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AVIAN DIVERSITY OF UDHUWA LAKE BIRD SANCTUARY (IBA), SAHIBGANJ, JHARKHAND, INDIA

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ABSTRACT

Udhuwa lake bird sanctuary (Site code JH01, Ramsar criteria 2, IBA criteria A1, Ramsar wetland type 0) is situated in the Udhuwa block of Sahibganj district of Jharkhand state, India. Based on the surveys conducted during 2009-2012, the avian diversity of this only bird sanctuary of the newly carved state has been assessed. 107 species of birds belonging to 83 genera, 38 families and 15 orders have been recorded that represents 8.15% of the known Indian bird diversity. Of the total recorded species, 46 (42.99%) are waterbirds (belonging to 12 families and 6 orders), 14 (13.08%) wetland dependent birds (belonging to 5 families and 3 orders) and 47 (43.93%) are other birds (belonging to 24 families and 8 orders) of which 24 are migrant, 55 resident and 28 are resident migrant species. Six species of birds (Darter, Lesser Adjutant-Stork, Oriental White Ibis, Pallas's Fish-Eagle, Eurasian Curlew and Long-tailed Prinia) are listed in various threat categories according to IUCN 2012 and one species (Large Whistling-Duck) is included in Schedule I of the WPA, 1972.

Key words: Udhuwa Lake, Bird Sanctuary, Avifauna, Jharkhand, Biodiversity

INTRODUCTION

Wetlands being the most productive ecosystems have a very high life supporting importance and are inhabited by many animal species including birds. Wetland birds are important indicators of the ecological condition and productivity of wetland ecosystem (Wei *et al.*, 2009) and the number of water birds using a wetland site is a good indicator of the site's biological importance (Scott, 1980).

State of Jharkhand is endowed with a large assemblage of flora and fauna and has a large number of water bodies which sustain a sizable number of resident and migratory avifauna. This state has an estimated total 170051 ha wetland area, which accounts for about 2.1 % of its geographical area (SAC, ISRO report, 2010).

The avifauna of India includes around 1313 species (Grimmett *et al.*, 2011) of which 78 species are threatened (IUCN Red List 2008). Many reports are

available on the wetland birds from different parts of India (Kumar *et al.*, 2006; Dhakate *et al.*, 2008; Mohan and Gaur, 2008; Wei *et al.*, 2009; Kumar and Gupta 2009; Guptha *et al.*, 2011; Srivastava and Srivastava, 2012). India has a total of 310 wetland species of which 130 species are migrants and 173 residents while the status of seven species is not known (Kumar *et al.*, 2006).

Dutta *et al.* (2004) reported a total of 465 species and sub species of birds in Bihar and Jharkhand of which 317 species are resident and 148 are migratory. However avifauna of Jharkhand state, carved out of Bihar in 2000, is least studied (Islam and Rahmani, 2004; Narwade *et al.*, 2006).

Udhuwa Lake Bird Sanctuary (ULBS), one of the four IBA sites of Jharkhand (Islam and Rahmani, 2004), is a natural habitat for a large variety of birds, both migratory and resident. Avifauna of ULBS has not been studied in detail in almost the past two

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decades. A survey of literature revealed that reports on avifauna of this only bird Sanctuary of Jharkhand state were published about two decades back by Mishra (1992) and Ghosh *et al.* (1993) when ULBS was a part of Bihar state. Further, the checklist prepared by Ghosh *et al.*, contained some rarities which needed confirmation (Islam and Rahmani, 2008). Since then there are only fragmentary and generalized reports on the avifauna of the sanctuary (SAC, ISRO, 2010). The present surveys were therefore undertaken during 2009-2012 to assess the present status of avian diversity of ULBS.

STUDY SITE

Udhuwa lake bird sanctuary (Site code JH01, Ramsar criteria 2, IBA criteria A1, Ramsar wetland type 0), the only bird sanctuary in Jharkhand state, situated in the Udhwa block of Sahibganj district 11 Km south east to Rajmahal and about 42 km from Sahebganj, is one of the most important wetland areas of the state and is a potential Ramsar site (Islam and Rahmani, 2008). This permanent fresh water lake is connected with the Ganges near the Taltalla Ghat in Farraka through 25 km long 'Udhuwa Nallah'. It consists of two water bodies, Pataura and Berhale lakes that are located approximately 3 km

apart and are connected through a water channel (Fig. 1). These two water bodies differ in their characters.

Pataura Lake:

Pataura lake ($24^{\circ} 58.188'N$ & $87^{\circ} 49.712'E$) has an area of 155 ha and is partly surrounded by a hillock. It is perennial in nature and its average depth is 2m. About 40% of its surface remains covered with aquatic weeds.

Berhale Lake:

Berhale lake ($24^{\circ} 59.344'N$ & $87^{\circ} 49.241'E$), also known as Barka Jalla, has an area of 410 ha and is shallow (average depth 0.7 m) with abundant aquatic weeds mainly *Eichhornia crassipes*, *Salvinia cuculata*, *Marsilea minuta*, *Ipomoea aquatic*, *Hydrilla vaticillata* etc (Mishra, 1992) which almost completely cover its surface. It dries up in hot summer and is used for summer cultivation by local people.

These two lakes of the Sanctuary support a large number of aquatic and semi aquatic fauna which provide sufficient food for both resident and migratory birds. Since ULBS is surrounded from all sides by agricultural fields and more than two dozen villages, there is a high anthropogenic pressure on it.

MATERIAL AND METHODS

Observations and recordings on the avian diversity in the two wetland habitats (Barhale and Pataura lakes) of Udhuwa Lake Bird Sanctuary were carried out for four successive years (2009-2012) in the month of January (peak winter), summer and post monsoon periods. The survey of birds was done by 'direct sighting method' and species were identified with the help of field guides (Ali and Reply 1987; 1989, Manakadan *et al.* 2011; Grimmett *et al.*, 1999; 2011; Ali, 2002). Most of the observations were made during day time in the morning from 6.30 hrs. to 17.00 hrs. Listing of birds was done as per the checklist provided by Mankadan and Pittie (2001) and Kumar *et al.*, (2003). Residential status of the bird have been described as per Ali (2002) and Manakadan *et al.* (2011).

The survey of birds was mainly done by systematically walking on fixed routes through the banks of the two lakes with a view to cover the entire area. Boats were also used to identify species of water birds roosting too far from the banks. The connecting 'Nallah' between Pataura and Berhale lakes was also covered on boat as well as on foot to record the avian diversity.

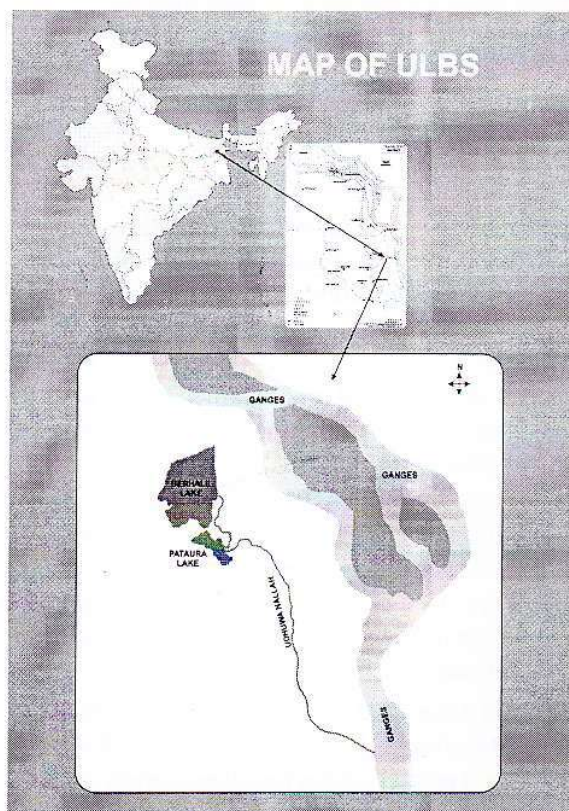


Fig. 1: Study site

Local villagers, fishermen and farmers were also interviewed for gathering information.

