



## Biodiversity of Avian Fauna of Vansda National Park, Gujarat: Conservation Issues

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### ABSTRACT

The Vansda National Park is situated in Navsari in South Gujarat. It has a unique identity because the Park falls on the northern-most limit of the Western Ghats, and is famous for the biodiversity of flora and fauna, especially for birds, such as Indian great black woodpecker, heart-spotted woodpecker, lesser golden backed woodpecker, grey hornbill, spotted munia, racket-tailed drongo and pheasant-tailed jacana, etc., which have become extremely rare species, but are fairly common in the Dang's forest. The majority of birds are observed during the winter followed by rainy and summer season. The area is inhabited by more than 99 different type of birds, out of these 28 are residential migratory or local migratory, 10 are migratory, 4 are water migratory and 57 are resident. Family Accipitridae was found as dominant containing maximum species (15) followed by Ardeidae (9), Phasianidae (7), and Anatidae, Dicaeidae, Muscicapidae, Rallidae and Sturnidae (4). About 50 per cent of all the species recorded have been insectivorous. Based on the frequency of occurrence and the numbers of different species encountered, it was found that a large number of bird species occur with a small population.

### INTRODUCTION

Gujarat state situated within latitudes 20°10' to 24°50' N and longitudes of 68°40' to 74° E covers an area of 1,96,022 sq. km and has a coastline of approximately 1600 km which is the largest coastline in India. It contains unique saline deserts of Kachchh, vast grasslands and thorn forests of Saurashtra, moist forests of south Gujarat and large areas under a variety of wetlands, lakes and mountains make this land important for wildlife. Aravallis, Vindhya, Satpura, Sahayadri and Western Ghats terminate in Gujarat and some of them converge and merge at one place. Gujarat has varied climatic and geomorphologic conditions. This helps in migration of wildlife and hence building species diversity.

World list of living birds computes about 9946 species under 1800 genera, 182 families and 30 orders. Indian sub continent has 1232 species, 78 families and 20 orders (Singh 2001). Ali (1956) described 423 species in his book on "Birds of Gujarat" and Dharma-Kumarsinhji (1954) described 444 species in his book "Birds of Saurashtra". Present checklist of Gujarat is 567 species (Parashrya et al. 2004) that is almost 35 to 40 percent species recorded in the Indian subcontinent. Worah (1991) and Singh et al. (2001) reported local extinction of several mammals from Dangs district, including Indian giant squirrel, *Ratufa indicadealbata*; tiger, *Panthera tigris*; gaur, *Bos gaurus*, smooth-coated otter, *Lutra perspicillata* and sloth bear *Melursus ursinus*. Many

phasianids are popular game birds and have been hunted to extinction from several areas of their range, populated by tribal groups in south Gujarat (Trivedi 2005, Trivedi & Soni 2006, personal observation), almost half of which are migratory and come to the subcontinent from their breeding grounds in northern latitude of Russia, China, Central Asian countries, Mongolia and Persian Gulf. Number of bird species have been recorded by various workers such as Hume (1878), Barnes (1891), Roberts (1991-92), Sathe et al. (2008) and Kumbhai et al. (2009). Forest fragmentation and biotic homogenization also seemed to have contributed to this avifaunal impoverishment (Trivedi & Soni 2006). This colonization of common species is facilitated by road, habitat degradation and subsequent opening up of the forest areas (Johns 1986).

### STUDY AREA

The National Park is in Vasda Taluka of Dangs District and located between 20°51'16" to 21°21'22" N latitudes and 73°20'30" to 73°31'20" E longitudes. The area of the Park has hilly terrain with hills having moderate altitudes. These hills are extensions of Sahyadri ranges. The Park represents the northern zone of the Western Ghats in Gujarat state along with Purna Wildlife Sanctuary. Vansda National Park and Purna Wildlife Sanctuary together form 4.2% of the total geographical area of the Western Ghats zone represented in Gujarat (Vikas et al. 2013). These two reservoirs were vis-

ited regularly from July 2011 to June 2013. Whenever, a bird was sighted or heard, it was identified and its number, frequency of occurrence and other information was noted down in the field note book. Birds were identified with the help of noting, expert guidance and standard methods given by Ali & Ripley (1995), Ali & Ripley (1969), Ali & Ripley (1983), Ali (1996), Grimmett et al. (1999), Ali (2002) and Satish (2003).

