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WATER BIRD DIVERSITY AT KUMBHARVADA MARSH LAND, BHAVNAGAR, GUJARAT

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ABSTRACT:

India has totally 67,429 wetlands, covering an area of about 4.1 million hectares [MoEF 1990]. Out of these, 2,175 are natural and 65,254 are manmade. Wetlands in India (excluding rivers), account for 18.4% of the countries' geographic area, of which 70% is under paddy cultivation. The study site Kumbharvada is located 21°40.734' N and 72°06.397' E, in western part of Bhavnagar city. It is the most productive wetland of Bhavnagar city. Kumbharvada is a part of IBA (Important Bird Area) Site. During the present study, we recorded total 71 species belongs to 27 families. Of them 09 species are residential, breeding and migratory, 24 species are residential and breeding, 38 species are migratory.

KEY WORD: Wetlands, Salt Pan, Avian Diversity, Migratory, Residential, Bird.

INTRODUCTION:

India has totally 67,429 wetlands, covering an area of about 4.1 million hectares [Ministry of Environment and Forests (MoEF), 1990]. Out of these, 2,175 are natural and 65,254, manmade. Wetlands in India (excluding rivers), account for 18.4% of the countries' geographic area, of which 70% is under paddy cultivation.

Waterbirds are one of the key attributes of the biodiversity of many wetlands, and waterbird counts form one of several elements that are used to identify important wetlands. It is widely accepted that the number of waterbirds using a wetland site is a good indicator of that site's biological importance (Scott

1980).

Bird counts can also provide vital evidence of the need to provide statutory protection for certain wetlands; Kushlan (1993) assessed the value of waterbirds as bio-indicators of wetland change, and one of his conclusions was that “population level data show special promise as sentinel bio-indicators”.

Such long-term waterbird count data have been especially influential in the identification of Wetlands of International Importance (Ramsar sites), sites for designation under the East Asian – Australasian Flyway Site Network and the Important Bird Areas programme and National Protected Areas.

STUDY AREA:

The study site Kumbharwada is located 21°40.734' N and 72°06.397' E, in western part of Bhavnagar city. It is the most productive wetland of Bhavnagar city. The site's having many different habitats that is Submerge grass part, Saltpan area, Muddy land, Semi-muddy and dry area.

In Wetland, some areas are used for Salt production. Annually 3200-3500 tone Salt produced in the area. Total salt production of Bhavnagar area is 34,500 tons. The site is grazed by cattle and buffalos.

The vertebrate fauna has not been formally recorded, but the sites are accessible to all the common mammal and reptile species of the region. Also it has a good habitat for floral diversity. The wetland provide good habitat for many birds.

Kumbharwada is a part of IBA (Important Bird Area) Site. (Islam and Rehmani, 2004)

MATERIALS AND METHODS:

The observations of birds were made with the help of a pair Binocular (8x40), the birds were observed from a safe distance to prevent the disturbance. The identification of birds was carried out with the help of standard field guide (Ali. S., S. D. Ripley. (1983), Ali. S. (2002), Grimmett. R. et.al., (1998), Sharma. S.(2003). For the further confirmation, particularly in case of waders, the help of experienced bird watcher was taken. Scientific nomenclature and local names was adopted according to Parasharya, et.al, (2004). For present study the study site visited for three year i.e., August'09 to July'12 at regular interval.

RESULTS AND DISCUSSION:

During the present study, we recorded total 71 species belongs to 27 families. Of them 09 species are residential, breeding and migratory, 24 species are residential and breeding, 38 species are migratory (Appendix: 1). The breeding status of the birds enlisted are quoted from the literature and not the actual breeding status in the wetland. Total 31 hectare area was covered for the study. The maximum numbers of species were belonging from family *Anatidae* (Ducks) 10 species. Other families like *Ardeidae* (Egrets and Herons) 8 Species, *Scolopacidae* (Plovers and Curlew) 5 species, *Threskiornithidae* (Ibis and Spoonbill) and *Rallidae* (Moorhen and Jacana) 4 species.

