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STATUS OF WATERBIRDS AT PARIYEJ LAKE, DIST. KHEDA, GUJARAT

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ABSTRACT:

Wetlands support a vast variety of faunal diversity by providing them suitable habitat, along with food and water. Avifauna hold a significant place in a wetland ecosystem thus an attempt has been made to assess the avian diversity around Pariyej lake. Forty two wetland dependent birds were observed during Oct.2009 to Sept. 2010 belonging to 12 families namely:- Podicipedidae (2.24%), Phalacrocoracidae (1.52%), Ardeidae (6%), Ciconidae (1.70%), Threskiornithidae (5%), Phoenicopteridae (3.05%), Anatidae (54.59%), Gruidae (3.77%), Rallidae (13.40%), Jacanidae (2.71%), Charadriidae (4.26%) and Alcedinidae (1.71%). The dominant families of waterbirds were Anatidae and Rallidae. A total 8114 water dependent birds recorded during study period. Out of 42 species Ruddy Shelduck (15.15%) and Gadwall (18.01%) was dominant in Pariyej lake. The Pond is located adjacent to a village on one side and the other side connects to State highway. This kept the avifauna exposed to disturbances like noise, encroachment, fishery and other anthropogenic activities. The pond urgently requires conservation strategies.

KEY WORDS : *Avifauna, Waterbirds, Pariyej lake, Wetland.*

INTRODUCTION :

Fresh water wetlands are fragile ecosystems, which are fast deteriorating, and shrinking due to man-made activities. India has 65,000 wetlands covering an area of 4.5 million hectares (Anon, 1990). Indian subcontinent represents 2094 forms belonging to 1200 species of avifauna (Ali and Ripley., 1983; Ripley, 1992). The abundance and diversity of avian community obviously indicate the high ecological diversity of the country. The diverse aquatic ecosystems of India represent 417 forms (19.9%) belonging to 318 species (26.5%)

and 146 genera of the avifauna of the subcontinent (Vijayan, 1986). A good number of works on wetlands in relation to birds have been done in India (Vijayan, 1991; Sampath and Krishnamurthy, 1993). Although considerable amount of literature is available on wetlands in India, they are mostly pertaining to some selected and well known sites (Wolstencraft et. al. 1989). There is an urgent need to undertake the study of other wetlands, spread across the countries which are important sites for wetlands. The Pariyej lake is spread in 371 ha And the water spread area is 355 ha. It provided a good habitat for residential and migratory birds. Due to encroachment and other anthropogenic disturbances, the resident and local migratory birds are threatened. The present paper mainly deals with the present status and population density of the wetland birds and their diversity in Pariyej lake.

FIGURE: I



TABLE : 1 A SYSTEMATIC LIST OF THE WATER BIRDS WITH THEIR SATUS, FOOD HABITS AND ABUNDANCE AT PARIYEJ LAKE, KAIRA DISTRICT, GUJARAT STATE.

Zoological Names of Bird Species	Common Name	Residential	Abundance	Food	Average Mo	%
Antidae						
<i>Anser anser</i>	Grey Lag Goose	WM	C	O	600	7.39
<i>Dendrocygna javanica</i>	Lesser Whistling Teal	R	C	O	187	2.30
<i>Tadorna ferruginea</i>	Ruddy Shelduck	WM	C	O	1230	15.15
<i>Tadorna tadorna</i>	Common Shelduck	WM	Un	O	362	4.46

<i>Anas pocilorhyncha</i>	Spotbill Duck	R/LM	Un	O	146	1.99
<i>Sarkidiornis melanotos</i>	Comb Duck	R/LM	Un	O	256	3.15
<i>Anas Strepera</i>	Gadwal	WM	C	O	1461	18.01
<i>Platyrhynchos</i>	Mallard	WM	Un	O	187	2.30
Rallidae						
<i>Amaurornis phoenicurus</i>	Whitebreasted Waterhen	R	C	O	282	3.47
<i>Gallinula chloropus</i>	Common Moorhen	R	Un	O	131	2.85
<i>Porphyrio porphyrio</i>	Purple Moorhen	R	Un	O	164	2.02
<i>Fulica atra</i>	Common Coot	R/LM	C	O	270	3.33
<i>Amaurornis akool</i>	Brown Crake	R/LM	Un	O	140	1.73
Jacaniidae						
<i>Hydrophasianus chirurgus</i>	Pheasant – tailed Jacana	R/LM	Un	IG	49	0.60
<i>Metopidius indicus</i>	Bronze – winged Jacana	R	Un	IG	171	2.11
Phalacrocoracidae						
<i>Phalacrocorax</i>	Little Cormorant	R/LM	C	P	90	1.11
<i>Phalacrocorax fuscicollis</i>	Indian Shag	R/LM	Un	P	20	0.25
<i>Phalacrocorax carbo</i>	Great Cormorant	R/LM	Ra	P	13	0.16

