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BASAI WETLAND: ANOTHER VICTIM OF DEVELOPMENT AT THE COST OF NATURE

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Abstract
Wetlands are interlinkage between terrestrial and aquatic ecosystems where there is typically shallow water on the land or the water table is at or near the surface. Wetlands aid in flood management, waste water treatment, bird habitat, and they also provide revenue through food production and fishing for local residents. Wetlands are well known for maintaining a healthy balance between terrestrial and aquatic ecosystems, but due to industrialization and urbanisation, which is causing their overall area to shrink day by day, they are now in danger of being extinct. Basai wetland, one of the important ecosystems located in Gurugram, Haryana is facing severe thereat of shrinkage and extinction due to encroachment of metropolis city and rapid population growth. With the help of secondary data, this research paper analysed the challenges and conservation strategies of Basai wetland and compared the same with another nearby wetland located in Sultanpur which has already been declared as National Park and received international importance last year. The report emphasised the severity of harm done to Basai wetlands as a result of Government and public indifference.

Key Words: Wetland, biodiversity conservation, ecological services, avifauna

Introduction
Wetlands! One of the unique ecosystems on Earth. Wetlands play very important role in ecosystem management, biodiversity conservation, improving water quality, increasing water level and many more. Wetlands sustain a wide variety of species and are crucial for ecological services (Khan and Arshad 2014). Additionally, urbanisation, nutrient imports, and exotic species can all pose threats to wetland ecosystems (Clarkson et al. 2013). Wetlands in urban and suburban regions are typically in danger of becoming non-wetland due to various factors such as landfilling, solid waste disposal, and discharging industrial effluents on drainage systems, changes in the inflow of ground water, extraction of water, and overuse of resources. All these factors have severe negative impact on the biological diversity as well as the products and services that wetlands offer (Ramachandra et. al.,

2012). The Basai wetland, located in the village of Basai in Gurugram, Haryana, India, is one of India's major Bird and Biodiversity Areas and is home to a wide range of animals and plants. The wetland seeks immediate attention of the conservation and protection as it is a habitat of many fragile, and endangered birds. Basai wetland is marked as an Important Bird Area (IBA) and Bird Life International housing still it is not being protected by Haryana Government.

Wetland avifauna shows the quality of a wetland and also help in measuring the successful restoration and endemic plants and animals (Kumar and Gupta, 2009). These unique ecosystems of India are in danger because of numerous manmade actions like expansion of urban areas, expansion of roads, unscientific development activities, destruction of habitat of animals etc. (Kler, 2002; Verma et al, 2004). Birds are incredibly susceptible creatures to such actions and react by altering their species' population, composition, and occurrence. It is sad that we still don't completely understand how these changes will affect the structure, composition, and diversity of the bird species. The inability to comprehend the effects of alterations to these natural habitats on wetland biodiversity, however, should be kept in mind as it would likely result in an increase in the human load on such natural ecosystems, including avifauna (Bibby et al, 2000). The Basai Wetland is considered as "wetland" as defined by the Wetlands "Conservation and Management) Rules, 2017. Not only the endemic species but also many important migratory birds take shelter in it. Basai wetland often expands after monsoon rains and invite many endemic as well as migratory species. Around 1150 Bar-headed Geese, 5,000 ducks (18 species), and 10,000 waders (36 species) have been recorded, with the majority of these being observed during spring and autumn. Asian dowitcher, Wood sandpiper, White-rumped Vulture, Red-headed Vulture, Smoky warbler,, Marbled Teal, Common grasshopper warbler, Moustached warbler, Woolly-necked Stork, Water rail, Steppe Eagle, Great Bittern, Black-bellied tern, Water Pipit, Baillon's crake, European roller, and Common crane are few of the bird species that can be seen here. The Basai wetland area also witnessed thousands of Yellow wagtail and Citrine wagtail over the winter. Basai village is well-known due to the Basai Wetland, which is home to numerous migratory bird species that are highly threatened by unsustainable development and urbanisation. Basai wetland located very near to Gurugram metropolis resulting the loss of crop lands and wetlands. Two main sectors namely 9 and 10 of Gurugram metropolis are the main residential areas which encroached over Basai wetland. Due to severe urbanisation and residential expansion, seven villages have lost their agricultural land over within two decades. Construction of water treatment facility, Urban Development Authority (Haryana) for provides drinking water to Gurugram resulted the loss of agricultural lands as well. Locals were also affected by the loss of Basai Wetland's area and pastureland. Their traditional livelihoods collapsed and they were forced to find new jobs and companies.

