

Observations on the Wildlife of Nara Wetland Complex, Tehsil Nara, District Khairpur, Sindh with Special Reference to the Waterbirds

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Abstract.- The paper highlights the importance of the wetlands of Nara Wetland Complex (NWC) in District Khairpur, Sindh as a site containing representative, rare or unique wetland types, and as a site of international importance for conserving biodiversity and as a waterbird habitat. The area is thus a candidate Ramsar Site. It also gives the result of waterbird census on the important wetlands of the NWC during 2002 and 2004.

Key words: Waterbirds, wetlands, Sindh, Pakistan.

INTRODUCTION

The province of Sindh is very rich in wetlands. It has many wetland complexes, such as Haleji, Indus delta, Deh Akro, Nurr-ri-Jubho and Rann of Kutch which have been designated as Ramsar sites *i.e.* the Wetlands of International Importance under the Ramsar Convention.

There are other wetland complexes such as Chotiari; Drigh, Lugh and Hamal and Nara Wetland Complex (NWC) which are ecologically very important for containing representative, rare or unique wetland types and/or for conserving biological diversity.

Situated in Tehsil Nara, District Khairpur, Sindh, the NWC is a complex of about 200 small, medium and large wetlands, some are seasonal, most are permanent. These wetlands are freshwater to brackish to saline. Stretching from the town of Januji in the north to Jamrao Head in the south, these wetlands lie on either side of the Nara canal, which is the largest canal of Sindh having a cultivable area of 108 million hectares. It originates from the Sukkur barrage alongwith Khairpur feeder and the Rohri canal. Woodland, riverine forest, scrub and desert shrubs occur on both sides of the Nara canal.

These wetlands alongwith the aquatic vegetation, reed beds and woodlands are the habitat for a variety of mammals, birds, reptiles, amphibians and fishes. The area is of immense

ecological value as far as the biodiversity is concerned. There is a very characteristic ecosystem having a chain of wetlands in a desert habitat.

The Nara canal and a belt of land along the canal totalling an area of 108960 ha starting from Sorah to Jamrao Head is a game reserve. It was established in 1972. The ecosystem of the game reserve is a mixture of desert and wetlands. The game reserve was established for the protection of hog deer, gray and black partridges and the crocodiles in the canal and the dhands.

There is also the Nara Desert Wildlife Sanctuary in the area. Its area is 223590 ha and it was created mainly for the protection of Chintara, gray partridges and houbara bustard.

MATERIALS AND METHODS

Surveys were undertaken during December 2002 and January, February and March, 2004 and ecological data in respect of 131 wetlands was collected giving the name, location, geographical coordinates, area, description of the site, important flora, important fauna alongwith salient features of most important wetlands.

Previous work done on the fauna and flora of the area is mainly the Nara Game Reserve Baseline Environmental Study 2002 by Halcrow Pakistan (Pvt) Ltd. Islamabad.

RESULTS AND DISCUSSION

Twenty one species of mammals, 134 species of birds and 16 species of reptiles were recorded

from the area. Hog deer, smooth-coated otter, marbled teal, marsh crocodile are the keystone species/species associated with high wetland values (Ghalib *et al.*, 2004).

The area supports 198 marsh crocodiles out of 480 reported in Sindh province (Javed and Rehman, 2003). Nara canal and the following 14 wetlands are important for supporting marsh crocodile: Torti, Somen, Harni, Ganjo, Shenhlo, Dholaho, Chaho, Nagiopeer, Simni, Samabi, Akhero, Badrami, Derhan and Chhoti dhand.

Moreover, waterbird census on the major wetlands of the NWC was also undertaken by the present authors in December, 2002 and January 2004. The census data is given in Tables I and II. It was found that certain wetlands are of potential importance for waterbirds as these were supporting large number of waterbirds during the migratory season (Table III).

