



Asan Conservation Reserve: First Ramsar Site of Uttarkhand

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Abstract

Asan Barrage Conservation Reserve is situated in the state of Uttarakhand, India, stands as a vital ecological bird sanctuary amidst a rapidly developing landscape. It encompasses diverse habitats, including wetlands, marshes, grasslands, and riparian zones, supporting a rich array of flora and fauna. It serves as a crucial stopover and breeding ground for numerous migratory bird species, making it a globally significant avian hotspot. Additionally, the reserve harbors several threatened and endemic species, highlighting its importance for biodiversity conservation. Invasive species often outcompete native species, leading to a decrease in biodiversity within the wetland. This loss of biodiversity can disrupt ecosystem functions and reduce overall resilience to environmental changes. Through collaborative efforts and holistic management approaches, it safeguards biodiversity, supports livelihoods, and enhances ecosystem services.

Keywords: Wetland; Avifauna; Bird Watching; Biodiversity; Threats; Habitat Conservation

Introduction

The Asan barrage (N-30.26; E 77.40; 400 m), also known as Dhalipur Lake, is in the Uttarakhand-Himachal Pradesh border region in Doon Valley (Dehradun district), northern India, covering an area of 444.4 ha situated at the confluence of the Eastern Yamuna Canal and the Asan River, about 11 km from Dakpathar and 28 km northwest of Dehradun in Uttarakhand (<https://uttarakhandtourism.gov.in>). In 1967, it was built by Uttar Pradesh-Irrigation department as a tiny artificial wetland [1]. Later in 2005, it was declared as Uttarakhand first conservation reserve and in 2020 it has been declared as Uttarakhand's first Ramsar site. The barrage is 287.5 m long, and the river bed being 389.4 m above sea level with the minimum and maximum of pond levels respectively at 395.95 m. In summer the maximum average temperature is 38°C and minimum is 14°C whereas in winter the maximum average temperature is 21°C and

minimum is 2°C and average rainfall is 250 cm [2].



Figure 1: Asan Barrage Bird Sanctuary (Source: Google earth).



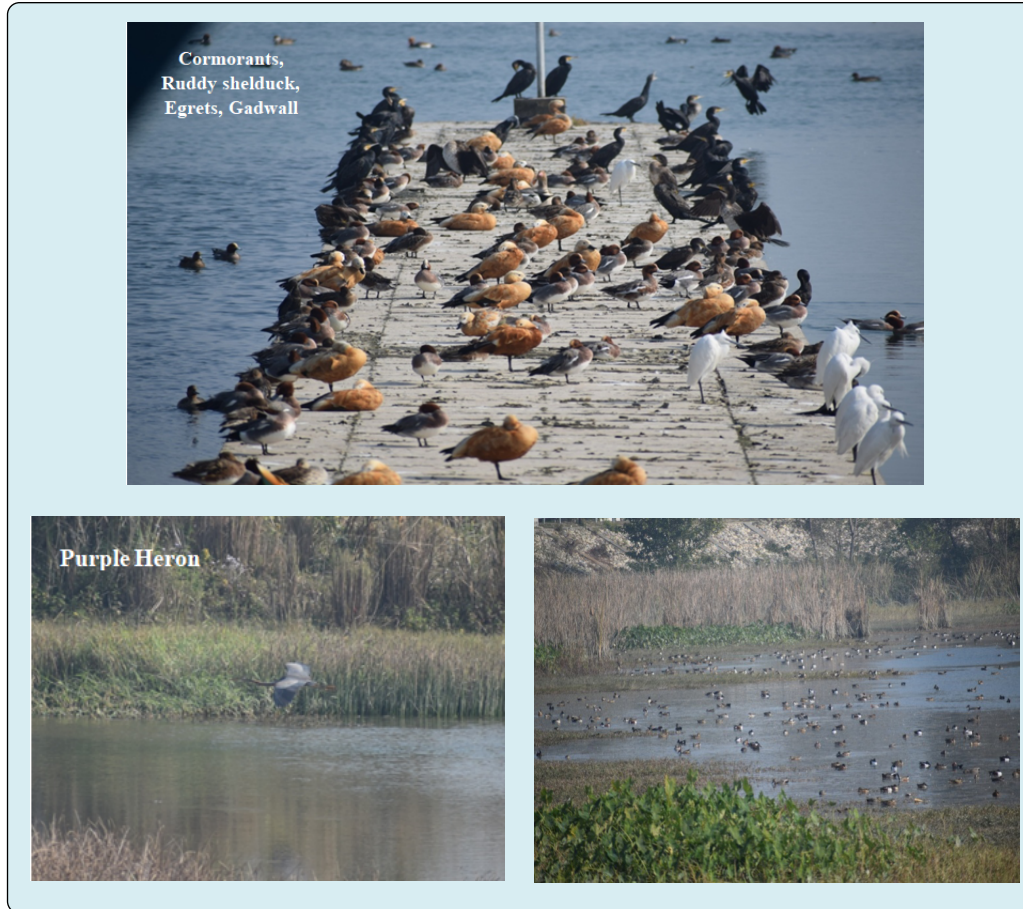
Figure 2: Migratory Bird Species at Asan Barrage.

