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Avian Fauna of Pong Dam Lake Wildlife Sanctuary, Himachal Pradesh, India

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ABSTRACT: Avifaunal studies in Pong Dam Lake Wildlife Sanctuary showed a total of 225 species of birds spread over 150 genera, 54 families and 17 orders. Of these, 131 were observed to be seasonal local migrants, 31 species were assessed to be purely residents, 84 as seasonal-local migrants, 1 showed summer influx, 15 species showed winters influx. In addition, another 94 species, in Pong area, were reported to be long range migrants, including 17 summer visitors and 77 winter visitors. Moreover, categorization of the avifaunal diversity in to various abundance categories revealed that there were 118 very common species, 63 common species, 29 uncommon species and 15 rare species. The study revealed that Pong Dam, a medium sized wetland, falling on the Central Asian Flyway, is one of the important wintering and staging grounds for a number of migratory waterbirds. Therefore, stakeholder interventions are urgently needed to ensure conservation of an enormous range of biological diversity, particularly the avifauna.

Keywords: Avian fauna, Pong Dam Lake Wildlife Sanctuary, relative abundance, residential status.

INTRODUCTION

Birds are by far the most widely monitored and one of the best-known group of animals. They are popular and engaging, cosmopolitan in distribution, and are generally easy to detect, identify and count. They are excellent "ecological indicators" as their populations react to changes in the environment. Collating and analysing bird data not only provides a tool for assessment of their populations, but are also provides an unparalleled insight into the health of the natural world as a whole. In effect, birds enable us to "take the pulse of the planet" (Bird Life International, 2022 a).

A total of 11,188 species of birds are known from all over the world, each with their own unique appearance and habits (Bird Life International, 2022 b). India is one of the mega-diverse countries in the world. Currently, around 1340 species of birds belonging to breeding, staging and wintering categories, corresponding to around 13% of the world's birds, dwelling in a wide range of habitats are known from India (Zoological Survey of India, 2018). A total of 100 species of birds and mammals are endemic to India of which 63 are threatened (IUCN, 2022). The population of wild vertebrate species shas decreased by about 31% globally between 1970 and 2006 (CBD, 2010). 76 species of endemic birds are found in India, of which 35 are endemic to the Himalayan region (Thakur and Negi 2015; Bird Life International, 2022 a).

Freshwater wetlands in north Indian planes, due to their geographical location, are important as one of the main staging and wintering ground on Central Asian Waterbird flyway. Pong Dam, also called the Pong reservoir or the Maharana Pratap Sagar, built across the Beas River in year 1975 in Kangra District of Himachal Pradesh is one such important wetland in the region. The main source of water for the lake is Beas River and its numerous perennial tributaries such as Bangana, Gaj, Baner, Neugal, Uhl, Binwa etc. The area has an undulating terrain with uneven ridges. The streams cutting through small valleys and ravines supporting some good forest patches is the characteristic feature of the area. The area mainly supports forest patches of acacia and pines. There are some marshes, agricultural fields and wasteland areas around the lake. The entire reservoir was declared as a Wildlife Sanctuary in year 1983 and as Wetland of National Importance in year 1994. Further, it was declared as a Ramsar Site i.e., wetland of International Importance in November 2002.

Earlier some studied have been undertaken on avian diversity of important wetland of north-west India including Ropar Wetland Punjab by Mehta *et al.* (2002); Sukhna Lake Chandigarh by Reeves (1981); Herike Wetland Punjab by Singh (2001), etc. However, studies on birds of pong wetland are limited to the works by Whistler (1926 a & b), Gaston and Pandey (1987); Pandey (1989); Besten (2004); Tak *et al.* (2001); Besten *et al.* (2004); Thakur *et al.* (2008), the latest being more than a decade old. Therefore, the current comprehensive study has been undertaken on various parameters of the avifauna of Pong dam wildlife sanctuary.

METHODOLOGY

Stratified random sampling technique (Snedecore and Cochran 1993), which is based upon the principle of exploration of a portion of the whole population, was

followed for studying the birds of the area. The Pong Dam Lake area was divided into different strata, based upon habitat types. These avifaunal studies were undertaken during the years 2021-2023 in the present study area. Most of the observations were made in early morning or late evening hours, mainly, 1 or 2 hours after sunrise or before sunset, so as to match it with the peak activity of birds, as used by Thakur *et al.* (2008); Thakur (2013) during study on birds of Shahnahar reservoir and Himachal Pradesh respectively. No bird was caught or hurt during the observations as these were observed in the field with field binoculars (10 × 42 Nikon) and Field Scope (Fujinon Super 60 S). Standard field guides like Ali and Ripley (1983); Grimmett *et al.* (1999); Kazmierczak (2000) were used for field identifications.

