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DISTRIBUTION OF MIGRATORY BIRDS ON COASTAL AREAS OF KARACHI (HAWKES BAY AND CLIFTON)

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ABSTRACT

The present study deals with the observation of migratory birds on the coastal areas of Karachi (Hawkes Bay and Clifton) during the year 2001 – 2004. Different kinds of aquatic migratory birds (gull, terns, heron, egret, sandpiper) were observed during this period. These birds belong to 5 order, 11 families and 49 species. In the Hawkes Bay area the seasonal abundance of migratory birds were more than that of Clifton. It could be concluded that every year the migration of birds vary in numbers and different environments produce pronounced effects on bird populations.

Key words: - Coastal wetland, waterfowl counts, migratory birds, threatened species

INTRODUCTION

The coastal areas of Karachi and Thatta district, include Sandspit, Cape-Monze, Korangi Creek, Pithi Creek, Rohri Creek, Shanbunder, Sona Bunder and Ketti Bunder. Hawkes Bay is located at 24^0 52N, 66^0 59E on the coast South west of Karachi city. The area of the beach is about 20 km a gently sloping Sandy beach with open Sandy offshore approaches stretching for about 20 km along the Arabian Sea coast west from Manora point at the mouth of Karachi Harbour, and a complex of creeks and shallow tidal lagoons with extensive inter tidal mud fats and some mangrove swamps behind the beach. The eastern part of the beach is all Sand; the western part has some rocky area (Hawkes Bay). The beach platform is high enough to stay above the high tide mark at all times of the year except during the monsoon when it can be inundated by high tides.

The site of Hawkes Bays/Sandspit has been declared a wildlife sanctuary for marine turtles. Clifton beach is located at 24^0 47N, 67^0 05E on the coast south of Karachi city. Clifton beach is a long sandy beach with adjacent tidal mudflats, backed by sand dunes on the southern edge of Karachi city. The sand dunes have scanty vegetation since the area has arid subtropical climate with an annual rainfall of 59-125 mm and a mean annual temperature of 30°C. Migration process is very familiar in most of the animals whenever the environmental conditions are not suitable for them. They change their locations. The bird migration is an important phenomenon in all seasons (winter, autumn, spring and summer). They used different areas as the standing ground during their migration. The coastal wetlands of Pakistan receives huge flocks of migratory waders, egrets, herons, gull, terns, plovers and cormorants etc.

In Pakistan the study of birds migration is still patchy, very few detailed studies have been carried out. A mass of accumulating sight records of birds arrivals and departures and obvious migratory movements within Pakistan however gives corroboration for general conclusion about migration pattern and this has been further supported by sighting of mountain eering expeditions. Bodies of migratory birds found at 6,500 meters in the Karakarams and from naval and other vessels operating in Arabian Sea.

It has been demonstrated that certain times, even small passerine species migrate at surprisingly high altitudes Baker (1980). Many small passerines fly across the Indian Ocean and from east Africa and thereby sometimes pass the Arabian Peninsula and even the Somali Horn of Africa. A lot of work has been done on the avifauna of Sindh region (Ripley, 1961; Holmes and Wright, 1968; Siddiqui, 1983; Robert *et al.*, 1986; Ali and Ripley, 1987; Roberts, 1991,92; Hasnain and Ghalib, 1997; Grimmett *et al.*, 1988; Ghalib *et al.*, 1999, 2000; Siddiqui *et al.*, 2001; Mirza, 2002; Ghalib *et al.*, 2002; Gabol, 2004;. Little work exists about the important species of coastal areas of Pakistan (Robert *et al.*, 1980; Khanam and Ahmad, 1988; Roberts, 1991; Ghalib and Hasain, 1994, 1997; Hasnain, 1996).

The migratory bird populations of selected stations (Hawkes Bay and Clifton beach) were studied. Both sides have been identified main wetland sites to be included as wetland of international importance on Karachi coast (Scott, 1989).

