

## Avifaunal Diversity of Newly Formed Marshy Places in and Around Sangli City, Maharashtra, India

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### ABSTRACT

Present study was aimed to report the avifaunal diversity of newly formed marshy places in and around Sangli city. In present investigation there are about 12 orders and 26 different families of birds were recorded at three different marshy places i.e. Site I, Site II and Site III. 12 different orders reported were Passeriformes, Pellicaniformes, Columbiformes, Coraciiformes, Ciconiformes, Anseriformes, Suliformes, Accipitriformis, Podicipediformes, Charadriiformes, Gruiformes and Bucerotiformes. In present study about 69 species of the birds were reported in marshy places. Order Passeriformes was dominant and it includes about 23 species of birds followed by the order Pellicaniformes which includes about 11 species of birds. In present study the Podicipediformes and Bucerotiformes were recessive which includes only a single species of birds.

**Key words:** Avifauna, New marshy places, Sangli City, Maharashtra.

### INTRODUCTION

Sangli is one of the southern most districts of Maharashtra in Peninsular India. Recently due to heavy rainfall and frequent flooding the new marshy habitats are developed in and around Sangli. These habitats are having 1-3 feet water depth. A marsh is a wetland which is a most productive ecosystem provides water, food, breeding and roosting ground for various birds. They are rich in biodiversity of herbaceous plants such as grasses and sedges, small shrubs and Acacia trees.

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Avian biodiversity is affected by local factors more than by regional ones, with species richness and densities declining as the number of buildings; increasing urbanization will be detrimental for many bird species. Study of avifaunal diversity is an essential ecological tool which acts as an important indicator to evaluate different habitats both qualitatively and quantitatively (Bilgrami 1995). Unfortunately global diversity of birds is decreasing due to anthropogenic disturbances (Rapoport 1993) and climate change (Chen et al. 2011; Sekercioglu et al. 2012). It is estimated that since pre-agricultural levels overall bird population has declined by fifth to a quarter due to change in land use pattern alone.

The Indian subcontinent, a part of the vast oriental biogeography regions, is very rich in biodiversity. Out of the more than 9000 birds the Indian subcontinent contains about 1300 species, or over 13 percent of the world's birds. The avifauna of Indian subcontinent being represented by 2094 forms belonging to 1200 species out of which 19.9 percent (417) forms are wetland birds reported (Ali & Ripley 1983). Wetlands are among the world's most productive habitats, rich in biodiversity that provides the water, shelter, food and breeding ground. The present study assesses freshwater marshy places diversity as the most threatened of all types of diversity.