Ardeidae						
<i>Ardea cinerpa</i>	Grey Heron	WM	Un	Ca	46	0.57
<i>Ardea Purpurea</i>	Purple Heron	R/LM	Rs	Ca	28	0.35
<i>Ardeola grayii</i>	Pond Heron	R/LM	C	Ca	139	1.72
<i>Ixobrychus sinensis</i>	Yellow Bittern	R/LM	C	Ca	51	0.87
<i>Casmerodius albus</i>	Large Egret	R/LM	Ra	Ca	12	0.15
<i>Mesophoyx intermedia</i>	Median Egret	R/LM	Un	Ca	59	0.73
<i>Egretta Grazetta</i>	Little Egret	R/LM	C	Ca	72	0.88
Threskiornithidae						
<i>Threskiornis melanocephalus</i>	White Ibis	R/LM	Un	Ca	71	0.88
<i>Pseudibis papillosa</i>	Black Ibis	R/LM	C	Ca	189	2.33
<i>Plegadis falcinellus</i>	Glossy Ibis	WM	Un	Ca	124	1.53
<i>Platalea leucorodia</i>	Spoonbill	WM	Ra	Ca	22	0.27
Phoenicopteridae						
<i>Phoenicopterus rubber</i>	Greater Flamingo	WM	Un	O	159	1.96
<i>Phoenicopterus minor</i>	Lesser Flamingo	WM	Un	O	88	1.09
Gruidae						
<i>Grus grus</i>	Common Crane	WM	Un	O	34	0.42

<i>Grus antigone</i>	Sarus Crane	R/LM	C	O	191	2.38
<i>Grus virgo</i>	Demoisellae Crane	R/WM	Un	O	80	0.99
Charadriidae						
<i>Little ringed plover</i>	Charadrius Dubius	WM	Un	O	145	1.79
<i>Vanellus gregarious</i>	Sociable Lapwing	R/LM	Ra	I	19	0.23
<i>Vanullus indicus</i>	Redwattled Lapwing	R/LM	C	I	181	2.23
Podicipedidae						
<i>Tachybaptus ruficollis</i>	Little Grebe	R/LM	C	Ca	182	2.24
Alcedinidae						
<i>Halcyon smyrnensis</i>	White-breasted Kingfisher	R	C	Ca	160	1.87
<i>Ceryle rudis</i>	Lesser Pied Kingfisher	R	Un	Ca	65	0.70
Ciconiidae						
<i>Anastomus oscinatus</i>	Openbill Stork	R/LM	C	Ca	128	1.58
<i>Mycteria leucocephala</i>	Painted Stork	WM	Ra	Ca	10	0.13

* Common names after manakadan et al., 1998 * Scientific names after inskipp et al. 1996.
O – Omnivore, **P** – Piscivore, **I** – Insetivore, **Ca** – Carnivore, **IG** – Insetivore with Grainivore,
R – Resident, **Ra** – Rare, **Un** – Uncomon, **C** – Common, **R/LM** – Resident with Local Movement, **WM** –Winter Migrant

