

## **Study of Aquatic Macrophytes in Borbeel of Dibrugarh District, Assam (India)**

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### **ABSTRACT**

In Assam, there are a large number of wetlands in the flood plains of the Brahmaputra and Borak River. Wetland locally known as Beel, play a vital role in maintaining the quality of environment. The aquatic macrophytes has definite influence in the ecology of the wetland.

The Borbeel, is situated in the Dibrugarh district of Assam at a distance of 3 km northwest of 37-NH (national highway) and south west of the river Buridihing. The area covered by the water body of the beel is about 50 hectares. There are two smaller beels such as Ecorani and Gergeri, which are the part of the main beel.

The preliminary survey of the area reveals that it exhibits a varied range of vegetation comprising of freshwater algae, fungi, bryophytes, pteridophytes in the cryptograms as well as several aquatics and marshy plants from angiosperms. In summer large part of the beel are covered by aquatic macrophytes like Eichhornia, Nymphaea, Trapa, Nelumbo, Hydrilla, etc. and varieties of aquatic grasses, like Cyperus sp, Fimbristylis etc. During winter also the beel is covered with many kinds of floating, emergent and submerged aquatic macrophytes. Moreover various types of fishes and both local and migratory birds are found in the beel.

The preliminary scrutiny of the area reveals that due to human intervention gradually some birds, animals and aquatic plants also become extinct from the locality. The primary threat to the wetland is fishing and poaching of birds. The decrease in population of birds and water animals threaten the bio-diversity of the beel. Therefore it is necessary to make awareness among the people to protect the beel.

The present paper deals with the survey and identification of different aquatic macrophytes in the beels. Moreover an attempt has been made to stress the need for a balance between biodiversity conservation socio-economic developments of the local population. The study suggests that this wetland when fully developed will be an excellent site for research work and tourism and therefore can fetch revenue for the state besides conservation of flora and fauna.

### **INTRODUCTION**

The international biological programme defined wetland as the areas dominated by specific herbaceous macrophytes, the production of which takes place predominantly

in the aerial environment above water level while the plants are supplied with such amount of water that would be excessive for most other higher plants. According to International Union for the Conservation of Nature and Natural Resources, all submerged or water saturated lands, natural or manmade island or coastal, permanent or temporary, static or dynamic, vegetated or non-vegetated which necessarily have a land water interface are called wetland. The wetland is locally known as Beel. Jalah, Doloni, Pitoni,

The wetlands in India support subsistence and livelihood to thousands of people through fishing, collecting edible plants, agriculture, water transport, irrigation and commercial fisheries, besides rich biodiversity ( Vass 2001, 2006). FAO (1997) has reported that the flood plains and the wetlands associated with them are unique ecosystems providing livelihood to millions of people all over the world. These wetlands provide not only the fishes but also various aquatic resources. Wetland is the home of many varieties of birds and animals (Sharma 2005).

The wetlands associated with flood plain of rivers (flood plain wetlands) cover an estimated area of 0.2 million ha (Vass 1988, 90). Wetlands situated on flood plains of Major River can be designated as flood plain wetlands or flood plain lakes which cover a variety of water bodies in India. According to Vass (2006) Assam has 1392 wetlands spread over 100000 ha. This includes 322 wetlands along the river Borak (Yadava 1987). But Satellite Data analyzed by ARSAC reveals that the total number of wetland of the state is 3474 having area size equal to or more than 2.5 hectares each. These wetland cover an area of 1, 01,329.4 ha accounting for 1.29 percent of the total geographical area of the state. (Bora 2007) The wetlands of Assam have their definite role in maintaining the quality of environment. All the wetlands which are rich in biodiversity also help in reducing flood height. According to Vass (2006) the pH of water (wetland) of Assam is 6.28 to 7.4. He also estimated the Chloride, Phosphate, Nitrate, Silicate, Calcium, Silicate, Diss. Oxygen, Total alkalinity etc in wetlands water of Assam.

## **MATERIALS AND METHODS**

The present study was carried out in Borbeel which is situated under Khowang forest rang of Dibrugarh forest Division, at a distance 3 km North West of National highway and 2 km south west of the river Buridihing. The area covered by the water body of the beel is about 387 bigha i.e about 50 hectares. There are two smaller beels such as Ekarani and Gergeri which are part of the main beel. The geological features of the beel is characterized by flood plains and there fore alluvial in nature. The present observations have been made on the basis of extensive survey and collection tours in the Borbeel. During the experimental period 2008 plants were collected and identified.

