



## Bird Diversity of Tarkarli, an Eco-tourism Destination in Maharashtra

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### ABSTRACT

The bird fauna of the coastal village, Tarkarli, a tourist hotspot, in Sindhudurg district of Maharashtra was surveyed from January 2014 to December 2016. This is the first documentation of avifauna of Tarkarli as there is no earlier published record. This study recorded 66 bird species belonging to 41 families. It was observed that Red Whiskered Bulbul and Common Myna were the most abundant and frequent bird species next to Common Crow and House Sparrow. Tarkarli also serves as an abode for the near-threatened Malabar Pied Hornbill and the vulnerable Black-lored Tit, pointing to the ornithological significance of this village. Asian Paradise Flycatcher and Grey Hypocolius were also spotted, though only once. Grey Hypocolius is a vagrant species in Konkan region. The study revealed, Tarkarli with its close proximity to the Western Ghats, lush green vegetation; paddy, vegetable and fruit plantations; freshwater and marine resources, serves as a vibrant home for the avifauna of the region. This check-list of birds may provide a base-line data for environmentalists and policy makers towards the formulation of conservation strategies for Tarkarli an eco-tourism destination in Maharashtra.

### INTRODUCTION

Birds, besides enhancing the aesthetic beauty of a place, form a significant component of the ecosystem. They are also the major indicators of the environmental status of a region. India has been reported to be a home for about 1263 species of birds belonging to 107 families and 23 orders (Praveen et al. 2016). The study area, Tarkarli, a small scenic village with thick green vegetation is located at the convergence of Karli river and Arabian sea in the Sindhudurg district in coastal Maharashtra. Its rich natural resources makes Tarkarli, a home to many bird species. Tarkarli has gained prominence as a tourist destination due to its long and narrow stretch of beach with white sand and clear water, where on a fairly sunny day, one can see the sea-bed up to a depth of 20 feet. Another tourist attraction in Tarkarli is the backwaters of Karli river lined with coconut trees. It is the only place in Maharashtra to have the backwaters and where one can scuba dive. In 1997, Sindhudurg district to which Tarkarli village belongs, was declared as a "tourism district" by the Government of Maharashtra. It has taken decisive steps to promote Tarkarli into a tourist destination by starting a beach resort here in the year 2000 through Maharashtra Tourism Development Corporation (MTDC). It is therefore necessary that, while the tourism industry is being encouraged in Tarkarli, simultaneous conservational measures are taken to preserve its bird life. Hence, the present study focused on the creation of check-list of birds in the Tarkarli region. Bird species from the Konkan (Pande et al. 2003), Sindhudurg district, in general (Jambhale 2009), Malvan town and Bagayatwadi of Malgaon village of

Malvan taluka (Khot 2016) have already been reported. However, Mavan taluka is a congregation of 136 villages (<http://www.census2011.co.in/data/subdistrict/4278-malwan-sindhudurg-maharashtra.html>) with Tarkarli being one of them. Information on the bird diversity of Tarkarli, which registers the highest number of tourist foot falls, in particular is lacking. Therefore, the present study was conducted to enlist the bird species of Tarkarli, which may provide information on the bird diversity of Tarkarli to tourists, nature lovers and also to policy makers to develop bird conservation strategies.

### MATERIALS AND METHODS

**Study area:** Tarkarli (Fig. 1), a small village in Malvan taluka, in the district of Sindhudurg along the coast of Maharashtra, is situated at the confluence of the River Karli and the Arabian Sea. It is 546 km away from Mumbai, 6 kms south of Malvan, on the west coast of India. Tarkarli lies between geographical coordinates of 73°28'08" E longitude and 16°03'24" N latitude. The climate is generally moist and humid and the temperature varies with a minimum of 16.3°C to a maximum of 33.8°C. The average rainfall is 3,287mm (<http://sindhudurg.nic.in>). It has semi-evergreen, dry deciduous and moist deciduous dense forest, Sahayadri hill ranges, and pristine beaches. Besides stretches of paddy fields, it has vegetable cultivations, plantations of coconut, banana, mango, cashew, jackfruit, kokum and jamun trees.

**Survey method:** Bird survey in Tarkarli was carried out every month, for 3 consecutive days from January 2014 to

Table 1: List of birds recorded in Tarkarli village from January 2014 to December 2016.