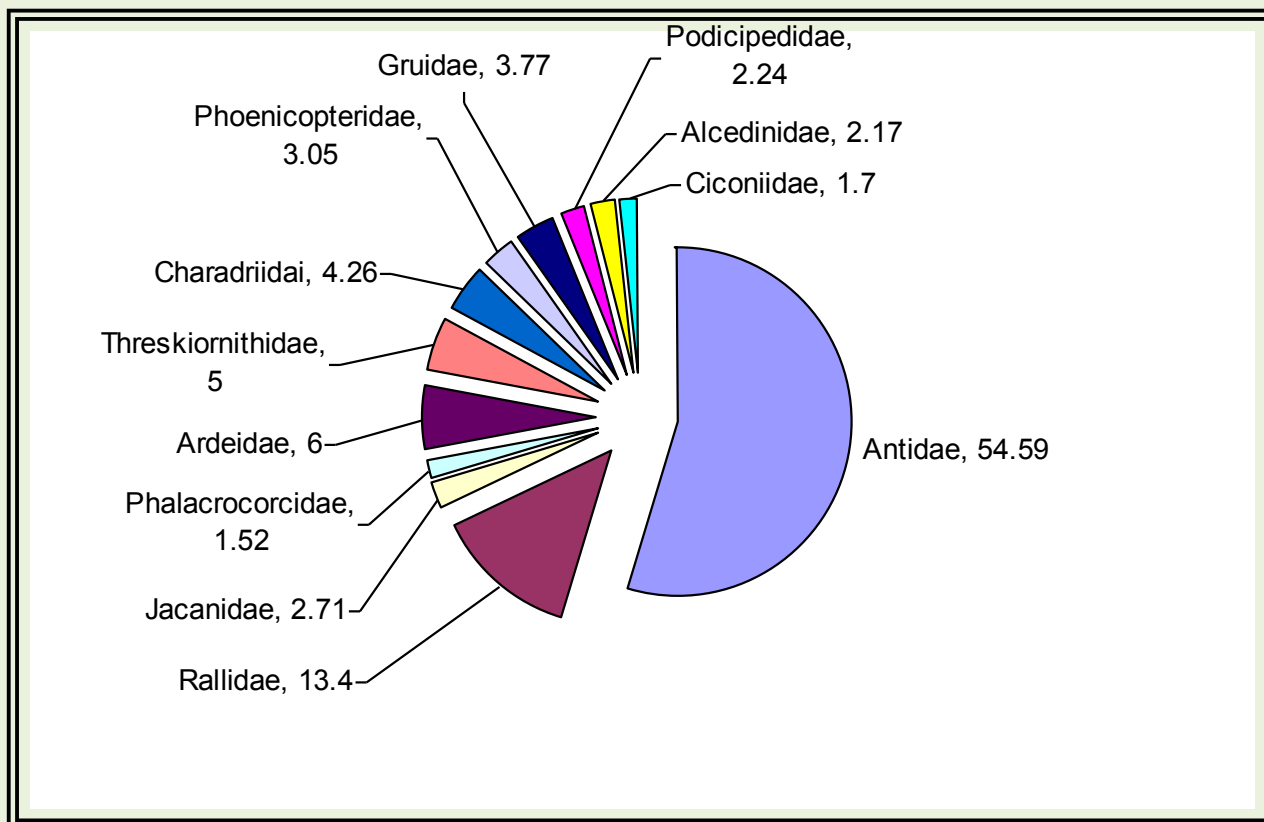
TABLE : 2 – DETAILS OF PARIYEJ LAKE

No.	Name of Lake	Distance from Kheda	Total Area	Used For	Vegetation	Types of Wetland	Encroachment
1.	Pariyej	22	361 ha.	Domestic, Fishing & Agriculture	Emergent floating weeds, Floating algal strends Nymphaea & Trapa	Manmade (Artificial)	11 ha.

TABLE : 3 - TOTAL NUMBER OF BIRD SPECIES AND PERCENT OF OCCURRENCE RECORDED DURING PRESENT SURVEY

No.	Family	Total Species	Total Number of Birds Recorded in Family	Percent Occurrence of Birds
1.	Antidae	08	4429	54.59
2	Rallidae	05	1087	13.40
3.	Ardeidae	07	407	6.00
4.	Threskiornithidae	04	406	5.00
5.	Charadriidai	03	345	4.26
6.	Gruidae	03	305	3.77
7.	Phoenicopteridae	02	247	3.05
8.	Alcedinidae	02	225	2.17
9.	Podicipedidae	01	182	2.24
10.	Jacanidae	02	220	2.71
11.	Ciconiidae	02	138	1.70
12.	Phalacrocorcidae	03	123	1.52

FIGURE : 2 PROPORTION OF AVIFAUNAL FAMILIES AS REPRESENTED BY SPECIES RICHNESS OF PARIYEJ LAKE.



MATERIAL AND METHODS :

Pariyej lake is big in size covers an area of about 361 ha. It is situated at a distance of about 15 km from Nadiad and comes under Kheda District (Table – 1). It receives rain water from surrounding area and freshwater from Mahi channel. It is an ideal habitat for wetland birds. The survey of the avifauna of this area was undertaken during the period from October 2009 to September 2010. The birds were identified by available fields guides, Ali (1996) and Sonobe & Usui (1993) and with a pair of binoculars (10 X 50) while walking over the bund of the pond. The birds enumerated were classified and represented in the form of checklist.