The nomenclature given by Manakadan and Pittie (2001) has been followed in the present communication. The method of relative frequency of sightings, devised by MacKinnon and Philips (1993) during their study on birds of Borneo, Sumatra, Java and Bali, and employed by Kumar *et al.* (2005); Thakur (2013) during their studies on waterbirds of India and birds of Himachal Pradesh respectively, has been used for categorization in to various relative abundance categories. The categories like Very Common (recorded > 45% times), Common (between 25-45% times), Uncommon (between 10-24% times) and Rare (recorded once or twice) have been assigned to the species observed. Further, presence and/or absence method as employed earlier by Thakur and Kataria (2012); Thakur (2013, 2015) has been employed for categorizing the avifaunal diversity in to various status categories like resident, winter visitor, summer visitor etc. Moreover, winter and summer influx categories have been assigned to the species which showed increase in their populations during winter months or summer months. In addition, a category, named as resident with local movements has been assigned to the birds that showed irregular or non-seasonal trend of population fluctuations in the Pong Dam Lake area.

RESULTS AND DISCUSSION

Extensive as well as intensive studies on avifaunal diversity of Pong Dam Lake Wildlife Sanctuary in Himachal Pradesh revealed the presence of a total of 225 species of birds spread over 150 genera, 54 families and 17 orders. It was reported that family Muscicapidae, represented by 39 species, spread over 27 genera and 6 subfamilies dominated the avifauna in Pong Dam area. Other dominating families observed in avifauna of the area were Anatidae represented by 17 species, Accipitridae and Scolopacidae having 13 species each, Ardidae harbouring 8 species, Laridae, Columbidae and Hirundinidae characterized by 7 species each and Charadriidae, Picidae and Sturnidae denoted by 6 species each. However, in some of the families like Anhigidae, Threkiornithidae, Pandionidae, Gruidae, Jacanidae, Glareolidae, Caprimulgidae, Coraciidae, Upupidae, Bucerotidae, Campephagidae, Irenidae, Paridae, Sittidae, Certhiidae, Zosteropidae and Oriolidae a single species each was reported (Table 1). Above study shows that Pong Dam Lake Wildlife Sanctuary supports around 17% of the total birds of Indian subcontinent.

The study revealed that of the total 225 species, 194 species showed either seasonal local or long-range migrations and rest 31 were purely residents. Further, of these 194 species, 84 were seasonal-local migrants, 15 were the species with winter influx, as their populations got augmented during winter months due to movement of more individuals from other areas, 1 species showed summer influx and rest 94 showed long range migrations to the area. It was reported that 34 % of the species (77 species), which is relatively a significant proportion of the avifauna were winter visitors and 17 were summer visitors to the area (Table 1; Fig. 1, 2). Similar, categorization of birds into resident, winter and summer visitors has been done earlier by Pandey (1989); Thakur *et al.* (2008). Further, many of the winter visitors recorded from the Pong Dam Wetland earlier by him include birds like Bar-headed Goose, Brahminy Shelduck, Eurasian Wigeon, Northern Pintail, Common Pochard, Common Redshank, Brown-headed Gull, Black-headed Gull etc. Further, similar resident, winter and summer migrant faunal species including birds, mammals etc., have been reported from some other parts of the State by previous studies like Thakur (2013); Singh and Banyal (2012, 2013), Singh *et al.* (2014 a & b, 2015); Negi *et al.* (2015).

Simultaneous analysis of residential status and relative abundance of avifauna showed that, out of 31 resident birds recorded in Pong Dam Lake area, 14 species were very common, 11were common and 3 species each were uncommon and rare respectively. Further, of the 84 species showing seasonal-local movements, 54 species were very common, 18 were common, 8 were uncommon and rest 4 were rare. Analysis of the data further revealed that, of the 77winter visitor species, 31 were very common, 24 were common, 15 were uncommon and 7 were rare in Pong Dam area. In addition, of 17 summer visitor species, 8 were very common, 7 were common, and 1 each was uncommon and rare. Moreover, of the 15 species showing winter influx, 11 were very common, 3 were common, and 1 species was uncommon. In addition, a single species that showed summer influx was uncommon in the area. Therefore, this study showed that Pong Dam Lake Wildlife Sanctuary is very rich in bird biodiversity and acts as home to 118 very common, 63 common, 29 uncommon and 15 rare species of birds (Table 1; Figures1, 2). The present study is in conformity with the earlier works of Mehta *et al.* (2002) who have reported the presence of 206 species of various resident categories spread over 152 genera, 50 families and 17 orders from Ropar Wetland, Punjab and Besten (2004) who has studied and compiled information on 555 species of birds from Kangra district of Himachal Pradesh including the Pong Wetland. Present study reveals the presence of globally threatened Oriental White Backed Vulture in Pong wetland area. This observation is in conformity with the recent study of Sehgal and Kumar (2022) who have reported presence of breeding sites of this species around the Pong Wetland.

Table 1: Systematic List of Avifauna of Pong Dam Wildlife Sanctuary.

