

Understanding and Analysing the Coordinates of Diversity of Wetland Birds of Asan Barrage near Paonta Sahib, Northern India

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Abstract

The winter migratory wetland bird's diversity of Asan barrage, Uttarakhand, India has been studied during 2005-2012. A total 60 species of wetland birds belonging to 6 orders and 13 families were observed. The findings also hints that Rudy Shelduck *Tadorna ferruginea* is the most dominant bird followed by Common Coot *Fulica atra*, Red-crested Pochard *Rhodonessa rufina*, Common Pochard *Aythya ferina* and Mallard *Anas platyrhynchos*. It was observed that Rudy Shelduck preferred Yamuna River waters rather than the traditional still pools, ponds, reservoirs etc. The same trend was displayed by Red-crested Pochard and Great-crested Grebe. On the contrary, winter migratory birds like Northern Shoveller *Anas clypeata*, Northern Pintail *Anas acuta*, Common Teal *Anas crecca* etc were found least in number at Asan Barrage but found in impressive numbers in Haryana traditional pools, ponds.

Key words: *Tadorna ferruginea*, winter migratory birds, Uttarakhand state, India

Introduction

Long distance migratory birds like Arctic Tern *Sterna paradisaea* Pontoppidan, White European Storks *Ciconia ciconia ciconia* L. and Siberian Cranes *Grus leucogeranus* Pallas, Eastern Curlews *Numenius madagascariensis* L., Eurasian Crane *Grus grus* L., Demoiselle Crane *Anthropoides virgo* L., Ferruginous Pochard *Aythya nyroca* Guldenstadt, Black-headed Gull *Larus ridibundus* L., and Greater Scaup *Aythya marila* L. are globally appreciated for undertaking rarest of the longest journeys from one corner of the world to the opposite side of the earth. So much so, that today, we know about the truthful existence of "International Flyways" adopted by variety of migratory birds across the

continents of the earth. In India internationally recognized wetland migratory birds mostly fly over the Eurasia-South Asia-flyway. Commonly, these wetland migratory birds can be often seen in larger numbers and in rich diversity in Rivers, Lake, Ponds, Reservoirs, confluence of Rivers, Chhapars of all hues in India and Asan Barrage is no exception.

Asan Barrage Wetland attracts copious number of winter migratory birds. The migratory birds of this area have been studied from time to time by considerable number of field ornithologists (Narang, 1990; Gandhi and Singh, 1995; Lopez and Mundker, 1997; Tak *et al.*, 1998; Tak and Sati, 2003). On the other hand, winter

migratory birds' diversity in traditional ponds in Haryana state, India have also been studied (Gupta *et al.*, 2009; 2010 a-b; Gupta and Kaushik, 2010a-e). Here an attempt has been made to compare the present findings with the previous (Gupta *et al.*, 2009; 2010a- b; Gupta and Kaushik, 2010b,d-e). The present studies are based on approximately 21 visits made to Asan Barrage during 2005-2012 as per convenience.

Materials and methods

Study area

Asan Barrage wetland (Lat 30°24'-30°28'N and Long 77°40'-77°44'E) is a man made expansive pool of river waters at the confluence of Asan River and Eastern Yamuna Canal at Dhalipur village, 38 km from Dehradun in Uttarakhand province, India. It is near to Paonta Sahib in Himachal Pradesh and pass by National Highway No. 72 between Saharanpur-Herbetpur. This wetland, also known as Dhalipur wetland, is approximately 450 hect in area and about 287.5 m long and 389.4 msl elevation (Fig. 1). It has been declared as Asan Conservation Reserve by Govt. of Uttaranchal vide

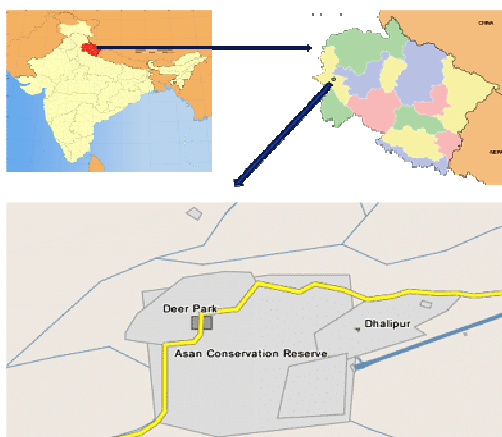


Figure 1. Map of Asan Conservation Reserve in Uttarakhand state in India.

notification No. 2414(1) X-2-2005-19(1) 2004 dated 05.08.2005 under section 36A of the Wildlife (Protection) ACT, 1972. It has qualified for attaining the designation, namely, A4i - criteria of wetlands International 2002; Site having $\geq 1\%$ biogeographic population for being an Important Bird Area (IBA).

