



Avifaunal diversity of Kalibhit forest district Khandwa

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Abstract

Khandwa is one of the districts of state Madhyapradesh which is situated at the southern part of state Madhyapradesh. The East Kalibhit forest is one of the largest forest range of dist. Khandwa which is situated nearly 75 kilometres in the eastern part of dist. Khandwa. The present investigation was carried out to document the avifauna of this forest. This habitat attracted nearly 102 bird species which are local and migratory belonging to 35 families and 14 different orders viz. Ciconiformes, Anseriformes, Gruiformes, Pelecaniformes, Charadriiformes, Coraciiformes, Passeriformes and Suliformes. Highest population of parakeets and starlings were recorded in all seasons.

Key words:- East Kalibhit, Migratory, Avifauna

Introduction

“Native biodiversity is a source of pride for each country, Composing as it does a shining part of the national heritage”. India is one of the 10 popular countries of the world in which maximum biodiversity of plants and animals can be seen. The biodiversity of India consist 7% of plants and 6.5% of animal species of the world, according to Rodgers and Panwar (1988) in India 10 biographic zones and 26 biotic provinces are found. In India more than 600 species of amphibians and reptiles, 1300 species of birds and 350 species of mammals are found out of which 172 species of mammals & 78 species of birds are about to extinct or threatened. Birds are most beloved animals due to their beautiful colours, sweet and melodious calls or songs and most active life; besides these they show their presence from dense forests, grasslands, wetlands, croplands to the gardens of cities and our residences. India have near about 1300 species, out of 10000 species found all over in the world in which 2 meter long pelicans to 8 centimetres small humming bird are included. The presence of these species is due to presence of different types of habitat like dry desert of Rajasthan to dense rain forest of north-east and from long humid southern seashore to colder parts of Himalaya. We have

many types of grassland, wetlands; man grows forests and islands in our country which not only attracts the birds for food and shelter but for the nesting and breeding also.

Study area

The east Kalibhit forest is a dry deciduous forest situated at the junction of dist.Harda, Betul, Burhanpur of Madhyapradesh and Amrawati dist of Maharashtra. The forest covers more than 311 KM square areas of Vindhyaal Mountain rang blessed with a major river Tapti, which makes border of Madhyapradesh and Maharashtra with many other small rivers and nullahs which are among the main habitats of several bird species. The present investigation was carried out to document the avifauna of this untouched forest from the avifaunal study point of view. Climatic conditions of East Kalibhit are of typical dry deciduous forest and its natural vegetation comprises a combination of teak, Sal bamboo and so many other species of plants. The hottest months are May and June in which the temperature may rise to 42°C. The period from November to February is comparatively cool with an average temperature of 8 to 9°C. The maximum rainfall is received during the months of July and august. With a suitable climate and forest cover with wetlands, Kalibhit forest has become a favourite nesting ground for many birds, as a whole hosts a

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large variety of bird species both resident and migratory. The natural surroundings like landscapes, environment and woods make Kalibhit a home of several migratory birds. The water bodies, here are among the main habitats of birds and many birds species are dependent on them, this is only reason most of the migrated birds flock to this forest for their nests.

Material and methods

Birds were surveyed for about three to four times every month from October 2014 to June 2016. The survey were conducted on four wheeler, two wheeler or on foot as well and observations were made with 7x50 binoculars, mainly 6.00 to 10.00 Am in the morning and 4.00 to 6.00 PM in the evening therefore nocturnal birds were not studied. Ali and Ripley (1987), Grimmett *et al.* (1998) were used to identify the birds, calls and songs were also matched with pre recorded CD prepared by Bombay Natural History Society Mumbai and in many cases photographs were taken to confirm the identification. 50 sites were selected for the observations some of them were situated at water sources. Every site was set nearly 5 KM far from

other. Diversity of birds calculated by direct - detection

Results and Discussion

A total of 102 (32 aquatic and 70 terrestrial) species belongs to 14 orders and 45 families were recorded during the study period in this forest, Order Passeriformes with 39 species was found most diversified while order Apodiformes with only one species showed least diversity. Family Ardeidae, Columbidae and Phasinidae found equally diversified with 6 species each, while Apodidae, Capitonidae, Estrilidae Stenostrilae and many other families showed least diversity with only one species. Out of 102 species 67 species like Starlings, Parakeets, Laughing dove, cattle egret, Rufouse tree pie Bay backed Shrike, Crows and Magpie Robin were common resident, 21 species like Yellow wattled Lapwing, White napped woodpecker, Chestnut headed Bee eater, were not common resident, 08 species like Common Sandpiper, Barn Swallow, and Grey Wagtail were common winter visitors, 04 species like Variable Wheatear and Scaly Trush were visitors of other season while 02 species were vagrant.

Table-Recorded species, along with their scientific name, family, order and migratory status

