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Making it worst for the wrong reason: The weeping wetlands

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ABSTRACT

In any natural ecosystems, wetlands are regarded as key components, providing habitat and nutrient sources for a diverse group of wild Biota, such as hydrophytes, fishes, waterfowl, amphibians, Reptiles and insects. Apart from serving habitat for many groups of organisms, wetlands also reduce erosion by receiving flash-floodwater volume and rapidity. With ever increasing demands of natural resources, wetland habitat loss has been substantial over a past few decades globally. Wetland loss and its fragmentation, triggering detrimental impacts on wetland bird populations by influencing their breeding, feeding and roosting habitats.

Keywords: Wetland, Aquatic avifauna, Gauhati University.

INTRODUCTION

Why development always adversely affects the conservation? Conservation in the sense of a balanced nature that is under the modification through evolution of millions of years of geological cycle that has given rise to such a diversified living world. In this living world human beings are considered as the most civilized organisms [1]. On the other hand predominantly responsible for the distortion of the balanced nature. Habitat loss has been occurred at shocking rates throughout the world over the past few centuries ignited by urbanization and industrialization [2]. Yet these losses are not equal and some environments that have been affected more than others. Most recent losses over the past two decades have been primarily due to agriculture and urban development [3, 4, 10, 11]. Although lakes, rivers and other freshwater bodies, including reservoirs and swamps, contains only a very small proportion of the Earth's fresh water, they have played a significant role in the development of human civilization [5, 11]. Wetlands have definite value, because their functions have proved to be useful to humans [6]. Small water bodies are ecologically very important. They support specific and important hydrological, chemical and biological processes [7].

To the untrained eye, the northern periphery (presently 2.2 kilometers of National Highway- 37 roadside) of Gauhati University may look like any other suffocated urban wetland: a lush carpet of tall grass teeming with fish and birds. In fact, till 2010, plot was flood and flash-flod catchment area in the form of wetland once a kind of ecological counterfeit, created in 1948 or even before the establishment of the university campus. The natural wetlands have been replaced and destroyed by construction projects to curl the NH 37. The wetlands and ponds were covered with *Eichhornia crassipes* blooms with varied water grass species at the periphery and other hydrophytes in patches and lotus at certain places, providing suitable breeding and feeding grounds not only for endangered and threatened residential avifauna (*Dendrocygna bicolor, Leptoptilos dubius and L. javanicus* etc.), but also for winter migrants as such (*Aythya nyroca, Netta rufina, Aythya ferina, Anas acuta, Anas strepera, Anas querquedula* etc.); summer visitors etc. Birds play a major role in wetland ecosystems [5]. Most wetland birds are insectivorous during the breeding season, foraging on aquatic invertebrates for themselves and their young. Birds, their eggs, nestling, and juveniles act as prey for other vertebrates, such as snakes [4, 5] and other carnivorous birds and Raptors. It was also in the sense of ecological coexistence and as well as a strategy to compete with other species for survival. So

undisturbed the setting was that in spite of heavy traffic and human disturbances, the water birds were living comfortably in harmony with other living creatures since long time and the migratory birds visiting the winters year after year.

