

# Discussing Implications of Fast Depleting Rural Ponds on the Globally Threatened Wetland Winter Migratory Bird in Haryana: A Case Study of Nigdu Village Pond in Karnal District

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## ABSTRACT

The Nigdu-Sarovar is located in Nilokheri block in Karnal district in Haryana (29°50'N 76°55'E). The duration of observations span over seven years (September, 2005-March, 2012). The recording of wetland winter visitor birds during 2005-08 in winter season included at least 58 species of birds belonging to 10 orders and 18 families. It is important to mention that 29 species of wetland birds were winter migratory, 17 residents, 9 local migratory and three species of wetland birds like Lesser-whistling Duck *Dendrocygna javanica*, Pheasant-tailed Jacana *Hydrophasianus chirurgus*, and Blue-cheeked Bee-eater *Merops persicus* were summer migratory. The special features of 2005-06 winter was the huge populations of birds like Northern Shoveller *Anas clypeata*, Northern Pintail *Anas acuta*, Common Teal *Anas crecca*, Spot-billed Duck *Anas poecilorhynchus*, Common Pochard *Aythya ferina*, Bar-headed Goose *Anser indicus*, Greylag Goose *Anser anser*, Gadwall *Anas strepera*, Great Cormorant *Phalacrocorax carbo*, Mallard *Anas platyrhynchos*, and Common Redshank *Tringa totanus*, etc. In successive years, the scenario was more or less a substantial one depicting stability with respect to diversity of birds, number of birds upto the year of 2008. The popular birds included Painted Stork *Mycteria leucocephala*, Openbill Stork *Anastomus oscitans*, White-necked Stork *Ciconia episcopus*, Black-necked Stork *Ephippiorhynchus asiaticus*, Eurasian Spoonbill *Platalea leucorodia*, Spotted Greenshank *Tringa guttifer*, and Kentish Plover *Charadrius alexandrinus*. The sharp decline in winter migratory birds at Nigdu-Sarovar started in the year of 2008 when the pond was leased out for Fish-Farming as per the policies of Govt. of Haryana. Fish Farming based deepening of the pond by excavation of bottom resulting in total decimation of rooted, floating, submerged and ejecting plants along with its subsidiary fauna, zooplanktons, phytoplankton etc. The age old structural regime of the pond was obliterated to turn it in a scientifically managed fish pond. The year of 2009-10, 2010-11 and 2011-12 (March, 2012) showed the total absence of migratory birds like Mallards, several Geese, Dabbling Ducks, Pochards and Teals etc. As of today (2012), the sarovar is a clean sheet of water with bird repelling devices installed in places.

**Keywords:** Nigdu Village Pond, Winter Migratory Birds, Karnal, Haryana

## INTRODUCTION

Bird migration studies have established the existence of global bird flyways across the continents which are dutifully traversed twice in a year to escape the hardships of weather and acute scarcity of food. These awesome journeys are performed by Arctic Terns *Sterna paradisaea*,

Bar-Tailed Godwit *Limosa lapponica*, Curlew Sandpiper *Calidris ferruginea*, Sharp Tailed Sandpiper *Calidris acuminata*, Lesser Scaups *Aythya affinis*, Common Snipe *Gallinago gallinago*, European Golden Plover *Pluvialis apricaria*, Demoiselle Crane *Anthropoides virgo*, Siberian Crane *Grus leucogeranus*, Bar-headed Goose, Greylag Goose, Gadwall, Common Green-shank, Common Redshank Spotted Redshank and many more.

Sufficient studies have been done in Haryana with an attempt to discover the spectrum of win-

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ter visiting wetland birds in rural village ponds [1-19]. Associated studies on varied aspects of field ornithology have also been done in Haryana [20-27].

The present study is extension of those very studies in an endeavour to link the fast speeding up deterioration of age old traditional rural ponds in Haryana with their subsequent fatal fall out on the globally significant winter visiting wetland birds like Bar-headed Goose, Grey lag Goose, to quote just two examples out of an array of more than 40 such cases in context of Haryana.

## MATERIALS AND METHODS

The study area of the present studies is Nighdu-Sarovar, Karnal district in Haryana, Northern India. It is very vast natural water shed for harvesting nearby rainy water every rainy season. It can be approached from Karnal to Delhi on NH-1 for a distance of 20 kms upto Nilokheri town where a right turn for subsequent 17-18 Kms journey by road takes one to Nilokheri to Nigdu sarovar.