Olympus binocular (10x50) was used during observations and photographs were taken using DSLR camera Nikon Cool Pix P 90 24 x and Sony Cybershot 14x. G.P.S (Garmin GPS 72) was used to record the coordinates of the site.

Birds were identified, recorded along with habitat type and photographed. Counting of waterbirds was made following the method of Javed and Kaul (2002). Besides the water birds, terrestrial birds which were encountered during the survey were also recorded and identified. The checklist was prepared using common English and scientific names, their residential status, IUCN status, The Wildlife (Protection) Act (WPA), 1972 status and their year-wise counts.

RESULTS AND DISCUSSION

During the course of survey a total of 107 species of birds belonging to 83 genera, 38 families and 15 orders have been recorded from ULBS (Table-1). The present avian diversity of 107 species from the Sanctuary represents 8.15% of the known Indian bird diversity of 1313 species (Grimmett *et al.*, 2011). Of the total recorded species, 42.99% are waterbirds, 13.08% wetland dependent birds and 43.93% are other birds (Fig.2). Further, out of 107 bird species, 24 are migrant, 55 resident and 28 are resident

migrant species. Thus the resident species (51.40 %) dominates the area, followed by resident migrants (26.17 %) and the migrants (22.43%) (Fig. 3). Details of percent occurrence of recorded bird species are depicted in Table- 2.

Six species of birds (Darter, Lesser Adjutant-Stork, Oriental White Ibis, Pallas's Fish-Eagle, Eurasian Curlew and Long-tailed Prinia), recorded in ULBS, are listed in various threat categories according to IUCN 2012 and one species (Large Whistling-Duck) is included in Schedule I of the WPA, 1972 (Table - 3: PLATE - I) .

1. WATER BIRDS (PLATE I - III)

A total of 46 waterbirds belonging to 12 families and 6 orders have been recorded from ULBS. Among these, 16 species are winter visitors, 16 resident migrants and the rest 14 are resident species (Table. 1). Among the water birds, majority of species belong to the family Anatidae (9 sp.) and Scolopetidae (9 sp.) followed by family Ardeidae (7 sp.), Rallidae (4 sp.) and Charadriidae (4 sp.). Beside these, species belonging to 7 other families such as Ciconiidae (3 sp.), Jacanidae (2 sp.), Laridae (2 sp.), Threskiornithidae (2 sp.), Phalacroconidae (2 sp.), Podocepedidae (1 sp.), and Anhingidae (1 sp.) have also been recorded. Percentage composition of different families of waterbirds recorded in ULBS is shown in Fig. 4.

Table 1: Avifauna recorded in Udhuwa Lake Bird Sanctuary

Sl. No.	Common Name	Scientific Name	Habitat	Residential Status	Wildlife Protection Act, 1972	IUCN Status	No. of Birds Observed			
							2009	2010	2011	2012
Podicipedidae (Grebes)										
1	Little Grebe	Tachybaptus ruficollis (Pallas,1764)	WB	R	IV	LC	1	40	20	0
Phalacrocoracidae (Cormorant/Shags)										
2	Little Cormorant	Phalacrocorax niger (Vieillot,1817)	WB	RM	IV	LC	370	60	100	900
3	Indian Shag	Phalacrocorax fuscicollis (Stephens,1826)	WB	R	IV	LC	0	0	0	2
Anhingidae (Darters)										
4	Darter	Anhinga melanogaster (Pennant, 1769)	WB	RM	IV	NT	1	0	0	1
Ardeidae (Heron, Egrets & Bitterns)										
5	Little Egret	Egretta garzetta (Linnaeus, 1766)	WB	RM	IV	LC	100	100	60	180
6	Grey Heron	Ardea cinerea (Linnaeus, 1758)	WB	RM	IV	LC	0	5	7	8
7	Purple Heron	Ardea purpurea (Linnaeus, 1766)	WB	RM	IV	LC	12	8	20	27
8	Large Egret	Casmerodius albus (Linnaeus, 1758)	WB	RM	IV	LC	85	50	5	55

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Sl. No.	Common Name	Scientific Name	Habitat	Residential Status	Wildlife Protection Act, 1972	IUCN Status	No. of Birds Observed			
							2009	2010	2011	2012
9	Median Egret	<i>Mesophoyx intermedia</i> (Wagler, 1829)	WB	RM	IV	LC	250	35	15	350
10	Cattle Egret	<i>Bubulcus ibis</i> (Linnaeus, 1758)	WB	RM	IV	LC	0	25	10	150
11	Indian Pond Heron	<i>Ardeola grayii</i> (Sykes, 1832)	WB	R	IV	LC	320	30	20	150
Ciconiidae (Storks)										
12	Asian Openbill-Stork	<i>Anastomus oscitans</i> (Boddaert, 1783)	WB	R	IV	LC	250	1000	102	1500
13	White-necked Stork	<i>Ciconia episcopus</i> (Boddaert, 1783)	WB	R	IV	LC	0	3	2	12
14	Lesser Adjutant-Stork	<i>Leptoptilos javanicus</i> (Horsfield, 1821)	WB	RM	IV	Vu	2	1	4	0
Threskiornithidae (Ibis)										
15	Oriental White Ibis	<i>Threskiornis melanocephalus</i> (Latham, 1790)	WB	R	IV	NT	101	68	27	250
16	Black Ibis	<i>Pseudibis papillosa</i> (Temminck, 1824)	WB	R	IV	LC	2	20	6	0
Anatidae (Swan, Geese & Ducks)										
17	Large Whistling-Duck	<i>Dendrocygna bicolor</i> (Vieillot, 1816)	WB	RM	I	LC	0	5	15	0
18	Lesser Whistling-Duck	<i>Dendrocygna javanica</i> (Horsfield, 1821)	WB	R	IV	LC	60	800	150	65
19	Comb Duck	<i>Sarkidiornis melanotos</i> (Pennant, 1769)	WB	R	IV	LC	2	2	2	0
20	Cotton Teal	<i>Nettion coromandelianus</i> (Gmelin, 1789)	WB	R	IV	LC	0	30	0	0
21	Gadwall	<i>Anas strepera</i> (Linnaeus, 1758)	WB	M	IV	LC	75	50	4	0
22	Eurasian Wigeon	<i>Anas penelope</i> (Linnaeus, 1758)	WB	M	IV	LC	0	3	0	0
23	Northern Pintail	<i>Anas acuta</i> (Linnaeus, 1758)	WB	M	IV	LC	1	0	1	0
24	Garganey	<i>Anas querquedula</i> (Linnaeus, 1758)	WB	M	IV	LC	0	25	0	0
25	Red-crested Pochard	<i>Rhodonessa rufina</i> (Pallas, 1773)	WB	M	IV	LC	250	20	300	150
Accipitridae (Hawkes, Eagle, Buzzards, Kites, Harriers)										
26	Black Kite	<i>Milvus migrans</i> (Boddaert, 1783)	O	R	-	LC	4	2	2	22
27	Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i> (Pallas, 1771)	WDB	RM	-	Vu	0	1	0	0
28	Western Marsh Harrier	<i>Circus aeruginosus</i> (Linnaeus, 1758)	WDB	M	-	LC	1	4	4	1
29	Pied Harrier	<i>Circus melanoleucos</i> Pennant, 1769	O	RM	-	LC	0	0	0	1
30	Shikra	<i>Accipiter badius</i> (Gmelin, 1788)	O	R	-	LC	0	0	1	1
31	Long-Legged Buzzard	<i>Buteo rufinus</i> (Cretzschmar, 1827)	O	RM	-	LC	0	0	1	0
32	Tawny Eagle	<i>Aquila rapax</i> (Temminck, 1828)	O	R	-	LC	0	3	0	0
Rallidae (Rails, Crakes, Moorhens, Coots)										
33	Little Crane	<i>Porzana parva</i> (Scopoli, 1769)	WB	M	IV	-	0	0	0	1
34	Purple Moorhen	<i>Porphyrio porphyrio</i> (Linnaeus, 1758)	WB	R	IV	LC	500	1500	2500	20
35	Common Moorhen	<i>Gallinula chloropus</i> (Linnaeus, 1758)	WB	RM	IV	LC	0	5	5	0
36	Common Coot	<i>Fulica atra</i> (Linnaeus, 1758)	WB	RM	IV	LC	150	400	500	105

