

Assessment Of The Avian Diversity And Conservation Of Their Habitat In Hokersar Wetland

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ABSTRACT: The present study assesses the avian diversity of Hokersar bird conservation wetland Kashmir. During the present study a total 61 species of birds were observed which comprised of 25 resident species, summer visitors 17 species, winter visitors 19 species. Thus, avifauna comprised of 40.98% residents, 27.86% summer visitors and 31.14% winter visitors. Study revealed that no species restricted itself to only one particular habitat the study also shows that the Hokersar wetland has good number of the species of birds, but most of the species are represented by very few individuals and the habitat needs proper care to raise the abundance of birds. Anthropogenic interference in the form of illegal hunting, macrophytic harvesting, boating and severe cold climatic conditions during the winter season greatly reduced the diversity of the avifauna.

Keywords: Wetland, conservation, Protection, Avifauna, Diversity. , migratory status, point transect.

Objectives of the Study:

1. To examine Avian Diversity in Hokersar wetland, Jammu and Kashmir.
2. To suggest certain measures for the conservation of threatened bird species.

Study Area: Out of four main wetlands in the valley—Hokersar, Wular, Haigam, and Shallabug—Hokersar wetland is the sites of the current investigation. Many resident and migratory birds find this wetland to be a good habitat. A large diversity of the area's avifauna can find ample cover, secure roosting locations, and feeding grounds in the wetlands. This wetland is also an ideal breeding place for many local and seasonal bird visitors. The coordinates for the Hokersar wetland are 34 0 7' N and 74 0 39' E. With an elevation of 1584 meters above mean sea level, it is located to the north-west of Srinagar City and has a sub-Mediterranean climate. Due to encroachment and siltation, the Hokersar wetland, which formerly covered a vast 13.26 sq. km, has gradually shrunk to a size of 7.5 sq. km. In Kashmir Valley, Hokersar is regarded as the migrating bird's paradise. Although there are wetlands all around the valley, some of the larger ones include Hokersar, Haigam, Mirgund, Shallabugh, and Wular. Hokersar is one of the biggest freshwater wetland and it is also designated as Ramsar site in Kashmir.

MATERIALS AND METHODS

Materials

The materials used for this research include: - A binocular (Jumelles Fernglaser), Smart watch with altimeter + Compass + barometer + GPS (for recording altitude) at the point count along

the river with uniform interval 200m. Global Positioning System (IRNSS GPS) was used for recording latitude and longitude coordinates in the point count and measuring tape for measuring the uniform distance between the point counts. Digital camera (Sony) was utilized to take images of unidentified bird species for identification and binocular for observation and reference books on birds. Survey data sheet, pencils, eraser and field books were also used for recording birds and vegetation data.

Methods

Due to the site condition, point count survey method (Hamelet al. 1996) was followed for data collection. The study was conducted during the year 2022 to 2023. A binocular (Jumelles Fernglaser), camera (Sony digital camera) and guide books were used to confirm the identification of the birds. Birds were identified to the species level and their taxonomic groups were properly categorized based on field guides (Inskipp et al.,1999). Birds were also identified with the help of identification keys and coloured plates of Ali (2002), Bates and Lowther, (1952) and Robin et al., (1983). For every bird species the following parameters were recorded: (i) name of the bird; (Zoological & Common name) (ii) migratory status (iii) abundance (iv) habitat types.

RESULTS AND DISCUSSION

Table 1. List of avifauna of Hokersar wetland together with their migratory status, abundance and habitat type.

