Фауна і населення	Беркут	20	Вип. 1-2	2011	17 - 21

AN UPDATED CHECKLIST OF AVIFAUNA OF COASTAL WETLAND COMPLEX, KARACHI, PAKISTAN

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Abstract. Present study was carried out to collect qualitative data on the avifauna of coastal wetland complex of Karachi, Pakistan. The data collected on monthly basis during May, 2010 to April, 2011 was compared with past available records. A total of 73 bird species including six new bird species: Large Sand Plover, Great Black-headed Gull, Green Sandpiper, Broad-billed Sandpiper, Dalmatian Pelican and Rosy Pelican were recorded, while thirteen previously reported species including Glossy Ibis, Spoonbill, Flamingo and some rare birds such as Velvet Scoter and Red-breasted Merganser were not recorded in the present study. It is suggested that this change in the species composition of the area is due to alterations in the microhabitat of birds caused by pollution of Lyari River, Tasman Spirit oil spill and adverse effects of leisure activities over a period of a decade.

Key words: fauna, count, number, bird conservation.

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Обновленный список авифауны прибрежного водно-болотного комплекса в Карачи, Пакистан. - М.Дж. Хайдер, А. Рауф. - Беркут. 20 (1-2). 2011. - Исследования проводились с мая 2010 г. по апрель 2011 г. Учеты птиц велись во вторую неделю каждого месяца на 20 точках побережья. Всего было зарегистрировано 73 вида. Из них 6 – новых, но не обнаружено 13 видов, отмечавшихся в предыдущих исследованиях. Предполагается, что изменения видового состава связаны с деградацией местообитаний.

Introduction

Pakistan has many types of wetlands distributed through out the country. These wetlands are rich in wild life and host a large number of migratory birds that arrive from Russia during winter. The Sindh province of Pakistan has ten Ramsar sites having a combined area of 1,230,257 ha (Huda, Khan, 1996). Every year, during the migratory season, over one million waterbirds belonging to 108 species visit wetlands of Sindh. Although, most of these birds prefer inland freshwater wetlands, but the tidal estuaries and coastal mudflats also house a large number of shore birds (Khan, 2005).

Karachi is the capital of Sindh province of Pakistan and also the largest city of the country. It is located in the South of the country (24°51′ N, 67°02′ E). Karachi tends to have a relatively mild, arid climate, the average annual rainfall is 200 mm. The city is bordered by Lasbella district of Balochistan province on the West, Jamshoro and Dadu districts on the North East, Thatta district on the South East and Arabian Sea on the West. About 70 km long coastline of Karachi stretches from Khuddi creek at East to Cape Monze at West (Fig.). Karachi coastline consists of different types of habitats and has significant ecological value for biodiversity (Hasan, 1994). There have been various studies on the avifauna of this region. A brief account of water birds of Karachi coast has been given by Ghalib and Hasnain (1994). The bird populations in different coastal area of Sindh (Siddiqi et al., 2001) and a brief account of marine birds and mammals of Karachi has been described by Hasan and Ahmed (2006). Birds are good indicators to study environmental problems, the biodiversity of Karachi coast is changing rapidly, due to ecological changes caused by recreational activities, damage caused by Tasman Spirit oil spill in 2003, domestic and industrial pollution of Lyari River. Present study was carried out to record avifauna of coastal wetland complex along Karachi coast and compare it with the previous studies to determine possible changes in the bird diversity of the area.

Material and methods

The 70 km long coastline of Karachi stretches from Khuddi creek to cape Monze and comprises of different habitats. The Eastern coast of Karachi coastline consists of a complex of small and large tidal creeks, sandy and muddy beaches, cliffs, backwater

Study area. Район исследований.

and mangrove thickets, which provide excellent feeding, roosting and breeding ground for many species of resident and migratory birds. The sandy beach of Clifton on the Southern edge of Karachi city is an important wintering area for shore birds and flamingos. The Western coastline of Karachi consists of long sandy beaches, mudflats, salt pans, back water and mangrove forest. The sandy beaches of sandpits are not only famous as breeding sites for marine turtles but also as an important passage and staging ground for shore birds in winter and summer. The saltpans and salt pond in the backwater and mudflats are also important roosting, feeding and staging ground of water birds and thousands of migratory shore birds can be seen in these areas during winter (Hasan, 1996).

Data were collected from 20 random points along the coastline. The study area was visited in the second week of each month from May, 2010 to April, 2011. On each visit 30–40 minutes time was spent at each point (a total – 150 hours in the field). Observation and bird count was done using spotting scope (15 × 60) and binoculars (Shakura, 20 × 50). The identification of birds was carried out using field guides of Mirza (2007) and Haider (2009).

