

## Avifauna of Thakurli, District Thane

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**Abstract :** Thakurli, a suburb of Kalyan-Dombivli Municipal Corporation, is situated between two densely populated cities Kalyan and Dombivli. With rampant concretization this small suburb is steadily losing its green cover – a threat to biodiversity. Birds are the indicators of biodiversity. To know the present status of bird biodiversity, Avifauna study was carried out at Thakurli east and west. East, showing rampant concrete construction, is a combination of rough, rocky area, farm and marshy land, while west is a combination of farmland and creek. The duration of study extended between May 2012 and April 2013. A total of 86 species of birds were recorded belonging to 38 families. Most of them were the residents but a few were migratory. Order Passeriformes dominated the birds' list. Birds found in human habitat were more than the rest – an indicator of progressive urbanization of the study area.

**Key words:** - Thakurli, Avifauna, Biodiversity, Residents, Migratory Birds.

### Introduction

“Feathered Bipeds” (Ali, 2012), an apt and precise description for birds, forms the inevitable component of an ecosystem. As they usually occupy high trophic levels in food webs and relatively sensitive to environmental changes, they are good indicators of biodiversity.

Thakurli, an upcoming suburb of Kalyan-Dombivli Municipal Corporation, is situated between twin cities Kalyan and Dombivli. It is observing a steady growth in human habitation with a proportionate decrease in green cover. Bird biodiversity of nearby Thane creek has been documented. In 2001, Quadros, G. reported 55 species of birds in Thane Creek; Nitsure S.R. (2002) studied avifauna of Thane Creek near Rituchakra Park. Varier, D. (2010) reported birds of Thakurli creek, but this report is based on her one day visit to the area. Thus, there exists paucity of scientific data regarding avifauna of the said area. The present study has attempted to document the avifauna of Thakurli.

### Study Area

Geographically, Thakurli (Coordinates 19.2255° N, 73.0967° E) is located towards the east and north of Dombivli. Its north is bordered by Thakurli Creek / Ulhas River estuary and towards east is Kalyan. The railway tracks passing through Thakurli divide it into two parts – west and east. The West of Thakurli is more a combination of farmland and creek whereas the East is a combination of rough, rocky area, farm and marshy land. It has two fresh water lakes, namely Chole and Bhoirwadi Lake. Thakurli is observing rampant growth in human habitation, thereby causing the loss of natural habitat for organisms. It's an example of developing urbanization. Hence this area was selected for the study. The study area was divided into two parts – Thakurli east and west.

Thakurli has a moderately humid tropical climate with maximum temperature of 41<sup>o</sup> C and minimum temperature of 17<sup>o</sup> C. The annual rainfall ranges between 1900 mm and 2700 mm. Vegetation of the study area includes *Ceiba pentandra* (Kapok), *Bombax ceiba* (Cotton tree), *Borassus flabellifer* (Toddy Palm), *Mangifera indica* (Mango), *Syzygium cumini* (Jamun), *Calotropis pprox.n* (Rui), *Vitex negundo* (Nirgudi), *Typha angustifolia* (Lesser Indian Reed Mace), *Cassia auriculata* (Legume tree), *Cassia fistula* (Common Laburnum), *Tamarindus indica* (Tamarind), *Delonix regia* (Gulmohar).

### Materials and Methods

The study was conducted for the duration of 12 months from May 2012 to April 2013 at regular intervals of two visits per month. The study was carried out alternately either during morning (6:00 hr. to 10:00 hr.) or during evening (16:00 hr. to 19:00 hr.). The Avifauna was observed using binoculars (10 x 21) and Nikon Cameras P100 (26X Zoom) and P500 (30X Zoom), and also by direct spotting and counting method. The observed birds were identified and classified by using standard guides such as ‘The book of Indian Birds’ (Ali, 2012), and ‘A Pictorial Guide to the Birds of the Indian Sub-Continent’ (Ali & Ripley, 1995). The counting methodology was used from Counting birds in India: Methodologies and trends (Urfi *et al.*, 2005) The status of the birds as **Common**, **Uncommon (UN)**, and **Rare** is based on the frequency of spotting. The birds were divided into following categories in accordance with the classification suggested by Ali (2012): **R** – **Resident** (Indigenous birds); **RM** – **Resident Migratory** (Resident birds that migrate locally within the country also called as local migratory); **M** – **Migratory** (Birds from other countries visiting the area under study). Migratory birds are further subcategorized as **WM** – **Winter Migratory** and **MM** – **Monsoon Migratory**.