Diversity of Flora and Fauna

This reservoir serves as a breeding site for several aquatic plants, including hornwort, elephant grass, water hyacinth, and fennel pondweed. These habitats support 330 species of birds, including critically endangered birds

like the red-headed vulture, the white-rumped vulture, and Baer's pochard. The lake is popular for bird watching, and 53 species are known to make habitat there; 19 species are migratory from Eurasia. It serves as a winter passage halt for trans-Himalayan migratory birds [3]. These birds are spotted here on their way to southern India (October–November) and again on their way back (late February–March). By the end of October, the Asan witnessed the arrival of migrants from the Palearctic region. Northern shoveler is the first one to arrive followed by Ruddy Shelduck, Mallard, Coot, Cormorant, Egrets, Wagtails, and Pond Heron. One can also observe a flock of painted storks at the bank of the Asan. The residential birds of this area are lesser whistling duck, Gadwal, Indian spot-billed duck, mallard, little grebe, river lapwing, pheasant-tailed jacana, red-naped ibis, pallas gull, white-throated kingfisher, etc. Birds of prey like the Pallas fishing eagle, marsh harrier, greater spotted eagle, osprey, and steppe eagle add to this magnificent diversity. Other famous bird species of this region are Greylag, red crested pochard, oriental darter, great hornbill, moorhen, whiskered tern, asian openbill, Common Teal, Crested Pochard, Gadwall, Wigeon and Pintail etc.





One will also witness some gorgeous bushes around the area, such as Prickly chaff flower, Touch-me-not, Morning Glory, False Daisy, Cocklebur, Knotweed, shy-leaf, west Indian lantana, Stonebreaker, Heartleaf, and miniature beefsteak. Asan is also home to 49 species of fishes. The aquatic vegetation of the reservoir consists of *Eichhornia crassipes*, *Photamogeton pectinatus*, *Typha elephantina*, and *Ceratophyllum demersum*. The grasses were mainly

represented by *Saccharum spontaneum*, *Digitaria ciliaris* and *Cynodon dactylon* while the herbs like *Chenopodium album*, *Rungia puctinata* and *Solanum nigrum* are common [4]. Towards the south, there is mixed forest typical of the Siwalik hills, consisting chiefly of *Shorea robusta*, *Anogeissus latifolia*, *Lannea coromandelica*, *Dalbergia sissoo*, and *Bombax ceiba* whereas weeds are mainly dominated by *Eichhornia crassipes* and *Ipomea fistulosa* [2].

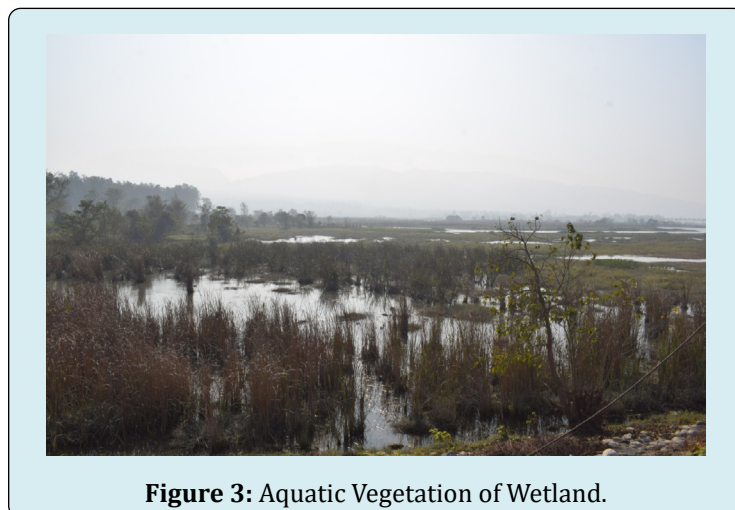


Figure 3: Aquatic Vegetation of Wetland.