Sl. No.	Common Name	Scientific Name	Habitat	Residential Status	Wildlife Protection Act, 1972	IUCN Status	No. of Birds Observed			
							2009	2010	2011	2012
	Jacanidae (Jacana)									
37	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i> (Scopoli,1786)	WB	R	IV	LC	19	200	50	250
38	Bronze-winged Jacana	<i>Metopidius indicus</i> (Latham, 1790)	WB	R	IV	LC	0	50	100	120
	Charadriidae (Plover, Lapwings)									
39	Pacific Golden-Plover	<i>Pluvialis fulva</i> (Gmelin, 1789)	WB	M	IV	-	0	0	0	20
40	Little Ringed Plover	<i>Charadrius dubius</i> (Scopoli, 1786)	WB	RM	IV	-	0	0	0	2
41	Grey-headed Lapwing	<i>Vanellus cinereus</i> (Linnaeus, 1758)	WB	M	IV	LC	20	30	5	160
42	Red-wattled lapwing	<i>Vanellus indicus</i> (Boddaert, 1783)	WB	R	IV	LC	2	10	3	0
	Scolopacidae (Sandpiper, Stints, Snipe & Curlews)									
43	Pintail Snipe	<i>Gallinago stenura</i> (Bonaparte, 1830)	WB	M	IV	-	0	0	0	3
44	Common Snipe	<i>Gallinago gallinago</i> (Linnaeus, 1758)	WB	RM	IV	LC	0	4	0	4
45	Eurasian Curlew	<i>Numenius arquata</i> (Linnaeus, 1758)	WB	M	IV	NT	0	2	0	0
46	Green Sandpiper	<i>Tringa ochropus</i> (Linnaeus, 1758)	WB	M	IV	LC	0	1	0	6
47	Wood Sandpiper	<i>Tringa glareola</i> (Linnaeus, 1758)	WB	M	IV	LC	25	5	32	175
48	Marsh Sandpiper	<i>Tringa stagnatilis</i> (Bechstein,1803)	WB	M	IV	LC	0	1	2	2
49	Common Sandpiper	<i>Actitis hypoleucos</i> (Linnaeus, 1758)	WB	RM	IV	LC	1	0	0	0
50	Little Stint	<i>Calidris minuta</i> (Leisler, 1812)	WB	M	IV	LC	2	50	0	100
51	Temminck's Stint	<i>Calidris temminckii</i> (Leisler, 1812)	WB	M	IV	LC	0	20	2	0
	Laridae (Gull)									
52	Brown-headed Gull	<i>Larus brunnicephalus</i> (Jerdon, 1840)	WB	RM	IV	LC	60	13	150	600
53	Black-headed Gull	<i>Larus ridibundus</i> (Linnaeus, 1766)	WB	M	IV	LC	0	5	350	300
	Alcedinidae (Kingfisher)									
54	Small Blue Kingfisher	<i>Alcedo atthis</i> (Linnaeus, 1758)	WDB	RM	IV	LC	2	5	5	8
55	White-breasted Kingfisher	<i>Halcyon smyrnensis</i> (Linnaeus, 1758)	WDB	R	IV	LC	10	8	5	20
56	Lesser Pied Kingfisher	<i>Ceryle rudis</i> (Linnaeus, 1758)	WDB	R	IV	LC	1	4	4	1
	Hirundinidae (Swallow)									
57	Common Swallow	<i>Hirundo rustica</i> (Linnaeus, 1758)	WDB	RM	IV	LC	40	100	50	250
	Motacillidae (Wagtails & Piptes)									
58	White Wagtail	<i>Motacilla alba</i> Linnaeus, 1758	WDB	RM	IV	LC	0	0	0	20
59	Large Pied Wagtail	<i>Motacilla maderaspatensis</i> Gmelin 1789	WDB	R	IV	LC	0	0	0	1
60	Citrine Wagtail	<i>Motacilla citreola</i> (Pallas,1776)	WDB	RM	IV	LC	100	50	10	450
61	Yellow Wagtail	<i>Motacilla flava</i> (Linnaeus, 1758)	WDB	RM	IV	LC	0	15	15	20
62	Grey Wagtail	<i>Motacilla cinerea</i> (Tunstall,1771)	WDB	M	IV	LC	0	2	0	0

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							2009	2010	2011	2012
63	Paddyfield Pipit	<i>Anthus rufulus</i> (Vieillot, 1818)	O	R	IV	LC	20	500	30	50
64	Red-throated Pipit	<i>Anthus cervinus</i> (Pallas, 1811)	WDB	M	IV	LC	0	2	0	2
65	Water Pipit	<i>Anthus spinoletta</i> (Linnaeus, 1758)	WDB	M	IV	LC	0	50	1	0
	Falconidae (Falcon)									
66	Common Kestrel	<i>Falco tinnunculus</i> (Linnaeus, 1758)	O	RM	-	LC	2	3	5	1
	Columbidae (Pigeons & Dove)									
67	Blue Rock Pigeon	<i>Columba livia</i> (Gmelin, 1789)	O	R	IV	LC	25	20	80	20
68	Spotted Dove	<i>Streptopelia chinensis</i> (Scopoli, 1786)	O	R	IV	LC	1	2	10	1
69	Eurasian Collared-Dove	<i>Streptopelia decaocto</i> (Frisvaldszky, 1838)	O	R	IV	LC	1	2	4	1
	Psittacidae (Parakeets)									
70	Rose-ringed Parakeet	<i>Psittacula krameri</i> (Scopoli, 1769)	O	R	IV	LC	3	6	2	2
	Cuculidae (Cuckoos, Malkohas & Coucals)									
71	Brainfever Bird	<i>Hierococcyx varius</i> Vahl, 1797	O	R	-	LC	0	2	0	0
72	Asian Koel	<i>Eudynamis scolopacea</i> (Linnaeus, 1758)	O	R	IV	LC	0	2	0	0
73	Greater Coucal	<i>Centropus sinensis</i> (Stephens, 1815)	O	R	IV	LC	0	1	1	2
	Strigidae (Owls)									
74	Spotted Owlet	<i>Athene brama</i> (Temminck, 1828)	O	R	IV	LC	0	1	1	1
	Apodidae (Swift)									
75	Asian Palm-Swift	<i>Cypsiurus balasiensis</i> (J.E. Gray, 1829)	O	R	IV	LC	15	30	10	20
	Meropidae (Bee-eater)									
76	Small Bee-eater	<i>Merops orientalis</i> (Latham, 1801)	O	R	IV	LC	7	100	10	10
	Coraciidae (Roller)									
77	Indian Roller	<i>Coracias benghalensis</i> (Linnaeus, 1758)	O	R	IV	LC	2	1	2	1
	Upupidae (Hoopes)									
78	Common Hoopoe	<i>Upupa epops</i> (Linnaeus, 1758)	O	RM	IV	LC	0	1	1	0
	Capitonidae (Barbets)									
79	Brown-headed Barbet	<i>Megalaima zeylanica</i> (Gmelin, 1788)	O	R	IV	LC	0	1	0	0
	Picidae (Woodpecker)									
80	Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i> (Linnaeus, 1758)	O	R	IV	LC	1	2	2	1
	Alaudidae (Larks)									
81	Greater Short-toed Lark	<i>Calandrella brachydactyla</i> (Leisler, 1814)	O	M	-	LC	0	0	0	25
82	Eastern Skylark	<i>Alauda gulgula</i> Franklin, 1831	O	R	-	LC	0	0	0	10
83	Rufous-tailed Finch-Lark	<i>Ammomanes phoenicurus</i> (Franklin, 1831)	O	R	-	LC	0	0	1	0

