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Cover: Stripe-necked Mongoose *Urva vitticollis* in poster colours, adapted from photograph by Ashni Dhawale, by Pooja Ramdas Patil.



Composition of avian communities in Ranjit Sagar Conservation Reserve, Punjab, India

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Abstract: The Ranjit Sagar wetland, a critical aquatic ecosystem supporting diverse flora and fauna, has been the subject of investigation from January 2013 to January 2015. The study revealed the presence of 167 avian species across 19 orders and 52 families. Notably, areas with minimal disturbance within the wetland serve as key niches for a substantial avian population, encompassing 47.31% migrant and 52.69% resident species. Significantly, 10 Near Threatened species, alongside the Vulnerable Common Pochard *Aythya ferina* and the Endangered Egyptian Vulture *Neophron percnopterus*, underscore the wetland's conservation value. Dominated by order Passeriformes (55 species), followed by Charadriiformes (29 species), and Anseriformes (20 species), the avian community exhibits varied feeding guilds, with insectivores (37.13%), omnivores (18.56%), aquatic animal feeders (16.16%), carnivores (14.97%), frugivores (5.39%), granivores (4.79%), and herbivores (3%) comprising its composition. This study elucidates the intricate avian ecosystem's dynamics in Ranjit Sagar wetland, emphasizing its conservation significance and ecological structure, thereby contributing valuable insights for preservation and future research.

Keywords: Aquatic ecosystems, avifauna, conservation, habitats, IUCN Red List, mining, niche, vegetation, water birds, wetlands.

Punjabi: ਪੰਜਾਬ ਦੇ ਰੁੱਖਾਂ ਅਤੇ ਜੀਵਾਂ ਦੇ ਨਿਰੀਖਣ ਲਈ ਰਣਜੀਤ ਸਾਗਰ ਬੀਲ ਨੂੰ ਚੁਣਿਆ ਗਿਆ ਜਿਸ ਦੌਰਾਨ ਜਨਵਰੀ 2013 ਤੋਂ ਜਨਵਰੀ 2015 ਤੱਕ ਦੇ ਅਧਿਐਨ ਵਿੱਚ ਪਾਇਆ ਗਿਆ ਕਿ ਇਸ ਥਾਂ ਉੱਤੇ 167 ਪੰਛੀ ਹਨ ਜੋ ਕਿ 19 ਆਰਡਰ, 52 ਫੇਮਿਲੀਆਂ ਨਾਲ ਸਬੰਧ ਰੱਖਦੇ ਹਨ। ਇਸ ਥਾਂ ਤੇ ਮਨੁੱਖੀ ਦਖਲਅੰਦਾਜ਼ੀ ਨਾ-ਆਤਰ ਹੋਣ ਕਰਕੇ ਇਹ ਇਲਾਕਾ ਪੰਛੀਆਂ ਲਈ ਪਸੰਦੀਦਾ ਥਾਂ ਹੈ ਜਿਸ ਕਰਕੇ ਇੱਥੇ 47.31 ਫੀਸਦੀ ਪ੍ਰਵਾਸੀ ਪੰਛੀ ਆਉਂਦੇ ਹਨ ਅਤੇ 52.69 ਫੀਸਦੀ ਪੰਛੀ ਇੱਥੋਂ ਦੇ ਹੀ ਵਸਨੀਕ ਹਨ। ਇੱਥੇ 10 ਦੇ ਆਸਪਾਸ ਪ੍ਰਜਾਤੀਆਂ ਲੁਪਤ ਹੋਣ ਦੀ ਕਗਾਰ ਤੇ ਹਨ ਜਿਨ੍ਹਾਂ ਵਿੱਚੋਂ ਕਮਜ਼ੋਰ/vulnerable ਪ੍ਰਜਾਤੀ ਕਾਮਨ ਪੋਚਾਰਡ (ਅਥਿਐਆ ਫੇਰਿਨਾ) ਸ਼ਾਮਲ ਹੈ ਅਤੇ ਖਤਰੇ ਦੀ ਕਗਾਰ/ Endangered ਤੇ ਖਤੀ ਚਿੱਟੀ ਗਿੱਦ (ਨਿਓਫਿਰੋਨ ਪਰਕਨੋਪਟੇਰਸ) ਸ਼ਾਮਲ ਹੈ। ਇਸ ਬੀਲ ਵਿੱਚ ਆਰਡਰ ਪੋਜ਼ੀਟੀਵਰਮਿਸ (55 ਪ੍ਰਜਾਤੀਆਂ) ਦੇ ਪੰਛੀਆਂ ਦੀ ਬਹੁਤਾਤ ਹੈ ਅਤੇ ਇਸ ਤੋਂ ਬਾਅਦ ਕਰਾਡਰੀਫਾਰਮਿਸ (29 ਪ੍ਰਜਾਤੀਆਂ) ਅਤੇ 20 ਪ੍ਰਜਾਤੀਆਂ ਅਨਜੇਰੀਫਾਰਮਿਸ ਆਰਡਰ ਦੀਆਂ ਹਨ। ਇਹ ਪੰਛੀ ਵੱਖ ਵੱਖ ਤਰ੍ਹਾਂ ਦੇ ਭੋਜਨ ਉੱਤੇ ਨਿਰਭਰ ਕਰਦੇ ਹਨ ਜਿਵੇਂ ਕਿ 37.13% ਕੀੜੇ-ਖਾਣ ਵਾਲੇ, 18.56% ਸਰਵਹਾਰੇ, 16.16% ਪਾਣੀ ਵਾਲੇ ਜੀਵ ਖਾਂਦੇ ਹਨ, 14.97% ਮਾਸਾਹਾਰੀ, 5.39% ਫਲ-ਖਾਣੇ, 4.79% ਦਾਣੇ ਖਾਣ ਵਾਲੇ ਅਤੇ 3% ਸ਼ਾਕਾਹਾਰੀ ਹਨ। ਇਸ ਅਧਿਐਨ ਤੋਂ ਰਣਜੀਤ ਸਾਗਰ ਬੀਲ ਦੇ ਗਤੀਸ਼ੀਲ/ਜੀਵੰਤ ਸੁਭਾਅ ਦਾ ਪਤਾ ਲਗਦਾ ਹੈ ਜਿਸ ਕਰਕੇ ਇਸ ਬੀਲ ਦੇ ਸਾਂਭ-ਸੰਭਾਲ ਦਾ ਅਪਣਾ ਇੱਕ ਮਹੱਤਵ ਹੈ।