Sr. No.	Taxon	Residential Status	Relative Abundance
	Order: Podicipediformes		
	Family: Podicipedidae		
1.	*Tachybaptus ruficollis* (Pallas, 1764): Little Grebe	R/LM	VC
2.	*Podiceps cristatus* (Linnaeus, 1758): Great Crested Grebe	WV	VC
3.	*Podiceps nigricollis* Brehm, 1831: Black-necked Grebe	WV	UC
	Order: Pelecaniformes		
	Family: Phalacrocoracidae		
4.	*Phalacrocorax niger* (Vieillot, 1817): Little Cormorant	R/LM	VC
5.	*Phalacrocorax carbo* (Linnaeus, 1758): Great Cormorant	WV	VC
	Family: Anhingidae		
6.	*Anhinga melanogaster* Pennant, 1769: Darter	R/LM	Ra
	Order: Ciconiiformes		
	Family: Ardidae		
7.	*Egretta garzetta* (Linnaeus, 1766): Little Egret	R/LM	VC
8.	*Ardea cinerea* Linnaeus, 1758: Grey Heron	WV	C
9.	*Ardea purpurea* Linnaeus, 1766: Purple Heron	R/LM	UC
10.	*Casmerodius albus* (Linnaeus, 1758): Large Egret	WV	C
11.	*Mesophoyx intermedia* (Wagler, 1829): Median Egret	WV	C
12.	*Bubulcus ibis* (Linnaeus, 1758): Cattle Egret	R/LM	VC
13.	*Ardeola grayii* (Sykes, 1832): Indian Pond-Heron	R/LM	VC
14.	*Nycticorax nycticorax* (Linnaeus, 1758): Black-crowned Night-Heron	R/LM	UC
	Family: Ciconiidae		
15.	*Mycteria leucocephala* (Pennant, 1769): Painted Stork	R/LM	UC
16.	*Ciconia episcopus* (Boddaert, 1783): White-necked Stork	R/LM	UC
	Family: Threskiornithidae		
17.	*Platalea leucorodia* Linnaeus, 1758: Eurasian Spoonbill	WV	Ra
	Order: Anseriformes		
	Family: Anatidae		
18.	*Anser anser* (Linnaeus, 1758): Greylag Goose	WV	UC
19.	*Anser indicus* (Latham, 1790): Bar-headed Goose	WV	VC
20.	*Tadorna ferruginea* (Pallas, 1764): Brahminy Shelduck	WV	VC
21.	*Tadorna tadorna* (Linnaeus, 1758): Common Shelduck	WV	Ra
22.	*Anas strepera* Linnaeus, 1758: Gadwall	WV	VC
23.	*Anas penelope* Linnaeus, 1758: Eurasian Wigeon	WV	VC
24.	*Anas platyrhynchos* Linnaeus, 1758: Mallard	WV	VC
25.	*Anas poecilorhyncha* J.R. Forester, 1781: Spot-billed Duck	R/LM	C
26.	*Anas clypeata* Linnaeus, 1758: Northern Shoveller	WV	VC
27.	*Anas acuta* Linnaeus, 1758: Northern Pintail	WV	VC
28.	*Anas querquedula* Linnaeus, 1758: Garganey	WV	C
29.	*Anas crecca* Linnaeus, 1758: Common Teal	WV	VC
30.	*Rhodonessa rufina* (Pallas, 1773): Red-crested Pochard	WV	UC
31.	*Aythya ferina* (Linnaeus, 1758): Common Pochard	WV	VC
32.	*Aythya nyroca* (Guldenstadt, 1770): Ferruginous Pochard	WV	UC
33.	*Aythya fuligula* (Linnaeus, 1758): Tufted Pochard	WV	C
34.	*Mergus merganser* Linnaeus, 1758: Common Merganser	WV	C
	Order: Falconiformes		
	Family: Accipitridae		
35.	*Elanus caeruleus* (Desfontaines, 1789): Black-shouldered Kite	R/LM	VC
36.	*Milvus migrans* (Boddaert, 1783): Black Kite	R	VC
37.	*Haliaeetus albicilla* Linnaeus, 1758: White-tailed Sea-Eagle	WV	Ra
38.	*Neophron percnopterus* (Linnaeus, 1758): Egyptian Vulture	R/LM	VC
39.	*Gyps bengalensis* (Gmelin, 1788): Indian White-backed Vulture	R	Ra
40.	*Gyps himalayensis* Hume, 1869: Himalayan Griffon	WV	UC
41.	*Sarcogyps calvus* (Scopoli, 1786): Red-headed Vulture	R	Ra
42.	*Spilornis cheela* (Latham, 1790): Crested Serpent-Eagle	R/LM	C
43.	*Circus aeruginosus* (Linnaeus, 1758): Western Marsh-Harrier	WV	C
44.	*Accipiter badius* (Gmelin, 1788): Shikra	R/LM	VC
45.	*Butastur teesa* (Franklin, 1832): White-eyed Buzzard	R	Ra
46.	*Buteo rufinus* (Cretzschmar, 1827): Long-legged Buzzard	R/LM	Ra
47.	*Aquila nipalensis* Hodgson, 1833: Steppe Eagle	WV	VC
	Family: Pandionide		
48.	*Pandion haliaetus* (Linnaeus, 1758): Osprey	WV	C