### Observations:

A total of 86 species of birds were recorded representing 13 orders and 38 families in the study area as depicted in table no. 1. Order Passeriformes dominated the count with 40 species of birds belonging to 18 families (Fig. 1). The second most dominating order was Charadriiformes with 9 species of birds belonging to 5 families. Order Apodiformes was represented by only one species of bird namely Asian Palm Swift. Family Ardeidae (Order – Ciconiformes), Sturnidae and Muscicapidae (Order – Passeriformes) were found to be richest families with each representing 6 species of birds.

Out of 86 species of birds (Fig. 2), 68 (79%) were common, 16 (19%) were uncommon whereas 2 birds were rare. *Gallinula cinerea* (Watercock), *Limosa limosa* (Black-tailed Godwit) were the rare birds of the study area. Watercock being very secretive was observed only once in small wetland area and its call were heard on few visits. Black-tailed Godwit was found in creek area on couple of occasions during winter season.

Resident birds dominated the birds list representing as high as 75% whereas 8% were local migratory, 15% were winter migratory and the rest 2% were monsoon migratory

birds (Fig. 3). Birds like common tailorbird, Ashy prinia, Plain prinia, Jungle babbler, Common myna, Jungle myna, Asian pied starling, Brahminy starling, Oriental magpie robin, Indian Golden Oriole, House crow, House sparrow, Blue-rock pigeon, Laughing dove, Ashy drongo, Black drongo, Asian Koel, Greater coucal, White-breasted kingfisher, Green bee-eater, scaly-breasted munia, Rose-ringed parakeet, Red-vented bulbul, Red-wattled lapwing, Bronze-winged jacana, Cattle egrets, Indian pond heron, Common sandpiper, Black Kite were very commonly spotted in the study area – both east as well as west of Thakurli. Birds like Northern Shoveler, Black-tailed godwit, Northern Pintail, Curlew sandpiper, Black winged Stilt, Brown-headed Gull, Osprey, Brahminy Kite were observed only in Thakurli west where anthropogenic activity is very less.

Northern Shoveler, Northern pintail, Brown headed gull, Curlew sandpiper, Wood sandpiper, Black-tailed Godwit, Chestnut-tailed starling, Rosy Starling, White wagtail, Osprey, Western Marsh harrier, Common whitethroat, White wagtail birds were reported during winter season. Red Avadavat and Tricoloured munia were reported during the month of June and July. Habitat wise, at 44% the birds found in human habitat dominated the list, whereas the second most preferred habitat was of Creek (approx. 25%).

**Table No. 1 Diversity, status and habitat preference of Avifauna of Thakurli**

Sr. No.	Family	Scientific name	Common name	Category	Status	Habitat
<b>Order – Ciconiformes</b>						
1	Ardeidae	<i>Ardeola grayii</i>	Indian Pond-Heron	R	C	DG, SW
2		<i>Ardea purpurea</i>	Purple Heron	LM	UN	SW
3		<i>Nycticorax nycticorax</i>	Black-crown Night Heron	R	C	Cr
4		<i>Bubulcus ibis</i>	Cattle Egret	R	C	DG, SW
5		<i>Ixobrychus cinnamomeus</i>	Chestnut Bittern	R	C	SW
6		<i>Egretta garzetta</i>	Little Egret	R	C	Cr
7	Threskiomithidae	<i>Pseudibis papillosa</i>	Black Ibis	LM	UN	Ag
<b>Order – Anseriformes</b>						
8	Anatidae	<i>Dendrocygna javanica</i>	Lesser Whistling-Duck	R	C	SW
9		<i>Anas acuta</i>	Northern Pintail	WM	UN	Cr
10		<i>Anas poecilorhyncha</i>	Spot Billed-Duck	R	C	Cr
11		<i>Anas querquedula</i>	Garganey	WM	UN	Cr
12		<i>Anas clypeata</i>	Northern Shoveler	WM	UN	Cr
<b>Order – Grucciformes</b>						
13	Rallidae	<i>Porzana fusca</i>	Ruddy-breasted Crake	LM	UN	SW