Data collection

The present work was carried out from 2005 to 2012 for the observation of avian diversity of Asan Barrage near Paonta Sahib in Uttarakhand state, northern India. A total of 21 visits were made throughout the study period and visits were made from October to March every year. Average 5-6 hours were spent on observation per visit. Photography was done with camera Zenith attached with 200M tele-lens and Nikon Coolpix P500. So far residential status of wetland birds is concerned, technique developed by Kumar *et al.* (2003) and Kumar *et al.* (2005) were adopted. The various categories are Winter Migratory (Birds observed in the winter season only), Resident (Birds observed during all the months of the year) and Local Migratory (Bird species which move within the country and does not come from across the Himalaya). The identification of birds was made following Ali and Ripley (1987), Ali (1996), Grimmet *et al.* (1998) and Kumar *et al.* (2005). The nomenclature of birds as given by Manakadan and Pittie (2001) was followed.

Results and discussion

The present study revealed that a total 60 species of wetland birds belonging to 6 orders and 13 families were observed during the winter seasons of 2005 to 2012 from Asan barrage in Uttarakhand state, Northern

India (Tab. 1, Pls. 1-2). Order Charadriiformes (21 sp) is the most dominant order followed by Ciconiiformes (16 sp) and Anseriformes (14 sp) (Fig. 2). Anatidae family is the largest one (14 sp) followed by Ardeidae (9 sp) and Scolopacidae (6 sp) (Fig. 3). It is evident from figure 4 that out of 60 species of wetland birds observed from Asan Barrage, 31 species of wetland birds were winter migratory and 9 species of birds were Local Migratory. It is crucial to mention that Gupta and Kaushik (2011) reported 47 species of wetland birds from Hathinikund Barrage in Yamunanagar district in Haryana. Also, Tak *et al.* (2010) observed 31 species of wetland birds from the Hathinikund Barrage in Yamunanagar district in Haryana.

In the present studies, most dominant winter migratory birds that dotted the water sheet of Asan Barrage include Rudy Shelduck *Tadorna ferruginea* Pallas followed by Common Coot *Fulica atra* L., Red-crested Pochards *Rhodonessa rufina* Pallas, Common Pochards *Aythya ferina* L., Mallard *Anas platyrhynchos* L., and Tufted Pochards *Aythya fuligula* L.. It is worth mentioning that Yamuna Basin in its track through Haryana at points Hathini Kund Barrage, Garhpur Tapu, Kunjpura, Panipat Yamuna Basin, Rudy Shelduck was the most dominant winter migratory birds (Gupta *et al.*, 2012). It is interesting to note that in traditional wetlands in rural area, Rudy Shelduck was not recorded (Gupta *et al.*, 2009; 2010 a-b; Gupta and Kaushik, 2010a-e). However, in village, namely, Kunjpura, where a very large pond of deep waters is available at a distance of 4-5 km from Yamuna in Karnal, Rudy Shelduck was seen in impressive manner. As such present study revealed that Rudy Shelduck

has a penchant for river water and stays away from traditional rural ponds (Gupta and Kaushik, 2011) and may be tempted, once in while, towards large sized ponds.

The Rudy Shelduck is the most dominant winter visitor of Asan Barrage. Birds like Northern Shoveller *Anas clypeata*, Northern Pintail *Anas acuta*, Common Teal *Anas crecca*, Garganey *Anas querquedula*, Spot-billed Duck *Anas poecilorhyncha* Forester, Gadwall *Anas strepera* L. were seen in small number at Asan barrage wetland during the study period. It was found that birds like Northern Shoveller, Northern Pintail, Common Teal, Garganey, Gadwall, Spot-billed Duck were in small number compared to their large number seen in Haryana rural ponds between 2005-2012 (Gupta *et al.*, 2009; 2010 a-b; Gupta and Kaushik, 2010a-e).

The present studies also indicated that birds like Mallard, Eurasian Wigeon *Anas penelope* L. and Gadwall were seen in mediocre number in Asan Barrage. Gupta and Kaushik (2010b,d-e) have reported the respectable and impressive presence of these birds in rural ponds in Haryana hinting those birds equal preference for river and pond waters. It is evident from table 1 that resident birds like Little Cormorant *Phalacrocorax niger* Vieillot, Grey Heron *Ardea cinerea*, River Lapwing *Vanellu duvaucellii* Lesson, Median Egret *Mesophoyx intermedia* were found to be present throughout the year. Black-crowned Night Herons *Nycticorax nycticorax* was seen only on two occasions towards the evening and morning times. Little Egrets *Egretta garzetta* was found to have been prodigal abundance in winter season in Asan Barrage.