## RESULTS AND DISCUSSION

Birds are considered as useful biological indicators because they are ecologically versatile and live in all kinds of habitats as herbivores or carnivores. They are susceptible to the changes in wetlands or other ecosystems. Some birds are migratory, which are responsible for fluctuation in the population of birds that occur during different seasons of the year, which may help to know whether an area is normal or getting polluted, as total absence of birds from any area may be considered as pollution indication (Borale et al. 1994).

The present study shows 99 different types of birds belonging to 79 species, 61 genera and 31 families (Table 1). Out of these, 28 are residential migratory or local migratory, 10 are migratory, 4 are water migratory, and 57 are resident. The Family Accipitridae was found dominant (15) species followed by Ardeidae (9), Phasianidae (7), and Anatidae, Dicaeidae, Muscicapidae, Rallidae, Sturnidae (4) (Fig. 1). On the basis of Order, Passeriformes (29) was maximum recorded and followed by Falconiformes (14), Charadriiformes and Ciconiformes (9), and Galliformes (7) (Fig. 2). The majority birds were sighted in thick vegetation of trees. Simi-

lar type of study carried out by Kurhade (1991), recorded 51 bird species in Ahmednagar district. Vyawahare (1991) listed 245 bird species in Dhule district of Maharashtra. Prashant et al. (1994) in their study of coastal area of Nellore district recorded 78 species of birds. Bhargavi et al. (1996), recorded 45 species of birds belonging to 13 families in their study on wetlands while Terdalkar et al. (2005) listed 45 species of birds belonging to 18 families around Bhatye estuary, Ratnagiri. Quadros (2001) in his study on Thane creek reported 55 species. Sathe and Pawar (2005) recorded 72 species of birds in Sagreshwar Sanctuary. Sathe et al. (2008) recorded 48 species of birds in Sukacharya hills, and Kumbhar et al. (2009) recorded 99 species of birds along Krishna river of Sangli during their study.

The study does not allow us to predict the total biodiversity of birds in this area. A more detailed study is required to obtain a clear picture of bird population and species dominance of birds of this region. This study shows the rich diversity of avifauna in the vicinity of the reservoir.

### Conservation Issues

There are several issues related to bird conservation in south Gujarat such as habitat loss, poaching, collision of Flamingo with electric wires and power projects etc.

**Habitat loss:** Many human induced activities such as industrialization, urbanization, over grazing, etc. have destroyed vast habitats of many species. Loss of grasslands has made Great Indian Bustard (now Indian Bustard) and lesser floricans miserable.

**Poaching:** Poaching is one of the important issues for conservation of birds. According to recent news published in

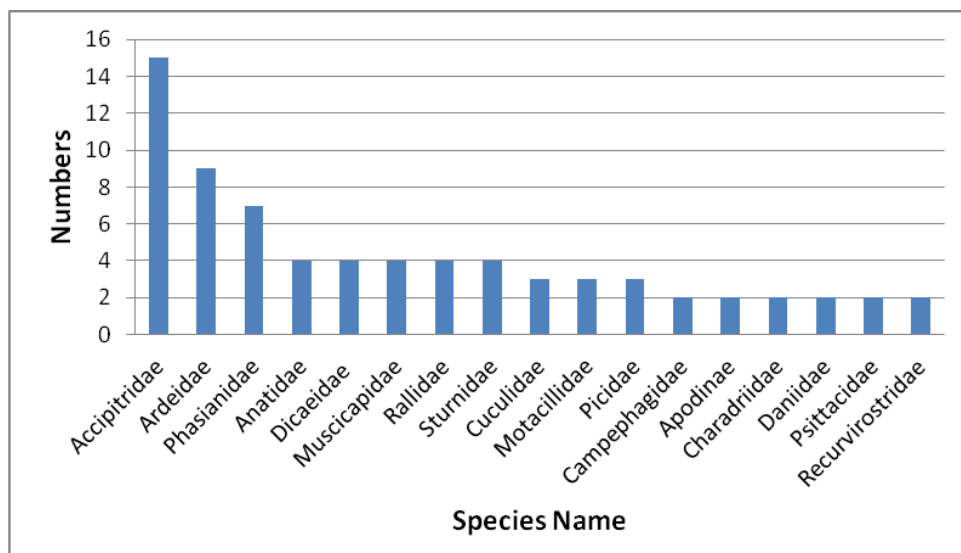


Fig. 1: The avian fauna species diversity found in Vandsa National Park.