The duration of observations span over seven years (September, 2005- March, 2012). The expanse of sarovar is about 25-30 acres, meaning thereby a very special wetland compared to traditional 4-5 acres pond. Nighdu Sarovar was visited atleast 30 occasions. It was also ensured to cover one single winter season on 4-5 occasions, specially covering November, December, January, and February. Also, it was ensured to cover forenoon, afternoon, and evening time as far as possible. The observations were done by visiting the entire circumferences of the 30-40 acre pond, foot by foot. Boat was never used. The cameras used were (i) Zenith 1986 Model with tele-lens and (ii) Nikon Coolpix P500. The old camera with its old fashioned lens also served as the binocular. Evidence was collected extensively through photography. Identification was done in our own laboratory and with the aid of literatures [28, 29, 30], the same was verified by SACON, Coimbatore, and the nomenclature follows Manakadan and Pittie [30].

## RESULTS AND DISCUSSION

### Results

Precisely speaking, a total of 58 species wetland birds were recorded in 2005 and 2006

representing 10 orders and 18 families [Table 1, Supplement 1 and Figure 1, 2, 3] The popular birds seen in 2005-06, 2006-07 were Northern Pintail, Northern Shoveller, Mallard, Common Pochard, Tufted Pochard, Bar-headed Goose, Greylag Goose, Gadwall, Common Greenshank, Painted Stork, Open-billed Stork, White-necked Stork, Eurasian Spoonbill, Common Redshank, Spotted Redshank and Pied Avocet *Recurvirostra avosetta*, etc. The same trend was seen for 2-3 successive winters. However, Nigdu Sarovar was leased out in 2008 for fish farming followed by execution to expel bottom earth along with entire flora and fauna to make way for commercial fish farming. Bird repelling devices were installed over the entire sheet of water in Nigdu pond in Karnal district. In the year 2008-09, 2009-10, 2010-11, 2011-12 visits were made but the only migratory birds like Northern Shoveller, Northern Pintail, Common Teal, Lesser-whistling Teal were seen and that too in miniscule numbers. It is crucial to point out that only resident birds were observed that too in the nearby accessory pond (5 acres). These resident birds include, amongst others, Cattle Egrets *Bubulcus ibis*, Red-vented Lapwing *Vanellus indicus*, few Pond Herons *Ardeola grayii*, Common Moorhen *Gallinula chloropus*, Purple Moorhen *Porphyrio porphyrio* etc. This case study demonstrates the widespread disturbing conditions to winter visitor wetland birds in Haryana. These birds come to Haryana from far off places like Central Asia, Siberia, Tibet, China, Ladkhakh and High Himalayan range.

It is very relevant to point out here that two very adjoining village ponds, namely Amin village pond and Raipur village Pond have been reported to contain 46 wetland birds and 64 wetland birds respectively [4, 5] in 2012. However, Nigdu is now devoid of the rich avian diversity linked with Fish Farming in Haryana. It is a simple case of anthropogenic aided and abetted habitat alteration or even habitat destruction.

It is fit case to explicitly express a grave situation linking destruction/alteration of traditional ponds into fish ponds resulting into total absence of long distance travelling wetland migratory birds in a non-descript village, namely, Nigdu in Karnal district in Haryana, India.

It is pertinent to mention that birds like Spotted Greenshank and Eurasian Spoonbill

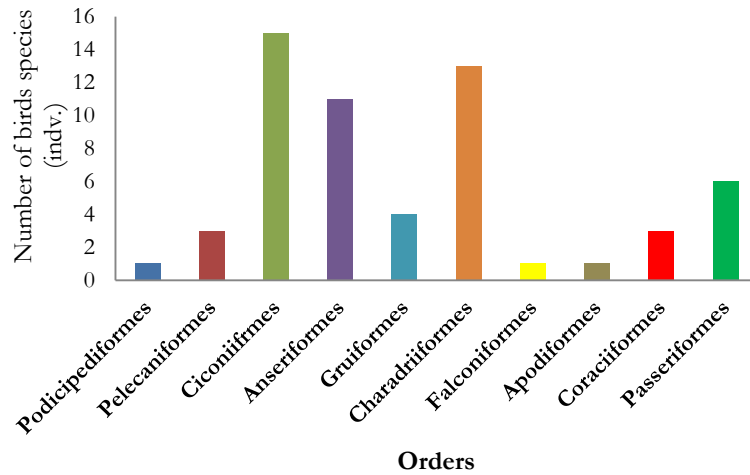


Figure 1. Showing incidence of avian biodiversity observed at Nigdu village in Karnal district in Haryana in order-wise manner during 2005-12