	Family: Falconidae		
49.	*Falco tinnunculus* Linnaeus, 1758: Common Kestrel	R/WV	VC
50.	*Falco peregrinus* Tunstall, 1771: Peregrine Falcon	WV	UC
	Order: Galliformes		
	Family: Phasianidae		
51.	*Francolinus francolinus* (Linnaeus, 1766): Black Francolin	R	VC
52.	*Francolinus pondicerianus* (Gmelin, 1789): Grey Francolin	R	VC
53.	*Perdicula asiatica* (Latham, 1790): Jungle Bush-Quail	R	C
54.	*Gallus gallus* (Linnaeus, 1758): Red Junglefowl	R	VC
55.	*Pavo cristatus* Linnaeus, 1758: Indian Peafowl	R	VC
	Order: Gruiformes		
	Family: Gruidae		
56.	*Grus antigone* (Linnaeus, 1758): Sarus Crane	R/LM	UC
	Family: Rallidae		
57.	*Amaurornis akool* (Sykes, 1832): Brown Crake	R/LM	UC
58.	*Amaurornis phoenicurus* (Pennant, 1769): White-breasted Waterhen	R/LM	VC
59.	*Porphyrio porphyrio* (Linnaeus, 1758): Purple Moorhen	R/LM	VC
60.	*Gallinula chloropus* (Linnaeus, 1758): Common Moorhen	R/WV	VC
61.	*Fulica atra* Linnaeus, 1758: Common Coot	R/WV	VC
	Order: Charadriiformes		
	Family: Jacanidae		
62.	*Hydrophasianus chirurgus* (Scopoli, 1786): Pheasant-tailed Jacana	SV	C
	Family: Charadriidae		
63.	*Charadrius dubius* Scopoli, 1786: Little Ringed Plover	R/WV	VC
64.	*Charadrius alexandrinus* Linnaeus, 1758: Kentish Plover	R/WV	VC
65.	*Vanellus vanellus* (Linnaeus, 1758): Northern Lapwing	WV	VC
66.	*Vanellus malabaricus* (Boddaert, 1783): Yellow-wattled Lapwing	SV	Ra
67.	*Vanellus duvaucelii* (Lesson, 1826): River Lapwing	R/LM	C
68.	*Vanellus indicus* (Boddaert, 1783): Red-wattled Lapwing	R/LM	VC
	Family: Scolopacidae		
69.	*Gallinago gallinago* (Linnaeus, 1758): Common Snipe	WV	UC
70.	*Numenius arquata* (Linnaeus, 1758): Eurasian Curlew	WV	Ra
71.	*Tringa erythropus* (Pallas, 1764): Spotted Redshank	WV	UC
72.	*Tringa totanus* (Linnaeus, 1758): Common Redshank	WV	VC
73.	*Tringa stagnatilis* (Bechstein, 1803): Marsh Sandpiper	WV	C
74.	*Tringa nebularia* (Gunner, 1767): Common Greenshank	WV	C
75.	*Tringa ochropus* Linnaeus, 1758: Green Sandpiper	WV	C
76.	*Tringa glareola* Linnaeus, 1758: Wood Sandpiper	WV	C
77.	*Actitis hypoleucos* Linnaeus, 1758: Common Sandpiper	WV	VC
78.	*Calidris minuta* (Leisler, 1812): Little Stint	WV	VC
79.	*Calidris temminckii* (Leisler, 1812): Temminck's Stint	WV	VC
80.	*Calidris alpina* (Linnaeus, 1758): Dunlin	WV	UC
81.	*Philomachus pugnax* (Linnaeus, 1758): Ruff	WV	Ra
	Family: Recurvirostridae		
82.	*Himantopus himantopus* (Linnaeus, 1758): Black-winged Stilt	R/LM	VC
83.	*Recurvirostra avosetta* Linnaeus, 1758: Pied Avocet	WV	Ra
	Family: Burhinidae		
84.	*Burhinus oedicnemus* (Linnaeus, 1758): Stone-Curlew	R/LM	VC
85.	*Esacus recurvirostris* (Cuvier, 1829): Great Stone-Plover	R/LM	VC
	Family: Glareolidae		
86.	*Glareola lactea* Temminck, 1820: Small Pratincole	SV	VC
	Family: Laridae		
87.	*Larus cachinnans* Pallas, 1811: Yellow-legged Gull	WV	UC
88.	*Larus ichthyaetus* Pallas, 1773: Pallas's Gull	WV	C
89.	*Larus brunnicephalus* Jerdon, 1840: Brown-headed Gull	WV	C
90.	*Larus ridibundus* Linnaeus, 1766: Black-headed Gull	WV	C
91.	*Sterna aurantia* J.E. Gray, 1831: River Tern	R/LM	VC
92.	*Sterna acuticauda* J.E. Gray, 1831: Black-bellied Tern	R/LM	Ra
93.	*Chlidonias hybridus* (Pallas, 1811): Whiskered Tern	WV	C
	Order: Columbiformes		
	Family: Columbidae		
94.	*Columba livia* Gmelin, 1789: Blue Rock Pigeon	R/LM	VC
95.	*Streptopelia orientalis* (Latham, 1790): Oriental Turtle-Dove	R/WV	C
96.	*Streptopelia senegalensis* (Linnaeus, 1766): Little Brown Dove	R/LM	VC
97.	*Streptopelia chinensis* (Scopoli, 1786): Spotted Dove	R/LM	VC
98.	*Streptopelia tranquebarica* (Hermann, 1804): Red Collared-Dove	SV	C