According to different research, there are 128 bird species belong to 15 orders and 37 families have been identified in Basai wetland. With 12 families and 40 species, the order Passeriformes was determined to be dominant, while family Anatidae dominated the families with 15 species from the order Anseriformes. Eighty-nine (79) amongst 128 species of birds were local resident (R), winter migrants (WM) accounts for 45 species, and summer migrants (SM) accounts for four species. Seven species were classified as Near Threatened (NT), four as Vulnerable (VU), and two as Endangered (EN) according to the IUCN Red List version 3.1. (EN) (2016) Rai et al.

Study Area

The Basai wetland (28°292 N and 76°592 E) is located between Sectors 101 and 102 of Gurugram. Sultanpur National Park is one of the important national parks in Haryana which received international importance last year is located 8 km east from Basai wetland. The Basai wet s (IBA Site Code: IN-HR-01) land spreading upto ara of 250 acrees, it is shallow wet land. Basai Wetland is not very far from Delhi, and is one of the important five IBAs of Haryana. Basai wetland is an area with permanently low depth and covers around 250 acres. It primarily consists of open water, water hyacinths (Eichhornia crassipes), Typha reedbeds, Paspalum grass crop fields, fallow fields, cultivated areas, and a small amount of thorn scrub vegetation (Salicornia and Acacia). In the wetland area, various crops namely paddy, wheat, pearl millet, sorghum, and mustard are grown. During the monsoon season, the farmers use rain and channelled water to irrigate crops, which leads to overflow to an area of around 1 square kilometre. In the winter, Bar-headed Geese (Anser indicus) are found here as the wetland provides excellent grazing area to them. Gurgaon Water and Sewage Works has built a water reservoir next to the Ashram on the way to Sultanpur road, which is now a popular spot for diving ducks, grebes, and cormorants. Basai wetland is one of the Important Bird Areas (IBAs) of Haryana along with Sultanpur National Park and three other locations.

Data Source

Present study aimed to investigate & analyse the current conditions of flora, fauna and environmental aspects at Basai wetlands. Data source is based upon secondary information taken from National, international web resources, various print and electronic media, research articles, local peoples, villagers residing near the wetland area, Governmental and Non-governmental organization working in the area of wetland studies.

Avifaunal Diversity at Basai Wetland

Wetlands are major habitats for birds because they provide them water, food, shelter, nesting & breeding ground (Weller, 1978). The quantity, consistency, and depth of the water, the availability of food and habitat, and the numbers of predators are just a few of the many variables that influence the relationship between birds and wetlands (Stewart, Jr., 2001). Globally around 10% of all bird species depend entirely on wetlands (Rannested et al., 2015), making them essential habitats for avian diversity (Tockner and Stanford, 2002; Williamson et al., 2013). Rivers, jheels, streams, marshes, glacial lakes, floodplains, estuaries, intertidal marshes, swamps and mudflats, lagoons, manmade reservoirs, irrigated agricultural lands, aquaculture ponds, and saltpans, among other wetland types found throughout India's biogeographic zones, provide a unique habitat for numerous birds, including migratory species (Islam and Rahmani, 2008; Harisha and Hosetti, 2009).

Birds are considered as one of the most prominent groups of animals; they are found everywhere and have always fascinated the mankind due to their wonderful colouration and flight. Birds play important role in world’s ecosystems by providing various ecological services. The state of the world’s birds can tell us a lot about the state of the environment.

Wetlands are regarded as the most productive ecosystems on Earth, and they are valued for offering avifauna with good as well as vast habitats. Vital Bird and Biodiversity Areas (IBAs) are locations that are significant on a global scale for the preservation of biodiversity and birds.
Though Basai wetland has been declared as Important Bird Area (IBA) by Cenral Government and Bombay National History Society (BNHS), but the Haryana Government is not showing interest to declare it as wetland. As shown in Table 1, Basai Wetland satisfies the requirements of the Indian Bird Conservation Network (IBCN).

Table: 1
Basai Wetland Area
A1= Threatened Species; A2= Restricted Range Species;
A3= Biome Species; A4= Congregatory Species
IBA_s of Haryana

IBA Site Code	IBA Site Names	IBA Criteria
IN-HR-01	Basai Wetlands	A1, A4i, A4iii

Table 2 explained Basai wetland contains total 240 bird species in which 2 Critically Endangered, 3 Endangered, 7, Vulnerable and 16 species reported Near-Threatened.