Results

In the present study 73 bird species belonging to 25 families and 10 orders were recorded from the coastal wetland complex of Karachi. The highest number of species (33) belonged to order Charadriiformes (45.2%). The richest family was Scolopacidae comprising of 14 species of the recorded avifauna (19.1%). While only one species each of families Haematopodidae, Sylviidae, Meropidae, Rallidae, Corvidae and Laniidae was recorded from the study area (Table). 22 species were resident, 46 – winter visitors, 3 – summer visitors and 2 – year round visitors. Among the recorded species 38.2% were common, 41.0% – rare and 17.8% – scare, while 2 species (2.7%) – vulnerable. Among common species the most prominent were Little Tern (*Sterna albifrons*), Common Kingfisher (*Alcedo althis*) and Red-wattled Lapwing (*Hoplopterus indicus*); whereas, two vulnerable species Broad-billed Sandpiper (*Limicola falcinellus*) and Large Sand Plover (*Charadrius leschenaultii*) were also recorded during the present study.

Discussion

The coastal wetlands of Karachi host significant number of birds annually. Siddiqi et al. (2001) reported 80 species of birds belonging to 18 families from Karachi coast. They also reported early arrival of winter visitors such as Large Egret (*Egretta alba*), Kentish Plover (*Charadrius alexandrinus*), Common Sandpiper (*Actitis hypoleucos*) and Spotted Redshank (*Tringa erythropus*) in August and September. In the present study, the arrival of few winter visitors such as Black-headed Gull (*Larus ridibundus*), Large Crested Tern (*Sterna bergii*) and White Wagtail (*Motacilla alba*) was observed in October, but we could not encounter these winter visitors in August and September, whereas, most of these birds were observed in December to February.

Among 73 bird species reported in the present study, 67 ones were common with the previous study. Six new species were also recorded (Siddiqui et al., 2001). Among new reported species in the area, the most important are Large Sand Plover (*Charadrius leschenaultii*), Great Black-headed Gull (*Larus icthyaetus*), Green Sandpiper (*Tringa ochropus*) and Broad-billed Sandpiper (*Limicola falcinellus*). The obvious reason behind this new species record from the area is the inclusion of back-

Avifauna of coastal wetland complex of Karachi
Авифауна прибрежного водно-болотного комплекса в Карачи

Orders	Families	Species	Siddiqi et al., (2001)	Present study	Occurrence	Status
1	2	3	4	5	6	7
Accipitriformes	Accipitridae	*Circus aeruginosus*	+	+	WV	Rr
		Haliastur indus	+	+	R	C
		Milvus migrans	+	+	R	C
Anseriformes	Anatidae	*Anas clypeata*	+	+	WV	Rr
		A. crecca	+	+	WV	Sr
		A. penelope	+	+	WV	Rr
		A. platyrhynchos	+	+	WV	Rr
		A. strepera	+	+	WV	Rr
		Aythya ferina	+	+	WV	Rr
		Tadorna tadorna	+	+	WV	Sr
		Melanitta fusca	+	–		
		Mergus serrator	+	–		
Charadriiformes	Burhinidae	*Esacus recurvirostris*	+	–		
	Charadriidae	*Chettusia leucura*	+	+	R	C
		Charadrius hiaticula	+	+	WV	Rr
		Ch. dubius	+	+	WV	Rr
		Ch. alexandrinus	+	+	WV	C
		Ch. mongolus	+	+	WV	C
		Ch. leschenaultii	–	+	WV	Rr
		Hoplopterus malabaricus	+	+	SV	Rr
		H. indicus	+	+	R	C
		Pluvialis squatarola	+	+	WV	Sr
	Dromadidae	*Dromas ardeola*	+	–		
	Haematopodidae	*Haematopus ostralegus*	+	+	WV	Rr
	Laridae	*Larus fuscus*	+	–		
		L. ichthyaetus	–	+	WV	Rr
		L. brunnicephalus	+	–		
		L. ridibundus	+	+	WV	Rr
	Recurvirostridae	*Himantopus himantopus*	+	+	R	C
		Recurvirostra avosetta	+	+	R	Rr
	Scolopacidae	*Actitis hypoleucos*	+	+	WV	Sr
		Calidris alba	+	–		
		C. alpina	+	+	WV	C
		C. minuta	+	+	WV	Sr
		Numenius phaeopus	+	+	WV	C
		N. arquata	+	+	WV	Rr
		Limosa limosa	+	–		
		L. lapponica	+	+	WV	C
		Limicola falcinellus	–	+	WV	V
		Tringa erythropus	+	+	WV	Rr
		T. nebularia	+	+	WV	C