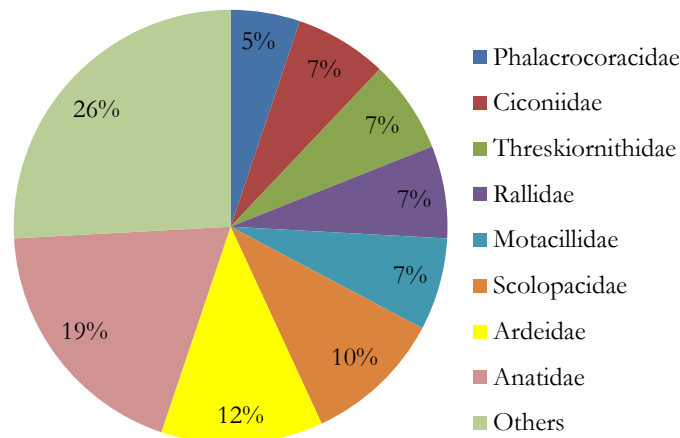


Figure 2. Showing incidence of avian biodiversity observed at Nigdu village in Karnal district in Haryana in family-wise manner during 2005-12.

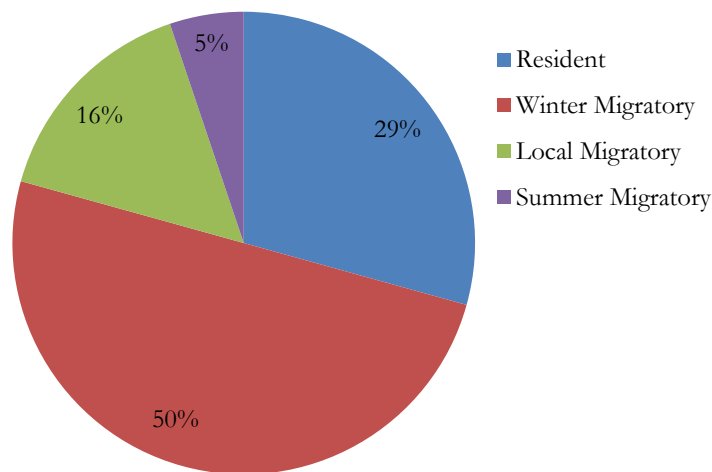


Figure 3. Showing the residential status of avian biodiversity observed at Nigdu village in Karnal district in Haryana during 2005-12

coming to Nigdu sarovar are included in appendix I and II of CITES and these birds have breeding grounds in Siberia and Central Asia. Similarly birds like Painted Stork and Black-necked Stork are Near Threatened as per IUCN RED DATA list [31].

At the same time, all these wetland birds fall in schedule IV of Wildlife (Protection) Act, 1972 of India. Eurasian Spoonbill is listed in Schedule I of Wildlife (Protection) Act, 1972. In a more concise way, the present studies explicitly point out that Spotted Greenshank is Vulnerable so this bird is globally threatened. These birds visit hundreds of non-descript village ponds like Nigdu-Sarovar in Karnal (Haryana). Here habitat destruction linked with conversion of traditional rural ponds into fish farming is spelling disaster of greater magnitude than one can perceive continued negative conditions may lead these birds to extinction. It must be remembered that winter visitor wet-land birds are accustomed to come to the same sarovar year after year in a particular geographical area. Nigdu-Sarovar disturbance causes these birds great difficulties of unknown level. As such, the situation assumes compounded threats to winter visiting winter migratory birds in Haryana as approximately 7000 village ponds have been leased out for active fish farming. The conditions of unleased out pond is no better due to siltation, encroachment, and pollution. As such, the present studies attempt to raise an issue which is silently spelling disaster to the global avian biodiversity of winter visiting birds in Haryana. This study's results can, safely, be extrapolated to other adjoining states of Punjab, Rajasthan, Uttar Pradesh and plains of Uttarakhand. If attention is not focused immediately then traditional ponds will disappear and so will the avian biodiversity associated with these ponds. This avian biodiversity is solely migratory birds which belong to trans-Himalayan region.