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INTRODUCTION

Wetlands serve as a crucial transitional zone bridging terrestrial and aquatic ecosystems, characterized by a shallow water table or the presence of shallow water covering the land's surface. They play a pivotal role in providing habitat for diverse biota and offer a range of ecological services (Coppes et al. 2018; Kakati et al. 2021; Wu et al. 2021). India, in particular, boasts an impressive avian diversity, with 1,353 documented bird species, of which approximately 310 are known to be dependent on wetlands (Kumar et al. 2005; Praveen & Jayapal 2023). Wetlands hold special significance for birds, serving as essential sites for roosting, foraging, drinking, resting, shelter, and social interactions (Singh & Banyal 2013; Kumar & Sharma 2019; Yao et al. 2020; Casazza et al. 2021; Joshi et al. 2021; Teng et al. 2021).

Birds are reliable indicators of water quality and wetland health (Yao et al. 2020; Anand et al. 2023). In wetland ecosystems, birds can be broadly classified into two categories: wetland specialists, which exclusively nest, feed, and roost in wetlands and are entirely reliant on aquatic habitats, and generalists, which frequent wetlands but also inhabit other environments. The development of an avifaunal baseline checklist specific to this habitat plays a pivotal role in shaping site and species-specific conservation strategies, applicable to both protected and unprotected areas, as supported by previous research (Bibby 1998; Anand et al. 2023; Byju et al. 2023a,b). Birds offer a valuable avenue for assessing biodiversity, often indicative of a healthy ecology through their diverse populations. Enumeration of avian diversity also contributes to our understanding of the status of endangered or threatened species. Furthermore, it holds educational value, fostering greater regional species and ecosystem appreciation, while encouraging community participation in conservation initiatives. Multiple researchers have conducted extensive studies on bird diversity in Punjab's wetlands, yielding noteworthy findings (Ali et al. 1981; Robson 1996; Kazmierczak et al. 1998; Robson 1999; Sawant & Sudhagar 2013; Prasad 2008a,b; Singh & Brraich 2021). This comprehensive study serves to elucidate the importance of wetlands and their relevance in shaping effective conservation strategies.

MATERIALS AND METHODS

Study area

The Ranjit Sagar wetland came into existence in 2004 with the construction of a barrage on the river Ravi of the Indus River system a freshwater wetland (32.442° N and 75.725° E, at the altitudes of 540 m) located near Pathankot City, Punjab (Figure 1). This wetland falls into three states, i.e., Punjab, Himachal Pradesh, and Jammu & Kashmir, and is spread over an area of 87.60 km² with a catchment area spread over 6,086 km². In and around this wetland, several habitats, including marshy parts, shallow areas, riparian vegetation, deep areas, islands, large trees (for the roosting of birds), fallow fields near the banks (for the breeding purposes) have developed over the time, generally preferred by migratory birds. It also provides food for different birds in the form of fishes, amphibians, reptiles, insects, zooplankton, phytoplankton, and weeds.

Methods

Field surveys were conducted from January 2013 to January 2015, utilizing visual counting methods following Gaston's (1975) methodology for bird observation. To ensure comprehensive coverage of the wetland area, about 12 vantage points were established. Data collection was conducted year-round, with observations made on five days each month, both in the morning (0700–1000 h) and evening (1600–1830 h). Species identification was based on references from bird identification guides, including works by Ali & Ripley (1983), Grimmett & Inskipp (2010), and Grimmett et al. (2012). Bird species were categorized into three groups: annual, winter, and summer birds, following Mavi & Tiwana's (1993) classification system. The checklist was meticulously compiled using standardized common and scientific names, adhering to guidelines by Clements et al. (2022) and Praveen & Jayapal (2023).