Threats to Asan Conservation Reserve

In recent years, weeds and invasive species have caused several problems for water birds and their habitats by growing rapidly and out competing native vegetation, reducing the availability of suitable nesting and feeding areas for water birds. The wetland has problems with siltation; the prolonged period of water discharge required for cleaning it out; motor boats; weeds e.g. *Eichhornia crassipes*, *Ipomoea fistulosa* and *Typha elephantina*; and poaching of migratory water birds [5]. *E. crassipes* can alter nutrient levels in the

water, leading to changes in the composition of the aquatic ecosystem. This can affect the availability of prey organisms for water birds. Dense growth of *E. crassipes* can obstruct water bird migration routes, making it challenging for them to travel between breeding and wintering grounds. Efforts to control and manage invasive species are crucial to preserving the ecological balance of water bird habitats and maintaining the health of these ecosystems. Conservation measures may involve the removal of invasive species, habitat restoration, and the implementation of strategies to prevent the introduction and spread of invasive plants.



Figure 4: Weeds of Asan barrage.

Conservation strategies for Asan barrage

- Strict guidelines will be implemented for the workers on the site to guarantee they never harvest any species or produce from the forests and don't endanger or hurt wild animals and birds.
- Work activities must only be completed during the day.
- In order to prevent the deterioration of forests and the destruction of habitats for wildlife, the laborers must receive their fuel wood from plantations designated for that purpose and/or from the depots where free or subsidized kerosene or LPG is supplied.
- Project managers and contractors must abide by the Wildlife (Protection) Act, 1972 of India, as well as any other laws and standards that the state government may provide.
- Demolition and construction waste and muck from excavation must be disposed of outside the protected area with approval from the forest/wildlife department. The site must be repaired shortly after disposal.
- The project workers and labor will be educated on the value of biodiversity and prohibited from engaging in illegal activities.
- If a violation occurs, the appropriate authority will take strict action and impose penalties as per the law.
- Wastewater from rehabilitation activities will not be dumped into natural drainage without proper treatment.
- To reduce air and noise pollution, vehicles will only move during daylight hours and the number of vehicles on the route will be limited.
- Conduct comprehensive inventories and mapping of wetlands to understand their extent, distribution, and ecological characteristics.
- Implement projects to restore degraded wetlands and rehabilitate ecosystems involving re-establishing hydrological connections, reintroducing native vegetation, and removing invasive species.
- Raise awareness among local communities, stakeholders, and the general public about the importance of wetlands and the need for their conservation.
- Establish buffer zones and vegetative buffers along wetland margins to filter pollutants and reduce nutrient and sediment loading.
- Develop land use plans and zoning regulations to guide development away from critical wetland areas and protect them from encroachment.

Conclusion

The Asan Barrage Bird Sanctuary in Uttarakhand stands as an important bird sanctuary for avian species, offering a sanctuary for migratory birds as well as providing a haven for resident species. Its strategic location along migratory routes and its diverse wetland habitats make it a vital stopover for numerous bird species, contributing significantly to global biodiversity conservation efforts. Moreover, its designation as a Ramsar Site underscores its importance for wetland conservation on an international scale. The preservation of wetlands is crucial for the survival of both resident and migratory birds because they provide the birds with specialized microhabitat and different kinds of food sources. Birds also provide supporting services, provisioning services, regulating services, cultural services to maintain the environment. This includes ongoing monitoring of bird populations, habitat restoration initiatives, and public awareness campaigns to promote responsible ecotourism practices as well to protect the wetland from invasive plant species as well. By safeguarding this sanctuary and its inhabitants, we not only protect a crucial habitat for birds but also contribute to the broader goals of biodiversity conservation and environmental sustainability in the region.

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