Table 1: Scientific check list of birds which are encountered in Vandsa National Park.

Sl No.	Common Name	Scientific Name	Family	Order	Status
1	African Palm Swift	<i>Cypsiurus parvus</i> Lichtenstein	Apodidae	Apodiformes	RM
2	Asian Koel	<i>Eudynamys scolopacea</i> Linn	Cuculidae	Cuculiformes	R
3	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i> Linn	Monarchidae	Passeriformes	M
4	Black Eagle	<i>Ictinaetus malayensis</i> Temmin	Accipitridae	Falconiformes	R
5	Black Headed Munia	<i>Lonchura malacca</i> Linn	Estrildinae	Passeriformes	R
6	Black Kite	<i>Milvus migrans</i> Boddaert	Accipitridae	Falconiformes	R
7	Black Myna	<i>Acridotheres ginginianus</i> Latham	Sturnidae	Passeriformes	R
8	Black Shouldered Kite	<i>Elanus caeruleus</i> Desfontaines	Accipitridae	Falconiformes	R
9	Black Winged stilt	<i>Himantopus himantopus</i> Linn	Recurvirostridae	Charadriiformes	R
10	Black Winged Stilt	<i>Himantopus himantopus</i> Linn	Recurvirostridae	Charadriiformes	WM
11	Black Headed Munia	<i>Lonchura malacca</i> Linn	Estrildinae	Passeriformes	R
12	Blue Breasted Rail	<i>Rallus striatus</i> Linn	Rallidae	Gruiformes	R
13	Brahminy Shelduck	<i>Tadorna ferruginea</i> Linn	Campephagidae	Passeriformes	RM
14	Brown Headed Barbet	<i>Megalaima zeylanica</i> Gmelin	Megalaimidae	Piciformes	R
15	Cattle Egret	<i>Bubulcus ibis</i> Linn	Ardeidae	Ciconiformes	R
16	Chestnut Bittern	<i>Ixobrychus cinnamomeus</i> Gmelin	Ardeidae	Ciconiformes	RM
17	Citrine Wagtail	<i>Motacilla citreola</i> Linn	Motacillidae	Passeriformes	WM
18	Common Coot	<i>Fulica atra</i> Linn	Rallidae	Gruiformes	RM
19	Common Myna	<i>Acridotheres tristis</i> Linn	Sturnidae	Passeriformes	R
20	Common Quail	<i>Coturnix coturnix</i> Linn	Phasianidae	Galliformes	RM
21	Common Red Shark	<i>Tringa tetanus</i> Linn	Charadriidae	Charadriiformes	RM
22	Common Sandpiper	<i>Tringa hypoleucos</i> Linn	Scolopacidae	Charadriiformes	RM
23	Common Tailorbird	<i>Orthotomus sutorius</i> Pennant	Cisticolidae	Passeriformes	R
24	Crested Bunting	<i>Melophus lathami</i> Linn	Emberizidae	Passeriformes	R
25	Crested Serpent Eagle	<i>Spilornis cheela</i> Lath.	Accipitridae	Falconiformes	R
26	Crested Tree Swift	<i>Hemiprocne coronata</i> Rafinesque	Hemiprocniidae	Apodiformes	RM
27	Eastern Imperial Eagle	<i>Aquila heliaca</i> Savigny	Accipitridae	Falconiformes	R