14		<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	R	C	SW
15		<i>Gallixrex cinerea</i>	Watercock	LM	R	SW
16	Jacaniidae	<i>Metapidius indicus</i>	Bronze-winged Jacana	R	C	SW
<b>Order – Charadriiformes</b>						
17	Charadriidae	<i>Limosa limosa</i>	Black-tailed Godwit	WM	R	Cr
18		<i>Vanellus indicus</i>	Red-wattled Lapwing	R	C	DG
19	Rostratulidae	<i>Rostratula benghaensis</i>	Greater-Painted-Snipe	LM	UN	Ag
20	Recurvirostridae	<i>Himantopus himantopus</i>	Black winged Stilt	R	C	Cr
21	Laridae	<i>Larus brunnicephalus</i>	Brown-headed Gull	WM	C	Cr
22		<i>Sterna aurantia</i>	River Tern	R	C	Cr
23	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	R	C	Cr, SW
24		<i>Calidris ferruginea</i>	Curlew Sandpiper	WM	UN	Cr
25		<i>Tringa glareola</i>	Wood Sandpiper	WM	UN	Cr
<b>Order – Psittaciformes</b>						
26	Psittacidae	<i>Psittacula krameri</i>	Rose-ringed Parakeet	R	C	HH
27		<i>Psittacula eupatria</i>	Alexenderine Parakeet	R	C	HH
<b>Order – Strigiformes</b>						
28	Strigidae	<i>Tyto alba</i>	Barn-Owl	R	C	HH
29		<i>Athene brama</i>	Spotted Owlet	R	C	HH
<b>Order – Apodiformes</b>						
30	Apodidae	<i>Cypsiurus balasiensis</i>	Asian Palm Swift	R	C	HH
<b>Order – Coraciiformes</b>						
31	Alcedinidae	<i>Alcedo atthis</i>	Small Blue Kingfisher	R	C	HH
32	Dacelonidae	<i>Halcyon smyrnensis</i>	White-breasted Kingfisher	R	C	HH
33	Meropidae	<i>Merops orientalis</i>	Green Bee-eater	R	C	S
<b>Order – Piciformes</b>						
34	Megalaimidae	<i>Megalaima haemacephala</i>	Coppersmith Barbet	R	C	HH
35	Picidae	<i>Dendrocopos mahrattensis</i>	Yellow-crowned Woodpecker	LM	UN	S
<b>Order – Passeriformes</b>						
36	Hirundinidae	<i>Hirundo concolor</i>	Dusky Crag Martin	R	C	HH
37		<i>Hirundo smithii</i>	Wire-tailed swallow	R	C	HH
38	Lanidae	<i>Lanius schach</i>	Long tailed shrike	R	C	HH
39	Oriolidae	<i>Oriolus kundoo</i>	Indian Golden Oriole	R	C	HH
40	Dicruridae	<i>Dicrurus macrocercus</i>	Black Drongo	R	C	HH
41		<i>Dicrurus leucophaeus</i>	Ashy Drongo	R	C	HH
42	Sturnidae	<i>Acridotheres tristis</i>	Common Myna	R	C	HH

