Shillong.

OBSERVATION

VEGETATION

The natural vegetation of the area is mainly constituted by grassland dotted with wetland and tree species. According to the classification of Bio-geographic zone of India (2000), it falls under North-East Brahmaputra valley bio- geographic province 9A (Rodgers and Panwar, 1992).

The natural vegetation of the Sanctuary is composed of the following:

- (a) Mixed Forests (b) Grassland (c) Water bodies

Based on the present study the vegetation of Laokhowa Wildlife Sanctuary can be broadly classified as:

- (a) Low alluvial savannah woodland.
 - (b) Western wet alluvial grassland.
 - (c) Riparian fringing forest.
 - (d) Barringtonia swamp forest.
 - (e) Wetland vegetation.
- a. Low alluvial savanna woodland: The tree forest occupies comparatively the higher ground along the northern boundary of the sanctuary on the stable soil. The main species are *Bombax ceiba*, *Albizia procera*, *Trewia nudiflora*, *Lagerstroemia reginae*, *Dillenia pentagyna*, etc associated with patches of *Phragmites karka*, *Saccharum procerum*, and *Erianthus ravannae*.

- b. Western wet alluvial grassland: The western wet alluvial grassland is occupying low alluvial sites. The grassland of this sanctuary has been subjected to excessive cattle grazing. The grassland area comprises of both tall and short types of grasses. Main species are *Imperata cylindrica*, *Saccharum spontaneum*, *Erianthus ravannae*, *Cynodon dactylon*, *Phragmites karka*, *Chrysopogon aciculatus*, *Arundo donax*, *Vetiveria zizanioides* etc .
- c. Riparian fringing forest: This type of forests occurs along the watercourses. The main species includes *Bischofia javanica*, *Terminalia myriocarpa*, *Lagerstroemia reginae* etc. (d) Barringtonia swamp forest: These type of forest with species like *Barringtonia acutangula* along with *Syzygium cumini*, *Ficus glomerata*, *Trewia nudiflora* etc, are found, around marshy and wet land forest.
- d. Wetland: There are many wetlands in the area, locally known as beels. About 5 % of the total area of the Sanctuary is covered by wetlands. Some of these beels remains under the water almost throughout the year.

The wetland and its surrounding areas are rich in flora. They provide refuge, food and water to migratory and resident water birds, mammals, fishes, amphibians and reptiles. The aquatic plants found in the wetlands of the area are pani-meteka (*Eichhornia crassipes*), Padum (*Nelumbo spp.*), Kolmow (*Ipomea spp*), Lukucha (*Hemarthria compressa*), Dubari (*Cynodon dactylon*), Eralu (*Andropogon spp*), Sonupuri (*Lemna perpusilla*), Borpuni (*Pistia stratiotes*), Bhet (*Nymphaea spp*), Dolghah (*Adropogon spp.*) etc.

Plantation: - The Nagaon Wildlife Division raised Plantation in Laokhowa Wildlife Sanctuary before it was declared a wildlife Sanctuary. The plant species that were planted were Koroi (*Albizia procera*), Simul (*Bombax ceiba*), Sissoo (*Dalbergia sissoo*), Ajhar (*Lagerstroemia reginae*). The adjoining areas of plantations were either completely or partially destroyed.

Degraded Forest: The natural habitat has been destroyed mainly near Singimari and Laokhowa area of the sanctuary. Near Singimari, entire forest has been totally degraded and now uprooting activities are going on with intensions for permanent settlement and cultivation. Commonly found species are *Clerodendrum viscosum*, *Mikania micrantha*, *Ageratum conyzoides*, *Saccharum spontaneum*, *Solanum torvum*, *Mimosa pudica*, *Leucas plukenetii*, *Imperata cylindrica* etc. Maximum area of the sanctuary is covered with mixed forest, grasslands, swampy and water bodies. The forests are primarily tropical semi-evergreen to moist deciduous type and mostly located towards the northern part, while the grasslands are tropical savannah type and are mostly located towards the southern part of the sanctuary. The swampy and aquatic areas are located throughout the sanctuary. The combination of terrestrial habitats with water bodies forms suitable habitat for wild herbivores, avifauna and fish fauna, besides, rich diversity of other wild lives.