Sr. No.	Common Name	Scientific Name	Habitat	Occurrence	Population Status
<b>Family – Accipitridae</b>					
1	Black kite	<i>Milvus migrans migrans</i>	Hh, T	C	Resident
2	Brahminy Kite	<i>Haliastur Indus</i>	Ss	C	Resident
3	White Bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	Ss, T	OC	Winter Migrant
<b>Family – Ardeidae</b>					
4	Cattle Egret	<i>Bubulcus ibis</i>	Pf	C	Resident
5	Large Egret	<i>Ardea alba</i>	Pf	C	Resident
6	Little Egret	<i>Egretta garzetta</i>	Pf	C	Resident
7	Western Reef Egret	<i>Egretta gularis</i>	Ss	OC	Resident
8	Intermediate Egret	<i>Ardea intermedia</i>	Pf	C	Resident
9	Indian Pond Heron	<i>Ardeola grayii</i>	Pf	C	Resident
<b>Family – Phalacrocoracidae</b>					
10	Little Cormorant	<i>Phalacrocorax niger</i>	FWS	C	Resident
<b>Family – Sturnidae</b>					
11	Common Myna	<i>Acridotheres tristis</i>	Hh	A	Resident
<b>Family – Hirundinidae</b>					
12	Red-rumped swallow	<i>Hirundo daurica</i>	Bf	OC	Winter Migrant
<b>Family – Pycnonotidae</b>					
13	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	Hh, Bf, T	A	Resident
14	Red-vented Bulbul	<i>Pycnonotus cafer</i>	Hh, Bf, T	C	Resident
<b>Family – Motacillidae</b>					
15	Paddyfield Pipit	<i>Anthus rufulus</i>	Mf	C	Local Migrant
<b>Family – Passeridae</b>					
16	House Sparrow	<i>Passer domesticus</i>	Hh, T,B	A	Resident
<b>Family – Estrildidae</b>					
17	White-rumped Munia	<i>Lonchura striata</i>	T	OC	Resident
<b>Family – Irenidae</b>					
18	Common Iora	<i>Aegithina tiphia</i>	Hh, T	C	Resident
<b>Family – Cisticolidae</b>					
19	Common Tailorbird	<i>Orthotomus sutorius</i>	Hh, B, T	C	Resident
<b>Family – Phylloscopidae</b>					
20	Common Chiffchaff	<i>Phylloscopus collybita</i>	Ss, B	C	Winter Migrant
<b>Family – Nectariniidae</b>					
21	Purple-rumped Sunbird	<i>Nectarinia zeylonica</i>	Hh, B, T	C	Resident
22	Purple Sunbird	<i>Nectarinia asiatica</i>	Hh, B, T	C	Resident
<b>Family – Megalaimidae</b>					
23	Coppersmith Barbet	<i>Megalaima haemacephala</i>	T	C	Resident
24	Brown headed barbet	<i>Megalaima zeylanica</i>	T	C	Resident
<b>Family – Upupidae</b>					
25	Common Hoopoe	<i>Upupa epops</i>	Bf	OC	Resident
<b>Family – Apodidae</b>					
26	Indian Roller	<i>Coracias benghalensis</i>	Hh, Bf	OC	Local Migrant
<b>Family – Alcedinidae</b>					
27	Common Kingfisher	<i>Alcedo atthis</i>	FWS	C	Resident
28	White-breasted kingfisher	<i>Halcyon smyrensis</i>	FWS	C	Resident
<b>Family – Meropidae</b>					
29	Green Bee-eater	<i>Merops orientalis</i>	Bf, T	C	Resident
30	Chestnut-headed Bee-eater	<i>Merops leshenaulti</i>	Bf, T	C	Local Migrant
<b>Family – Cuculidae</b>					
31	Asian Koel	<i>Eudynamis scolopaceus</i>	Hh, T	A	Resident
32	Crow Pheasant	<i>Centropus sinensis</i>	Hh, T	A	Resident
<b>Family – Psittacidae</b>					
33	Rose-ringed Parakeet	<i>Psittacula krameri</i>	Hh, T	A	Resident
<b>Family – Columbidae</b>					
34	Eurasian Collared Dove	<i>Streptopelia decaocta</i>	Hh, T	C	Resident
35	Spotted Dove	<i>Streptopelia chinensis</i>	Hh, T	C	Resident
<b>Family – Rallidae</b>					
36	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	FWS	A	Resident