Table: 2
Basai Wetland

Classification	Basai Wetland
IBA Site Code	IN-HR-01
Territory	100 ha
Coordinates	28.4695° N, 76.9795° E
No of Avifauna	Total 240 species
Critically Endangered (CR)	2
Endangered (E)	3
Vulnerable (VU)	7
Near-Threatened (NT)	16

Table 3 explained Basai Wetland's bird species specification under IUCN RED-LIST

Table: 3
Basai Wetland

Critically Endangered (CR)	Endangered (E)	Vulnerable (VU)	Near-Threatened (NT)
Red-headed Vulture	*Black-bellied tern*	*Indian spotted Eagle*	*European roller*

White-rumped Vulture	*Steppe eagle*	*Eastern Imperial Eaqgle*	*Eurasian curlew*
-	*Egyptian Vulture*	*Common Pochard*	*Black-necked stork*
-	-	*Sarus Crane*	*Black-headed ibis*
-	-	*Marbled Teal*	*Black-tailed godwit*
-	-	*Great Spotted Eagle*	*Curlew sandpiper*
-	-	*Wooly-necked stork*	*Asian dowitcher*
-	-	-	*Alexandrine parakeet*
-	-	-	*Northern lapwing*
-	-	-	*Lesser flamingo*
-	-	-	*Ferruginous duck*
-	-	-	*Painted stork*
-	-	-	*Oriental darter*
-	-	-	*River lapwing*
-	-	-	*Red-necked falcon*
-	-	-	*Pallid harrier*
-	-	-	*River tern*

In Sultanpur National Park, Haryana, Chopra et al. (2012) discovered 113 bird species, categorized into 14 orders, 35 families, and 80 genera. The order consists of 12 families and a total of 41 species. Passeriformes made up 36.28 percent of the total known bird fauna, whereas Podicipediformes and Strigiformes had the least amount of species (0.88 percent each). Earlier research has provided descriptions of certain winter migratory species (Harvey, 2003)

Importance of Basai wetland

It was discovered that the Basai wetlands had a diverse avifauna, with 239 species having been identified since February 2001. The National Green Tribunal (NGT), Government of India noticed that the Basai wetland, far from 8 km from Gurgaon city. It is a vital area for avifauna both of endemic species and exotic visitors' species from far-off lands, to flock in. NGT also observed that wetland that attracts migratory species in huge numbers every year is under threat from a various construction and demolition. According to the report, Basai Wetland is the home of number of species those are significantly higher than the one percent bio geographic threshold limit set by Wetlands International, according to Indian Bird Conservation Network (2002). The number of Bar-headed Geese is 560 according to the one percent bio geographic criterion, although in Basai, about double of this quantity (1100) has been found (IBCN, 2015). Basai Wetland is close to Sultanpur Wetland and frequently visited by nature enthusiasts. Visitors and nature lovers used to visit there to enjoy the natural surroundings. Every year, dozens of migratory birds visit Basai Wetland. The wetland is the home of thousands of bird species including the Gadwall, Mallard, Ruddy Shelduck, and Common Pochard etc.

State Government is selling lands that comes under the wetland vicinity due to increasing industrialization and urbanization leading to the shrinkage of the wetland. It seems that Basai wetland is trapped between development and urbanization at the cost of nature (Solanki and Joshi, 2017).

Threats to Basai Wetland

One of the best examples of habitat degradation is the Basai Wetland, however local officials fail to take conservation measures at this location. In 2016, 240 different bird species were recorded here. According to the wildlife department's records, 320 bird species were discovered in 2015. (Pati, 2016). Among 240 species, Black-necked stork, Asian dowitcher, Sarus crane observed in the region. The official bird of Haryana, the black francolin, and flamingos were once frequently seen in the state's wetlands, but their numbers are now steadily falling (Dhankhar, 2017).

Conclusion

The Basai Wetlands have a wide variety of birds, and there are many stressors nearby and in the wetland region itself that are responsible for habitat loss in this IBA. Various developmental projects around the wetland leading the deterioration of the wetland and its prime natural functions. The avifaunal diversity of this site is being disturbed by all of these factors. This IBA facility in Haryana urgently needs action plan and regulations. This IBA should be promptly safeguarded by the Government by designating it a Bird Sanctuary under the protected area classification. The government should buy private land, and all building operations should be prohibited near wetland vicinity. The road that is being constructed across the Basai Wetlands should be diverted in order to avoid habitat fragmentation in this IBA. It should be illegal to dispose of waste and sewage in this IBA. Permanent water supplies should be made available in order to address the problem of water scarcity. Encourage the use of alternative energy sources like solar heaters and panels in addition to LPG (liquefied petroleum gas) to lessen the burden of fuel wood on this IBA. In order to create a long-term management strategy and conservation plans, long-term biodiversity monitoring of this IBA should be done on a regular basis.

The local people should be periodically informed of the value of the ecological services of birds through mass communication, awareness campaigns, and camps, as well as the placement of sign boards, the distribution of literature, and the screening of audio-visual documentaries. A few Indian institutions, like WII and ZSI, could be able guide in this regard. In the wetland area, invasive weeds like water hyacinth should be checked frequently within the area concerned. To reduce the usage of pesticides and fertilisers, farmers in the surrounding agricultural area should also be encouraged to utilise organic farming practises.

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