Sl. No.	Common Name	Scientific Name	Habitat	Residential Status	Wildlife Protection Act, 1972	IUCN Status	No. of Birds Observed			
							2009	2010	2011	2012
	Pycnonotidae (Bulbul)									
84	Red-vented Bulbul	<i>Pycnonotus cafer</i> (Linnaeus, 1766)	O	R	IV	LC	2	4	2	3
	Laniidae (Shrikes)									
85	Brown Shrike	<i>Lanius cristatus</i> (Linnaeus, 1758)	O	M	IV	LC	0	5	2	0
86	Rufous-backed Shrike	<i>Lanius schach</i> (Linnaeus, 1758)	O	R	IV	LC	0	1	0	0
	Muscicapidae (Robin, Babbler, Flycatcher, Prinias, Warblers)									
87	Oriental Magpie-Robin	<i>Copsychus saularis</i> (Linnaeus, 1758)	O	R	IV	LC	1	3	2	1
88	Jungle Babbler	<i>Turdoides striatus</i> (Dumont, 1823)	O	R	IV	LC	15	20	17	20
89	Long-tailed Prinia	<i>Prinia burnesii</i> (Blyth, 1844)	WDB	R	IV	NT	0	2	0	0
90	Red-throated Flycatcher	<i>Ficedula parva</i> (Bechstein, 1792)	O	M	IV	LC	0	1	0	1
91	Asian Brown Flycatcher	<i>Muscicapa dauurica</i> (Pallas, 1811)	O	M	IV	LC	0	3	2	3
92	Asian Paradise -Flycatcher	<i>Terpsiphone paradisi</i> (Linnaeus, 1758)	O	RM	IV	LC	0	1	0	2
93	White-browed Fantail-Flycatcher	<i>Rhipidura aureola</i> (Lesson, 1830)	O	R	IV	LC	0	1	0	0
	Nectariniidae (Sunbirds)									
94	Purple Sunbird	<i>Nectarinia asiatica</i> (Latham, 1790)	O	R	IV	LC	1	2	1	1
	Estrildidae(Munias)									
95	Spotted Munia	<i>Lonchura punctulata</i> (Linnaeus, 1758)	O	R	IV	LC	0	50	0	0
	Passeridae (Sparrow, Weaver)									
96	House Sparrow	<i>Passer domesticus</i> (Linnaeus, 1758)	O	R	IV	LC	8	12	7	3
97	Baya Weaver	<i>Ploceus philippinus</i> (Linnaeus, 1766)	O	R	IV	LC	0	20	10	0
	Sturnidae (Starling & Mayna)									
98	Grey-headed Starling	<i>Sturnus malabaricus</i> (Gmelin, 1789)	O	R	IV	LC	0	0	1	0
99	Asian Pied Starling	<i>Sturnus contra</i> (Linnaeus, 1758)	O	R	IV	LC	30	40	5	600
100	Common Myna	<i>Acridotheres tristis</i> (Linnaeus, 1766)	O	R	IV	LC	25	50	30	20
101	Bank Myna	<i>Acridotheres ginginianus</i> (Latham, 1790)	O	R	IV	LC	50	10	2	50
	Oriolodae (Orioles)									
102	Indian Golden Oriole	<i>Oriolus kundoo</i>	O	RM	IV	-	1	3	0	1
103	Black-headed Oriole	<i>Oriolus xanthornus</i> (Linnaeus, 1758)	O	R	IV	LC	0	1	0	0
	Dicruridae (Drongo)									
104	Black Drongo	<i>Dicrurus macrocercus</i> (Vieillot, 1817)	O	R	IV	LC	8	50	20	250

Sl. No.	Common Name	Scientific Name	Habitat	Residential Status	Wildlife Protection Act, 1972	IUCN Status	No. of Birds Observed			
							2009	2010	2011	2012
	Corvidae (Crows, Treepies)									
105	Indian Treepie	Dendrocitta vagabunda (Latham, 1790)	O	R	IV	LC	2	2	3	1
106	House Crow	Corvus splendens (Vieillot, 1817)	O	R	V	LC	30	40	8	55
107	Jungle Crow	Corvus macrorhynchos (Wagler, 1827)	O	R	IV	LC	2	3	4	7

Abbreviations:

NT - Near Threatened

Vu - Vulnerable

R-Resident

M-Migrant

RM- Resident-Migrant

WB-Water Bird

WDB-Wetland Dependent Bird

O- Others

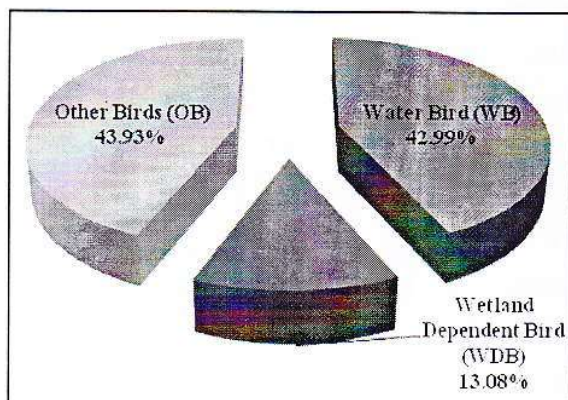


Fig. 2. Percentage composition of avifauna of ULBS - Habitat Status

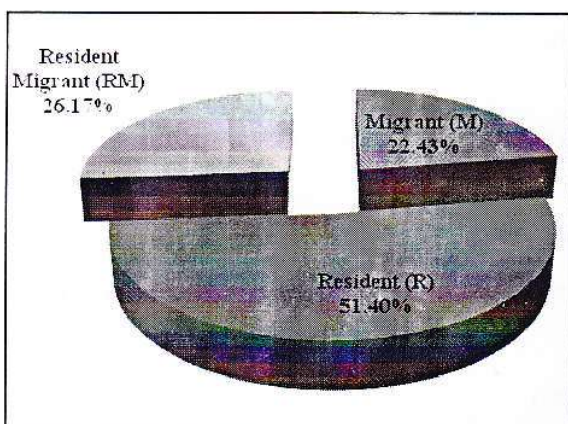


Fig. 3. Percentage composition of avifauna of ULBS - Residential Status

The number of bird species varied in each year from 2009-2012. On the basis of total counts of different waterbirds, the most numerous species are Purple Moorhen (*Porphyrio porphyrio*) followed by Asian Openbill Stork (*Anastomus oscitans*), Little Cormorant (*Phalacrocorax niger*), Common Coot (*Fulica atra*), Lesser Whistling Duck (*Dendrocygna bicolor*), Brown-headed Gull (*Larus brunnicephalus*), Red Crested Pochard (*Rhodonessa*

rufina), Black-headed Gull (*Larus ridibundus*), Median Egret (*Mesophoyx intermedia*), Indian Pond Heron (*Ardeola grayii*), Pheasant-tailed Jacana (*Hydrophasianus chirurgus*), Oriental White Ibis (*Threskiornis melanocephalus*) and Little Egret (*Egretta garzetta*). These birds have been recorded consistently in our surveys and thus are the common wetland birds of ULBS.