RESULT AND DISCUSSION:

A total of 42 species of birds were found associated with the Pariyej lake, of which one is residential cum migratory, 7 species are residential, 13 species are winter migrant, 21 species are resident cum local migrant. The present study registered a cumulative total of 8114 birds belongs to 12 families on the wetland (Table – 3). The birds have been categorized in various groups based on their food preference and feeding habitat. According to feeding habitat out of 42 species 19 (44.18%) were categorized as Omnivorous, 16 (37.20%) were categorized as Carnivorous, 3 (6.97%) were categorized as Piscivorous, 2 (4.76%) were categorized as

Insectivorous and only 2 (4.65%) were insectivorous with Granivorous. Based on population 20 (47.61%) species were uncommon, 16 (38.09%) species were common and 6 (14.28%) species were rare. Thakor F. J., Acharya Chirag A. and Bhoi D. K. (2010) also recorded abundance, residential status and feeding habit dependant characterization of birds species in 2 reservoirs dist. kheda, Gujarat.

The status based upon percent occurrence of bird species representing different families with respect to total bird species presently recorded was Antidae (54.59) > Rallidae (13.40) > Ardeidae (6.00) > Threskiornithidae (5.00) > Charadriidae (4.26) > Gruidae (3.77) > Phoenicopteridae (3.05) > Jacanidae (2.71) > Podicipedidae (2.24) > Alcedinidae (2.17) > Ciconiidae (1.70) > Phalacrocorcidae (1.52) . The Antidae, Rallidae and Ardeidae had more than 10 species in this lake, this can be considered good indicators of the health of a lake.

The major population belonged to three major species in the lake. Those are Tadorna ferruginea, Ruddy shelduck (15.15), Anas Strupera, Gadwal (18.01) & Anser Anser, Grey Leg Goose (7.39) and other were seen in small flocks in dipper water bodies. The other species like cormorants, egrets, herons and ibis were locally migratory found in and around the lake depending upon the water condition. The resident or resident cum local migratory forms largely contributed to diversity of the bird species. The rest of the species found in the shallow water bodies.

The uncommon bird Pheasant – Tailed Jacana and Common Coot make its presence only when the pond was open with meager amount of water. The Purple Moorphen number varied around 164. it always appeared western side of the pond which is infested by emergent weed viz. Ipomea which provided wide place to the birds and security to these birds. A few suggestions to conserve bird life here are as follows.

1. Fencing the pond to protect from encroachment and poaching.
2. Constant patrolling in the pond to minimize poaching of birds.
3. Minimize the fishing and anthropogenic activities near the wetland.
4. Create a general awareness among the people about this ecosystem.

REFERENCES :

1. Ali, S. (1996) The book of Indian Birds. Oxford University Press, New Delhi.
2. Ali, S. and S. D. Ripley (1995) A pictorial guide to the Birds of the Indian subcontinent. Bombay Natural History Society, Mumbai.
3. Ali, S. and S. D. Ripley (1983) Handbook of the Birds of India and Pakistan. Oxford University Press, New Delhi.

4. Anonymous (1990) Wetlands of India – A Directory, Government of India, Forests and Environmental Department, New Delhi.
5. Bikram Grewal (2002) A photographic Guide to Birds of India and Nepal. New Holland Publishers (U. K.), London.
6. Dhindsa, M. S. and H. S. Toor(1996) Feeding Ecology of three Sympatric Species of Indian Weaver Birds in an Intensively Cultivated Area. Proc. of General Meetings of the Working Group of Granivorous Birds, INTECOL. Ottawa, Canada : 217 – 236.
7. Grimmet, R. C. Inskipp, and T. Inskipp (1998) Birds of the Indian subcontinent. Oxford University Press, New Delhi 888 pp.
8. Inskipp, T., Lindsey, N. and Duckworth, W. (1996). An annotated checklist of birds of the Oriental Region. Oriented Bird Club, U.K.
9. Manakadan, R., Daniel, J.C., Rahmani, A. R., Inamdar, M. and Ugra, G. (1998). Standardized English common names of the birds of the Indian subcontinent-a proposal. *Buceros*, 3(2) : 55, BNHS. MUMBAI.
10. Ripley, S.D.(1992). A synopsis of the birds of India and Pakistan, Oxford University Press.
11. Thakor F. J., Acharya Chirag A., Bhoi D. K., Prajapati J. R. and Vaidya Janki S. (2010) A comparative study of avifauna from two reservoir in kheda district, Gujarat India. *J. Aqua. Biol.* 25 (1) 2010 41 – 45.