RESULTS AND DISCUSSION

In the present study, which focused on avian diversity at Ranjit Sagar Wetland, a total of 167 species were observed. The majority, accounting for 157 species, fall within the IUCN's Least Concern category, while the remaining 10 species are classified as threatened. Notable among these are the Vulnerable Common Pochard *Aythya ferina* and the Endangered Egyptian Vulture *Neophron percnopterus*. Additionally, species such as the Himalayan Vulture *Gyps himalayensis*,

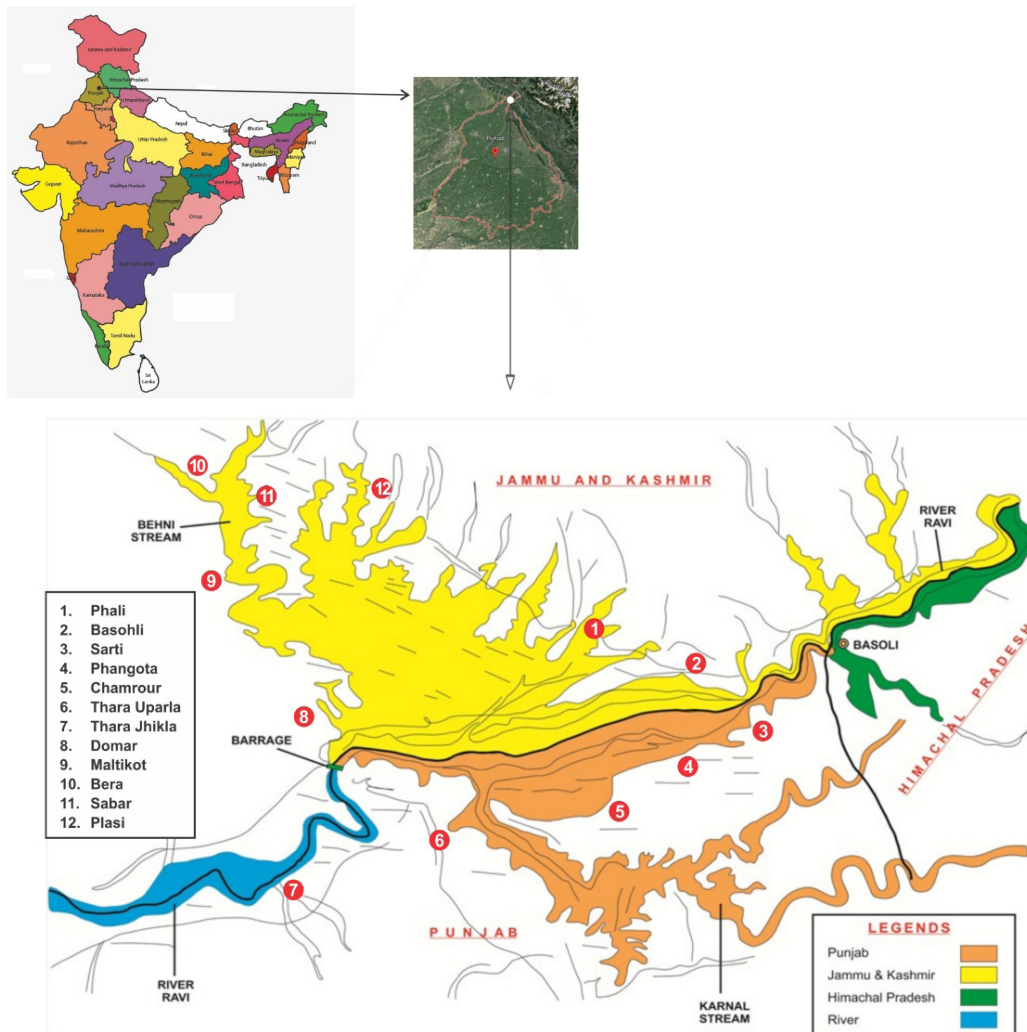


Figure 1. Ranjit Sagar Wetland on the map.

Ferruginous Duck *Aythya nyroca*, Black-tailed Godwit *Limosa limosa*, River Lapwing *Vanellus duvaucelii*, Eurasian Curlew *Numenius arquata*, Painted Stork *Mycteria leucocephala*, Black-headed Ibis *Threskiornis melanocephalus*, Alexandrine Parakeet *Psittacula eupatria*, and Oriental Darter *Anhinga melanogaster* are categorized as Near Threatened. Vulnerable River Tern *Sterna aurantia*, Common Pochard *Aythya ferina*, and the Endangered Egyptian Vulture *Neophron percnopterus* complete the list of threatened species.

Concerning dietary preferences, the observed species display diverse feeding habits. The majority, comprising 37.13% (62 species), are insectivorous, followed by 18.56% (31 species) categorized as omnivorous, 16.16% (27 species) primarily feeding on aquatic animals, and 14.97% (25 species) displaying carnivorous tendencies. Additionally, 5.39% of species are frugivorous (9 species), while 4.79% are granivorous (8 species).

Herbivorous birds constitute only 3% (5 species) of the observed population, as detailed in Table 1.

The Ranjit Sagar Wetland, characterized by its extensive open spaces in comparison to other wetlands in the region, provides an ideal habitat for waterfowls and aquatic birds. Furthermore, the presence of 44 fish species within this wetland area may attract piscivorous birds classified as Aquatic animal feeders. Adjacent agricultural lands offer ample opportunities to attract herbivorous migratory birds, including the Bar-headed Goose *Anser indicus* and Greylag Goose *Anser anser*. Nevertheless, the study underscores the negative impact of anthropogenic activities such as mining, poaching, and sewage discharge on wetland health. To mitigate these concerns and enhance the future attraction of migratory birds, it is recommended to implement conservation efforts that include conservation efforts, including habitat restoration, bans on sand mining and

Table 1. A checklist of the avian species of Ranjit Sagar wetland, Punjab.