Among the migrant species of waterbirds recorded in ULBS, Red-crested Pochard (*Rhodonessa rufina*) is the most dominant species followed by Black headed Gull (*Larus ridibundus*). The other migrant species recorded in appreciable number are Wood Sandpiper (*Tringa glareola*), Grey-headed Lapwing (*Vanellus cinereus*) and Little Stint (*Calidris minuta*). On the other hand some migrants such as Little Crake (*Porzana parva*), Northern Pintail (*Anas acuta*), Eurasian Curlew (*Numenius arquata*) and Eurasian Wigeon (*Anas penelope*) were recorded in least numbers and that too either only once or twice in the four year of survey. Of all the migrant species of waterbirds, Eurasian Curlew is listed as Near Threatened Category in IUCN Red List while other 12 species are listed as least concern and the status of 3 species is not known.

A total of 16 species of resident migrant waterbirds have been recorded in ULBS. Among these Little Cormorant (*Phalacrocorax niger*), Common Coot (*Fulica atra*) and Brown-headed Gull (*Larus brunnicephalus*) are the dominant species. Darter (*Anhinga melanogaster*), listed as Near Threatened in IUCN Red List, has been recorded one each in 2009 and 2012 only. Similarly only one Common Sandpiper (*Actitis hypoleucos*) has been observed in 2009 and only two Little Ringed Plover (*Charadrius dubius*) were observed in 2012. Birds recorded in very few numbers are Common Snipe (*Gallinago gallinago*), Lesser Adjutant-Stork (*Leptoptilos javanicus*)- a Vulnerable species (IUCN

PLATE - I



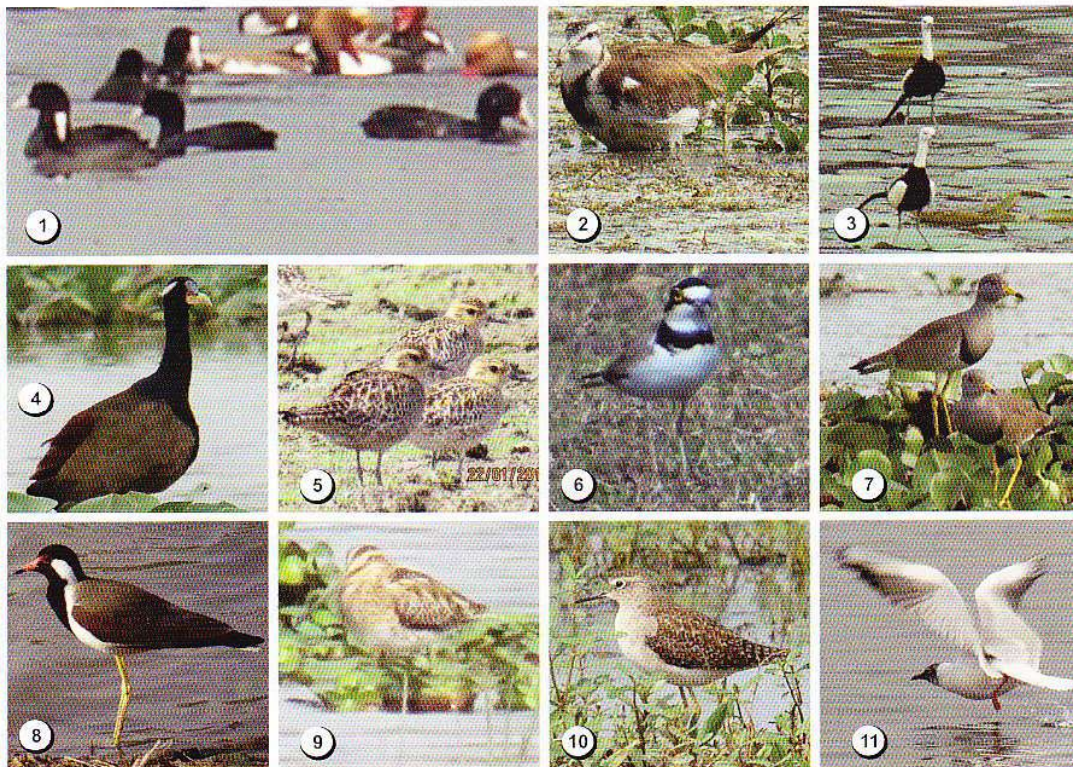
Figs. 1. *Leptoptilos javanicus*, 2. *Anhinga melanogaster*, 3. *Threskiornis melanocephalus*

PLATE - II



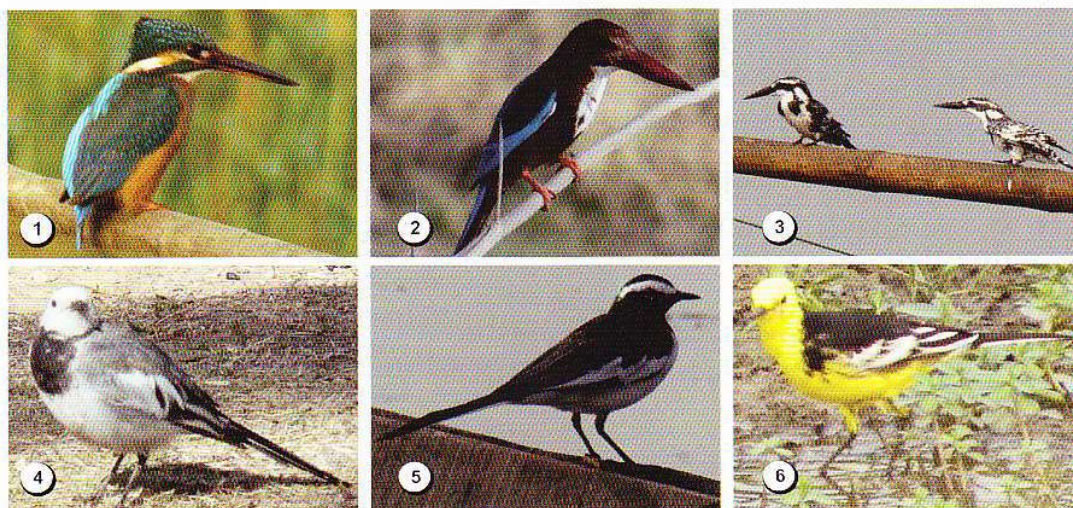
Figs. 1. *Tachybaptus ruficollis*, 2. *Phalacrocorax niger*, 3. *Phalacrocorax fuscicollis*, 4. *Egretta garzetta*, 5. *Mesophoyx intermedia*, 6. *Casmerodius albus*, 7. *Ardea cinerea*, 8. *Ardea purpurea*, 9. *Bubulcus ibis*, 10. *Ardeola grayii*, 11. *Anastomus oscitans*, 12. *Ciconia episcopus*, 13. *Pseudibis papillosa*, 14. *Dendrocygna javanica*, 15. *Sarkidiornis melanotos*, 16. *Anas strepera*, 17. *Anas acuta*, 18. *Rhodonessa rufina*, 19. *Porphyrion porphyrio*, 20. *Gallinula chloropus*,