S.No	Zoological Name	Common Name	Migratory status	Abundance	Preferred habitat
1	Tachybaptus ruficollis	Little grebe (Dabchick)	Resident	Frequent	Aquatic/Shore
2	Alcedo atthis	Common kingfisher	Resident	Occasional	Shore
3	Halcyon smyrenensis	White throated kingfisher	Resident	Occasional	Shore
4	Megaceryle lugubris	Crested kingfisher	Resident	Occasional	Shore
5	Turdoides subrufus	Rufouse babbler	Resident	Frequent	Terrestrial
6	Dendrocopos himalayensis	Himalayan woodpecker	Resident	Frequent	Terrestrial
7	Dendrocopos atratus	Stripe breasted woodpecker	Resident	Occasional	Terrestrial
8	Dendrocopos macei	Fulvous breasted woodpecker	Resident	Occasional	Terrestrial
9	Actitis hypoleucos	Common sand piper	Resident	Occasional	Shore
10	Ardea cinerea	Eastern grey heron	Resident	Occasional	Shore
11	Ardeola grayii	Indian pond heron	Resident	Frequent	Shore
12	Egretta garzetta	Little egret	Resident	Occasional	Shore/ Terrestrial
13	Bubuicus ibus	Cattle egret	Resident	Occasional	Shore/ Terrestrial

14	Tyto alba	Indian barn owl	Resident	Rare	Terrestrial
15	Gallinula chloropus	Common moorhen	Resident	Occasional	Shore/Aquatic
16	Pycnonotus leucotes	White cheeked bulbu/ Himalayan Bulbul	Resident	Frequent	Terrestrial
17	Acredotheries tristis	Common myna	Resident	Common	Terrestrial
18	Columba livia	Rock pigeon	Resident	Common	Terrestrial
19	Corvus splendense	House crow	Resident	Common	Terrestrial
20	Corvus monedula	Eurasian jackdaw	Resident	Occasional	Terrestrial
21	Milvus migrans	Black kite	Resident	Common	Terrestrial
22	Myophonus caeruleus	Blue whistling thrush	Resident	Occasional	Terrestrial
23	Dicurus macrocercus	Black drango	Resident	Occasional	Terrestrial
24	Parus major	Great tit	Resident	Frequent	Terrestrial
25	Passer domesticus	House sparrow	Resident	Frequent	Terrestrial
26	Turdus unicolor	Tickell's thrush	Summer Visitor	Rare	Terrestrial
27	Ixobrychus minutes	Little bittern	Summer Visitor	Occasional	Shore
28	Pericrocotus brevirostris	Indian short billed minivet	Summer Visitor	Rare	Terrestrial
29	Lanius schah	Long tailed shrike	Summer Visitor	Rare	Terrestrial
30	Cuculus canorus	Eurasian cuckoo	Summer Visitor	Occasional	Terrestrial
31	Eudynamus scolopacea	Asian koel	Summer Visitor	Occasional	Terrestrial
32	Apus apus	Common swift	Summer Visitor	Frequent	Terrestrial/Shore
33	Delichon dasypus	Asian house martin	Summer Visitor	Frequent	Terrestrial/Shore
34	Upupa epops	Eurasian hoopee	Summer Visitor	Occasional	Terrestrial
35	Psittacula krameri	Rose ringed parakeet	Summer Visitor	Occasional	Terrestrial
36	Psittacula himalayana	Slaty headed parakeet	Summer Visitor	Occasional	Terrestrial
37	Megalaima zeylanica	Brown headed barbet	Summer Visitor	Occasional	Terrestrial
38	Megalaima virens	Great barbet	Summer Visitor	Occasional	Terrestrial
39	Streptopelia chinensis	Spotted dove	Summer Visitor	Occasional	Terrestrial
40	Streptopelia senegalensis	Little brown dove	Summer Visitor	Occasional	Terrestrial
41	Oriolus oriolus	Golden oriole	Summer Visitor	Rare	Terrestrial
42	Sturnus vulgaris	Common starling	Summer Visitor	Occasional	Terrestrial
43	Anas penelope	Eurasian wigeon	Winter Visitor	Occasional	Aquatic/Shore
44	Marmaronetta angustirostris	Marbled duck	Winter Visitor	Occasional	Aquatic/Shore
45	Anas strepera	Gadwall	Winter Visitor	Frequent	Aquatic/Shore