99.	*Streptopelia decaocto* (Frivaldszky, 1838): Eurasian Collared-Dove	R/LM	VC
100.	*Treron phoenicoptera* (Latham, 1790): Yellow-legged Green-Pigeon	R/LM	C
	Order: Psittaciformes		
	Family: Psittacidae		
101.	*Psittacula eupatria* (Linnaeus, 1766): Alexandrine Parakeet	R/LM	VC
102.	*Psittacula krameri* (Scopoli, 1769): Rose-ringed Parakeet	R/LM	VC
103.	*Psittacula himalayana* (Lesson, 1832): Slaty-headed Parakeet	R/LM	VC
104.	*Psittacula cyanocephala* (Linnaeus, 1766): Plum-headed Parakeet	R/LM	VC
	Order: Cuculiformes		
	Family: Cuculidae		
105.	*Clamator jacobinus* (Boddaert, 1783): Pied Crested Cuckoo	SV	C
106.	*Hierococcyx varius* (Vahl, 1797): Brainfever Bird	R/LM	VC
107.	*Cuculus micropterus* Gould, 1838: Indian Cuckoo	R/LM	VC
108.	*Cuculus canorus* Linnaeus, 1758: Common Cuckoo	SV	VC
109.	*Eudynamys scolopacea* (Linnaeus, 1758): Asian Koel	R/LM	VC
110.	*Centropus sinensis* (Stephens, 1815): Greater Coucal	R	C
	Order: Strigiformes		
	Family: Strigidae		
111.	*Glaucidium cuculoides* (Vigors, 1831): Asian Barred Owlet	R	C
112.	*Glaucidium radiatum* (Tickell, 1833): Jungle Owlet	R	C
113.	*Athene brama* (Temminck, 1821): Spotted Owlet	R	VC
	Order: Caprimulgiformes		
	Family: Caprimulgidae		
114.	*Caprimulgus macrurus* Horsfield, 1821: Large-tailed Nightjar	R/LM	C
	Order: Apodiformes		
	Family: Apodidae		
115.	*Collocalia brevirostris* (Horsfield, 1840): Himalayan Swiftlet	R/WV	VC
116.	*Apus affinis* (J.E. Gray, 1830): House Swift	R/LM	VC
	Order: Coraciiformes		
	Family: Alcedinidae		
117.	*Alcedo atthis* (Linnaeus, 1758): Small Blue Kingfisher	R/LM	C
118.	*Halcyon smyrnensis* (Linnaeus, 1758): White-breasted Kingfisher	R/LM	VC
119.	*Ceryle rudis* (Linnaeus, 1758): Lesser Pied Kingfisher	R	VC
	Family: Meropidae		
120.	*Merops orientalis* Latham, 1801: Small Bee-eater	SV	VC
121.	*Merops philippinus* Linnaeus, 1766: Blue-tailed Bee-eater	SV	C
	Family: Coraciidae		
122.	*Coracias benghalensis* (Linnaeus, 1758): Indian Roller	R/LM	VC
	Family: Upupidae		
123.	*Upupa epops* Linnaeus, 1758: Common Hoopoe	R/WV	VC
	Family: Bucerotidae		
124.	*Ocyceros birostris* (Scopoli, 1786): Indian Grey Hornbill	R/SV	UC
	Order: Piciformes		
	Family: Capitonidae		
125.	*Megalaima virens* (Boddaert, 1783): Great Barbet	WV	UC
126.	*Megalaima zeylanica* (Gmelin, 1788): Brown-headed Barbet	R/LM	C
127.	*Megalaima asiatica* (Latham, 1790): Blue-throated Barbet	R/LM	VC
128.	*Megalaima haemacephala* (P.L.S. Müller, 1776): Coppersmith Barbet	R/LM	C
	Family: Picidae		
129.	*Jynx torquilla* Linnaeus, 1758: Eurasian Wryneck	WV	C
130.	*Picumnus innominatus* Burton, 1836: Speckled Piculet	R	C
131.	*Dendrocopos macei* (Vieillot, 1818): Fulvous-breasted Pied Woodpecker	R	C
132.	*Dendrocopos mahrattensis* (Latham, 1801): Yellow-fronted Pied Woodpecker	R	VC
133.	*Picus xanthopygaeus* (J.E. Gray & G.R. Gray, 1846): Little Scaly-bellied Green Woodpecker	R	UC
134.	*Dinopium benghalense* (Linnaeus, 1758): Lesser Golden-backed Woodpecker	R	VC
	Order: Passeriformes		
	Family: Alaudidae		
135.	*Calandrella raytal* (Blyth, 1845): Indian Short-toed Lark	R	VC
136.	*Galerida cristata* (Linnaeus, 1758): Common Crested Lark	R/LM	VC
137.	*Alauda gulgula* Franklin, 1831: Eastern Skylark	R/WV	C
	Family: Hirundinidae		