Certain wetlands are very important for supporting the following threatened or rare / less common waterbirds:

- Ruddy shelduck, *Tadorna ferruginea* (Dangree, Talaho and Wichawaro dhands).
- Shelduck, *T. tadorna* (Dangree and Nagiopeer dhands).
- Ferruginous duck, *Aythya nyroca* (Dangree, Jagheer, Khakro and Kathor dhands).
- Greater flamingo, *Phoenicopterus roseus* (Jagheer dhand)
- Spot bill duck, *Marmaronetta angustirostris* (Dholaho dhand)
- Black ibis, *Pseudibis papillosa* (Putkan, Ganjo and Maywaywari dhand)
- Garganey, *Anas querquedula* (Samabi dhand)
- Indian darter, *Anhinga melanogaster* (Simni, Badrami and Derhan dhands)
- Gray-log goose, *Anser anser* (Jagheer dhand).

The NWC is also important as a potential Ramsar site. Uptil now, the following 19 sites in Pakistan have been designated as Wetlands of International Importance (Ramsar Sites) under the Ramsar Convention: Astola (Haft Talar) Island, Balochistan; Chasma Barrage, Punjab; Deh Akro,

Sindh; Drigh Lake, Sindh; Haleji Lake, Sindh; Hub Dam, Sindh; Balocistan; Indus Delta, Sindh; Indus Dolphin Reserve, Sindh; Jiwani Coastal Wetland, Balochistan; Jubho Lagoon, Sindh; Keenjhar Lake, Sindh; Miani Hor, Balochistan; Nurri Lagoon, Sindh; Ormara Turtle Beaches, Balochistan; Rann of Kutch, Sindh; Tanda Dam, NWFP; Taunsa Barrage, Punjab; Thanedar Wala, NWFP; Uchhali Complex (including Khabbaki, Uchhali and Jahlar Lakes), Punjab.

The Ramsar Convention uses the so called "Wetlands of International Importance" as a focus and flagship for demonstrating best practice management and wise use of wetlands. The contracting parties are encouraged to nominate specific wetlands which qualify against certain criteria. The qualifying criteria relate to wetland values in terms of uniqueness, value for biodiversity and value as waterbird habitat (Ramsar Conventoin Bureau, 2000).

The Nara and associated wetlands form a complex of wetlands in the Nara desert region which extends from Ghotki, Sukkur, and Khairpur to Sanghar districts. This is a part of Thar desert biogeographical region which extends further south in Tharparkar area (Udvardi, 1975). The lakes / marshes are situated in the interdunal area and this is a unique or rare type of natural wetlands type found in the Thar Desert biogeographical region. This type of wetland system is not found elsewhere (with the exception of Chotiari Wetland Complex). Hence criterion # 1¹ applies here.

The area supports the vulnerable species such as: smooth-coated otter (*Lutrogale persvicillata*), marbled teal (*Marmaronetta anglistrostris*), marsh crocodile (*Crocodylus palustris*). It also supports the Near-threatened species such as hog deer (*Axis porcinus*), fishing cat (*Prionailurus viverrina*), Indian darter (*Anhinga rufa*), white-eyed pochard (*Aythya nyroca*), houbara bustard (*Chlamydotis undulata*), longtailed grass warbler (*Prinia burnesii*), black ibis (*Pseudibis, papillosa*) (Anonymous, 2002; Ghalib *et al.*, 2004). In view of the above, criterion # 2² applies here.

1 Criterion 1: A wetland should be considered internationally important, if it contains a representative, rare, or unique example of a natural or near natural wetland type found within the appropriate biogeographic region.

2 Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Table I.- Waterbird census on Nara Wetland Complex - January 2004.