Table-1. Check List of Birds of Marshy Places of Sangli City

Sr. No.	Common Name	Scientific Name	Order	Family	Resident Status	SITE I	SITE II	SITE III
1	Black Drongo	<i>Dicrurus macrocerus</i>	Passeriformes	Dicruridae	R	+	+	+
2	Bay Backed Shrike	<i>Lanius vittatus</i>		Laniidae	R	+	+	+
3	Long Tailed Shrike	<i>Lanius schach</i>		Laniidae	R	+	-	+
4	Common Tailorbird	<i>Orthotomus sutorius</i>		Cisticolidae	R	+	+	+
5	Ashy Prinia	<i>Prinia inornata</i>		Cisticolidae	R	+	+	+
6	Paddy Field Warbler	<i>Acrocephalus agricola</i>		Acrocephalidae	R	+	+	-
7	Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>		Acrocephalidae	R	+	-	-
8	Dusky Crag Martin	<i>Ptyonoprogne concolor</i>		Hirundinidae	R	+	-	+
9	Wire Tailed Swallow	<i>Hirundo smithii</i>		Hirundinidae	R	+	+	-
10	Ashy Prinia	<i>Prinia inornata</i>		Cisticolidae	R	+	+	+
11	Red Rumped Swallow	<i>Cecropis dacrica</i>		Hirundinidae	R	+	-	+
12	Yellow Eyed Babbler	<i>Chrysomma sinense</i>		Sylviidae	R	+	+	+
13	Rosy Starling	<i>Pastor roseus</i>		Sturnidae	M	+	+	+
14	Common Myna	<i>Acridotheres tristis</i>		Sturnidae	R	+	+	+
15	Indian Robin	<i>Copsychus saularis</i>		Muscicapidae	R	+	+	+
16	Blue Throat	<i>Luscinia svecica</i>		Muscicapidae	M	+	-	-
17	Siberian Stone Chat	<i>Saxicola maurus</i>		Muscicapidae	R	+	+	-
18	Pied Bush Chat	<i>Saxicola caprata</i>		Muscicapidae	R	+	+	+
19	Yellow Wagtail	<i>Motacilla flava</i>		Motacillidae	LM	+	+	-
20	Large Pied Wagtail	<i>Motacilla maderaspatensis</i>		Motacillidae	R	+	+	+
21	Red Avadavat	<i>Amandava amandava</i>		Estrilididae	R	+	+	-
22	Tricoloured munia	<i>Lonchura malaca</i>		Estrilididae	R	+	-	+
23	Cotton Teal/ Cotton pigmy gooes	<i>Nettapus coromandelinus</i>	Anseriformes	Anatidae	LM	+	+	-
24	Lesser Whistling Duck	<i>Dendrocygna javanica</i>		Anatidae	LM	+	-	-
25	Northern Pintail	<i>Anas acuta</i>		Anatidae	LM	+	-	+
26	Gargeny Duck	<i>Spatula querquedula</i>	Anseriformes	Anatidae	LM	+	-	-
27	Northern Shoveler	<i>Spatula clypeata</i>		Anstidae	M	+	-	-
28	Spotbilled Duck	<i>Anas poecilorhynca</i>		Anatidae	LM	+	+	+
29	Ruddy Shelduck	<i>Tadrona ferruginea</i>		Anatidae	LM	+	+	+
30	Grey Heron	<i>Ardea cinerea</i>	Pellicaniformes	Ardeidae	R	+	+	+
31	Purple Heron	<i>Ardea purpurea</i>		Ardeidae	R	+	+	+
32	Greater Egret	<i>Ardea alba</i>		Ardeidae	R	+	+	+
33	Intermediate Egret	<i>Ardea intermedia</i>		Ardeidae	R	+	+	+

...Table-1

34	Little Egret	<i>Egretta garzetta</i>	Pellicaniformes	Ardeidae	R	+	+	+
35	Cattle Egret	<i>Bubulcus ibis</i>		Ardeidae	R	+	+	+
36	Indian Pond Heron	<i>Ardeola grayii</i>		Ardeidae	R	+	+	+
37	Glossy Ibis	<i>Plegadis falcinellus</i>		Threskiornithidae	R	+	+	+
38	Black Headed Ibis	<i>Threskiornis melanocephalus</i>		Threskiornithidae	R	+	+	+
39	Red Naped Ibis	<i>Pseudibis papillosa</i>		Threskiornithidae	R	+	+	+
40	Eurasian Spoonbill	<i>Platalea leucorodia</i>		Threskiornithidae	LM	+	-	+
41	Red Wattled Lapwing	<i>Vanellus indicus</i>	Charadriiformes	Charadriidae	R	+	+	+
42	Little Ringed Plover	<i>Charadrius dubius</i>		Charadriidae	LM	+	-	-
43	Little Stint	<i>Calidris minuta</i>		Scolopacidae	LM	+	+	-
44	Common Greenshank	<i>Tringa nebularia</i>		Scolopacidae	LM	+	-	-
45	Wood Sandpiper	<i>Tringa glareola</i>		Scolopacidae	LM	+	-	+
46	Common Sandpiper	<i>Actitis hypoleucos</i>		Scolopacidae	LM	+	+	-
47	Black Winged Stilt	<i>Himantopus himantopus</i>		Recurvirostridae	R	+	-	+
48	River Tern	<i>Sterna aurantia</i>		Rallidae	R	+	+	-
49	Common Black Kite	<i>Milvus migrans</i>	Accipitriformes	Accipitridae	R	-	+	+
50	Brahminy kite	<i>Heliaster Indus</i>		Accipitridae	R	+	-	+
51	Black Winged Kite	<i>Elanus caeruleus</i>		Accipitridae	R	-	+	+
52	Eurasian Marsh Harrier	<i>Circus aeruginosus</i>		Accipitridae	M	+	-	-
53	Eurasian Coot	<i>Fulica atra</i>	Gruiformes	Rallidae	R	+	-	+
54	Purple moorhen or Grey Headed Swampen	<i>Porphyrio porphyrio</i>		Rallidae	R	+	+	+
55	White Breasted Waterhen	<i>Amaurornis phoenicuru</i>		Rallidae	R	+	+	+
56	Eurasian Moorhen	<i>Gallinula chloropus</i>		Rallidae	R	+	+	+
57	Common Kingfisher	<i>Alcedo atthis</i>	Coraciiformes	Alcedinidae	R	+	+	+
58	White Throated Kingfisher	<i>Halcyon smyrnensis</i>		Alcedinidae	R	+	+	+
59	Pied kingfisher	<i>Ceryle rudis</i>		Alcedinidae	R	+	+	+
60	Green Bee Eater	<i>Merops orientalis</i>		Meropidae	R	+	-	+
61	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	Columbiformes	Columbidae	R	+	+	+
62	Laughing Dove	<i>Streptopelia senegalensis</i>		Columbidae	R	+	+	+
63	Common Rock Pigeon	<i>Columba livia</i>		Columbidae	R	+	-	+
64	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	Suliformes	Phalacrocoracidae	R	+	-	+
65	Little Cormorant	<i>Microcarbo niger</i>		Phalacrocoracidae	R	+	+	+
66	Wooly Necked Stork	<i>Ciconia episcopus</i>	Ciconiiformes	Ciconidae	R	+	-	+
67	Painted Stork	<i>Mycteria leucocephala</i>		Ciconidae	R	+	+	-
68	Little Grebe	<i>Tachybaptus ruficollis</i>	Podicipediformes	Podicipedae	LM	+	+	+
69	Common Hoopoe	<i>Upupa epops</i>	Bucerotiformes	Upupidae	M	+	+	-