MATERIALS AND METHODS

The selected areas (Hawkes Bay and Clifton) were visited twice a month from Jan. 2001 – Dec. 2004 and migratory bird populations was recorded.

Survey and study techniques

A ground survey (Dawson, 1981; Howes and Backewell, 1989), which is the most widely used method, was used for the surveys. By using spotting scope mounted on the tripod, the birds were identified and counted when the area was large and the birds were scattered, then counting and identified and counted.

The identification of the birds in the field by using binocular and taken photographs and was carried out with the help of Heinzel *et al.*, (1972), Howard and Moore (1984) and Snobe *et al.*, (1993). The standard method, as suggested by the Asian Waterfowl Bureau, Kuala Lampur,Malaysia for Waterfowl Census, was applied, counts were generally made in the following ways

a , Block method was employed to estimate the population when the birds were present in large flocks. Block method involves counting or estimating a block of birds within a flock. The block can be 10,25,50 or 100 birds depending on a block size.

b , A species by species count i.e. count of one species then anthers etc starting with the most abundant and finishing with the least abundant.

c, Each of the two sites were visited once in every month.

RESULTS AND DISCUSSION

Selected areas (Hawkes Bay and Clifton) were visited once a month Jan. 2001 – Dec. 2003, 49 species of migratory aquatic birds which belong to 5 order and 11 families were observed.(Table I). Most of the migratory birds start arriving in August – September and leave April – May, winter season (Dec. – Jan.) peak time. In these months a large number of migratory birds observed on the coastal areas of Karachi.

Hawkes Bay, Clifton and other coastal areas of Karachi are very important on account of having some species, which have not been observed, on other parts of coast. In these areas grey heron, large egret, oyster catcher, grey plover, greater sand plover, dusky red shank, still, black heated gull, less black backed gull, lesser crested tern, Caspian tern, great cormorant, greater flamingo, common teal have been observed during this period.

As many as 93 species of water fowl have been so far recorded from the Karachi coast (Ghalib and Hasnain 1994), out of which grebes, cormorants, egrets and herons, stork, spoonbill, flamingo and waders have been found in association with the gulls and terns at various localities.

Larids are known in the world by the presence of 43 species of gulls and 35 species of terns Roberts (1991) recorded 8 species of gulls from Pakistan, out of which 7 were reported from the coastal areas of the country.

The results of mid winter counts of water fowls as given in Table 2 and Table 3 show its importance with regard to water bird population. Their total population during the year 2001 – 2004 in Clifton beach ranged between 1259-3914 and population during the year 2001 – 2004 in Hawkes bay ranged between 2237-4541. The number of population declined drastically in 2002 and 2003 due to pollution and hunting of sea birds.

The population censes of Hawkes Bay was greater than Clifton beach. Its main reason was that area were protected for green turtles (*Chelonia mydas*) on the back side of the main beach, exists a saline pond where large number of water birds like flamingo, egrets, herons, ducks, waders, larids can be seen in winter close to this pond is the mangrove swamp. The sandy area of Hawkes Bay also inhibits large number of reptiles like *Acanthodactylus* sp.On the backside of the main beach, exists a saline pond where large number of waterbirds like flamingo ,waders and larids can be seen in winter.

The vegetation which exists on the beach, the adjoining creeks the back water and surrounding include *Ipomoea pescaprae, Atriplex griffithii, Suaeda mudiflora, Arthrocnemum indicum, Prosopis juliflora, Crotalaria burhia, Launaea mudicaulis, Aerua pseudotomentosa, Calotropis procera, Astragalus fatmensis, Tamarix* sp. The *Avicennia marinas* are dominated in this areas (Hasnain, 1996).

