

Abstract

Wetlands are the transitional zones where aquatic and terrestrial habitats meet. Terai and Duars are generally situated on the western and Eastern bank of River Teesta of West Bengal. The Terai means dampness or marshiness and the Duars means the door or the gate way of Bhutan. These regions are under Himalayan Hotspot. Numerous wetlands are present in this region due to its geographical variations. The wetlands of these areas are generally *Riverine*, *Lacustrine* and *Palustrine*. The study area covers a total of 6227 sq km, out of which 484.27 sq km area is occupied by wetlands. Regular recurrence flood, almost every year gradually increases the wetlands in Terai & Duars. This area is the house of so many fresh water wetlands. Among the 23 larger wetlands of west Bengal 06 are present in the study areas. Several parameters have been studied during the last five years. 40 wetlands of Terai & Duars have studied for Taxonomical explorations. But, to examine the other parameters several small and larger wetlands, lakes, ponds, roadside ditches, river beds, ephemeral water bodies and streams have been studied and huge bulk of data was accumulated. 53 largest wetlands like *Gajoldoba Beel*, *Mahananda Barrage*, *Shova Bari Beel*, *Kuchi Daineer Beel*, *Khatambari Beel*, and several forest wetlands like *Gossaihat Beel*, *Garati Beel* and *Chukchuki Beel* have been chosen for detailed study. Beside these, several ancient dighi ponds, rivers and roadside ephemeral ditches have also been chosen.

Floristic exploration in different wetlands has been conducted mainly in three important seasons in last few years and during the survey total 455 species are recorded from Terai & Duars. The collected plants are generally hydrophytes, fenland loving and few pseudo wetland plants that grown during summer within the boundary of wetlands areas. Among these 241 species are dicot, 192 species are monocot and 22 species are pteridophytes. The total collected specimen is almost 37.58 % of the Indian total wetland flora.

Two novelties [*Nymphaea abhayana* A. chowdhury & M. Chowdhury of Nymphaeaceae and *Lindernia palustris* A. Chowdhury, M. Chowdhury & A.PDas of Linderniaceae] recoded during the present work. In addition, the new records of as much as eight species of plants is also significant for the vegetation. Of these one [*Adenostemma suffruticosum* Gardner of Asteraceae] is new record for the entire northern hemisphere; three [*Potamogeton gramineus* Linnaeus of Potamogetonaceae, *Murdania keisak* (Hasskarl) Handel-Mazzetti of Commelinaceae and *Polygonum hastatogagittatum* Makino of Polygonaceae] are for the flora of the country; and, Four [*Ludwigia peruviana* (Linnaeus) H. Hara of Onagraceae), *Hygrophila erecta* (N.L. Burman) Hochreutiner of Acanthaceae, *Soliva anthemifolia* (A. Jussieu) R. Brown of Asteraceae and *Carex phacota* Sprengel of Cyperaceae] are forming the new records for the state of West Bengal.

244 species of aquatic and semi-aquatic species have been selected for the phonological study in their *in situ* condition. The information about the life cycle of the collected plant species have been studied in details. The flowering and fruiting calendar of the plant species of wetland have been prepared.

The pollination patterns of these plants are very interesting that involves almost all types of pollination for fertilization.

The wetlands are also natural habitat for several economically important plants. This segment studied in two ways firstly the Ethnobotany i.e., wetland plants those are used by different local and tribal peoples of the Terai & Duars. They use those plants in various purposes like as medicine, food, fodder, manure, building materials and some other purpose. Around 83 species are found to as medicinal importance, 31 leafy vegetables, 7 building materials, 12 plants used in broom, utensil etc making. Except these several species used as fodder, fuel and ornamental purpose. Secondly, the wetlands plants of these areas are with various economical importances. 149 species of these wetlands are found to as useful. As much as 87 species have been recorded on sale in different village and urban markets.

The wetlands of Terai & Duars are under various threats, which are mostly anthropological and few are natural. Among the anthropological causes excessive irrigation and agricultural activities are most dangerous. The urban sewage, garbage, vehicle washable materials reduces the depth of wetlands and badly affects the water quality and the wild ecosystem leading to the drastic reduction in biological diversity.

After the study of different parameters of the wetlands areas of Terai & Duars it is found that these wetlands are very rich in their biodiversity. Regarding conservation of those wetlands few measures or management strategies have suggested in the dissertation. Too much of exploitation in the form of crop-cultivation, pisciculture, and ecotourism are need to be reduced drastically. Considering several aspects and understandings strategies for the management of the wetland ecosystems of Terai and Duars have been framed for the proper conservation of their natural biological diversity.