Usually the winter migratory birds arrive in month of October and stay with us up to end of March (Dharmkumarsinhji-1955). The species diversity shows decline from April, which is due to departure of wintering species. A little increase in May and June was probably, because of breeding congregation of residential avian Species (Vickery and Nudds 1984, Gadhvi and Soni 2002,). Whereas July and August shows downfall of species diversity due to nesting season of local migratory and the residential wadders (Ali-2002, Dharmkumarsinhji-1955). Right from the end of September, the arrival of winter migratory birds species commence hence, the diversity of birds species increases from the end of September.

The collision of birds with high voltage electric lines was noticed repeatedly which passed over the wetland and particularly large sized birds like flamingo have major threat from it. The industrialization in or near the Kumbharwada wetland will become a major threat to the wetland ecology.

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ANNEXURE: 01 CHECKLIST OF BIRDS OBSERVED AT KUMBHARVADA

No.	English Name	Scientific Name	Local Name	Status
1	Great Crested Grebe	<i>Podiceps cristatus</i>	Moty Chotily Dubaki	RB,M
2	Little Grebe	<i>Tachybaptus ruficollis</i>	Nani Dubaki	RB
3	Great White Pelican	<i>Pelecanus onocrotalus</i>	Gulabi Pen	RB,M
4	Dalmatian Pelican	<i>Pelecanus crispus</i>	Ruperi Pen	M
5	Indian Shag	<i>Phalacrocorax fuscicollis</i>	Vachet Kajiyo	RB
6	Little Cormorant	<i>Phalacrocorax niger</i>	Nano Kajiyo	RB
7	Grey Heron	<i>Ardea cinerea</i>	Kabut Bagalo	RB
8	Purple Heron	<i>Ardea purpurea</i>	Nadi Bagalo	RB
9	Indian Pond Heron	<i>Ardeola grayii</i>	Kani Bagali	RB
10	Cattle Egret	<i>Bubulcus ibis</i>	Dhor Bagalo	RB
11	Large Egret	<i>Casmerodius albus</i>	Motto Dholo Bagalo	RB
12	Median Egret	<i>Mesophoyx intermedia</i>	Vachet Dholo Bagalo	RB
13	Little Egret	<i>Egretta garzetta</i>	Nano Dholo Bagalo	RB
14	Western Reef Egret	<i>Egretta gularis</i>	Dariyai Bagalo	RB
15	Painted Stork	<i>Mycteria leucocephala</i>	Pilichanch Dhonk	RB
16	Oriental White Ibis	<i>Threskiornis melanocephalus</i>	Dholi Kakansar	RB
17	Black Ibis	<i>Pseudibis papillosa</i>	Kali Kakansar	RB
18	Glossy Ibis	<i>Plegadis falcinellus</i>	Nani Kakansar	RB,M
19	Eurasian Spoonbill	<i>Platalea leucorodia</i>	Chamcho	RB,M
20	Greater Flamingo	<i>Phoenicopterus ruber</i>	Moto Hunj	RB,M
21	Lesser Flamingo	<i>Phoenicopterus minor</i>	Nano Hunj	RB,M
22	Lesser Whistling Teal	<i>Dendrocygna javanica</i>	Nani Sisoty Batak	RB
23	Brahminy Shelduck	<i>Tadorna ferruginea</i>	Bhagavi Surkhab	M
24	Northern Pintail	<i>Anas acuta</i>	Singpar	M
25	Spot-billed Duck	<i>Anas poecilorhyncha</i>	Tiliyali Batak	RB
26	Gadwall	<i>Anas strepera</i>	Luhar	M
27	Eurasian Wigeon	<i>Anas penelope</i>	Piyasan	M
28	Garganey	<i>Anas querquedula</i>	Chetava	M