In conclusion, Rudy Shelduck was in large number during October to February.

Table 1. Checklist of wetland birds of Asan Barrage in Uttarakhand state in northern India.

S.N.	Scientific name	Common name	Res. Status
	Order- Podicipediformes	Family- Podicipedidae	
1	<i>Tachybaptus rufficollis</i> Pallas (1764)	Little Grebe	R
2	<i>Podiceps cristatus</i> Linnaeus (1758)	Great Crested Grebe	WM
	Order- Pelecaniformes	Family- Phalacrocoracidae	
3	<i>Phalacrocorax niger</i> Vieillot (1817)	Little Cormorant	R
4	<i>Phalacrocorax carbo</i> Linnaeus (1758)	Great Cormorant	R
		Family- Anhingidae	
5	<i>Anhinga melanogaster</i> Pennant (1769)	Darter	R
	Order- Ciconiiformes	Family- Ardeidae	
6	<i>Egretta garzetta</i> Linnaeus (1766)	Little Egret	R
7	<i>Ardea cinerea</i> Linnaeus (1758)	Grey Heron	R
8	<i>Ardea purpurea</i> Linnaeus (1766)	Purple Heron	LM
9	<i>Casmerodius albus</i> Linnaeus (1758)	Large Egret	LM
10	<i>Mesophoyx intermedia</i> Wagler (1829)	Median Egret	R
11	<i>Bubulcus ibis</i> Linnaeus (1758)	Cattle Egret	R
12	<i>Ardeola grayii</i> Sykes (1832)	Indian Pond-Heron	R
13	<i>Nycticorax nycticorax</i> Linnaeus (1758)	Black-crowned Night Heron	R
14	<i>Ixobrychus cinnamomeus</i> Gmelin (1789)	Cinnamon Bittern	WM
		Family-Ciconiidae	
15	<i>Mycteria leucocephala</i> Pennant (1769)	Painted stork	LM
16	<i>Ciconia episcopus</i> Boddaert (1783)	White-necked Stork	LM
17	<i>Anastomus oscitans</i> Boddaert (1783)	Asian Openbill Stork	LM
18	<i>Ephippiorhynchus asiaticus</i> Latham (1790)	Black necked Stork	LM
		Family-Threskiornithidae	
19	<i>Threskiornis melanocephalus</i> Latham (1790)	Oriental White Ibis	LM
20	<i>Pseudibis papillosa</i> Temminck (1824)	Black Ibis	R
21	<i>Platalea leucorodia</i> Linnaeus (1758)	Eurasian Spoonbill	LM
	Order- Anseriformes	Family-Anatidae	
22	<i>Anser anser</i> Linnaeus (1758)	Greylag Goose	WM
23	<i>Anser indicus</i> Latham (1790)	Bar-headed Goose	WM
24	<i>Tadorna ferruginea</i> Pallas (1764)	Rudy Shelduck	WM
25	<i>Anas platyrhynchos</i> Linnaeus (1758)	Mallard	WM
26	<i>Anas strepera</i> Linnaeus (1758)	Gadwall	WM
27	<i>Anas penelope</i> Linnaeus (1758)	Eurasian Wigeon	WM
28	<i>Anas poecilorhyncha</i> J.R. Forester (1781)	Spot-billed Duck	WM
29	<i>Anas clypeata</i> Linnaeus (1758)	Northern Shoveller	WM
30	<i>Anas acuta</i> Linnaeus (1758)	Northern Pintail	WM
31	<i>Anas querquedula</i> Linnaeus (1758)	Garganey	WM
32	<i>Anas crecca</i> Linnaeus (1758)	Common Teal	WM
33	<i>Aythya ferina</i> Linnaeus (1758)	Common Pochard	WM
34	<i>Rhodonessa rufina</i> Pallas (1773)	Red-crested Pochard	WM
35	<i>Aythya fuligula</i> Linnaeus (1758)	Tufted Pochard	WM
	Order- Gruiformes	Family-Rallidae	
36	<i>Amaurornis phoenicurus</i> Pennant (1769)	White-breasted Waterhen	R
37	<i>Porphyrio porphyrio</i> Linnaeus (1758)	Purple Moorhen	R
38	<i>Gallinula chloropus</i> Linnaeus (1758)	Common Moorhen	WM
39	<i>Fulica atra</i> Linnaeus (1758)	Common Coot	WM
	Order- Charadriiformes	Family-Jacaniidae	
40	<i>Hydrophasianus chirurgus</i> Scopoli (1786)	Pheasant-tailed Jacana	LM
41	<i>Metopidius indicus</i> Latham (1790)	Bronze-winged Jacana	R