138.	*Riparia paludicola* (Vieillot, 1817): Plain Martin	R/LM	VC
139.	*Hirundo rupestris* Scopoli, 1769: Eurasian Crag-Martin	SV	VC
140.	*Hirundo rustica* Linnaeus, 1758: Common Swallow	SV	VC
141.	*Hirundo smithii* Leach, 1818: Wire-tailed Swallow	SV	VC
142.	*Hirundo daurica* Linnaeus, 1771: Red-rumped Swallow	R/WV	VC
143.	*Hirundo fluvicola* Blyth, 1855: Streak-throated Swallow	R/LM	UC
144.	*Delichon dasypus* (Bonaparte, 1850): Asian House-Martin	R/WV	C
	Family: Motacillidae		
145.	*Motacilla alba* Linnaeus, 1758: White Wagtail	WV	VC
146.	*Motacilla maderaspatensis* Gmelin, 1789: Large Pied Wagtail	R/LM	VC
147.	*Motacilla flava* Linnaeus, 1758: Yellow Wagtail	WV	C
148.	*Motacilla cinerea* Tunstall, 1771: Grey Wagtail	R/WV	VC
149.	*Anthus rufulus* Vieillot, 1818: Paddyfield Pipit	R/WV	VC
	Family: Campephagidae		
150.	*Pericrocotus cinnamomeus* (Linnaeus, 1766): Small Minivet	R/LM	VC
	Family: Pycnonotidae		
151.	*Pycnonotus leucogenys* (Gray, 1835): Himalayan Bulbul	R/LM	VC
152.	*Pycnonotus cafer* (Linnaeus, 1766): Red-vented Bulbul	R	VC
153.	*Hypsipetes leucocephalus* (P.L.S. Muller, 1776): Black Bulbul	R/LM	C
	Family: Irenidae		
154.	*Aegithina tiphia* (Linnaeus, 1758): Common Iora	R/LM	C
	Family: Laniidae		
155.	*Lanius vittatus* Valenciennes, 1826: Bay-backed Shrike	SV	C
156.	*Lanius schach* Linnaeus, 1758: Rufous-backed Shrike	R/LM	VC
	Family: Muscicapidae		
	Subfamily: Turdinae		
157.	*Monticola solitarius* (Linnaeus, 1758): Blue Rock-Thrush	WV	UC
158.	*Myiophonus caeruleus* (Scopoli, 1786): Blue Whistling-Thrush	WV	C
159.	*Turdus unicolor* Tickell, 1833: Tickell's Thrush	WV	C
160.	*Turdus ruficollis* Pallas, 1776: Dark-throated Thrush	WV	VC
161.	*Luscinia pectoralis* (Gould, 1837): Himalayan Rubythroat	WV	UC
162.	*Luscinia svecica* (Linnaeus, 1758): Bluethroat	WV	VC
163.	*Copsychus saularis* (Linnaeus, 1758): Oriental Magpie-Robin	R/LM	VC
164.	*Saxicoloides fulicata* (Linnaeus, 1776): Indian Robin	R/LM	VC
165.	*Phoenicurus ochruros* (Gmelin, 1774): Black Redstart	WV	VC
166.	*Chaimarrornis leucocephalus* (Vigors, 1831): White-capped Redstart	WV	C
167.	*Rhyacornis fuliginosus* (Vigors, 1831): Plumbeous Redstart	WV	UC
168.	*Saxicola torquata* (Linnaeus, 1766): Common Stonechat	R/LM	Ra
169.	*Saxicola caprata* (Linnaeus, 1766): Pied Bushchat	R/LM	VC
170.	*Saxicola ferrea* Gray, 1846: Grey Bushchat	WV	VC
171.	*Cercomela fusca* (Blyth, 1851): Indian Chat	R/LM	C
	Subfamily: Timaliinae		
172.	*Pellorneum ruficeps* Swainson, 1832: Spotted Babbler	R	C
173.	*Pomatorhinus erythrogenys* Vigors, 1832: Rusty-cheeked Scimitar-Babbler	R	C
174.	*Pomatorhinus schisticeps* Hodgson, 1836: Hodgson's Scimitar-Babbler	R	UC
175.	*Stachyris pyrrhops* Blyth, 1844: Black-chinned Babbler	R/LM	C
176.	*Chrysomma sinense* (Gmelin, 1789): Yellow-eyed Babbler	R	VC
177.	*Turdoides caudatus* (Dumont, 1823): Common Babbler	R/LM	C
178.	*Turdoides earlei* (Blyth, 1844): Striated Babbler	R	C
179.	*Turdoides striatus* (Dumont, 1823): Jungle Babbler	R	VC
	Subfamily: Sylviinae		
180.	*Prinia socialis* Sykes, 1832: Ashy Prinia	R	VC
181.	*Prinia inornata* Sykes, 1832: Plain Prinia	R	C
182.	*Orthotomus sutorius* (Pennant, 1769): Common Tailorbird	R/LM	VC
183.	*Phylloscopus collybita* (Vieillot, 1817): Common Chiffchaff	WV	VC
184.	*Phylloscopus chloronotus* (G.R. Gray & J.E. Gray, 1846): Lemon-rumped Warbler	WV	VC
185.	*Phylloscopus trochiloides* (Sundevall, 1837): Greenish Leaf-Warbler	WV	VC
186.	*Seicercus xanthoschistos* (G.R. Gray & J.E. Gray, 1846): Grey-headed Flycatcher-Warbler	WV	VC
187.	*Megalurus palustris* Horsfield, 1821: Striated Marsh-Warbler	R	UC
188.	*Sylvia curruca* (Linnaeus, 1758): Common Lesser Whitethroat	WV	VC
	Subfamily: Muscicapinae		
189.	*Ficedula tricolor* (Hodgson, 1845): Slaty-blue Flycatcher	WV	C
190.	*Eumyias thalassina* (Swainson, 1838): Verditer Flycatcher	SV	UC
191.	*Culicicapa ceylonensis* (Swainson, 1820): Grey-headed Flycatcher	R/WV	VC
	Subfamily: Monarchinae		