43		<i>Acridotheres fuscus</i>	Jungle Myna	R	C	DG
44		<i>Sturnus pagodarum</i>	Brahminy Starling	R	C	S
45		<i>Sturnus contra</i>	Asian Pied Starling	R	C	HH
46		<i>Sturnus malabaricus</i>	Chestnut-tailed Starling	WM	UN	HH
47		<i>Sturnus roseus</i>	Rosy Starling	WM	UN	Ag
48	Corvidae	<i>Corvus splendens</i>	House Crow	R	C	HH
49		<i>Corvus macrorhynchos</i>	Large Billed Crow	R	C	HH
50	Irenidae	<i>Aegithina tiphia</i>	Common Iora	R	C	HH
51	Pycnonotidae	<i>Pycnonotus cafer</i>	Red-vented Bulbul	R	C	HH
52	Muscicapidae	<i>Turdoides striata</i>	Jungle Babbler	R	C	HH
53		<i>Chrysomma sinense</i>	Yellow-eyed Babbler	R	C	S
54		<i>Saxicoloides fulicatus</i>	Indian Robin	R	C	HH
55		<i>Copsychus saularis</i>	Oriental Magpie Robin	R	C	HH
56		<i>Saxicola maurus</i>	Siberian Stonechat	LM	C	S
57		<i>Saxicola caprata</i>	Pied Bushchat	R	C	S
58	Motacillidae	<i>Anthus rufulus</i>	Paddyfield Pipit	R	C	Cr
59		<i>Motacilla cinerea</i>	Grey Wagtail	R	C	SW
60		<i>Motacilla alba</i>	White Wagtail	WM	UN	SW
61	Nectarinnidae	<i>Cinnyris asiaticus</i>	Purple Sunbird	R	C	HH
62		<i>Nectarinia zeylonica</i>	Purple-rumped Sunbird	R	C	HH
63	Dicaeidae	<i>Dicaeum erythrorhynchos</i>	Pale-billed Flowerpecker	R	C	HH
64	Passeridae	<i>Passer domesticus</i>	House Sparrow	R	C	HH
65		<i>Petronia xanthocollis</i>	Yellow-throated Sparrow	R	C	S
66	Ploceidae	<i>Ploceus philippinus</i>	Baya Weaver	R	C	HH,S
67	Estrildidae	<i>Lonchura punctulata</i>	Scaly-breasted Munia	R	C	Cr
68		<i>Amandava amandava</i>	Red Avadavat	MM	C	Cr
69		<i>Lonchura malacca</i>	Tricoloured Munia	MM	UN	Cr
70	Cisticolidae	<i>Prinia inornata</i>	Plain Prinia	R	C	Cr
71		<i>Prinia socialis</i>	Ashy Prinia	R	C	Ag
72		<i>Cisticola juncidis</i>	Zitting Cisticola	R	C	HH
73	Genera Incertae Sedis	<i>Orthotomus sutorius</i>	Common Tailorbird	R	C	HH
74	Silvidae	<i>Sylvia communis</i>	Common Whitethroat	WM	UN	Cr
75	Rhipiduridae	<i>Rhipidura albicollis</i>	White-throated Fantail	R	C	HH
<b>Order – Columbiformes</b>						
76	Columbidae	<i>Columba livia</i>	Blue-rock Pigeon	R	C	HH
77		<i>Streptopelia chinensis</i>	Spotted Dove	R	C	S
78		<i>Streptopelia senegalensis</i>	Laughing Dove	R	C	HH
79		<i>Streptopelia orientalis</i>	Oriental Turtle Dove	R	C	S

Order – Cuculiformes						
80	Cuculidae	<i>Eudynamys scolopaceus</i>	Asian Koel	R	C	HH
81	Centropopidae	<i>Centropus sinensis</i>	Greater Coucal	R	C	HH
Order – Falconiformes						
82	Accipitridae	<i>Milvus migrans</i>	Black Kite	R	C	HH
83		<i>Haliastur indus</i>	Brahminy Kite	R	C	Cr
84		<i>Accipiter badius</i>	Shikra	R	C	HH
85		<i>Circus aeruginosus</i>	Western Marsh-Harrier	WM	C	Cr
86		<i>Pandion haliaetus</i>	Osprey	WM	UN	Cr

HH – Human Habitat; DG – Dry Grassland; S – Scrubland; Cr – Creek; SW – Small Waterbody.

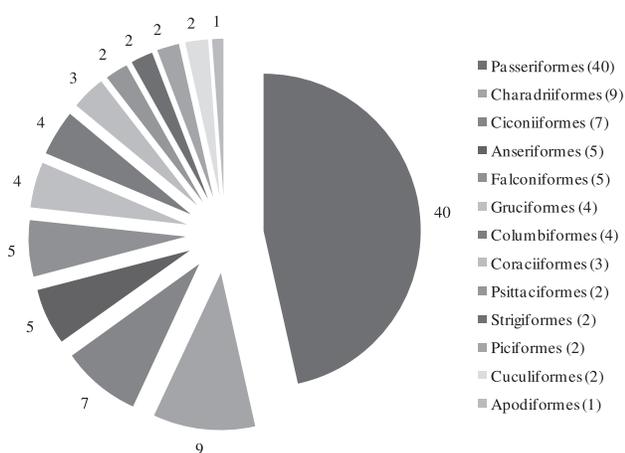


Fig. 1: Pie-Diagram showing species of birds belonging to different Orders

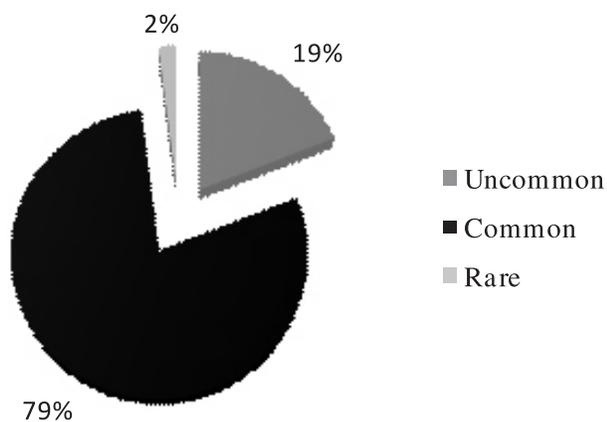


Fig. 2: Pie-Diagram representing the status of avifauna in Thakurli.