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<b>Family – Scolopacidae</b>					
37	Black-tailed Godwit	<i>Limosa limosa</i>	Mf	C	Winter Migrant
38	Common Redshank	<i>Tringa tetanus</i>	Mf	C	Winter Migrant
39	Common Sandpiper	<i>Actitis hypoleucos</i>	Mf	C	Winter Migrant
<b>Family – Charadriidae</b>					
40	Little-ringed Plover	<i>Charadrius dubius</i>	Mf	C	Winter Migrant
41	Red-wattled lapwing	<i>Vanellus indicus</i>	Bf, Pf	C	Resident
<b>Family – Laniidae</b>					
42	Black-headed Cuckoo Shrike	<i>Coracina melanoptera</i>	T	OC	Resident
43	Rufous-backed Shrike	<i>Lanius schach</i>	Bf, B	C	Resident
<b>Family – Corvidae</b>					
44	House Crow	<i>Corvus splendens</i>	Hh,	A	Resident
45	Jungle Crow	<i>Corvus macrorhynchos</i>	Hh,	C	Resident
46	Indian Treepie	<i>Dendrocitta vagabunda</i>	Hh, T	OC	Resident
<b>Family – Oriolidae</b>					
47	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	Hh, T	C	Resident
<b>Family – Rhipidurinae</b>					
48	White-throated Fantail Flycatcher	<i>Rhipidura albicollis</i>	Hh, B	C	Resident
<b>Family – Dicruridae</b>					
49	Black Drongo	<i>Dicrurus macrocercus</i>	Bf, T	C	Resident
50	Ashy Drongo	<i>Dicrurus leucophaeus</i>	Bf, T	C	Local Migrant
<b>Family – Monarchinae</b>					
51	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	T	OC	Winter Migrant
<b>Family – Turdinae</b>					
52	Oriental Magpie Robin	<i>Copsychus saularis</i>	Hh, Bf	C	Resident
53	Indian Robin	<i>Saxicoloides fulicata</i>	Hh, T	C	Resident
<b>Family – Campephagidae</b>					
54	Scarlet Minivet	<i>Pericrocotus flammeus</i>	Hh, T	OC	Resident
55	Small Minivet	<i>Pericrocotus cinnamomeus</i>	Hh, T	C	Resident
56	Black-winged Cuckoo shrike	<i>Coracina melaschistos</i>	T	OC	Resident
<b>Family – Hypocoliidae</b>					
57	Grey Hypocolius	<i>Hypocolius ampelinus</i>	Bf, B	Vagrant	Winter Migrant
<b>Family – Bucerotidae</b>					
58	Malabar Pied hornbill	<i>Anthracoceros coronatus</i>	T	C	Resident
59	Indian Grey Hornbill	<i>Ocyrceros birostris</i>	T	C	Resident
<b>Family – Picidae</b>					
60	Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>	T	C	Resident
<b>Family – Hirundinidae</b>					
61	Common Swallow	<i>Hirundo rustica</i>	Bf	C	Resident
<b>Family – Timalinae</b>					
62	Common Babbler	<i>Turdoides caudatus</i>	Bf	C	Resident
<b>Family – Ploceinae</b>					
63	Baya Weaver	<i>Ploceus philippinus</i>	B	C	Resident
<b>Family – Chloropseidae</b>					
64	Gold-fronted Chloropsis	<i>Chloropsis aurifrons</i>	T	OC	Resident
<b>Family – Phasianidae</b>					
65	Indian Peafowl	<i>Pavo cristatus</i>	Bf	C	Resident
<b>Family – Paridae</b>					
66	Black-lored Tit	<i>Parus xanthogenys</i>	T	C	Resident

**Abbreviations:** A - Abundant, C – Common, OC – Occasional, V – Vagrant, Hh - Human habitation, Bf - Barren fields, Pf - Paddy field, FSH – Fresh water source, Ss - Sea shore, B – Bushes, T - Thick vegetation, Mf – Mudflats