Sr. No.	Common name	Scientific name	Name of the wetland									
			Baboo dhand	Sadoro Faqir ki Miani	Kirchan	Jaarhi	Jagheer	Berwari	Purkan	Nagio-peer	Ganjo	Sodar Peer
01	Little grebe	<i>Tachybaptus ruficollis</i>	170	22	65	95	300	-	35	40	45	75
02	Black necked grebe	<i>Podiceps nigricollis</i>	-	02	-	-	-	-	02	-	-	-
03	Great cormorant	<i>Phalacrocorax carbo</i>	-	175	-	35	-	-	-	-	-	-
04	Little cormorant	<i>P. niger</i>	-	-	-	55	60	240	-	-	25	-
05	Indian darter	<i>Anhinga melanogaster</i>	-	06	-	-	-	-	-	-	-	-
06	Indian pond heron	<i>Ardeola grayii</i>	30	60	20	-	-	-	-	-	20	-
07	Cattle egret	<i>Bubulcus ibis</i>	-	-	85	-	-	-	-	65	-	-
08	Little egret	<i>Egretta garzetta</i>	40	185	-	80	156	-	-	30	30	-
09	Intermediate egret	<i>E. intermedia</i>	40	-	-	-	10	-	-	10	-	-
10	Purple heron	<i>Ardea purpurea</i>	-	-	04	-	-	-	-	-	-	-
11	Grey heron	<i>A. cinerea</i>	-	-	12	-	-	-	-	-	-	-
12	Black ibis	<i>Pseudibis papillosa</i>	-	-	-	-	-	-	02	-	-	-
13	Glossy ibis	<i>Plegadis falcinellus</i>	-	-	-	-	20	-	-	12	-	-
14	Greater flamingo	<i>Phoenicopterus roseus</i>	-	-	-	-	15	-	-	-	-	-
15	Common shelduck	<i>T. tadoma</i>	-	-	-	-	-	-	-	20	-	-
16	Eurasian wigeon	<i>Anas penelope</i>	-	-	-	-	-	-	-	160	-	-
17	Gadwall	<i>A. strepera</i>	1800	1400	220	485	360	-	-	230	85	800
18	Common teal	<i>A. crecca</i>	1200	2500	180	600	-	1200	2000	45	260	1650
19	Mallard	<i>Anas platyrhynchos</i>	-	-	-	-	130	-	-	-	-	-
20	Northern pintail	<i>Anas acuta</i>	-	2200	-	-	3000	-	-	325	-	1290
21	Northern shoveller	<i>A. clypeata</i>	1600	3000	-	996	4500	3800	3800	1430	380	-
22	Common pochard	<i>Aythya ferina</i>	1350	1300	1300	1100	2500	-	2500	145	135	730
23	Tufted duck	<i>A. fuligula</i>	-	1800	-	-	340	-	-	350	-	-
24	White breasted water hen	<i>Amaurornis phoenicurus</i>	-	<14	-	-	04	-	-	06	-	-
25	Moorhen	<i>Gallinula chloropus</i>	40	130	30	25	75	35	-	300	35	-
26	Purple swamphen	<i>P. porphyrio</i>	-	26	-	15	10	-	-	45	08	-
27	Common coot	<i>Fulica atra</i>	3300	4050	1500	2000	2200	1800	3500	2000	70	-
28	Avocet	<i>Recurvirostra avosetta</i>	-	-	-	-	-	-	70	-	-	-
29	Blackwinged stilt	<i>H. himantopus</i>	150	250	145	-	-	160	-	55	65	30
30	White-tailed plover	<i>Vanellus leucurus</i>	55	23	12	-	-	15	13	-	04	-
31	Red wattled lapwing	<i>V. indicus</i>	40	30	25	-	-	14	15	-	17	25
32	Black tailed godwit	<i>L. limosa</i>	-	-	-	-	25	-	-	-	-	-
33	Redshank	<i>Tringa totanus</i>	80	-	-	-	-	-	-	25	04	-
34	Common sandpiper	<i>Actitis hypoleucos</i>	70	-	-	-	-	-	-	20	09	-
35	Common snipe	<i>G. gallinago</i>	-	-	-	-	-	06	03	-	-	-
36	Little stint	<i>Calidris minuta</i>	-	290	120	-	45	-	-	65	-	-
37	Ruff	<i>Philomachus pugnax</i>	270	-	-	-	-	-	-	-	-	-
38	Little tern	<i>Sterna albifrons</i>	-	240	130	-	-	-	-	25	-	-
39	Lesser crested tern	<i>S. bengalensis</i>	85	-	-	-	-	-	-	-	-	-
TOTAL			10320	17896	3848	5486	13880	7270	11940	5403	1192	4600

Table II.- Waterbird census on the important Wetlands of Nara Wetland Complex – December 2002.