46	Anas platyrhynchos	Mallard	Winter Visitor	Occasional	Aquatic/Shore
47	Anas crecea	Common teal	Winter Visitor	Occasional	Aquatic/Shore
48	Fulica atra	Coot	Winter Visitor	Common	Aquatic/Shore
49	Anas clypeata	Northern shoveler	Winter Visitor	Occasional	Aquatic/Shore
50	Rhodonessa rufina	Red crested pochard	Winter Visitor	Occasional	Aquatic/Shore
51	Aythya farina	Common pochard	Winter Visitor	Occasional	Aquatic/Shore
52	Aythya nyroca	Ferruginous pochard	Winter Visitor	Occasional	Aquatic/Shore
53	Mergus merganser	Common merganser	Winter Visitor	Occasional	Aquatic/Shore
54	Grus grus	Common crane	Winter Visitor	Rare	Terrestrial/ Shore
55	Anser anser	Geese	Winter Visitor	Occasional	Aquatic/Shore
56	Anas acuta	Pintail	Winter Visitor	Occasional	Aquatic/Shore
57	Mareca strepera	Gadwall	Winter Visitor	Occasional	Aquatic/Shore
58	Netta rufina	Red crested pochard	Winter Visitor	Occasional	Aquatic/Shore
59	Spatula querquedula	Garganey	Winter Visitor	Occasional	Aquatic/Shore
60	Tadorna ferruginea	Ruddy shelduck	Winter Visitor	Occasional	Aquatic/Shore
61	Mereca penelope	Eurasian wigeon	Winter Visitor	Occasional	Aquatic/Shore

Bird species composition

A total of 61 species of birds were reported from the study area (Table 1). The migratory status of avifauna revealed that 25 species were residents, 17 species were summer migrants and 19 species were winter migrants. Thus, avifauna comprised of 40.98% residents, 27.86% summer visitors and 31.14% winter visitors. Similar studies carried out by Sharma (2003) in Ramnagar wildlife sanctuary reported 70 species, Ahmed (2004) in Tehsil Doda recorded 45 species and Kotwal and Sahi (2007) reported 63 species of birds from Lake Manser. Out of total 63 species reported from Lake Manser (J & K), 50 species were residents, 11 species were winter migrants and two species were summer migrants (Figure 1). Comparison with the works of Kumar (2005) and Kotwal and Sahi (2007), shows that number of summer migrants (17 species) in Hokersar is higher as compared to those in Jammu region (two species), but the number of winter migrants (19 species) is more or less the same at both places, however some of the species were different. This shows that the summer visitors are more in temperate regions.

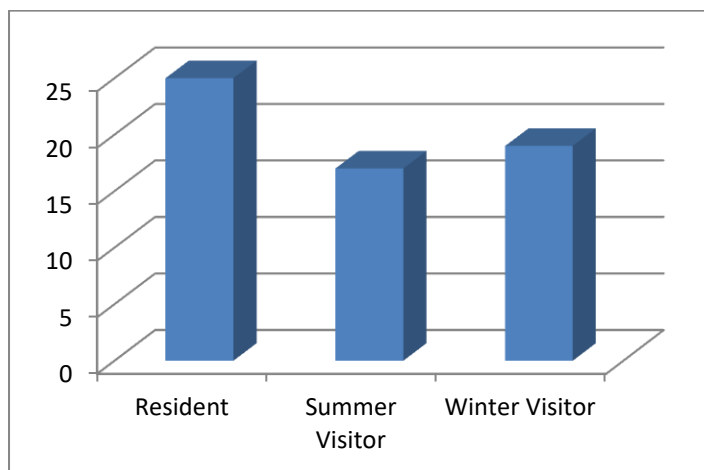


Figure 1 Migrant/resident status of avifauna of Hokersar wetland

Record of the preferred habitats was also made, and showed that the number of bird species living in terrestrial habitat was 29, in shore habitat was 7 species, whereas 25 species occupied more than one habitat. Thus, the number of species living in terrestrial habitat was more, which is in accordance with Kotwal and Sahi (2007).