No.	English Name	Scientific Name	Local Name	Status
29	Northern Shoveller	<i>Anas clypeata</i>	Gayano	M
30	Cotton Teal	<i>Nettapus Coromandelianus</i>	Girja	RB
31	Comb Duck	<i>Sarkidiornis melanotos</i>	Nakto	RB
32	Black Kite	<i>Milvus migrans</i>	Samali	RB
33	Brahminy Kite	<i>Haliastur indus</i>	Bhagavi Samali	RB
34	Western Marsh-Harrier	<i>Circus aeruginosus</i>	Pan Pattai	M
35	Common Crane	<i>Grus grus</i>	Kunj	M
36	Demoiselle Crane	<i>Grus virgo</i>	Karkaro	M
37	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Safedchaty Santakukady	RB
38	Common Moorhen	<i>Gallinula chloropus</i>	Jalmurghi	RB
39	Purple Moorhen	<i>Porphyrio porphyrio</i>	Niljalmurgho	RB
40	Common Coot	<i>Fulica atra</i>	Bhagatadu	RB,M
41	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	Shwetpankh Jalmanjar	RB
42	Red-wattled Lapwing	<i>Vanellus indicus</i>	Titody	RB
43	Grey Plover	<i>Pluvialis squatarola</i>	Motty Batan	M
44	Little Ringed Plover	<i>Charadrius dubius</i>	Kanthalavali Nani Dhongily	M
45	Eurasian Curlew	<i>Numenius arquata</i>	Khalily	M
46	Black-tailed Godwit	<i>Limosa limosa</i>	Motto Gadero	M
47	Common Redshank	<i>Tringa totanus</i>	Ratapag	M
48	Common Sandpiper	<i>Actitis hypoleucos</i>	Nani Tutvari	M
49	Ruff	<i>Philomachus pugnax</i>	Tiliyo	M
50	Black-winged Stilt	<i>Himantopus himantopus</i>	Gajpav	RB
51	Pied Avocet	<i>Recurvirostra avosetta</i>	Ulychanch	RB,M
52	Gull-billed Tern	<i>Gelochelidon nilotica</i>	Dholi Vabagaly	M
53	Caspian Tern	<i>Sterna caspia</i>	Motty Vabagaly	RB,M
54	Little Tern	<i>Sterna albifrons</i>	Nani Vabagaly	RB
55	House Swift	<i>Apus affinis</i>	Ababil	RB
56	White-breasted Kingfisher	<i>Halcyon smyrnensis</i>	Kalkaliyo	RB
57	Small Bee-eater	<i>Merops orientalis</i>	Nano Patarango	RB

No.	English Name	Scientific Name	Local Name	Status
58	Indian Roller	<i>Coracias benghalensis</i>	Chash	RB
59	Ashy-crowned Sparrow-Lark	<i>Eremopterix grisea</i>	Bhoy Chakaly	RB
60	Red-winged Bush-Lark	<i>Mirafra erythroptera</i>	Agiyo Chandul	RB
61	Common Crested Lark	<i>Galerida cristata</i>	Motto Chandul	RB
62	Common Swallow	<i>Hirundo rustica</i>	Siyalu Tarodiyu	M
63	Wire-tailed Swallow	<i>Hirundo smithii</i>	Tarodiyu	RB
64	Red-rumped Swallow	<i>Hirundo daurica</i>	Kenchipu Tarodiyu	M
65	Rufous-backed Shrike	<i>Lanius schach</i>	Matiyo Latoro	M
66	Black Drongo	<i>Dicrurus macrocercus</i>	Kaliyo Koshi	RB
67	Red-vented Bulbul	<i>Pycnonotus cafer</i>	Bulbul	RB
68	Yellow Wagtail	<i>Motacilla flava</i>	Pilkiyo	M
69	Citrine Wagtail	<i>Motacilla citreola</i>	Pitshir Pilkiyo	M
70	Grey Wagtail	<i>Motacilla cinerea</i>	Van Pilkiyo	M
71	Purple Sunbird	<i>Nectarinia asiatica</i>	Shakkarkhoro	RB

M = migratory, R = residential, RB = resident and breeding, RBM = resident and breeding and migratory.

ANNEXURE: 02 LIST OF FAMILY WISE NUMBER OF BIRD SPECIES OBSERVED AT KUMBHARVADA

Sr. No.	Family	No.
1	Podicipedidae	2
2	Pelecanidae	2
3	Phalacrocoracidae	2
4	Ardeidae	8
5	Ciconiidae	1
6	Threskiornithidae	4
7	Phoenicopteridae	2
8	Anatidae	10
9	Accipitridae	3
10	Gruidae	2
11	Rallidae	4
12	Jacaniidae	1
13	Charadriidae	3
14	Scolopacidae	5
15	Recurvirostridae	2
16	Laridae	3
17	Apodidae	1
18	Alcedinidae	1
19	Meropidae	1
20	Coraciidae	1
21	Alaudidae	3
22	Hirundinidae	3
23	Laniidae	1
24	Dicruridae	1
25	Pycnonotidae	1
26	Motacillidae	3
27	Nectariniidae	1