RB=Resident Bird MB=Migratory Bird LM=Local Migratory + = Present - = Absent

It is estimated that freshwater wetland alone support 20 percent of the known range of biodiversity in India. Avifauna is most important for any ecosystem because of their roles such as scavengers, pollinators, predators and pest controlling agents.

The avifaunal diversity of these newly formed marshy places remains unpublished until so that the present work was carried out.

## Study Area

Geographic co-ordinates of Sangli, India Latitude -16° 52' 3.4824"N Longitude - 74° 34' 13.4004"E. Elevation above sea level: 553m=1814ft. Sangli district shares the boundaries of following districts in Maharashtra and Karnataka: Satara in the north-West, Solapur in the north-west, Belgaum in the south and Vijayapur in the south-east. The rivers namely Krishna, Warana and Yerala are the rivers that traverse the Sangli district. The flooding occurs in Sangli district was due to the flooding of above three rivers.

## Materials and Methods

The study was carried out since last two years weekly during winter months. Regular field visits were carried out systematically on fixed sites selected from the study area. The sites selected for the study purpose were - Site I - Shamraonagar, Site II Sangli - Islampur Bypass Road, and Site III - Karnal Road Site. Birds were observed early in the morning 6.00 to 9.00 a.m. which is their peak activity period and also in the evening 4.30 to 6.30 p.m. Olympus binocular (7 x 40 mm) was used for the bird observation and for photography Nikon camera (5600D Lenses 70-300) was used.

The birds were identified by using standard field guides and are reported only after confirmation (Wood Cock 1980; Ali & Ripley 1983; Sonobe & Usmi 1993; Grewal 1995; Ali 2012).

## Results and Discussion

In present investigation about 69 species of the birds were reported at three different sites i.e. Site I, Site II and site III of Sangli city and adjoining area.

There are about 26 different families and 12 orders were recorded during this study. About 22 species of birds were recorded from order Passeriformes, 03 species of Columbiformes, 04 species of Coraciiformes, 02 species of Ciconiiformes, 07 species in Anseriformes, 02 species of Suliformes 04 species of Accipitriformes, 08 species of Charadriiformes, 01 species of Podicipediformes, 11 species of Pellicaniformes, 04 species of Gruiformes and 01 species of Bucerotiformes.

Table showing different orders, families, scientific name, common name and local status of the birds occur at three different sites of Sangli city.

India being a mega biodiversity centre harbors, 1301 species of birds that amounts 13% of the total birds of the world (Ali 2012).

According to Niemi 1985, birds are good environmental indicators revealing the state of the ecosystems such as forest edges, wetlands and major river basins. They also act as dispersal agents in transferring nutrients and spores from one place to another during their migration and local movements. The high value of Simpson's index of diversity is an indication of richness of bird diversity (Abdar 2013).

The avifauna of Krishna River Basin is very diverse and rich due to the large sized aquatic ground, varied vegetation and favourable environmental conditions (Kumbhar & Ghadge 2013; Pawar et al. 2010) have studied avifauna of three water reservoirs from Satara district.