In Clifton beach the sand dunes were susceptible to wind and wave induced erosion. The main beach is gently sloping and sandy, having a very fine brown coloured sand, the dominant vegetation of *Ipomoea pescaprae, Suaeda mudiflora, Prosopis julifora, Cistarch tubulusa.* The beach is close to Karachi city and the area is the recreational site. The main reason is less number of birds population, the area is very much disturbed due to construction activities Hasnain (1996) described that 7 species of gulls and 10 species of tern have been recorded from Karachi coast. Ghalib *et al.*, (2002) described the current status of Sindh birds a collected data about the distribution and status of birds in Sindh. In total number of 128 species of birds belonging to 14 orders and 46 families have so far been recorded from the Hub Dam area (Ghalib, 2000). A number of 49 species of water fowls belonging to 6 orders and 12 families have so far been recorded from bracikh Hadero lake Sindh (Gabol, 2004). Eurasian Wigeon ,common teal ,Northern Shoveler are not found in the year 2002,2003,and 2004 in Hawkes Bay due to some enivermental problems in this site.

Table 1. List of migratory birds recorded from Hawkes Bay and Clifton during 2001 – 2004.

		Status
Order: Pelecaniformes		
Family: Pelecanidae		
Great white pelican	*Pelecanus onocrotalus*	WV
Family: Phalacrocoracidae		
Great cormorant	*Phalacrocorax carbo*	WV
Little cormorant	*Phalacrocorax niger*	WV
Family: Phoenicopteridae		
Greater flarningo	*Phoenicopterus roseus*	YRW
Order: Ciconiiformes		
Family: Ardeidae		
Indian pond heron	*Ardeola grayii*	R
Western reef egret	*Egretta garzetta*	R
Great egret	*Egretta alba*	R
Grey heron	*Ardea cinerea*	WV
Order: Anseriformes		
Family: Anatidae		
Common teal	*Anas crecca*	WV
Northern shoveler	*Anas clypeata*	WV
Common shell duck	*Tadorna tadorna*	WV
Eurisian wigeon	*Anas Penelope*	WV
Northern pintail	*Anas acuta*	WV
Order: Gruiformes		
Family: Rallidae		
Common coot	*Fulica atra*	WV
Order: Charadriiformes		
Family: Haematopodidae		
Oystercatcher	*Haematopus ostralegus*	WV
Family: Recurvirostridae		
Avocet	*Recurvirostra avosetta*	WV
Re-wattied lapwing	*Vanellus indicus*	WV
Family: Charadriidae		
Grey plover	*Pluvlalis squatarola*	WV
Pacific golden plover	*Pluvlalis fulva*	N
Kentish plover	*Charadrius alexandrinus*	WV/PM
Family: Scolopacidae		
Bar-tailed godwit	*Limosa lapponica*	WV
Black-tailed godwit	*Limosa limosa*	WV
Eurasian curlew	*Numenius arquata*	WV
Red shank	*Tringa tetanus*	WV
Green shank	*Tringa nebularia*	WV
Green sandpiper	*Tringa ochropus*	WV
Marsh sandpiper	*Tringa stagnatilis*	WV
Wood sandpiper	*Tringa glareola*	WV
Ruddy tumstone	*Arenaria interpres*	WV
Common snipe	*Gallinago gallinago*	WV
Ruff	*Philomachus pugnax*	WV
Sanderling	*Calidris alba*	WV
Little stint	*Calidris minuta*	WV
Temminck's stint	*Calidris temminckii*	WV
Dunlin	*Calidris alpine*	WV
Curlew sandpiper	*Calidris ferruginea*	WV
Family: Laridaae		
Subfamily: Larinae		
Herring gull	*Larus argentatus*	WV
Lesser black-backed gull	*Larus fuscus*	WV
Great black-backed gull	*Larus ichthyaetus*	WV
Brown headed gull	*Larus brunnicephalus*	WV
Black headed gull	*Larus ridibundus*	WV
Slender-billed gull	*Larus genei*	R
Subfamily:	Sterninae	
Whiskered tern	*Chlidonias hybrida*	M
Gull-billed tern	*Gelochelidon nilotica*	WV
Caspian tern	*Hydroprogone caspia*	M
Little tern	*Sterna albifrons*	R
Great crested tern	*Sterna bergii*	R
Sandwich tern	*Thalasseus sandvicensi*	M
Crested tern	*Thalasseus bergii*	R

R = Resident; WV = Winter Visitor; M = Migratory; PM = Passage migrant; YRW= Year round visitor

Table 2. Birds Population in Clifton.