Family- Charadriidae			
42	<i>Charadrius dubius</i> Scopoli (1786)	Little Ringed Plover	WM
43	<i>Charadrius alexandrinus</i> Linnaeus (1758)	Kentish Plover	WM
44	<i>Vanellus malabaricus</i> Boddaert (1783)	Yellow-wattled Lapwing	R
45	<i>Vanellus indicus</i> Boddaert (1783)	Red-wattled Lapwing	R
46	<i>Vanellus leucurus</i> Lichtenstein (1823)	White-tailed Lapwing	WM
47	<i>Vanellus duvaucelii</i> Lesson (1826)	River Lapwing	R
Family- Scolopacidae			
48	<i>Tringa erythropus</i> Pallas (1764)	Spotted Redshank	WM
49	<i>Tringa totanus</i> Linnaeus (1758)	Common Redshank	WM
50	<i>Actitis hypoleucos</i> Linnaeus (1758)	Common Sandpiper	WM
51	<i>Tringa nebularia</i> Gunner (1767)	Common Greenshank	WM
52	<i>Tringa stagnatilis</i> Bechstein (1803)	Marsh Sandpiper	WM
53	<i>Tringa glareola</i> Linnaeus (1758)	Wood Sandpiper	WM
Family- Recurvirostridae			
54	<i>Himantopus himantopus</i> Linnaeus (1758)	Black-winged Stilt	R
55	<i>Recurvirostra avosetta</i> Linnaeus (1758)	Pied Avocet	WM
Family- Laridae			
56	<i>Sterna aurantia</i> J.E.Gray (1831)	River Tern	R
57	<i>Larus brunnicephalus</i> Jerdon (1840)	Brown-headed Gull	WM
58	<i>Larus ridibundus</i> Linnaeus (1766)	Black-headed Gull	WM
59	<i>Larus ichthyaetus</i> Pallas (1773)	Pallas's Gull	WM
60	<i>Sterna acuticauda</i> J.E. Gray (1831)	Black-bellied Tern	R

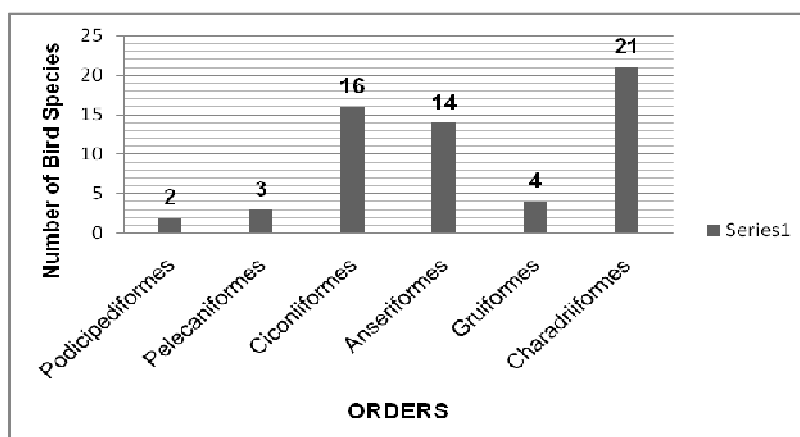


Figure 2. Showing incidence of Wetland Birds observed at Asan Barrage in order-wise manner during 2005-12.

Against the backdrop of studies of Gupta and Kaushik (2010b,d-e) in respect of winter migratory birds in rural ponds in Haryana state, it seems Rudy Shelduck has a strong affinity for River Yamuna waters and always avoids sojourning in rural ponds. However, only such one pond i.e., Kunjpura which is an expansive pond in

Karnal district, nearby (5 km) Yamuna River, Rudy Shelduck was spotted in sufficient numbers during December-January 2008, January 2009, December-January 2010 and in the month of February 2012. In view of present studies of birds' diversity at Asan Barrage in Uttrakhand nearby Haryana-Himachal Pradesh Border