## **RESULTS & DISCUSSION**

The geological feature of the beel is characterized by flood plains and there fore alluvial in nature. The climate of the region is moderate, temperature ranging from 32.6°



F to 21.21° F in summer and 29.46° F to 13.21° F in winter. The average rainfall in the locality is 196.5 cm. the central water portion is surrounded by villages namely Goroimari, Khalihamari and Jariguri to the North and Borbeel block Gaon to the south, Dolonikur I & II etc to the west and Khowng Sonowal Bongali goan to the east. The primary occupation of the villagers is cultivation and employment in tea Garden and fishing to some extent. The crops raised in the surrounding villages are mainly paddy. .The existing vegetation surrounding the beel is mainly Palash, Simul, Ajar, Borun, Ekra, Nol, Moder, Urium, Ficus, etc. The other Macrophytes like different species of Water hyacinth, Pistia, Ipomea, Marsilea, Trapa, Hydrilla, Utricularia, Nelumbo, Nymphaea etc and varieties of grasses like cyperus are very commone in the beel. Various types of fishes, such as Rohu, Cheetol, Barali, Bahu etc are available in the beel throughout the year. This has become one of the causes of attraction for birds of the site. The birds found in the wetland are both local and migratory Such as Little cormorant, Night heron, Pond heron, purple heron, Open bill stork, Spot bill duck etc.

## **CONCLUSION**

- The preliminary scrutiny of the area reveals that due to human intervention gradually some birds and animals also become extinct from the locality.
- The primary threat to the wetland is fishing and poaching of birds. Due to large scale fishing, birds are also losing their food and habitat. Therefore to need to make proper survey and demarcation of the entire area and to prohibit fishing and poaching of birds in the beel area.
- The surrounding of the beel is vulnerable to encroachment as a result of which the water body is gradually diminishing. Therefore steps have to be taken to make the area encroachment free and to provide alternate arrangement of livelihood for the local people.
- The decrease in population of birds and water animals threaten the bio-diversity of the beel. Therefore it is necessary to make a awareness among the people for protect the beel and the government have to make interest to protect the bio-diversity.

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**Table 1 : Some common Hydrophytes**

	Botanical name	Families
1	<i>Pistia stratiotes</i>	Araceae
2	<i>Eichhornia crassipes</i>	Pontederiaceae
3	<i>Monocharia hastaefolia</i>	Pontederiaceae
4	<i>Hydrilla verticillata</i>	Hydrocharitaceae
5	<i>Vallisneria spiralis</i>	Hydrocharitaceae
6	<i>Nymphaea lotus</i>	Nymphaeaceae
7	<i>Nelumbo nucifera</i>	Nymphaeaceae
8	<i>Lemna minor</i>	Lemnaceae
9	<i>Wolffia arrhiza</i>	Lemnaceae
10	<i>Alternanthera philoxeroides</i>	Amaranthaceae
11	<i>Cyperus pilosus</i>	Cyperaceae
12	<i>Polygonum hydropiper</i>	Polygonaceae
13	<i>Azolla pinnata</i>	Salviniaceae
14	<i>Marsilea quadrifolia</i>	Marsileaceae
15	<i>Lemna trisulca</i>	Lemnaceae
16	<i>Cyperus rotundus</i>	Cyperaceae
17	<i>Fibristytis miliacea</i>	Cyperaceae
18	<i>Saccharum spontaneum</i>	Gramineae
19	<i>Imperata cylindrica</i>	Gramineae
20	<i>Sagittaria sp</i>	Sagittatiaceae

**Table 2 : Some common Birds**

	Local name	Scientific name
1	Sarali	<i>Nettapus coromandelianus</i>
2	Dauk	<i>Amaurornis phoenicurus</i>
3	Ganga chiloni	<i>Rhynchops albicollis</i>
4	Pani kaori	<i>Phalacrocorax nigripennis</i>
5	Kanamusori	<i>Ardeola grayii</i>
6	samukbhanga	<i>Anastomus oscitans</i>
7	Hargilla	<i>Leptoptilos dubius</i>
8	Masuruka	<i>Alcedo atthis</i>
9	Kamcharai	<i>Chlidonias hybrida</i>
10	sen	<i>Falco peregrinator</i>
11	Balimahi	<i>Motacilla alba</i>

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