Name of Species	2001	2002	2003	2004
Great cormorant	80	670	400	450
Little cormorant	190	-	-	-
Indian pond heron	14	17	8	10
Western reef	100	88	60	45
Little egret	18	24	40	80
Grey heron	40	36	28	24
Great flamingo	600	188	90	76
Common teal	90	-	-	-
Northern shoveler	180	-	-	-
Common coot	50	-	-	-
Oyster catcher	2	55	58	60
Avocet	10	4	3	6
White-tailed plover	10	-	-	-
Red wattled lapwing	40	5	2	4
Grey plover	8	3	4	2
Kentish plover	10	-	-	-
Mongolian plover	50	-	-	-
Black tailed godwit	40	22	20	18
Red shank	32	6	2	1
Marsh sandpiper	5	-	-	-
Green shank	20	-	-	-
Green sandpiper	40	10	10	6
Wood sandpiper	5	-	-	-
Common sandpiper	20	20	18	10
Ruddy turnstone	50	10	8	6
Sanderling	900	10	10	6
Little stint	180	-	-	-
Temminck,s stint	70	-	-	-
Dunlin	350	190	180	140
Curlew	70	-	2	14
Ruff	300	52	52	50
G. black headed gull	20	76	70	58
Brown headed gull	8	-	-	1
Black headed gull	270	44	40	38
Slender bill gull	10	160	140	120
Whiskered tern	12	-	-	2
Gull billed tern	10	-	-	-
Caspian tern	6	-	-	-
Little tern	2	46	40	32
G.cresten tern	2	-	-	-
Total	**3914**	**1736**	**1285**	**1259**

In the present study information confirmed by this source. The action plan like conservation of the natural resources, it is necessary to undertake Environmental Impact Assessment of the potential negative effects of all new infrastructures such as power plants, tourist resorts, buildings recreation parks, hotels etc., within the Karachi coast areas. Hawkes Bay, which is now protected area for the marine turtles only, should be declared as wildlife sanctuary under the Sindh wildlife Act, 1993 for the safe guard of breeding marine turtles and roosting birds species.

Table 3. Birds Population in Hawkes Bay.

Name of Species	2001	2002	2003	2004
Great white pelican	300	46	40	200
Great cormorant	400	124	120	260
Little cormorant	170	-	-	100
Indian pond heron	18	-	-	15
Western reef	70	58	50	45
Little egret	50	-	-	22
Great egret	40	88	90	100
Grey heron	30	8	4	12
Greater flamingo	160	106	92	120
Common shell duck	10	260	140	180
Eurasian wigeon	50	-	-	-
Common teal	400	-	-	-
Northern pintail	100	-	-	-
Northern shoveler	200	-	-	-
Oyster catcher	2	6	4	4
Black winged stit	80	92	90	82
Avocet	120	417	300	318
Pacific golden plover	2	-	-	2
Kentish plover	30	-	-	3
Eurasian curlew	2	-	-	1
Marsh sandpiper	18	-	-	4
Green shank	30	12	10	8
Green sandpiper	30	8	01	4
Wood sandpiper	20	2	01	3
Common snipe	12	-	-	2
Sanderling	20	-	-	4
Common sandpiper	-	10	01	2
Little stint	1120	60	66	84
Temminck, s stint	180	-	-	-
Curlew	40	-	-	-
Ruff	500	-	-	-
Herring gull	8	22	18	21
Black headed gull	250	72	500	400
Slender billed gull	20	230	200	201
Wiskered tern	2	34	30	22
Gull billed tern	20	8	4	2
Caspian tern	8	4	2	2
G.billed tern	10	-	-	2
Sandwich tern	5	-	-	4
Little tern	14	8	4	8
Total	**4541**	**1675**	**1767**	**2237**

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