## CONCLUSIONS

It must be mentioned that there are about 7000 non-descript village ponds in Haryana where at least 15000 ponds have been leased out for fish farming. The threat to winter migratory birds is therefore, working in a silent and serious manner. The consequences will be similar to the one witnessed in Keoladeo National Park in

Bharatpur in context of Siberian crane. It is pleaded over here that village ponds be maintained as traditional ponds and fish farming should be diverted to agriculture fields solely to save village ponds and precious birds like Mallards, Northern Shoveller, Northern Pintail, Common Teal, Spot-billed Duck *Anas poecilorhynchus*, Common Pochard, Bar-headed Goose, Greylag Goose, Gadwall, Common Pochard, Tufted Pochard, Garganey, Eurasian Wigeon, Spotted Greenshank, Green Sandpiper, Pied Avocet, Glossy Ibis, Oriental White Ibis and Common Redshank etc. The traditional village ponds are our invaluable heritage. The winter migratory wetland birds are the shared heritage of mankind.

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**Supplement 1**

Table 1. Checklist of wetland birds spotted at Nigdu village pond in Karnal District in Haryana, India

Sl. No.	Common Name	Scientific Name	Residential Status
<b>Podicipediformes</b>		<b>Podicipedidae</b>	
1	Little Grebe	<i>Tachybaptus ruficollis</i> (Pallas, 1764)	R
<b>Pelecaniformes</b>		<b>Phalacrocoracidae</b>	
2	Little Cormorant	<i>Phalacrocorax niger</i> (Vieillot, 1817)	R
3	Indian Shag	<i>Phalacrocorax fuscicollis</i> Stephens, 1826	LM
4	Great Cormorant	<i>Phalacrocorax carbo</i> (Linnaeus, 1758)	LM
<b>Ciconiiformes</b>		<b>Ardeidae</b>	
5	Little Egret	<i>Egretta garzetta</i> (Linnaeus, 1766)	WM
6	Grey Heron	<i>Ardea cinerea</i> Linnaeus, 1758	WM
7	Purple Heron	<i>Ardea purpurea</i> Linnaeus, 1766	WM
8	Large Egret	<i>Casmerodius albus</i> (Linnaeus 1758)	LM
9	Median Egret	<i>Mesophoyx intermedia</i> (Wagler 1829)	LM
10	Cattle Egret	<i>Bubulcus ibis</i> (Linnaeus, 1758)	R
11	Indian Pond-Heron	<i>Ardeola grayii</i> (Sykes, 1832)	R
		<b>Ciconiidae</b>	
12	Painted Stork	<i>Mycteria leucocephala</i> (Pennant, 1769)	LM
13	Asian Openbill-Stork	<i>Anastomus oscitans</i> (Boddaert, 1783)	WM
14	White-necked Stork	<i>Ciconia episcopus</i> (Boddaert, 1783)	WM
15	Black-necked Stork	<i>Ephippiorhynchus asiaticus</i> (Latham, 1790)	WM
		<b>Threskiornithidae</b>	
16	Glossy Ibis	<i>Plegadis falcinellus</i> (Linnaeus, 1766)	LM
17	Oriental white Ibis	<i>Threskiornis melanocephalus</i> (Latham, 1790)	WM
18	Black Ibis	<i>Pseudibis papillosa</i> (Temminck, 1824)	R
19	Eurasian Spoonbill	<i>Platalea leucorodia</i> (Linnaeus, 1758)	LM
<b>Anseriformes</b>		<b>Anatidae</b>	
20	Lesser Whistling duck	<i>Dendrocygna javanica</i> (Horsfield, 1821)	SM
21	Greylag Goose	<i>Anser anser</i> (Linnaeus, 1758)	WM
22	Bar-headed Goose	<i>Anser indicus</i> (Latham, 1790)	WM
23	Gadwall	<i>Anas strepera</i> Linnaeus, 1758	WM
24	Mallard	<i>Anas platyrhynchos</i> Linnaeus, 1758	WM
25	Spot-billed Duck	<i>Anas poecilorhyncha</i> J.R. Forester, 1781	WM
26	Northern Shoveller	<i>Anas clypeata</i> Linnaeus, 1758	WM
27	Northern Pintail	<i>Anas acuta</i> Linnaeus, 1758	WM
28	Common Teal	<i>Anas crecca</i> Linnaeus, 1758	WM
29	Common Pochard	<i>Aythya ferina</i> (Linnaeus, 1758)	WM
30	Tufted Pochard	<i>Aythya fuligula</i> (Linnaeus, 1758)	WM
<b>Gruiformes</b>		<b>Rallidae</b>	
31	White-breasted Waterhen	<i>Amaurornis phoenicurus</i> (Pennant, 1769)	R
32	Purple Moorhen	<i>Porphyrio porphyrio</i> (Linnaeus, 1758)	R
33	Common Moorhen	<i>Gallinula chloropus</i> (Linnaeus, 1758)	LM
34	Common Coot	<i>Fulica atra</i> Linnaeus, 1758	WM
<b>Charadriiformes</b>		<b>Jacanidae</b>	
35	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i> (Scopoli, 1786)	SM
36	Bronze-winged Jacana	<i>Metopidius indicus</i> (Latham, 1790)	R