December 2016. The birds were surveyed during the morning from 0630 to 1000 hours and in the evening 1600 to 1800 hours. Observations were done by direct sightings and using 8×42 binoculars. The survey encompassed different habitats such as human habitations, dense vegetation, paddy fields, barren fields, wetlands, mud flats and coast line. The

bird species were identified using standard field guides (Ali et al. 1995, Grimmett et al. 1999, Ali 2002, Pande et al. 2003). During the survey, care was taken to avoid disturbances to the birds. The identified birds were categorized based on habitat (Human habitation, Barren fields, Paddy field, Sea shore, Bushes, Thick vegetation, Mudflats), oc-

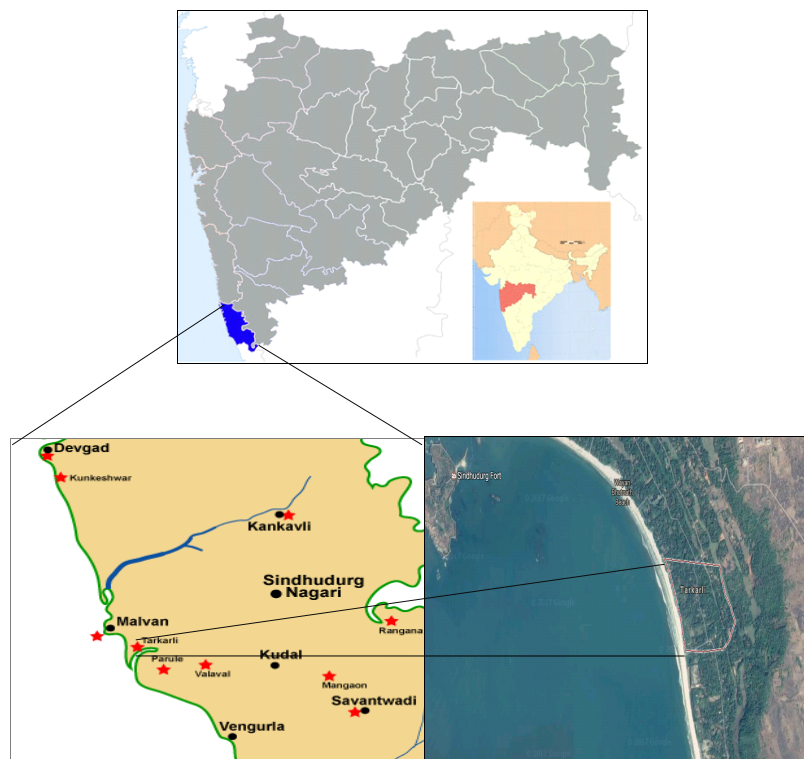


Fig. 1: India-Maharashtra, Sindhudurg, Tarkarli.

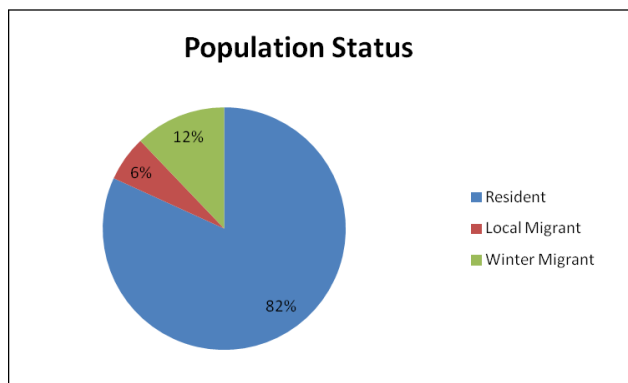


Fig. 2: Population status of bird species of Tarkarli village.

currence (Abundant, Common, Occasional, Vagrant) and population status (Resident, Winter Migrant, Local Migrant). Further the common and scientific names and the taxonomic sequence are as per Manakadan and Pittie (2001).

## RESULTS AND DISCUSSION

Avifaunal survey in Tarkarli village recorded a total of 66 species of birds belonging to 41 families (Table 1), of which the resident birds, local migrants and winter migrants numbered to 53, 4 and 9, respectively or alternatively 82% resi-