Sr. No.	Common name	Scientific name	Name of the wetlands				
			Putkan Dhand	Berwari Dhand	Kirchan Dhand	Jaarhi Dhand	Nagiopeer Dhand
1.	Little grebe	<i>Tachybates ruficollis</i>	55	-	80	80	60
2.	Great cormorant	<i>Phalacrocorax carbo</i>	-	-	-	30	-
3.	Little cormorant	<i>P. niger</i>	-	210	-	60	-
4.	Indian pond heron	<i>Ardeola grayii</i>	-	-	25	-	-
5.	Cattle egret	<i>Bubulcus ibis</i>	-	-	60	-	30
6.	Little egret	<i>Egretta garzetta</i>	-	-	20	65	-
7.	Purple heron	<i>Ardea purpurea</i>	-	-	4	-	-
8.	Grey heron	<i>A. cinerea</i>	-	-	20	-	-
9.	Black ibis	<i>Pseudibis papillosa</i>	4	-	-	-	-
10.	Glossy ibis	<i>Plegadis falcinellus</i>	10	-	10	-	-
11.	Eurasian wigeon	<i>Anas penelope</i>	-	-	-	-	150
12.	Gadwall	<i>A. strepera</i>	150	-	180	550	270
13.	Common teal	<i>A. crecca</i>	1200	900	800	800	140
14.	Northern pintail	<i>A. acuta</i>	350	-	50	-	350
15.	Northern shoveller	<i>A. clypeata</i>	2800	3500	800	1200	1500
16.	Common pochard	<i>Aythya ferina</i>	1200	-	1150	700	150
17.	Tufted duck	<i>A. fuligula</i>	-	-	-	-	300
18.	Moorhen	<i>Gallinula chloropus</i>	-	40	40	20	200
19.	Purple swamp hen	<i>P. porphyrio</i>	-	-	15	12	-
20.	Common coot	<i>Fulica atra</i>	2000	2100	2000	2000	1800
21.	Backwinged stilt	<i>H. himantopus</i>	140	130	150	-	-
22.	White tailed plover	<i>Vanellus leucurus</i>	10	12	15	-	-
23.	Redwattled lapwing	<i>V. indicus</i>	18	10	25	-	-
24.	Blacktailed godwit	<i>L. limosa</i>	-	-	5	-	-
25.	Eurasian curlew	<i>Numenius arquata</i>	-	-	15	-	-
26.	Redshank	<i>Tringa totanus</i>	25	-	80	-	30
27.	Common sandpiper	<i>Actitis hypoleucos</i>	15	8	30	15	-
28.	Common snipe	<i>G. gallinago</i>	-	8	-	-	-
29.	Little stint	<i>Calidris minuta</i>	20	20	190	20	70
30.	Ruff	<i>Philomachus pugnax</i>	30	-	150	40	-
31.	Little tern	<i>Sterna albifrons</i>	-	-	-	170	-
Total			8031	6938	5889	5762	4050

Table III.- Waterbird population in various wetlands during the year 2002 and 2004.

Wetland	Waterbird population in year 2004	Waterbird population in year 2002
Putkan dhand	11,940	8031
Berwari dhand	7,270	6938
Kirchan dhand	3848	5889
Jarhi dhand	5486	5762
Nagio peer dhand	5403	4050
Baboo dhand	10,320	-
Sadoro Faqeer Ki Miani	17,896	-
Jagheer dhand	13,880	-
Ganio dhand	1192	-
Sodar peer dhand	4600	-

The Nara Wetland Complex falls into the Thar Desert biogeographic province in the Indomalayan Realm. It is very important on account of its biodiversity, which is unique for this part of the region.

Hog deer, smooth-coated otter, marbled tetrl, white-eyed pochard, houbara bustard, marsh crocodile, gray partridge (*Francolinus pondicerianus*) and the black partridge (*F. francolinus*) are the key species of the area. Hence criterion # 3³ applies here.

3 Criterion 3: A wetland should be considered internationally important if it supports population of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.

Regular waterbird surveys have not been undertaken on the wetlands of the area but whatever data is available shows that these wetlands are very important for supporting a large number of waterbirds during the migratory season (Table I).

It is felt that some more wetlands can be added to the list of Ramsar Sites of Sindh since there are still more potential sites to be designated as such to represent a contribution to global environmental protection and maintenance of national and global biodiversity.

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