192.	*Terpsiphone paradisi* (Linnaeus, 1758): Asian Paradise-Flycatcher	SV	C
	Subfamily: Rhipidurinae		
193.	*Rhipidura hypoxantha* Blyth, 1843: Yellow-bellied Fantail-Flycatcher	WV	VC
194.	*Rhipidura albicollis* (Vieillot, 1818): White-throated Fantail-Flycatcher	R/LM	VC
195.	*Rhipidura aureola* Lesson, 1830: White-browed Fantail-Flycatcher	R/LM	C
	Family: Paridae		
196.	*Parus cinereus*Linnaeus, 1758: Cinereous Tit	R/LM	VC
	Family: Sittidae		
197.	*Tichodroma muraria* (Linnaeus, 1766): Wallcreeper	WV	VC
	Family: Certhiidae		
198.	*Certhia himalayana* Vigors, 1832: Bar-tailed Tree-Creeper	WV	C
	Family: Nectariniidae		
199.	*Nectarinia asiatica* (Latham, 1790): Purple Sunbird	SV	VC
200.	*Aethopyga siparaja* (Raffles, 1822): Crimson Sunbird	R/LM	UC
	Family: Zosteropidae		
201.	*Zosterops palpebrosus* (Temminck, 1824): Oriental White-eye	R/LM	VC
	Family: Emberizidae		
	Subfamily: Emberizinae		
202.	*Melophus lathami* (Gray, 1831): Crested Bunting	R/LM	VC
203.	*Emberiza cia* Linnaeus, 1766: Rock Bunting	WV	VC
	Family: Fringillidae		
204.	*Serinus pusillus* (Pallas, 1811): Fire-fronted Serin	WV	Ra
205.	*Carduelis spinoides* Vigors, 1831: Yellow-breasted Greenfinch	WV	UC
206.	*Carpodacus erythrinus* (Pallas, 1770): Common Rosefinch	WV	VC
	Family: Estrildidae		
207.	*Amandava amandava* (Linnaeus, 1758): Red Munia	R	C
208.	*Lonchura punctulata* (Linnaeus, 1758): Spotted Munia	R/LM	VC
	Family: Passeridae		
	Subfamily: Passerinae		
209.	*Passer domesticus* (Linnaeus, 1758): House Sparrow	R/LM	VC
210.	*Passer rutilans* Temminck, 1835: Cinnamon Tree Sparrow	R/LM	C
211.	*Petronia xanthocollis* (Burton, 1838): Yellow-throated Sparrow	SV	C
	Subfamily: Ploceinae		
212.	*Ploceus philippinus* (Linnaeus, 1766): Baya Weaver	R/LM	VC
	Family: Sturnidae		
213.	*Sturnus pagodarum* (Gmelin, 1789): Brahminy Starling	R/LM	C
214.	*Sturnus vulgaris* Linnaeus, 1758: Common Starling	WV	C
215.	*Sturnus contra* Linnaeus, 1758: Asian Pied Starling	R/LM	C
216.	*Acridotheres tristis* (Linnaeus, 1766): Common Myna	R/LM	VC
217.	*Acridotheres ginginianus* (Latham, 1790): Bank Myna	R/LM	VC
218.	*Acridotheres fuscus* (Wagler, 1827): Jungle Myna	R/LM	VC
	Family: Oriolidae		
219.	*Oriolus oriolus* (Linnaeus, 1758): Eurasian Golden Oriole	SV	VC
	Family: Dicruridae		
220.	*Dicrurus macrocercus* Vieillot, 1817: Black Drongo	R/LM	VC
221.	*Dicrurus hottentottus* (Linnaeus, 1766): Spangled Drongo	R/LM	C
	Family: Corvidae		
222.	*Urocissa erythrorhyncha* (Boddaert, 1783): Red-billed Blue Magpie	R/WV	UC
223.	*Dendrocitta vagabunda* (Latham, 1790): Indian Treepie	R/LM	VC
224.	*Corvus splendens* Vieillot, 1817: House Crow	R/LM	VC
225.	*Corvus macrorhynchos* Wagler, 1827: Jungle Crow	R/LM	VC