PLATE - III



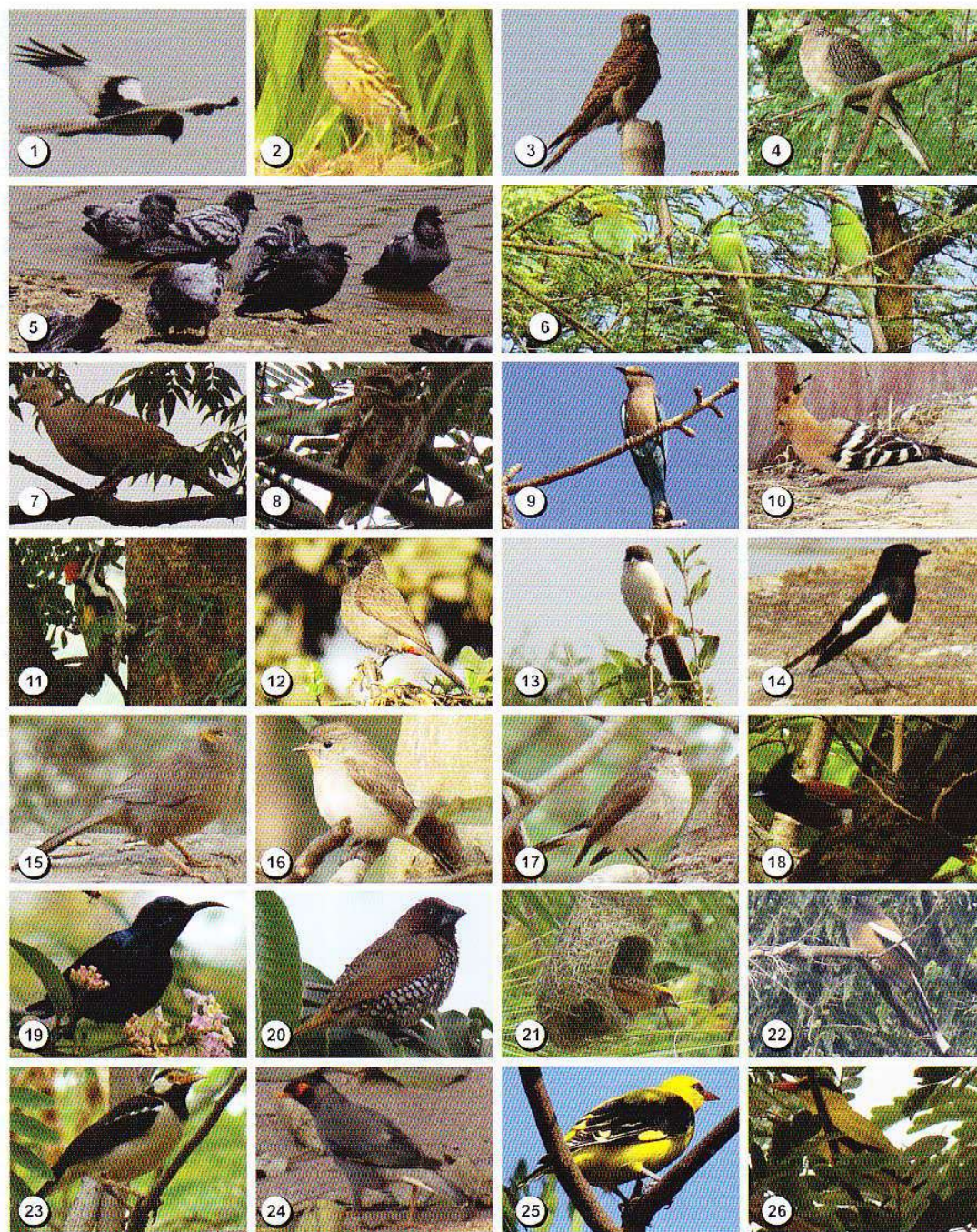
Figs.1, *Fulica atra*, 2, *Hydrophasianus chirurgus* (Non Breeding), 3, *Hydrophasianus chirurgus* (Breeding) 4, *Metopidius indicus*, 5, *Pluvialis fulva*, 6, *Charadrius dubius*, 7, *Vanellus cinereus*, 8, *Vanellus indicus*, 9, *Gallinago gallinago*, 10, *Tringa glareola*, 11, *Larus brunnicephalus*

PLATE - IV



Figs.1, *Alcedo atthis*, 2, *Halcyon smyrnensis*, 3, *Ceryle rudis*, 4, *Motacilla alba*, 5, *Motacilla maderaspatensis*, 6, *Motacilla citreola*

PLATE - V



Figs.1. *Circus melanoleucos* 2. *Anthus rufulus* 3. *Falco tinnunculus* 4. *Streptopelia chinensis* 5. *Columba livia* 6. *Merops orientalis* 7. *Streptopelia decaocto* 8. *Athene bramā* 9. *Coracias benghalensis* 10. *Upupa epops* 11. *Dinopium benghalense* 12. *Pyrenonotus cafer* 13. *Lanius schach* 14. *Copsychus saularis* 15. *Turdoides striatus* 16. *Ficedula parva* 17. *Muscicapa dauurica* 18. *Tersiphone paradise* 19. *Nectarinia asiatica* 20. *Lonchura punctulata* 21. *Ploceus philippinus* 22. *Dendrociitta vagabunda* 23. *Sturnus contra* 24. *Acridotheres ginginianus* 25. *Oriolus kundoo* 26. *Oriolus xanthornus*

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Red List), and Common Moorhen (*Gallinula chloropus*). Further their year wise occurrence is also not consistent.