Sl. No.	Common Name	Scientific Name	Residential Status
<b>Charadriidae</b>			
37	Kentish Plover	<i>Charadrius alexandrinus</i> Linnaeus, 1758	WM
38	Red-wattled Lapwing	<i>Vanellus indicus</i> (Boddaert, 1783)	R
<b>Scolopacidae</b>			
39	Spotted Redshank	<i>Tringa erythropus</i> (Pallas, 1764)	WM
40	Common Redshank	<i>Tringa totanus</i> (Linnaeus, 1758)	WM
41	Green Sandpiper	<i>Tringa ochropus</i> Linnaeus, 1758	WM
42	Common Sandpiper	<i>Actitis hypoleucos</i> (Linnaeus, 1758)	WM
43	Common Greenshank	<i>Tringa nebularia</i> (Gunner, 1767)	WM
44	Spotted Greenshank	<i>Tringa guttifer</i>	WM
<b>Recurvirostridae</b>			
45	Black-winged Stilt	<i>Himantopus himantopus</i> (Linnaeus, 1758)	R
46	Pied Avocet	<i>Recurvirostra avosetta</i> Linnaeus, 1758	WM
<b>Laridae</b>			
47	River Tern	<i>Sterna aurantia</i> J.E.Gray, 1831	LM
<b>Falconiformes</b>		<b>Accipitridae</b>	
48	Brahminy Kite	<i>Haliastur indus</i> (Boddaert, 1783)	R
<b>Coraciiformes</b>		<b>Alcedinidae</b>	
49	Lesser Pied Kingfisher	<i>Ceryle rudis</i> (Linnaeus, 1758)	R
50	White-breasted Kingfisher	<i>Halcyon smyrnensis</i> (Linnaeus, 1758)	R
<b>Meropidae</b>			
51	Blue-cheeked Bee-eater	<i>Merops persicus</i> Pallas, 1773	SM
<b>Apodiformes</b>		<b>Apodidae</b>	
52	House Swift	<i>Apus affinis</i> (J.E.Gray, 1830)	R
<b>Passeriformes</b>		<b>Hirundinidae</b>	
53	Common Swallow	<i>Hirundo rustica</i> Linnaeus, 1758	R
54	Wire-tailed Swallow	<i>Hirundo smithii</i> Leach, 1818	R
<b>Motacillidae</b>			
55	White Wagtail	<i>Motacilla alba</i> Linnaeus, 1758	WM
56	Large Pied Wagtail	<i>Motacilla maderaspatensis</i> Gmelin, 1789	R
57	Yellow Wagtail	<i>Motacilla flava</i> Linnaeus, 1758	WM
58	Citrine Wagtail	<i>Motacilla citreola</i> (Pallas, 1776)	WM

Note: Abbreviations: - WM- Winter Migratory, LM- Local Migratory, SM- Summer Migratory and R- Resident