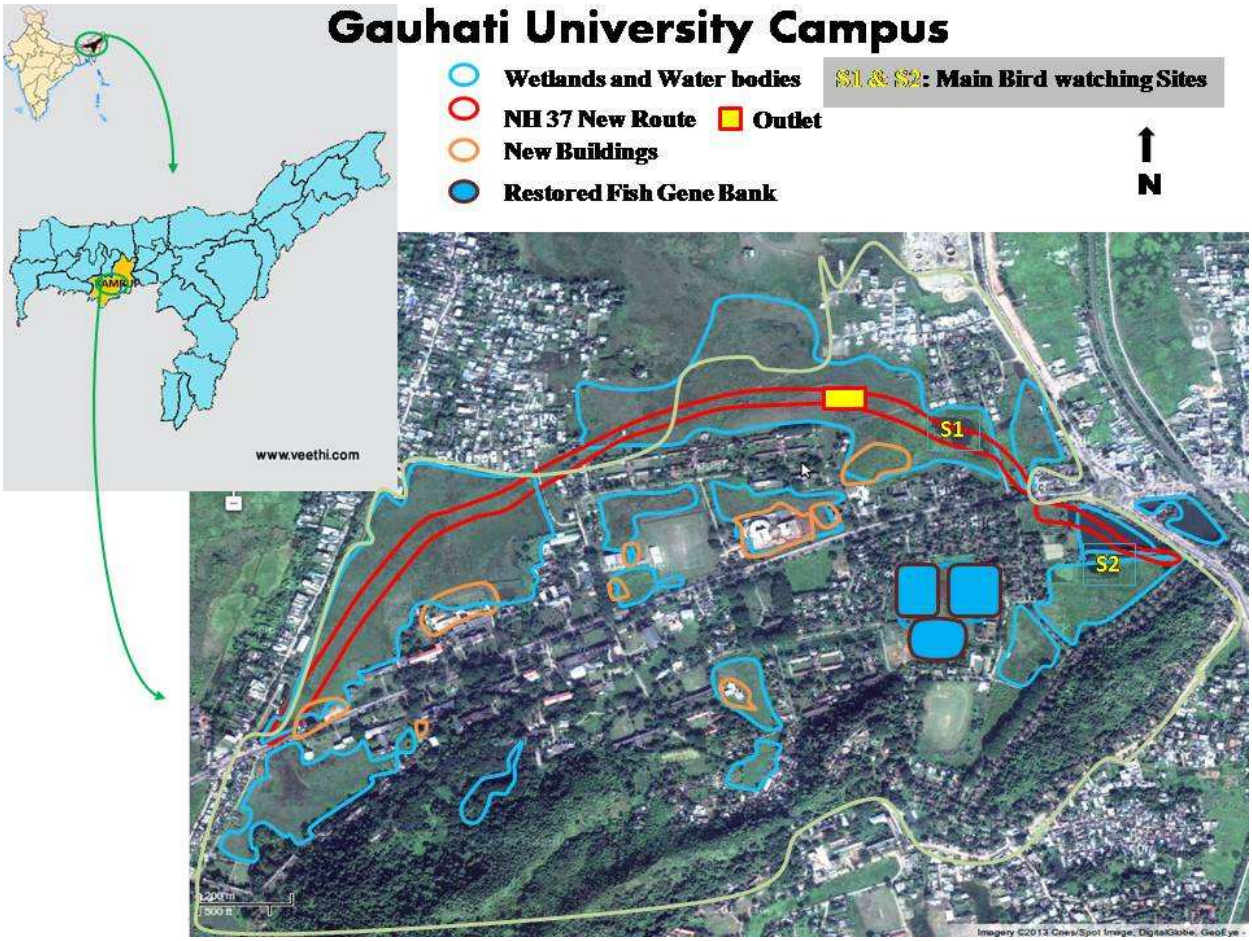

Figure 1: Study area: Map showing Gauhati University, locator map of Assam and Kamrup district (map source: Classroom Clipart)

MATERIALS AND METHODS

Study area

The Gauhati University campus is located within the latitudes of 26 08' N to 2609' N and longitudes 91039' E to 91040' E and height of 45m msl, with unique physiographic characteristics and scenic beauty, flanked by mighty river Brahmaputra in the North. The Deepor Beel Wildlife Sanctuary, a lone Ramsar Site of Assam is situated in the South. The campus has total area of 200 acres on various protrusions and plains of the Nilachal hill ranges covering 140 acres of area. Number of low laying depressions in the form of water-bodies and wetlands serving as catchment areas during rainy seasons, covering 60 acres of land. Habitat types blend seamlessly into one another, creating a characteristic mosaic landscape of forests and wetlands. The climate of the area is Humid Mesothermal Brahmaputra valley type like other parts of Brahmaputra Valley, experiencing minute local variations [8]. On the basis of the various distinctions regarding the trend, tendency, distribution of temperature, rainfall, rainy days, fogs and thunder storms, the weather may be grouped into four distinct seasons viz. (a) Winter, (b) pre-monsoon, (c) monsoon and (d) re-treating monsoon [8].

Methods

Regular bird watching were carried out weekly from October, 2009 to June, 2011 for identification of birds species harboured in various habitat structures of birds [12]. At the same time, the data of vegetation types, characteristics, habitat potential and possible threats were also gathered. Bird census were done following Line transect [9] and Point transect [13] methods during Asian Waterfowl Census 2010 and 2011. However, the wetland destructions data were based on direct observations when degrading wetland bed the extension work of NH- 37. Further observations on the total number of populations of aquatic and wetland associated birds were compared to find out the habitat

suitability of the existing avian populations. The length and width were measured by using 100m measuring tape to find out total area.

Figure 2: Photos: [A-D] Wetlands and Ponds of the university campus with winter visitors. [A1- D1] Respective sites during and after destruction of wetland habitats

RESULTS AND DISCUSSION

Study shows that, during the construction of the new diversion of NH-37 and new buildings have damaged a total wetland area of 10.78 Km2 leading to loss of 44.39% potential natural area of waterfowl breeding, feeding and roosting habitat. Both the loss and fragmentation of wetlands and ponds proved to be detrimental for waterfowl population by decimating feeding and breeding habitat. The wintering populations of the resident birds as such *Dendrocygna bicolor*, *D. javanica* were very low 456 and 39 respectively during the year 2012. There is decline of 70.28% and 79.37% populations of the respective species as compared to the previous two year populations. No sightings of winter visitors as such *Aythya nyroca*, *Netta rufina*, *Aythya ferina*, *Anas acuta*, *Anas strepera*, *Anas querquedula* etc. were found during 2012 to 2013 migratory session.

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