28	Eurasian Blackbird	<i>Turdus merula</i> Linn	Muscicapidae	Passeriformes	RM
29	Eurasian Sparrowhawk	<i>Accipiter nisus</i> Linn	Accipitridae	Falconiformes	R
30	Gadwall	<i>Anas strepera</i> Linn	Anatidae	Anseriformes	M
31	Great Bittern	<i>Botaurus stellaris</i> Linn	Ardeidae	Ciconiformes	RM
32	Great stone Plover	<i>Esacus magnirostris</i> Veilloti	Charadriidae	Charadriiformes	R
33	Greater Couecal	<i>Centropus sinensis</i> Stephens	Cuculidae	Columbiformes	RM
34	Greater Spotted Eagle	<i>Aquila clanga</i> Pallas	Accipitridae	Falconiformes	RM
35	Green Bee Eater	<i>Merops orientalis</i> Latham	Meropidae	Coraciiformes	M
36	Green Imperial Pigeon	<i>Ducula aenea</i> Linn	Columbidae	Columbiformes	RM
37	Grey Heron	<i>Ardea cinerea</i> Linn	Ardeidae	Ciconiformes	RM
38	Grey Tit	<i>Parus major</i> Linn	Paridae	Passeriformes	R
39	Grey Wagtail	<i>Motacilla cinerea</i> Linn	Motacillidae	Passeriformes	WM
40	Heart Spotted Woodpecker	<i>Hemicircus canente</i> Lesson	Picidae	Piciformes	RM
41	House Swift	<i>Apus affinis</i> J.E.Gray	Apodidae	Apodiformes	R
42	Indian Grey Hornbill	<i>Ocyroceros birostri</i> Scopoli	Bucerotidae	Coraciiformes	R
43	Indian Jungle Crow	<i>Corvus culminatus</i> Sykes	Corvidae	Passeriformes	R
44	Indian Peafowl	<i>Pavo cristatus</i> Linn	Phasianidae	Galliformes	R
45	Indian Pond Heron	<i>Ardeola grayii</i> Skyes	Ardeidae	Ciconiformes	R
46	Indian Roller	<i>Coracias benghalensis</i> Linn	Coraciidae	Charadriiformes	R
47	Jungle Bush Quail	<i>Perdicula asiatica</i> Latham	Phasianidae	Galliformes	R
48	Jungle Myna	<i>Acridotheres fuscus</i> Wagler	Sturnidae	Passeriformes	R
49	Jungle Prinia	<i>Prinia sylvatica</i> Jerdon	Muscicapidae	Passeriformes	R
50	Lesser Golden Backed Woodpecker	<i>Dinopium benghalense</i> Linnaeus	Picidae	Piciformes	M
51	Lesser Racket Tailed Drongo	<i>Dicrurus remifer</i> Temminck	Dicruridae	Passeriformes	M
52	Lesser Spotted Eagle	<i>Aquila pomarina</i> C.L. Brehm	Accipitridae	Falconiformes	RM
53	Little Bittern	<i>Ixobrychus minutus</i> Linn	Ardeidae	Ciconiformes	R
54	Little Cormorant	<i>Microcarbo niger</i> Vieillot	Phalacrocoracidae	Suliformes	R
55	Little Egret	<i>Egretta garzetta</i> Linn	Ardeidae	Ciconiformes	R
56	Little Grebe	<i>Tachybaptus ruficollis</i> Pallas	Podicipitidae	Podicipediformes	M
57	Mallard	<i>Anas platyrhynchos</i> Linn	Anatidae	Anseriformes	RM