Floristic Diversity

The present study of the flora of Laokhowa Wildlife Sanctuary reveals interesting findings about its floristic composition. It includes 373 species of Angiosperms and 16 species of Pteridophytes from the study area.

The present study includes Angiospermic and Pteridophytic flora from the study site. Among these, the Angiospermic flora occupies the major portion. The statistical analysis of the plant elements is shown in (Table 1). Poaceae is the largest family in the Sanctuary followed by Euphorbiaceae and Papilionaceae as the 2nd and 3rd largest families respectively (Table 2).

Table 1. Statistical Analysis of Families, Genera and species of Angiosperms and Pteridophytes of Laokhowa Wildlife Sanctuary.

Group	Families		Genera		Species	
	No	%	No	%	No	%
Angiosperms	93	88.46	258	94.50	373	95.88
Pteridophytes	12	11.53	15	5.49	16	4.11
Total	104	99.99	273	99.99	389	99.99

Table 2. Ten dominant families of Laokhowa Wildlife Sanctuary.

Sl. No.	Family	Genera	Species
1.	Poaceae	35	42
2.	Euphorbiaceae	12	21
3.	Papilionaceae	13	21
4.	Cyperaceae	7	21
5.	Asteraceae	15	15
6.	Verbenaceae	9	12
7.	Acanthaceae	7	9
8.	Caesalpiniaceae	3	9
9.	Commelinaceae	5	8
10.	Mimosaceae	3	8

Rare plants

The Sanctuary is the home of several endemic plants. These plants are vulnerable to extinction, so these are as important focus of conservation efforts. Plant species viz. *Angiosperis evecta*, *Holorhena antidysentrica*, *Rauvolfia serpentina*, *Helminthostachya zeylanica*, etc are rare in distribution in the sanctuary and also in this region.

Economically important plants:

The Sanctuary has many species of economically important plants but their sustainable use still remained untrapped as the sanctuary is not properly explored till date. Majority of the plants are useful in different aspect of life of the common people. Some of them are mentioned below.

Local people use many species of plants as medicine. Some of them are *Acacia farnesiana*, *Achyranthes aspera*, *Aegle marmelos*, *Asparagus racemosus* *Callotropis gigantean*, *Cassia sophera*, *Cassia tora*, *Crataeva magna*, *Cuscuta reflexa*, *Cynodon dactylon*, *Ocimum sanctum*, *Rauvolfia serpentina* etc. Some of the timbers yielding plants are *Gmelina arborea*, *Albizia procera*, *Alstonia scholaris*, *Lagerstroemia reginae*, *Terminalia arjuna*, *Toona ciliata* etc.

CONCLUSION

It is evident from the above study that the Sanctuary is rich in plant wealth, which indicates the importance for biodiversity conservation. It has been observed that maximum plant species are important. The frequent flood, grazing, fishing etc. are some of the factors, which is responsible for the depletion of the biodiversity. The vegetation pattern of the sanctuary are mainly alluvial plain area, mostly dominated by grasses viz *Imperata 4ylindrical*, *Saccharum spontaneum*, *Sterostachya fusca*, *Vertiveria zizaniodes* etc, deciduous trees like *Albizia procera*, *Bombax ceiba*, *Lagerstroemia reginae*, *Trewia nudiflora* etc. in the woodlands. The presence of alluvial grassland and swampy vegetation and the dominance of the members of Poaceae prove the suitability of the area for rhino habitat and other wild herbivores. The management authority of Laokhowa Wildlife Sanctuary is giving more stress for providing protection of fauna. But there is also need to give attention for conservation of the plant resources in the sanctuary because without undisturbed characteristic flora of the area it is simply not possible for the native fauna of the sanctuary to persist for longer period.

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