Residential status: R= Resident, R/LM= Resident with local movements, R/WV= Resident with winter influx, R/SV= Resident with summer influx, WV= Winter visitor, SV= Summer visitor

Relative abundance: VC= Very common, C= Common, UC= Uncommon, Ra= Rare

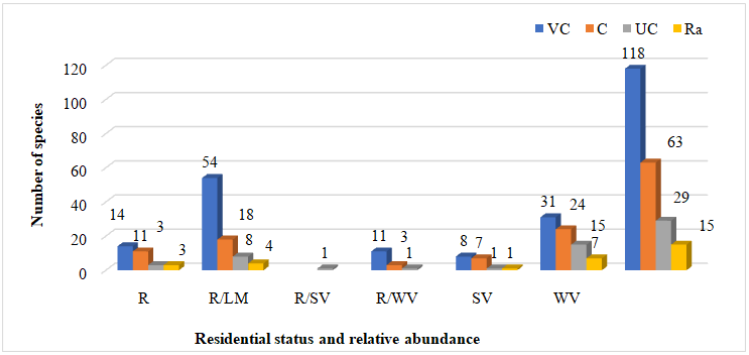

Fig. 1. Comparative Residential Status and Relative Abundance of Avifauna of Pong Dam Lake Wildlife Sanctuary.

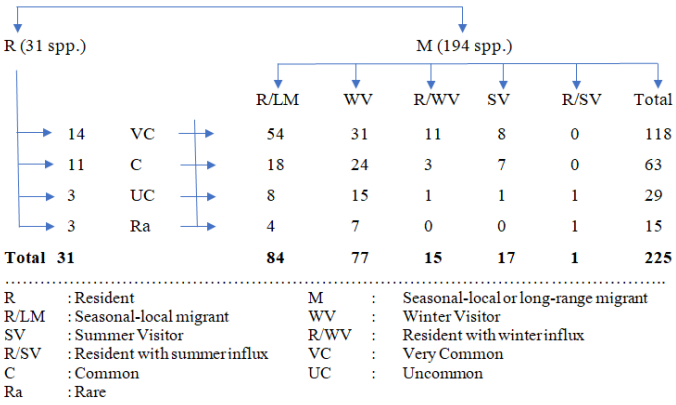

Fig. 2. Number of species under various categories in Pong Dam Lake Wildlife Sanctuary.

CONCLUSIONS

The study revealed that Pong Dam, a medium sized wetland, falling on the Central Asian Flyway, is one of the important wintering and staging grounds for a number of migratory waterbirds. The present study recorded 225 species of birds spread over 54 families, including 77 winter visitors, many of them moving along Central Asian Flyway. The study further showed that the wetland not only harbors important winter migrants, but also supports 17 summer visitors. There is an urgent conservation attention in view of the presence of 118 very common species and 15 rare species of birds. The Wetland faces several threats including encroachments for illegal wheat farming. Therefore, interventions on part of various stakeholders are needed to ensure conservation of an enormous range of biological diversity, particularly the avifauna.

FUTURE SCOPE

It has been observed that the Pong Dam Wetland is an important site for both resident as well as migrant bird species, therefore, studies are recommended on long term monitoring of avifauna of the study area, enumeration of avifauna in terms of habitat suitability, and delineation of important feeding, roosting and breeding sites.

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