	Taxon	Family	Season	Feeding habit	Residential status	IUCN Status
Order: Anseriformes						
1	Bar-headed Goose <i>Anser indicus</i> (Latham, 1790)	Anatidae	W	H	Migrant	Least Concern
2	Knob-billed Duck <i>Sarkidiornis melanotos</i> (Pennant, 1769)	Anatidae	A	O	Resident	Least Concern
3	Common Pochard <i>Aythya ferina</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Vulnerable
4	Cotton Pygmy Goose <i>Nettapus coromandelianus</i> (Gmelin, J.F., 1789)	Anatidae	W	O	Migrant	Least Concern
5	Common Teal <i>Anas crecca</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Least Concern
6	Eurasian Wigeon <i>Mareca penelope</i> (Linnaeus, 1758)	Anatidae	W	H	Migrant	Least Concern
7	Gadwall <i>Mareca strepera</i> (Linnaeus, 1758)	Anatidae	W	H	Migrant	Least Concern
8	Garganey <i>Spatula querquedula</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Least Concern
9	Greylag Goose <i>Anser anser</i> (Linnaeus, 1758)	Anatidae	W	H	Migrant	Least Concern
10	Indian Spot-billed Duck <i>Anas poecilorhyncha</i> (Forster, 1781)	Anatidae	A	H	Resident	Least Concern
11	Lesser Whistling Duck <i>Dendrocygna javanica</i> (Horsfeld, 1821)	Anatidae	S	O	Migrant	Least Concern
12	Northern Shoveler <i>Spatula clypeata</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Least Concern
13	Northern Pintail <i>Anas acuta</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Least Concern
14	Red-crested Pochard <i>Netta rufina</i> (Pallas, 1773)	Anatidae	W	O	Migrant	Least Concern
15	Ruddy Shelduck <i>Tadorna ferruginea</i> (Pallas, 1764)	Anatidae	W	O	Migrant	Least Concern
16	Common Shelduck <i>Tadorna tadorna</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Least Concern
17	Ferruginous Duck <i>Aythya nyroca</i> (Guldenstadt, 1770)	Anatidae	W	O	Migrant	Near Threatened
18	Tufted Duck <i>Aythya fuligula</i> (Linnaeus, 1758)	Anatidae	W	O	Migrant	Least Concern
Order: Galliformes						
19	Grey Francolin <i>Ortygornis pondicerianus</i> (Gmelin, 1789)	Phasianidae	A	O	Resident	Least Concern
20	Indian Peafowl <i>Pavo cristatus</i> (Linnaeus, 1758)	Phasianidae	A	O	Resident	Least Concern
Order: Phoenicopteriformes						
21	Greater Flamingo <i>Phoenicopterus roseus</i> (Pallas, 1811)	Phoenicopteridae	W	AqA	Migrant	Least Concern
Order: Podicipediformes						
22	Little Grebe <i>Tachybaptus ruficollis</i> (Pallas, 1764)	Podicipedidae	A	AqA	Resident	Least Concern
23	Great Crested Grebe <i>Podiceps cristatus</i> (Linnaeus, 1758)	Podicipedidae	W	AqA	Migrant	Least Concern
24	Black-necked Grebe <i>Podiceps nigricollis</i> (Brehm, 1831)	Podicipedidae	W	AqA	Migrant	Least Concern
Order: Columbiformes						
25	Rock Pigeon <i>Columba livia</i> (Gmelin, 1789)	Columbidae	A	G	Resident	Least Concern
26	Eurasian Collared Dove <i>Streptopelia decaocto</i> (Frisvaldszky, 1838)	Columbidae	A	G	Resident	Least Concern
27	Laughing Dove <i>Spilopelia senegalensis</i> (Linnaeus, 1766)	Columbidae	A	G	Resident	Least Concern
28	Red Collared Dove <i>Streptopelia tranquebarica</i> (Hermann, 1804)	Columbidae	A	G	Resident	Least Concern
29	Spotted Dove <i>Spilopelia chinensis</i> (Scopoli, 1786)	Columbidae	A	G	Resident	Least Concern
30	Yellow-footed Green Pigeon <i>Treron phoenicopterus</i> (Latham, 1790)	Columbidae	A	F	Resident	Least Concern
Order: Cuculiformes						
31	Asian Koel <i>Eudynamis scolopaceus</i> (Linnaeus, 1758)	Cuculidae	S	I	Migrant	Least Concern
32	Greater Coucal <i>Centropus sinensis</i> (Stephens, 1815)	Cuculidae	A	C	Resident	Least Concern
33	Pied Cuckoo <i>Clamator jacobinus</i> (Boddaert, 1783)	Cuculidae	A	I	Resident	Least Concern
Order: Caprimulgiformes						
34	Alpine Swift <i>Tachymarptis melba</i> (Linnaeus, 1758)	Apodidae	A	I	Resident	Least Concern