dents, 12% local migrants and 6% winter migrants (Fig. 2). Of the total 66 bird species recorded maximum belonged to Family Ardeidae i.e., 6 species, followed by 3 species each belonging to Family Accipitridae, Scolopacidae, Corvidae and Campephagidae. However, rest of the Families had just 1 or 2 species to their credit (Fig. 3). It was observed that Red Whiskered Bulbul and Common Myna were the most abundant and frequent bird species next to Common Crow and House Sparrow. As per the IUCN 2014 Red List Category, 64 species were of Least Concern, while one 1 was Near Threatened (the Malabar Pied Hornbill), and 1 was the Vulnerable Black (Lored Tit). Asian Paradise Flycatcher and Grey Hypocolius were also spotted, though only once. Earlier reports indicate that the Grey Hypocolius as a regular winter visitor to the Kutch region of western India (Shekar 1960, Tiwari et al. 1996) and vagrants have been noted as far south as Kihim in Konkan region (Ali 1931, Pande et al. 2003). Tarkarli falls in Konkan region. 36% of the total bird species recorded were observed close to human habitation.

Birds play an important role in the ecosystem as pollinating agents, scavengers and are sensitive to changes in their environment. The present study revealed that Tarkarli harbours varied bird life, which indicates a healthy ecosystem in the region.

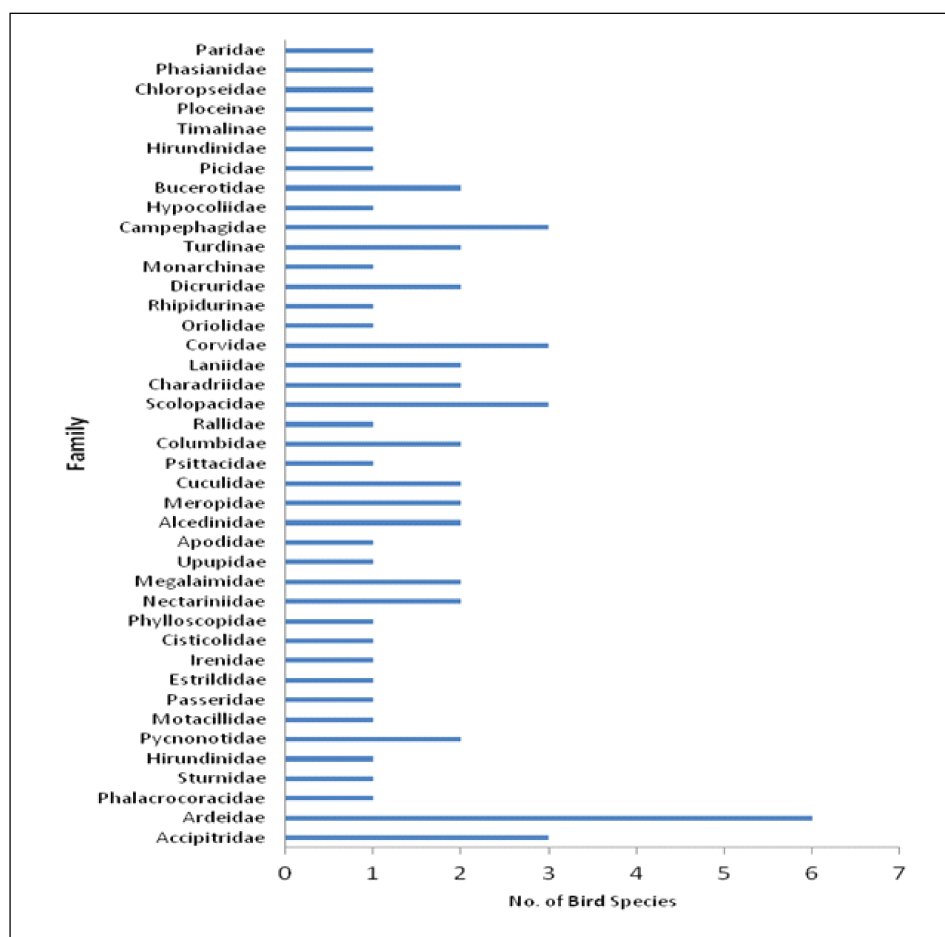


Fig. 3: Family-wise distribution of birds surveyed in Tarkarli village.

## CONCLUSION

The results of the study revealed the presence of rich avifaunal community in Tarkarli. However, Tarkarli being a tourist destination, an apparent threat to its environment cannot be ruled out. Therefore, adoption of appropriate management strategies and adherence to eco-friendly tourism may help in the preservation of ecological balance in the region. The present check-list of birds may provide a base-line data for environmentalists and policy makers towards the formulation of conservation strategies.

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