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58	Northern Shoveller	<i>Anas clypeata</i> Linn	Anatidae	Anseriformes	M
59	Oriental Honey Buzzard	<i>Pernis ptilorhynchus</i> Temminck	Accipitridae	Falconiformes	RM
60	Oriental Magpie Robin	<i>Copsychus saularis</i> Linnaeus	Muscicapidae	Passeriformes	R
61	Oriental White Eye	<i>Zosterops palpebrosus</i> Latham	Zosteropidae	Passeriformes	R
62	Oriental White Ibis	<i>Threskiornis melanocephala</i> Latham	Threskiornithidae	Ciconiformes	R
63	Osprey	<i>Pandion haliaetus</i> Linn	Accipitridae	Falconiformes	RM
64	Painted Francolin	<i>Francolinus pictus</i> Jardine & Selby	Phasianidae	Galliformes	R
65	Pallas's Fishing eagle	<i>Haliaeetusle coryphus</i> Pallas	Accipitridae	Falconiformes	RM
66	Pariah Kite	<i>Milvus migrans</i> Boddaert	Accipitridae	Falconiformes	RM
67	Pheasant Tailed Jacana	<i>Hydrophasianus chirurgus</i> Scopoli	Jacanidae	Charadriiformes	R
68	Pied Crested Cuckoo	<i>Clamator jacobinus</i> Boddaert	Cuculidae	Passeriformes	R
69	Pied Flycatcher Shrike	<i>Hemipus picatus</i> Sykes	Campephagidae	Passeriformes	R
70	Pied Kingfisher	<i>Ceryle rudis</i> Linnaeus	Cerylidae	Coraciiformes	M
71	Plum Headed Parakeet	<i>Psittacula cyanocephala</i> Linn	Psittacidae	Psittaciformes	R
72	Purple Moorhen	<i>Porphyrio porphyrio</i> Linn	Rallidae	Gruiformes	R
73	Purple Sunbird	<i>Nectarinia asiatica</i> Latham	Nectariniidae	Passeriformes	R
74	Rain Quail	<i>Corturnix coromandelica</i> Gmelin	Phasianidae	Galliformes	RM
75	Red Vented Bulbul	<i>Pycnonotus cafer</i> Linnaeus	Pycnonotidae	Passeriformes	RM
76	Red Wattled Lapwing	<i>Vanellus indicus</i> Boddaert	Daniidae	Charadriiformes	R
77	Rock Bush Quail	<i>Perdicula argoondah</i> Sykes	Phasianidae	Galliformes	R
78	Rose Ringed Parakeet	<i>Psittacula krameri</i> Scopoli	Psittacidae	Psittaciformes	R
79	Rosy starling	<i>Pastor roseus</i> Linnaeus	Sturnidae	Passeriformes	M
80	Rufous Backed Shrike	<i>Lanius schach</i> Linnaeus	Laniidae	Passeriformes	R
81	Sarus crane	<i>Grus antigone</i> Linnaeus	Gruidae	Gruiformes	R
82	Shikra	<i>Accipiter badius</i> Gmelin	Accipitridae	Accipitriformes	R
83	Short toed SNAKE Eagle	<i>Circaetus gallicus</i> Gmelin	Accipitridae	Accipitriformes	R
84	Spot Billed Duck	<i>Anas poecilorhynha</i> J.R.Forster	Anatidae	Anseriformes	RM
85	Spotted Munia	<i>Lonchura punctulata</i> Linn	Ploceinae	Passeriformes	R
86	Spotted owl	<i>Athene brama</i> Temminck	Striginae	Strigiformes	R
87	Thickbilled Flower Pecker	<i>Dicaeum agile</i> Tickell	Dicaeidae	Passeriformes	R
88	Tickell's Blue Flycatcher	<i>Cyornis tickelliae</i> Latham	Muscicapidae	Passeriformes	R
89	Tickell's Flower Pecker	<i>Dicaeum erythrorhynchos</i> Lattham	Dicaeidae	Passeriformes	R
90	Western Pale Harrier	<i>Circus macrourus</i> Gmelin	Accipitridae	Falconiformes	M
91	White Belled Woodpecker	<i>Dryocopus javensis</i> Horsfield	Picidae	Piciformes	RM
92	White Bellied Drongo	<i>Dicrurus caeruleus</i> Linnaeus	Dicruridae	Passeriformes	RM
93	White Breasted Kingfisher	<i>Halcyon smyrnensis</i> Linnaeus	Halcyonidae	Coraciiformes	R
94	White Breasted Water Hen	<i>Amaurornis phoenicurus</i> Pennant	Rallidae	Gruiformes	R
95	Yellow Bittern	<i>Ixobrychus sinensis</i> Gmelin	Ardeidae	Ciconiformes	RM
96	Yellow Throated Sparrow	<i>Petronia xanthocollis</i> Temminck	Passerinae	Passeriformes	R
97	Yellow Wagtail	<i>Motacilla flava</i> Linn	Motacillidae	Passeriformes	WM
98	Yellow Wattled Lapwing	<i>Vanellus malabaricus</i> Boddaert	Daniidae	Charadriiformes	RM
99	Yellow Billed Egret	<i>Mesophox intermedia</i> Wagler	Ardeidae	Pelecaniformes	R