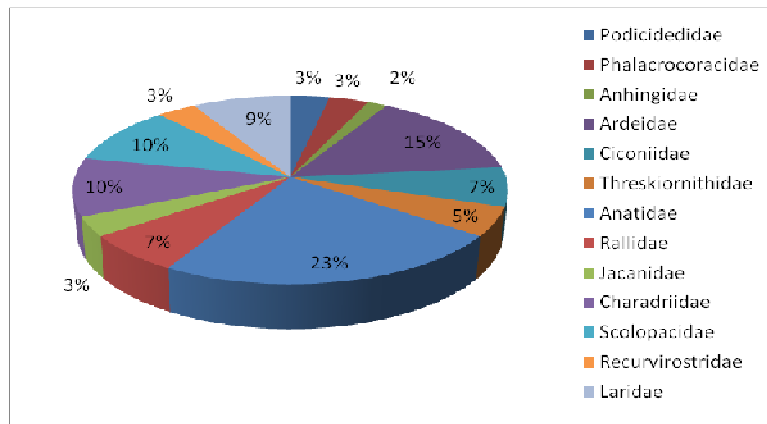


Figure 3. Showing incidence of Wetland Birds observed at Asan Barrage in family-wise manner during 2005-12.

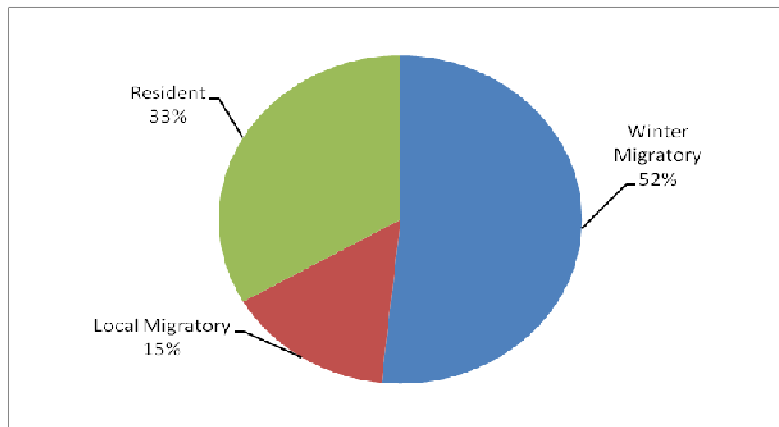


Figure 4. Showing the Residential status of Wetland Birds observed at Asan Barrage during 2005-12.

at the confluence of Asan barrage with Yamuna River, it is recommended that Asan Barrage at Utrakhand-Himachal-Uttarakhand border in Yamuna River be declared a National Bird Sanctuary with immediate effect. Also, denotified Chilchilla Bird Sanctuary” in Kurukshetra district in Haryana state in India be restored to its original status, its pristine glory rediscovered for the sake of conservation and protection of birds.

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Figure 1. A mixed flock of Ruddy Shelducks, Shovellers and Common Pochards



Figure.2 Little Cormorants



Figure.3 Tufted Pochards



Figure.4. Tufted Pochard and Black-headed Gull



Figure.5. White-necked Storks and Painted Storks .



Figure.6. Bar-headed Goose

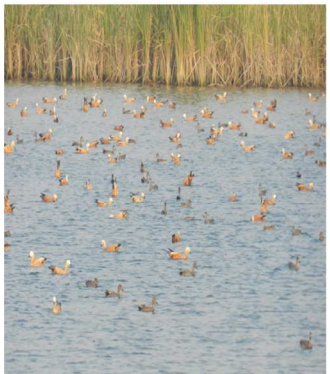


Figure.7. A view of migratory birds at Asan Barrage .



Figure 8. A mixed flock of Mallards, Common Coots, Common Pochards and Ruddy Shelducks



Figure.9. A pair of Red-crested Pochard

Plate-1. Pictorial representations of migratory birds at Asan Barrage in Uttrakhand state in India during 2005-2012.



Figure.1.Red -crested Pochards (In Flight)



Figure.2.Large Egret (In Flight)



Figure.3 Tufted Pochard

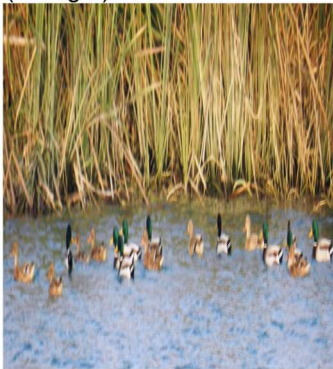


Figure 4. A small flock of Mallards



Figure 5. Ruddy Shelducks



Figure.6. Red-crested Pochards



Figure.7. A mixed flock of Common Coots and Red-crested Pochards.



Figure 8. A mixed flock of Cormorants, Egrets and Ruddy Shelducks



Figure 9. A mixed flock of Northern Shovellers, Gadwalls and Ruddy Shelducks

Plate-2. Photographic representations of Wetland birds at Asan Barrage in Uttarakhand state in India during 2005-12.

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