	Taxon	Family	Season	Feeding habit	Residential status	IUCN Status
Order: Gruiformes						
35	Eurasian Coot <i>Fulica atra</i> (Linnaeus, 1758)	Rallidae	W	O	Migrant	Least Concern
36	Common Moorhen <i>Gallinula chloropus</i> (Linnaeus, 1758)	Rallidae	A	O	Resident	Least Concern
37	Grey-headed Swampphen <i>Porphyrio poliocephalus</i> (Latham, 1801)	Rallidae	A	O	Resident	Least Concern
38	White-Breasted Waterhen <i>Amaurornis phoenicurus</i> (Pennant, 1769)	Rallidae	A	O	Resident	Least Concern
39	Common Crane <i>Grus grus</i> (Linnaeus, 1758)	Gruidae	W	O	Migrant	Least Concern
40	Demoiselle Crane <i>Grus virgo</i> (Linnaeus, 1758)	Gruidae	W	O	Migrant	Least Concern
Order: Charadriiformes						
41	Black-winged Stilt <i>Himantopus himantopus</i> (Linnaeus, 1758)	Recurvirostridae	A	I	Resident	Least Concern
42	Pied Avocet <i>Recurvirostra avosetta</i> Linnaeus, 1758	Recurvirostridae	W	C	Migrant	Least Concern
43	Little Ringed Plover <i>Charadrius dubius</i> Scopoli, 1786	Charadriidae	W	I	Migrant	Least Concern
44	Kentish Plover <i>Charadrius alexandrinus</i> Linnaeus, 1758	Charadriidae	W	I	Migrant	Least Concern
45	Red-wattled Lapwing <i>Vanellus indicus</i> (Boddaert, 1783)	Charadriidae	A	I	Resident	Least Concern
46	River Lapwing <i>Vanellus duvaucelii</i> (Lesson, 1826)	Charadriidae	W	AqA	Migrant	Near Threatened
47	White-tailed Lapwing <i>Vanellus leucurus</i> (Lichtenstein, MHC, 1823)	Charadriidae	W	I	Migrant	Least Concern
48	Yellow-wattled Lapwing <i>Vanellus malabaricus</i> (Boddaert, 1783)	Charadriidae	W	I	Migrant	Least Concern
49	Greater Painted-snipe <i>Rostratula benghalensis</i> (Linnaeus, 1758)	Rostratulidae	W	O	Migrant	Least Concern
50	Pheasant-tailed Jacana <i>Hydrophasianus chirurgus</i> (Scopoli, 1786)	Jacaniidae	S	I	Migrant	Least Concern
51	Black-tailed Godwit <i>Limosa limosa</i> (Linnaeus, 1758)	Scolopacidae	W	O	Migrant	Near Threatened
52	Common Redshank <i>Tringa totanus</i> (Linnaeus, 1758)	Scolopacidae	W	I	Migrant	Least Concern
53	Common Sandpiper <i>Actitis hypoleucos</i> Linnaeus, 1758	Scolopacidae	W	I	Migrant	Least Concern
54	Common Snipe <i>Gallinago gallinago</i> (Linnaeus, 1758)	Scolopacidae	W	I	Migrant	Least Concern
55	Dunlin <i>Calidris alpina</i> (Linnaeus, 1758)	Scolopacidae	W	AqA	Migrant	Least Concern
56	Green Sandpiper <i>Tringa ochropus</i> (Linnaeus, 1758)	Scolopacidae	W	I	Migrant	Least Concern
57	Common Greenshank <i>Tringa nebularia</i> (Gunnerus, 1767)	Scolopacidae	W	AqA	Migrant	Least Concern
58	Marsh Sandpiper <i>Tringa stagnatilis</i> (Bechstein, 1803)	Scolopacidae	W	AqA	Migrant	Least Concern
59	Ruff <i>Calidris pugnax</i> (Linnaeus, 1758)	Scolopacidae	W	AqA	Migrant	Least Concern
60	Spotted Redshank <i>Tringa erythropus</i> (Pallas, 1764)	Scolopacidae	W	I	Migrant	Least Concern
61	Wood Sandpiper <i>Tringa glareola</i> Linnaeus, 1758	Scolopacidae	W	I	Migrant	Least Concern
62	Eurasian Curlew <i>Numenius arquata</i> (Linnaeus, 1758)	Scolopacidae	W	AqA	Migrant	Near threatened
63	Black-headed Gull <i>Chroicocephalus ridibundus</i> (Linnaeus, 1766)	Laridae	W	AqA	Migrant	Least Concern
64	Brown-headed Gull <i>Chroicocephalus brunnicephalus</i> (Jerdon, 1840)	Laridae	W	AqA	Migrant	Least Concern
65	Pallas's Gull <i>Ichthyophaga ichthyophaga</i> (Pallas, 1773)	Laridae	W	C	Migrant	Least Concern
66	Lesser Black-backed Gull <i>Larus fuscus</i> (Linnaeus, 1758)	Laridae	W	C	Migrant	Least Concern
67	River Tern <i>Sterna aurantia</i> (Gray, 1831)	Laridae	A	AqA	Resident	Near Threatened
68	Little Tern <i>Sternula albifrons</i> (Pallas, 1764)	Laridae	W	AqA	Migrant	Least Concern
69	Whiskered Tern <i>Chlidonias hybrida</i> (Pallas, 1811)	Laridae	W	AqA	Migrant	Least Concern
Order: Suliformes						
70	Oriental Darter <i>Anhinga melanogaster</i> (Pennant, 1769)	Anhingiidae	A	AqA	Resident	Near Threatened
71	Great Cormorant <i>Phalacrocorax carbo</i> (Linnaeus, 1758)	Phalacrocoracidae	A	AqA	Resident	Least Concern
72	Little Cormorant <i>Microcarbo niger</i> (Vieillot, 1817)	Phalacrocoracidae	A	AqA	Resident	Least Concern