Wetlands are major habitats for resident and migratory birds which provide water, shelter, food and sites for nesting, mating and rearing of young ones (Mitsch & Gosselink 2000; Stewart 2001).

In present investigation about 51 resident birds, 04 migrant birds and 14 local migrant bird species were reported. Thus, total 69 bird species were reported. Resident bird species reported were *Dicrurus macrocerus*, *Lanius vittatus*, *Lanius schach*, *Orthotomus sutorius*, *Prinia inornata*, *Acrocephalus agricola*, *Acrocephalus stentoreus*, *Ptyonoprogne concolor*, *Hirundo smithii*, *Prinia inornata*, *Cecropis dacrica*, *Chrysomma sinense*, *Acridotheres tristis*, *Copsychus saularis*, *Saxicola torquatus*, *Saxicola caprata*, *Motacilla maderaspatensis*, *Amandava amandava*, *Lonchura malaca*, *Ardea cinerea*, *Ardea purpurea*, *Ardea alba*, *Ardea intermedia*, *Egretta garzetta*, *Bubulcus ibis*, *Ardeola grayii*, *Plegadis falcinellus*, *Threskiornis melanocephalus*, *Pseudibis papillosa*, *Vanellus indicus*, *Himantopus himantopus*, *Sterna aurantia*, *Milvus migrans*, *Heliaster Indus*, *Elanus caeruleus*, *Fulica atra*, *Porphyrio porphyrio*, *Amaurornis phoenicuru*, *Gallinula chloropus*, *Alcedo atthis*, *Halcyon smyrnensis*, *Ceryle rudis*, *Merops orientalis*, *Streptopelia decaocto*, *Streptopelia senegalensis*, *Columba livia*, *Phalacrocorax fuscicollis*, *Microcarbo niger*, *Ciconia episcopus*, *Mycteria leucocephala* and *Upupa epops*.

Migrant bird species reported were *Pastor roseus*, *Luscinia svecica*, *Spatula clypeata*, and *Circus aeruginosus*.

Local Migrant species of birds reported were *Motacilla flava*, *Nettapus coromandelinus*, *Dendrocygna javanica*, *Anas acuta*, *Spatula querquedula*, *Anas poecilorhynca*, *Tadrona ferruginea*, *Platalea leucorodia*, *Charadrius dubius*, *Calidris minuta*, *Tringa nebularia*, *Tringa glareola*, *Actitis hypoleucos* and *Tachybaptus ruficollis*.

Avian diversity has been studied by number of workers but a very few notable field surveys on avian diversity have been conducted in major wetlands of India

Figure-1. Residential, Migratory & Local Migratory Birds



Black Necked Ibis



Sand Piper



Common Reed Warbler



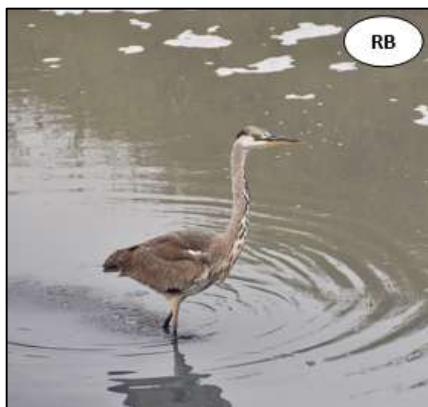
Eurasian Spoonbill



Glossy Ibis



Painted Stork



Grey Heron



Woolly Necked Stork



Ruddy Shelduck



Cotton Teal

...Figure-1



Blue Throat



Eurasian Marsh Harrier

(Nazneen et al. 2001; Awan et al. 2004; Bhat et al. 2009; Sonal et al. 2010; Narayanan et al. 2011; Saikia & Devi 2011; Balkhande et al. 2012). However information on wetland avifauna of Maharashtra is much scanty.

Birds are good environmental indicators revealing the state of the ecosystems such as forest edges, wetlands and major river basins. The avian habitat is roughly divisible into forest, scrub and wetlands, although many species requires mixed types of habitats.

## Conclusion

The marshy habitat developed due to flood are most productive ecosystems which provides food, shelter, breeding and roosting grounds for various bird species. These bird species are local migrants, migrants and resident birds abundantly occurs during winter season from the month of November up to February. Few migratory birds like Rosy starling were observed upto summer months (March and April).

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## Conflicts of Interest

Authors declare that there is no conflict of interests regarding the publication of this paper.

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