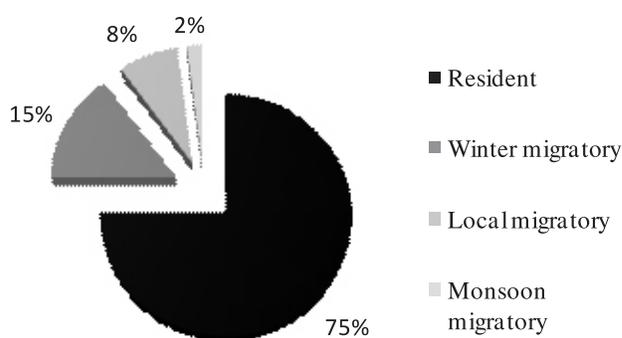


Fig. 3: Diagrammatic representation of resident and migratory birds of Thakurli.



Fig. 4: Brahminy Starling



**Fig. 5 : Chestnut-tailed Starling**



**Fig. 6: Oriental turtle Dove**



**Fig. 7: Yellow-eyed Babbler**



**Fig. 8: Wire-tailed Swallow**



**Fig. 9: White-throated Fantail**



**Fig. 10: Tricoloured Munia**



**Fig. 11: Red Avadavat**



**Fig. 12: Grey Wagtail**



**Fig. 13: Shikra**



**Fig. 14: Black Ibis**



**Fig. 15: Watercock**



**Fig. 16: Bronze-winged Jacana**



**Fig. 17: Lesser Whistling Duck**



**Fig. 18: Black winged Stilt**



**Fig. 19: Black-tailed Godwit**

## Conclusion and Suggestions

Monitoring of species diversity is a useful technique for assessing damage to the system. Similarly maintenance of good species diversity is a positive management objective (Mann, 1982). With 86 species of birds observed, Thakurli provides a moderately healthy condition with reference to biodiversity. Of the birds list, 85 species come under the category of least concern whereas only one species belongs to the category of near threatened.

Thakurli Creek, though haven for a substantial number of resident and migratory birds, is facing threat in the form of fishing trawlers and dumping site for domestic sewage and industrial effluents. There is a need to take measures to restrict or dilute such threats. The defunct coal-based thermal power station near Thakurli creek is all set to be revived (Costa, 2011). Measures should be taken to see to it that such a revival should not disturb the delicate balance of the area.

Urbanization increases biological homogenization, causing the extirpation of native species and promoting the establishment of non-native, urban-adaptable species that are becoming increasingly widespread and locally abundant across the planet (McKinney, 2006). Abundance of human associated bird species shows trend of progressive urbanization (Palita, 2011). Thakurli, with 44% of human associated bird species is an indicator of progressive urbanization. Birds like Blue-rock pigeon, House crow, house sparrow, common myna were very commonly found. Urbanization and maintenance of biodiversity are equally important. Therefore all possible measures should be taken to see to it that both of them go hand in hand. Each building and society should have the space for garden with more of indigenous plants. Small waterbodies should be identified and conserved. The two lakes of Thakurli, which are currently more sort of dumping site, should be regularly taken care of.

Birds are indicators of healthy habitat and are sensitive to any change in it (Morrison, 1986; Ripley, 1978). As no earlier records are available for the avifauna of the study area, the presented information can form the baseline data for future assessment of impact of urbanization on avifauna in Thakurli.

Within Mumbai Metropolitan Region, bird biodiversity of certain area have been studied. Walmiki, N., *et al.*, (2013) studied avian diversity in and around Bassein Fort and Creek; Prabhakar, P.R. (2011) reported species diversity of birds in mangroves of Uran (Raigad), Navi Mumbai; Thakur, K. N. (2010) studied the impact of special economic zone (SEZ) on birds in Uran; Chauhan, R. R., *et al.*, (2008) surveyed the avifauna of Borivali mangroves along the coast of Mumbai; Verma, A., *et al.*, (2004) gave a preliminary report on biodiversity of Mahul Creek with special reference to