	Taxon	Family	Season	Feeding habit	Residential status	IUCN Status
73	Indian Cormorant <i>Phalacrocorax fuscicollis</i> Stephens, 1826	Phalacrocoracidae	W	AqA	Migrant	Least Concern
Order: Pelecaniformes						
74	Cattle Egret <i>Bubulcus ibis</i> (Linnaeus, 1758)	Ardeidae	A	I	Resident	Least Concern
75	Grey Heron <i>Ardea cinerea</i> (Linnaeus, 1758)	Ardeidae	A	C	Resident	Least Concern
76	Indian Pond Heron <i>Ardeola grayii</i> (Sykes, 1832)	Ardeidae	A	C	Resident	Least Concern
77	Intermediate Egret <i>Ardea intermedia</i> (Wagler, 1829)	Ardeidae	A	C	Resident	Least Concern
78	Great Egret <i>Ardea alba</i> (Linnaeus, 1758)	Ardeidae	A	AqA	Resident	Least Concern
79	Little Egret <i>Egretta garzetta</i> (Linnaeus, 1766)	Ardeidae	A	AqA	Resident	Least Concern
80	Black-crowned Night Heron <i>Nycticorax nycticorax</i> (Linnaeus, 1758)	Ardeidae	A	AqA	Resident	Least Concern
81	Purple Heron <i>Ardea purpurea</i> (Linnaeus, 1766)	Ardeidae	A	AqA	Resident	Least Concern
82	Yellow Bittern <i>Ixobrychus sinensis</i> (Gmelin, 1789)	Ardeidae	S	AqA	Migrant	Least Concern
83	Striated Heron <i>Butorides striata</i> (Linnaeus, 1758)	Ardeidae	A	AqA	Resident	Least Concern
84	Red-naped Ibis <i>Pseudibis papillosa</i> (Temminck, 1824)	Threskiornithidae	A	C	Resident	Least Concern
85	Black-headed Ibis <i>Threskiornis melanocephalus</i> (Latham, 1790)	Threskiornithidae	A	C	Resident	Near Threatened
86	Glossy Ibis <i>Plegadis falcinellus</i> (Linnaeus, 1766)	Threskiornithidae	W	C	Migrant	Least Concern
87	Eurasian Spoonbill <i>Platalea leucorodia</i> Linnaeus, 1758	Threskiornithidae	W	C	Migrant	Least Concern
Order: Accipitriformes						
88	Osprey <i>Pandion haliaetus</i> (Linnaeus, 1758)	Pandionidae	A	C	Migrant	Least Concern
89	Black Kite <i>Milvus migrans</i> (Boddaert, 1783)	Accipitridae	A	C	Resident	Least Concern
90	Black-winged Kite <i>Elanus caeruleus</i> (Desfontaines, 1789)	Accipitridae	A	C	Resident	Least Concern
91	Brahminy Kite <i>Haliastur indus</i> (Boddaert, 1783)	Accipitridae	W	C	Migrant	Least Concern
92	Shikra <i>Accipiter badius</i> (Gmelin, 1788)	Accipitridae	A	C	Resident	Least Concern
93	Common Buzzard <i>Buteo buteo</i> (Linnaeus, 1758)	Accipitridae	W	C	Migrant	Least Concern
94	White-eyed buzzard <i>Butastur teesa</i> (Franklin, 1831)	Accipitridae	A	C	Resident	Least Concern
95	Himalayan Vulture <i>Gyps himalayensis</i> (Hume, 1869)	Accipitridae	W	C	Migrant	Near Threatened
96	Egyptian Vulture <i>Neophron percnopterus</i> (Linnaeus, 1758)	Accipitridae	A	C	Resident	Endangered
97	Montagu's Harrier <i>Circus pygargus</i> (Linnaeus, 1758)	Accipitridae	W	C	Migrant	Least Concern
Order: Strigiformes						
98	Spotted Owllet <i>Athene brama</i> (Temminck, 1821)	Strigidae	A	C	Resident	Least Concern
Order: Bucerotiformes						
99	Eurasian Hoopoe <i>Upupa epops</i> (Linnaeus, 1758)	Upupidae	A	I	Resident	Least Concern
100	Indian Grey Hornbill <i>Ocyrceros birostris</i> (Scopoli, 1786)	Bucerotidae	A	F	Resident	Least Concern
Order: Coraciiformes						
101	Common Kingfisher <i>Alcedo atthis</i> (Linnaeus, 1758)	Alcedinidae	A	AqA	Resident	Least Concern
102	White-throated Kingfisher <i>Halcyon smyrnensis</i> (Linnaeus, 1758)	Alcedinidae	A	C	Resident	Least Concern
103	Pied Kingfisher <i>Ceryle rudis</i> (Linnaeus, 1758)	Alcedinidae	A	AqA	Resident	Least Concern
104	Green Bee-eater <i>Merops orientalis</i> (Latham, 1801)	Meropidae	A	I	Resident	Least Concern
105	Blue-tailed Bee-eater <i>Merops philippinus</i> (Linnaeus, 1766)	Meropidae	S	I	Migrant	Least Concern
106	Indian Roller <i>Coracias benghalensis</i> (Linnaeus, 1758)	Coraciidae	A	C	Resident	Least Concern
Order: Piciformes						
107	Brown-headed Barbet <i>Psilopogon zeylanicus</i> (Gmelin, 1788)	Megalaimidae	A	F	Resident	Least Concern
108	Coppersmith Barbet <i>Psilopogon haemacephalus</i> (Muller, 1776)	Megalaimidae	A	F	Resident	Least Concern
109	Black-rumped Flameback <i>Dinopium benghalense</i> (Linnaeus, 1758)	Picidae	A	I	Resident	Least Concern