1	2	3	4	5	6	7
Charadriiformes	Scolopacidae	*T. ochropus*	–	+	WV	Sr
		T. stagnatilis	+	+	WV	Rr
		T. totanus	+	+	WV	C
		Xenus cinereus	+	+	WV	C
		Gallinago gallinago	+	+	WV	Sr
	Sternidae	*Chlidonias hybridus*	+	–		
		Gelochelidon nilotica	+	+	WV	C
		Sterna caspia	+	+	YRV	Rr
		S. hirundo	+	+	SV	Rr
		S. repressa	+	+	SV	Rr
		S. albifrons	+	+	R	C
		S. bergii	+	+	WV	Sr
		S. bengalensis	+	+	YRV	Rr
Coraciiformes	Alcedinidae	*Alcedo atthis*	+	+	R	C
		Ceryle rudis	+	+	R	C
		Halcyon smyrnensis	+	+	R	Rr
	Meropidae	*Merops orientalis*	+	+	R	Rr
Ciconiiformes	Ardeidae	*Ardea cinerea*	+	+	R	C
		Ardeola grayii	+	+	R	C
		Egretta alba	+	+	WV	Sr
		E. garzetta	+	+	R	Rr
		E. gularis	+	+	R	Rr
		E. intermedia	+	+	R	Sr
	Threskiornithidae	*Plegadis falcinellus*	+	–		
		Platalea leucorodia	+	–		
Gruiformes	Rallidae	*Fulica atra*	+	+	WV	C
Passeriformes	Alaudidae	*Calandrella raytal*	+	+	R	Rr
		Galerida cristata	+	+	R	Sr
	Corvidae	*Corvus splendens*	+	+	R	C
	Hirundinidae	*Hirundo rustica*	+	+	R	C
		H. daurica	+	+	WV	Sr
	Laniidae	*Lanius collurio*	+	+	WV	Sr
	Motacillidae	*Motacilla alba*	+	+	WV	C
		M. cinerea	+	+	WV	C
		M. citreola	+	+	WV	Rr
		M. flava	+	+	WV	Rr
	Sylviidae	*Prinia buchanani*	+	+	R	C
Pelecaniformes	Pelecanidae	*Pelecanus crispus*	–	+	WV	V
		P. onocrotalus	–	+	WV	C
	Phalacrocoracidae	*Phalacrocorax carbo*	+	+	R	C
		Ph. niger	+	+	WV	C
Phoenicopteriformes	Phoenicopteridae	*Phoenicopterus ruber*	+	–		
Podicipediformes	Podicipedidae	*Podiceps nigricollis*	+	–		
		P. cristatus	+	+	WV	Rr
		Tachybaptus ruficollis	+	+	WV	Rr

Explanations: R – Resident, WV – Winter Visitor, YRV – Year Round Visitor, SV – Summer Visitor; C – Common, Rr – Rare, Sr – Scare; V – Vulnerable.

water, saline ponds, mudflats and salt pans that were not included in the study of Siddiqui et al. (2001). Among these six species, Broad-billed Sandpiper and Large Sand Plover are of particular importance. The official conservation status of both species is vulnerable (Piersma et al., 1997). Although the presence of them in the Indus Delta has been reported previously (Roberts, 1992; Ward, 1999), but these species has not been mentioned by other authors (Scot, 1989; Hasan, 1994; Siddiqui et al., 2001) from the same study area. This under-reporting is likely to be due to the difficulties in identifying these species amongst the common species during the winter.

13 previously reported species (Ghalib, Hasnain, 1997; Siddiqui et al., 2001) were not recorded in the present study (Table). The possible reason may be alterations in the microhabitat. Human activities cause considerable disturbance to the shore birds especially when they are roosting, this increases the energy consumption of long distant migrants (Burger, 1986; Klein, 1993; Attaullah et al., 2005). The process of urbanization, disposal of industrial and domestic wastes through Lyari River and the incident of Tasman Spirit oil spill and microhabitat destruction has resulted in the disappearance and decrease in number of bird species in the study area. Together, these developments have altered the coastline in a way that devalued the shore bird habitat area (Jahangir et al., 2008; Hasan, Javed, 2011).

Conclusions

The results indicated that human activities are rapidly changing the ecology of the area that could affect composition and distribution of bird community. Therefore, it is recommended to initiate further studies to assess the effects of environmental conditions on bird diversity and population status of Karachi coastline on regular basis. It will help to implement conservation and management programmes for the biodiversity of the area.

Acknowledgements

The authors are highly grateful to Dr. Lameed, Gbola, Department of Wildlife and Fisheries Management, University of Ibadan, Nigeria for his valuable suggestions to improve manuscript.

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