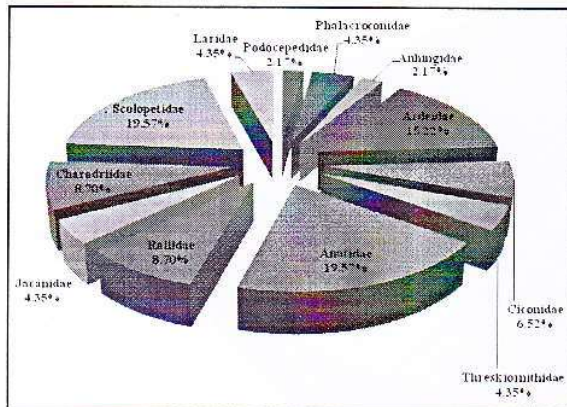


Fig. 4. Percentage composition of Water Bird Families

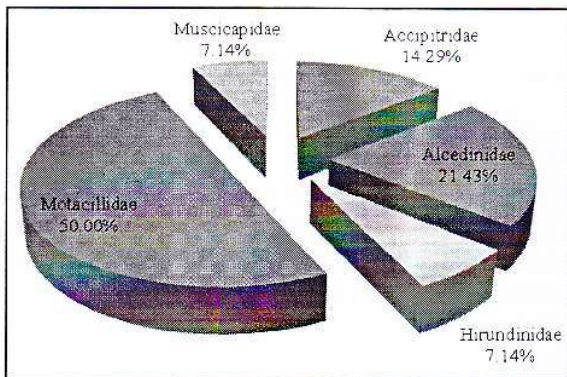


Fig. 5. Percentage composition of Wetland Dependent Bird Families

Table 2: Threatened Avifauna recorded in Udhuwa Lake Bird Sanctuary

Sl. No.	Common Name	Scientific Name	Wildlife Protection Act, 1972	IUCN Status (2012)
1	Darter	<i>Anhinga melanogaster</i> (Pennant, 1769)	IV	NT*
2	Lesser Adjutant-Stork	<i>Leptoptilos javanicus</i> (Horsfield, 1821)	IV	Vu*
3	Oriental White Ibis	<i>Threskiornis melanocephalus</i> (Latham, 1790)	IV	NT*
4	Large Whistling Duck	<i>Dendrocygna bicolor</i> (Vieillot, 1816)	I	LC*
5	Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i> (Pallas, 1771)		Vu*
6	Eurasian Curlew	<i>Numenius arquata</i> (Linnaeus, 1758)	IV	NT*
7	Long-tailed Prinia	<i>Prinia burnesii</i> (Blyth, 1844)	IV	NT*

Abbreviation

NT - Near Threatened Vu - Vulnerable LC- Least concern

*Population trend : decreasing

Table 3 : Status of Bird families recorded in Udhuwa Lake Bird Sanctuary

Sl. No.	Order	Family	No. of species	Percent Occurrence
1	PODICIPEDIFORMES	Podicipedidae	1	0.934%
2	PELECANIFORMES	Phalacrocoracidae	2	1.869%
3		Anhinga	1	0.934%
4	CICONIIFORMES	Ardeidae	7	6.542%
5		Ciconiidae	3	2.803%
6		Threskiornithidae	2	1.869%
7	ANSERIFORMES	Anatidae	9	8.411%
8	FALCONIFORMES	Accipitridae	7	6.542%
9		Falconidae	1	0.934%
10	GRUIFORMES	Rallidae	4	3.738%
11	CHARADRIIFORMES	Jacaniidae	2	1.869%
12		Charadriidae	4	3.738%
13		Scolopacidae	9	8.411%
14		Laridae	2	1.869%
15	COLUMBIFORMES	Columbidae	3	2.803%
16	PSITTACIFORMES	Psittacidae	1	0.934%
17	CUCULIFORMES	Cuculidae	3	2.803%
18	STRIGIFORMES	Strigidae	1	0.934%
19	APODIFORMES	Apodidae	1	0.934%
20	CORACIIFORMES	Alcedinidae	3	2.803%
21		Meropidae	1	0.934%
22		Coraciidae	1	0.934%
23		Upupidae	1	0.934%
24	PICIFORMES	Capitonidae	1	0.934%
25		Picidae	1	0.934%
26	PASSERIFORMES	Alaudidae	3	2.803%
27		Hirundinidae	1	0.934%
28		Motacillidae	8	7.476%
29		Pycnonotidae	1	0.934%
30		Laniidae	2	1.869%
31		Muscicapidae	7	6.542%
32		Nectariniidae	1	0.934%
33		Estrildidae	1	0.934%
34		Passeridae	2	1.869%
35		Sturnidae	4	3.738%
36		Oriolidae	2	1.869%
37		Dicruridae	1	0.934%
38		Corvidae	3	2.803%

Among 14 resident waterbirds, the dominant species are Purple Moorhen (*Porphyrio porphyrio*), Asian Openbill Stork (*Anastomus oscitans*), Lesser Whistling Duck (*Dendrocygna javanica*), Indian Pond Heron (*Ardeola grayii*) and Pheasant tailed Jacana (*Hydrophasianus chirurgus*). It was interesting to note that Oriental White Ibis (*Threskiornis melanocephalus*), a near threatened resident water bird (IUCN Red List), was recorded in fair numbers each year in ULBS. On the other hand few Comb Duck (*Sarkidiornis melanotos*), Indian Shag (*Phalacrocorax fuscicollis*), Red-wattled Lapwing (*Vanellus indicus*) and White necked Stork (*Ciconia episcopus*) have been recorded during the survey.

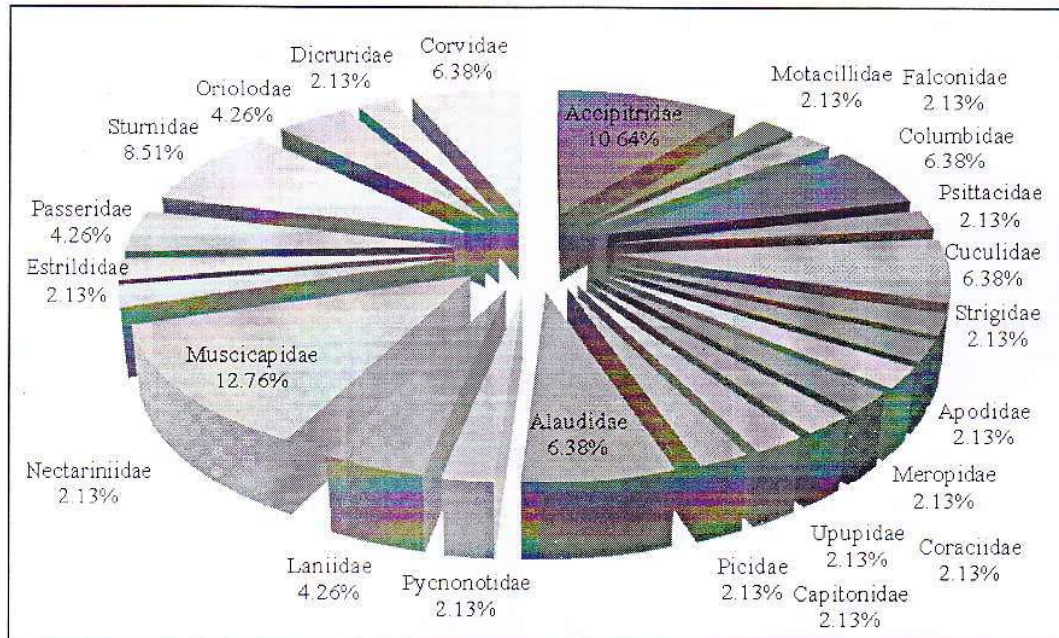


Fig. 6. Percentage composition of Other Bird Families

2. WETLAND DEPENDENT BIRDS (PLATE-IV)

A total of 14 species of wetland dependent birds belonging to 5 families and 3 orders have been recorded in ULBS. Of these 4 species viz. Western Marsh Harrier (*Circus aeruginosus*), Grey Wagtail (*Motacilla cinerea*), Red throated pipit (*Anthus cervinus*) and Water Pipit (*Anthus spinoletta*) are migrants; 6 species viz. White Wagtail (*Motacilla alba*), Citrine Wagtail (*Motacilla citreola*), Yellow Wagtail (*Motacilla flava*), Palla's Fish-Eagle (*Haliaeetus leucoryphus*), Small Blue Kingfisher (*Alcedo atthis*) and Common Swallow (*Hirundo rustica*) are resident migrants and the remaining 4 species viz. White Breasted Kingfisher (*Halcyon smyrnensis*), Lesser Pied Kingfisher (*Ceryle rudis*), Large Pied Wagtail (*Motacilla maderaspatensis*), and Long-tailed Prinia (*Prinia burnesii*) are the resident species. Palla's Fish-Eagle (*Haliaeetus leucoryphus*) is listed as Vulnerable in IUCN list. Among the migrant species only the Western Marsh Harrier (*Circus aeruginosus*) has been consistently recorded in each year's survey during the migratory season while the other three migrant species have not been recorded consistently.