	Taxon	Family	Season	Feeding habit	Residential status	IUCN Status
Order: Psittaciformes						
110	Alexandrine Parakeet <i>Psittacula eupatria</i> (Linnaeus, 1766)	Psittaculidae	A	F	Resident	Near Threatened
111	Rose-ringed Parakeet <i>Psittacula krameri</i> (Scopoli, 1769)	Psittaculidae	A	F	Resident	Least Concern
112	Plum-headed Parakeet <i>Psittacula cyanocephala</i> (Linnaeus, 1766)	Psittaculidae	A	F	Resident	Least Concern
Order: Passeriformes						
113	Indian Golden Oriole <i>Oriolus kundoo</i> Sykes, 1832	Oriolidae	S	O	Migrant	Least Concern
114	Black Drongo <i>Dicrurus macrocercus</i> (Vieillot, 1817)	Dicruridae	A	I	Resident	Least Concern
115	Hair-crested Drongo <i>Dicrurus hottentottus</i> (Linnaeus, 1766)	Dicruridae	W	I	Migrant	Least Concern
116	Indian paradise Flycatcher <i>Terpsiphone paradisi</i> (Linnaeus, 1758)	Monarchidae	S	I	Migrant	Least Concern
117	Long-tailed Shrike <i>Lanius schach</i> (Linnaeus, 1758)	Laniidae	A	I	Resident	Least Concern
118	Bay-backed Shrike <i>Lanius vittatus</i> (Valenciennes, 1826)	Laniidae	A	I	Resident	Least Concern
119	Brown Shrike <i>Lanius cristatus</i> (Linnaeus, 1758)	Laniidae	W	I	Migrant	Least Concern
120	Common Raven <i>Corvus corax</i> (Linnaeus, 1758)	Corvidae	A	C	Resident	Least Concern
121	Rufous Treepie <i>Dendrocitta vagabunda</i> (Latham, 1790)	Corvidae	A	O	Resident	Least Concern
122	Grey-headed Canary Flycatcher <i>Culicicapa ceylonensis</i> (Swainson, 1820)	Stenostiridae	W	I	Migrant	Least Concern
123	Crested Lark <i>Galerida cristata</i> (Linnaeus, 1758)	Alaudidae	A	I	Resident	Least Concern
124	Yellow-bellied Prinia <i>Prinia flaviventris</i> (Delessert, 1840)	Cisticolidae	W	I	Migrant	Least Concern
125	Common Tailorbird <i>Orthotomus sutorius</i> (Pennant, 1769)	Cisticolidae	A	I	Resident	Least Concern
126	Rufous-fronted Prinia <i>Prinia buchanani</i> (Blyth, 1844)	Cisticolidae	A	I	Resident	Least Concern
127	Ashy Prinia <i>Prinia socialis</i> (Sykes, 1832)	Cisticolidae	A	I	Resident	Least Concern
128	Plain Prinia <i>Prinia inornata</i> (Sykes, 1832)	Cisticolidae	A	I	Resident	Least Concern
129	Zitting Cisticola <i>Cisticola juncidis</i> (Rafinesque, 1810)	Cisticolidae	A	I	Resident	Least Concern
130	Blyth's Reed Warbler <i>Acrocephalus dumetorum</i> (Blyth, 1849)	Acrocephalidae	W	I	Migrant	Least Concern
131	Barn Swallow <i>Hirundo rustica</i> (Linnaeus, 1758)	Hirundinidae	S	I	Migrant	Least Concern
132	Plain Martin <i>Riparia paludicola</i> (Vieillot, 1817)	Hirundinidae	S	I	Migrant	Least Concern
133	Red-Rumped Swallow <i>Cecropis daurica</i> (Laxmann, 1769)	Hirundinidae	S	I	Migrant	Least Concern
134	Wire-tailed Swallow <i>Hirundo smithii</i> (Leach, 1818)	Hirundinidae	S	I	Migrant	Least Concern
135	Streak-throated Swallow <i>Petrochelidon fluvicola</i> (Blyth, 1855)	Hirundinidae	A	I	Resident	Least Concern
136	Red-vented Bulbul <i>Pycnonotus cafer</i> (Linnaeus, 1766)	Pycnonotidae	A	F	Resident	Least Concern
137	Himalayan Bulbul <i>Pycnonotus leucogenys</i> (Gray, 1835)	Pycnonotidae	A	F	Resident	Least Concern
138	Common Chiffchaff <i>Phylloscopus collybita</i> (Vieillot, 1817)	Phylloscopidae	W	I	Migrant	Least Concern
139	Siberian Chiffchaff <i>Phylloscopus tristis</i> (Blyth, 1843)	Phylloscopidae	A	I	Resident	Least Concern
140	Indian White-eye <i>Zosterops palpebrosus</i> (Temminck, 1824)	Zosteropidae	W	O	Migrant	Least Concern
141	Common Babbler <i>Argya caudate</i> (Dumont, 1823)	Leiothrichidae	A	I	Resident	Least Concern
142	Jungle Babbler <i>Argya striata</i> (Dumont, 1823)	Leiothrichidae	A	I	Resident	Least Concern
143	Large Grey Babbler <i>Argya malcolmi</i> (Sykes, 1832)	Leiothrichidae	A	I	Resident	Least Concern
144	Asian Pied Starling <i>Gracupica contra</i> (Linnaeus, 1758)	Sturnidae	A	O	Resident	Least Concern
145	Bank Myna <i>Acridotheres ginginianus</i> (Latham, 1790)	Sturnidae	A	O	Resident	Least Concern
146	Brahminy Starling <i>Sturnia pagodarum</i> (Gmelin, 1789)	Sturnidae	A	I	Resident	Least Concern
147	Common Myna <i>Acridotheres tristis</i> (Linnaeus, 1766)	Sturnidae	A	O	Resident	Least Concern
148	Common Starling <i>Sturnus vulgaris</i> (Linnaeus, 1758)	Sturnidae	A	O	Resident	Least Concern
149	Black Redstart <i>Phoenicurus ochruros</i> (Gmelin, 1774)	Muscicapidae	W	I	Migrant	Least Concern
150	Bluethroat <i>Luscinia svecica</i> (Linnaeus, 1758)	Muscicapidae	W	I	Migrant	Least Concern
151	Brown Rock Chat <i>Oenanthe fusca</i> (Blyth, 1851)	Muscicapidae	A	I	Resident	Least Concern