The study on abundance of bird species shows that 5 (8.19%) species were common, six (9.83%) species were rare, ten (16.39%) species were frequent and forty (65.57%) species were occasional. 75.40% of the avifauna was rare and occasional. Thus, it is evident that most of the species are residents, terrestrial and occasional. The reasons for more numerous species in terrestrial habitat is that the terrestrial area around the Hokersar wetland is larger than the aquatic habitat, the food items are abundant as compared to aquatic and shore habitats, and moreover, the human activities have degraded the aquatic habitat to a great extent. The study also shows that the Hokersar has good number of the species of birds, but most of the species are represented by very few individuals and the habitat needs proper care to raise the abundance of birds. Figure 2 and 3 shows the above data graphically.

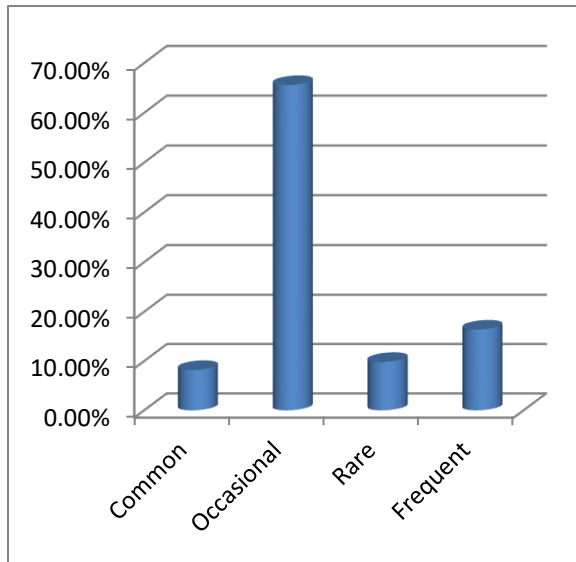


Figure 2: Abundance of avifauna of Hokersar wetland

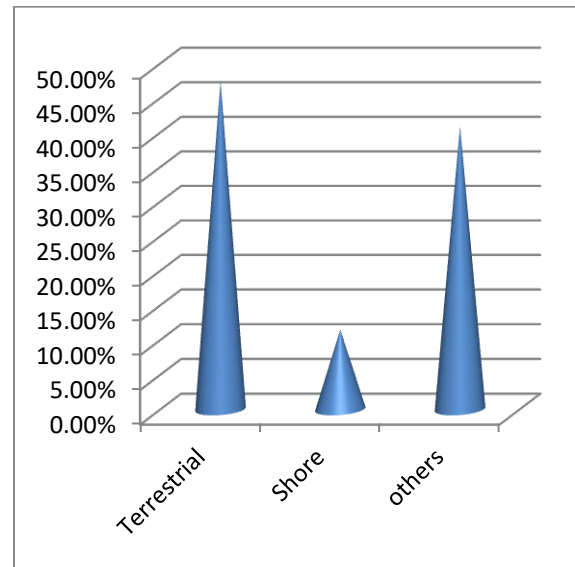


Figure 3: Number of avifauna species living in different habitats of Hokersar wetland

Measures for the conservation of threatened bird species

- ✓ The initial step to prohibit construction, in and along the periphery of Hokersar wetland.
- ✓ Prohibiting any kind of anthropogenic interference and reducing the impact of existing anthropogenic pressure and natural processes for long term protection of Hokersar wetland.
- ✓ Regulating water quality as per international standards regarding the wetlands and also regulating the functions of wetland and derive economical benefits in a sustainable manner.
- ✓ Setting up barriers for protection of ecosystem and stopping detrimental human actions in the demarcated area of wetland for restoring the wetland.
- ✓ Constructing and using sewerage treatment plants to control the pollution around the wetland.
- ✓ Involving local community, Students from Colleges and Universities for regular monitoring of health and quality check of the wetland.
- ✓ Spreading awareness through workshops, seminars, campaigning and other programs with participation of students and local population.

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