Times of India (TOI) (06-01-2012), some poacher has killed almost 64 lesser flamingos near Maliya on the fringe of the little Rann of Kachchh for meat.

**Collision of flamingo with electric wire:** This year there was a sad news of large number of flamingos, the state bird of Gujarat, died due to collision with power cables. In June 2011, there were almost 250 to 300 birds died in Bhavnager, whereas in November 2011, near Khadir Bet Kachchh almost 400 birds died according to TOI.

**Power projects:** Power projects near grasslands, road network and industrial development, limestone mining on coastal area, some forestry practices, forest fire, unsustainable and careless harvesting of resources, harmful agricultural practices, kites and fishing nets were also used to kill

wintering cranes near Kodinar. Forest officials arrested six flamingo poachers and nine poachers of cranes.

**Reflections on conservation:** Based on our understanding and literature, we believe that some of the important measures for conservation can include the following:

1. Improved protection and better connectivity for all forest areas including PAs, corridors and satellite forest patches for avifaunal conservation.
2. Protection within PAs and curbing negative influences to birds and habitat.
3. Better documentation and studies of forest avifauna.
4. Involvement of local communities and awareness creation measures.

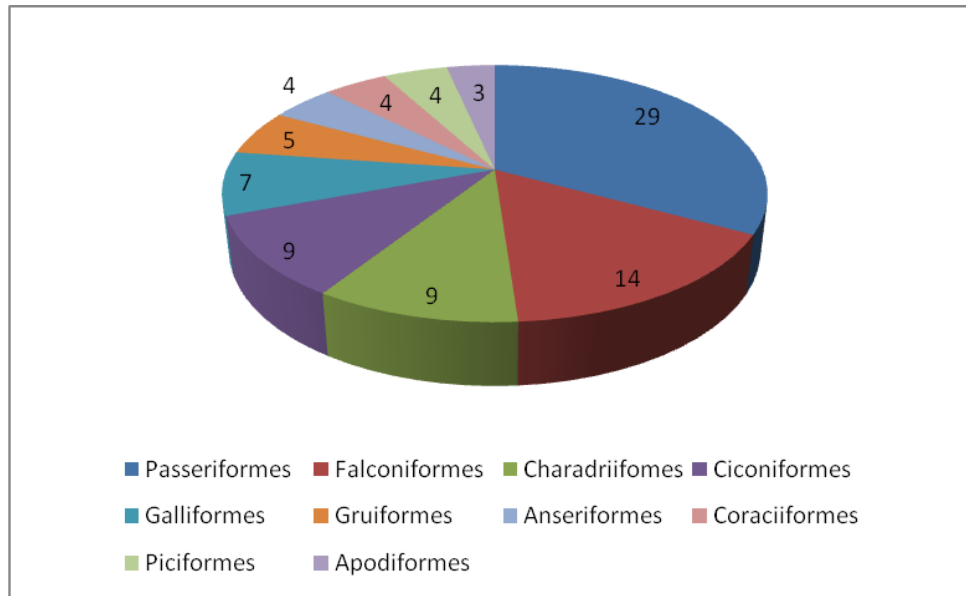


Fig. 2: The avian fauna Orderwise distribution in Vansda National Park.

**CONCLUSION**

The above survey is carried out in Vansda National Park, which comes under Dang’s forest area. The area is inhabited by 99 bird species belonging to 44 families. The maximum birds sighted or heard belonged to the family Accipitridae followed by Ardeidae. During summer season, Common Myna has the highest encounter rate followed by Pariah Kite and Jungle Crow. In monsoon Pariah Kite followed by Brahminy Kite and Middle Egret have the high rate of encounter. Whereas in winter, Racket-tailed Drongo has occurred at the highest encounter rate followed by Red Vented Bulbul and Hawk Cuckoo. There are several issues related to bird conservation in south Gujarat such as habitat loss, poaching, collision of Flamingo with electric wire and power projects etc. Many human induced activities such as industrialization, urbanization, over grazing, etc. have also destroyed vast habitats of many species.

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