	Taxon	Family	Season	Feeding habit	Residential status	IUCN Status
152	Indian Robin <i>Copsychus fulicatus</i> (Linnaeus, 1766)	Muscicapidae	A	I	Resident	Least Concern
153	Oriental Magpie Robin <i>Copsychus saularis</i> (Linnaeus, 1758)	Muscicapidae	A	I	Resident	Least Concern
154	Pied Bushchat <i>Saxicola caprata</i> (Linnaeus, 1766)	Muscicapidae	A	I	Resident	Least Concern
155	Siberian Stonechat <i>Saxicola maurus</i> (Pallas, 1773)	Muscicapidae	W	I	Migrant	Least Concern
156	White-tailed Stonechat <i>Saxicola leucurus</i> (Blyth, 1847)	Muscicapidae	A	I	Resident	Least Concern
157	Purple Sunbird <i>Cinnyris asiaticus</i> (Latham, 1790)	Nectariniidae	A	I	Resident	Least Concern
158	Baya Weaver <i>Ploceus philippinus</i> (Linnaeus, 1766)	Ploceidae	A	O	Resident	Least Concern
159	Streaked Weaver <i>Ploceus manyar</i> (Horsfield, 1821)	Ploceidae	A	I	Resident	Least Concern
160	Indian Silverbill <i>Euodice malabarica</i> (Linnaeus, 1758)	Estrildidae	A	G	Resident	Least Concern
161	Scaly-breasted Munia <i>Lonchura punctulata</i> (Linnaeus, 1758)	Estrildidae	A	G	Resident	Least Concern
162	House Sparrow <i>Passer domesticus</i> (Linnaeus, 1758)	Passeridae	A	G	Resident	Least Concern
163	Citrine Wagtail <i>Motacilla citreola</i> (Pallas, 1776)	Motacillidae	W	I	Migrant	Least Concern
164	Grey Wagtail <i>Motacilla cinerea</i> (Tunstall, 1771)	Motacillidae	W	I	Migrant	Least Concern
165	Paddyfield Pipit <i>Anthus rufulus</i> (Vieillot, 1818)	Motacillidae	A	I	Resident	Least Concern
166	Western Yellow Wagtail <i>Motacilla flava</i> (Linnaeus, 1758)	Motacillidae	W	I	Migrant	Least Concern
167	White Wagtail <i>Motacilla alba</i> (Linnaeus, 1758)	Motacillidae	W	I	Migrant	Least Concern

A—Throughout year | S—Summer | W—Winter | O—Omnivorous | AqA— Aquatic animal Feeder | C—Carnivorous | F—Frugivorous | G—Granivorous | I—Insectivorous | H—Herbivorous.

poaching activities, as well as the regulation of land reclamation and fishing practices, as detailed in the work by Brraich & Saini (2019). The intricate relationship between wetlands and avian populations is influenced by various physical and biological attributes of wetland environments. Birds rely on wetlands for their daily and seasonal needs, including food and other life-sustaining activities. Therefore, effective conservation and management measures are essential to attract migratory birds to wetland areas. A comprehensive examination of wetland ecosystems and migratory bird populations is necessary to better understand their interaction. Public awareness regarding the vital role of wetlands in supporting migratory birds is crucial, and support for restoration and maintenance initiatives aimed at safeguarding these vital habitats is highly encouraged.

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