Among the resident migrants, Citrine Wagtail (*Motacilla citreola*), Common Swallow and Yellow Wagtail (*Motacilla flava*) were the dominant species while the other three species have been recorded in small numbers and that too only once in the four

year period of survey.

Of the four species of wetland dependent resident species, White breasted Kingfisher (*Halcyon smyrnensis*) is the most dominant and common species followed by Lesser Pied Kingfisher (*Ceryle rudis*). On the other hand the other two resident species viz. Large Pied Wagtail (*Motacilla maderaspatensis*) and Long tailed Prinea (*Prinia burnesii*) have been recorded only once in ULBS in very small number (Table 1). Further, of the four resident water dependent species, Long Tailed Prinea is listed as Near Threatened in IUCN Red list and the other belong to least concern category.

Percentage composition of wetland dependent bird families is shown in Fig. 5 that clearly demonstrates that species (50.0%) belonging to family Motacillidae dominate ULBS.

3. OTHER BIRDS (PLATE - V)

Besides the wetland species, a total of 47 other bird species belonging to 24 families and 8 orders have also been recorded in ULBS during the survey which include 4 migrant species viz., Greater Short-toed Lark (*Calandrella brachydactyla*), Asian Brown Flycatcher (*Muscicapa dauurica*), Red throated Flycatcher (*Ficedula parva*) and Brown Shrike (*Lanius cristatu*); 6 resident migrant species viz. Pied Harrier (*Circus melanoleucos*), Long legged Buzzard (*Buteo rufinus*), Common Kestrel (*Falco*

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tinnunculus), Common Hoopoe (*Upupa epops*), Asian Paradise Flycatcher (*Terpsiphone paradisi*) and Indian Golden Oriole (*Oriolus kundoo*), and 37 resident species. Species recorded in largest number are Asian Pied Starling (*Sturnus contra*). Other species are, in order of decreasing abundance, Paddyfield Pipit (*Anthus rufulus*), Black Drongo (*Dicrurus macrocercus*), Blue Rock Pigeon (*Columba livia*), House Crow (*Corvus splendens*), Small Bee Eater (*Merops orientalis*), Common Mayna (*Acridotheres tristis*), Bank Mayna (*Acridotheres ginginianus*) and Asian Palm Swift (*Cypsiurus balasiensis*). Thus these were the commonest other birds in ULBS. The IUCN status of all except one species, Indian Golden Oriole, is Least Concern. Percentage composition of all recorded families under this category is shown in fig. 6.

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REFERENCES

- Ali, S. (2002). The Book of Indian Birds (13th Edition). Oxford University Press, New Delhi.
- Ali, S. and Ripley, S.D. (1987). Compact Handbook of Birds of India and Pakistan. Oxford University Press, New Delhi.
- Dhakate P.M., Patil T.A. and Bhartari R. (2008). Wetland Birds of Corbett Tiger Reserve Landscape. Sengupta, H. and Dalwani, R. (ed.), *Proceedings of Tal 2007: The 12th World Lake Conference 1974-1982*.
- Dutta, B.B., Roy S.B., Datta, B.K and Dasgupta, J.M. (2004). State Fauna Series 11: Fauna of Bihar (Including Jharkhand). Part 1:73-142. *Zoological survey of India*, Pp.249-253
- Grimmett R., Inskipp C., and Inskipp, T. (1999). Pocket Guide to the Bird of the Indian Subcontinent. Oxford University Press.
- Grimmett R., Inskipp C., and Inskipp, T. (2011). Helm Field Guides. Birds of the Indian Subcontinent. Second Edition. Oxford University Press.
- GOI (1972). The Wildlife (Protection) Act, (1972), Ministry of Environment and Forests, Govt. of India, New Delhi.
- Ghose T.K, Choudhary, S.K and Mishra, A. (1993). A checklist of the Birds of Udhawa Lake Bird Santurary, Rajmahal (Bihar). *J. Freshwater Biol.* 5(1): 83-91.
- Guptha B.M., Vijayan L., Sandalian S and Sridharan N. (2011). Status of wetland and wetland bird in Coimbatore, Trichy, Perambalare and Thiruvapur Districts in Tamil Nadu, *World J. Zool.*, 6 (2):154-158.
- IUCN. (2012). IUCN Red List of Threatened Species (ver. 2012.2). <http://www.iucnredlist.org>.
- Islam, Z.A. and Rahmani, A.R. (eds) (2004). Important Bird Areas of India: Key Sites For conservation. BNHS and Bird Life International, Mumbai and U.K.
- Islam, M.Z and Rahmani, A.R. (2008) Potential and Existing Ramser Sites in India Bird Conservation Network: BNHS, Birdlife International and Royal Society for the Protection of Bird. Oxford University Press. pp.249-253.
- Javed, S. and Kaul, R. (2002). Field Methods for Bird surveys. Bombay Natural History Society. pp 1-61.
- Kumar P and Gupta S.K., (2009). Diversity and Abundance of Wetland Bird around Kukukshetra, India. *Our Nature*, 7: 212-217.
- Kumar A, Sati J.P. and Tak P.C. (2003). Checklist of Indian Wetlands Birds BUCEROS *Envis news letter: Avian Ecology & Inland wetlands. Bombay Natural History Society* 8. (1), 1-30pp.
- Kumar, A., Tak, P.C. and Sati, J.P. (2006). Residential, population and conservation status of Indian wetland birds. *Waterbirds around the world*. Eds. G.C. Boere, C.A. Galbraith & D.A. Stroud. The Stationery Office, Edinburgh, UK. p. 308.
- Mohan D. and Gaur, A. (2008). Avian Diversity Around Jajiwai Pond- A Natural wetland. (Eds. Sengupta, M. and Dalwani, R.). *Proceeding of Taal 2007: The 12th World Lake conference*: 542-546.
- Manakadan, R. and Pittie, A. (2001). Standerdized common and scientific names of the Bird of the Indian subcontinent BUCEROS. *Envis News Letter: Avian Ecology & Inland wetlands, Bombay Natural History Society* 6(1).
- Mishra A. (1992). Udhawa Lake Bird Sanctuary (Status-Report). Mandar Nature Club, Bhagalpur. pp. 15-21.
- Nawade, S.S, Jathar G.A. and Rahmani A.R. (2006). Checklist of Indian Wetlands Birds BUCEROS. *Envis news letter: Avian Ecology & Inland wetlands. Bombay Natural History Society* 11. (1).

- Scott, D.A. 1980. A preliminary Inventory of Wetlands of International Importance for Waterfowl in West Europe and North-West Africa. IWRB Special Publication No. 2. *International Waterfowl and Wetlands Research Bureau*, Slimbridge, U.K.
- SAC, ISRO (2010). National Wetland Atlas: Jharkhand, SAC/ RESA/AFEG/Application Centre, ISRO, Ahmedabad, India, 154 pp.
- Srivastava , P.K.and S.J.Srivastava (2012).Preliminary observations on avifauna of the Jai Prakash Narayan Bird Sanctuary (Suraha Tal Lake), Ballia, U.P. India. *J. Threatened Taxa*, 4 (7): 2727-2732.
- Wei, D.L.Z., Bloem A., Delany, S., Martakis, G. and Quinterio, J.O. (2009). Status of Water birds in Asia (ed Mundkur.T., Bakewell, D. and Chong, G. *Wetland international, Malaysia*