S.N.	Common Name	Scientific Name	Order	Family	S
1	Grey Francolin	<i>Francolinus pondicerianus</i>	Galliformes	Phasinidae	CR
2	Common Quail	<i>Coturnix coturnix</i>	Galliformes	Phasinidae	CR
3	Jungle Bush Quail	<i>Perdicula asiatica</i>	Galliformes	Phasinidae	CR
4	Red Jungle fowl	<i>Gallus gallus</i>	Galliformes	Phasinidae	CR
5	Grey Jungle Fowl	<i>Gallus sonneratil</i>	Galliformes	Phasinidae	CR
6	Indian Peafowl	<i>Pavo cristatus</i>	Galliformes	Phasianidae	CR
7	Comb Duck	<i>Sarkidiornis melanots</i>	Anseriformes	Anatidae	NR
8	Ruddy Shelduck	<i>Tadorna ferruginea</i>	Anseriformes	Anatidae	CW
9	Spot billed Duck	<i>Anas poecilorhyncha</i>	Anseriformes	Anatidae	NR
10	Yellow Crowned Woodpecker	<i>Dendrocopos mahrattensis</i>	Piciformes	Picidae	CR
11	Black Rumped Flameback	<i>Dinopium benghalense</i>	Piciformes	Picidae	CR
12	White naped WoodPecker	<i>Chrysocolaptes festivus</i>	Piciformes	Picidae	NR
13	coppersmith Barbet	<i>Megalaima haemacephala</i>	Piciformes	Capitonidae	CR
14	Indian Grey Hornbill	<i>Ocyeros birostris</i>	Coraciformes	Bucerotidae	CR
15	Common hoopoe	<i>Upupa epops</i>	Coraciformes	Upuoidae	CR
16	Indian Roller	<i>Coracias benghalensis</i>	Coraciformes	Coraciidae	CR



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17	Common King Fisher	<i>Alcedo atthis</i>	Coraciformes	Alcedinidae	CR
18	Stork billed Kingfisher	<i>Pelargopsis capensis</i>	Coraciformes	Alcedinidae	NR
19	White Throated Kingfisher	<i>Halcyon smyrnensis</i>	Coraciformes	Alcedinidae	CR
20	Black Capped kingfisher	<i>Halcyon pileata</i>	Coraciformes	Alcedinidae	V
21	Red breasted Kingfisher	<i>Ceryle rudis</i>	Coraciformes	Alcedinidae	CR
22	Green Bee eater	<i>Merops orientalis</i>	Coraciformes	Meropidae	CR
23	Chestnut Headed Bee eater	<i>Merops leschenaulti</i>	Coraciformes	Meropidae	NR
24	Asian Koel	<i>Eudynamis scolopaceus</i>	Cuculiformes	Cuculidae	CR
25	Greater Coucal	<i>Centropus sinensis</i>	Cuculiformes	Cuculidae	CR
26	Alexandrine Parakeet	<i>Psittacula eupatria</i>	Psittaciformes	Psittacidae	CR
27	Rose ringed parakeet	<i>Psittacula krameri</i>	Psittaciformes	Psittacidae	CR
28	Plum headed Parakeet	<i>Psittacula cyanocephala</i>	Psittaciformes	Psittacidae	CR
26	Alpine Swift	<i>Tachymarptis melba</i>	Apodiformes	Apodidae	NR
30	Blue Rockpigeon	<i>Columba livia</i>	Clumbiformes	Columbidae	CR
31	Oriental Turtle Dove	<i>Streptopelia orientalis</i>	Clumbiformes	Columbidae	CR
32	Laughing Dove	<i>Stigmatopelia senegalensis</i>	Clumbiformes	Columbidae	CR
33	Spotted Dove	<i>Stigmatopelia chinensis</i>	Clumbiformes	Columbidae	CR
34	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	Clumbiformes	Columbidae	CR
35	Yellow footed green pigeon	<i>Treron phoenicoptera</i>	Clumbiformes	Columbidae	CR
36	White breasted Water Hen	<i>Amaurornis phoenicurus</i>	Gruiformes	Rallidae	CR
37	Purple Swamp Hen	<i>Porphyrio porphyrio</i>	Gruiformes	Rallidae	NR
38	Common Moor Hen	<i>Gallinula chloropus</i>	Gruiformes	Rallidae	CR
39	Common Sand Piper	<i>Actitis hypoleucos</i>	Charedriformes	Scolopacidae	CW
40	Black Wing Stilt	<i>Himantopus himantopus</i>	Charedriformes	Recurvirostridae	NR
41	Little Ringed Plover	<i>Charadrius dubius</i>	Charedriformes	Charadriinae	CR
42	Lesser sand Plover	<i>Charadrius mongolus</i>	Charedriformes	Charadriinae	V
43	Yellow wattled lapwing	<i>Vanellus malabaricus</i>	Charedriformes	Charedridae	NR
44	Red-wattled Lapwing	<i>Vanellus indicus</i>	Charedriformes	Charedridae	CR
45	Black winged Kite	<i>Elanus caeruleus</i>	Falconiformes	Accipitridae	NR
46	Short-toed snake eagle	<i>Circaetus gallicus</i>	Falconiformes	Accipitridae	NR
47	Shikra	<i>Accipiter badius</i>	Falconiformes	Accipitridae	CR
48	Common Kestrel	<i>Falco tinnunculus</i>	Falconiformes	Falconidae	CW
49	Pergrine falcon	<i>Falco peregrinus</i>	Falconiformes	Falconidae	NR
50	Darter	<i>Anhinga melanogaster</i>	Pelecaniformes	Phalacrocoracidae	NR
51	Little cormorant	<i>Phalacrocorax niger</i>	Pelecaniformes	Phalacrocoracidae	CR
52	Indian cormorant	<i>Phalacrocorax fuscicollis</i>	Pelecaniformes	Phalacrocoracidae	NR
53	Little egret	<i>Egretta garzetta</i>	Ciconiformes	Ardeidae	CR
54	Grey Heron	<i>Ardea cinerea</i>	Ciconiformes	Ardeidae	LCR
55	Great Egret	<i>Casmerodius albus</i>	Ciconiformes	Ardeidae	NR
56	Cattle Egret	<i>Bubulcus ibis</i>	Ciconiformes	Ardeidae	CR



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57	Indian Pond Heron	<i>Ardeola grayii</i>	Ciconiformes	Ardeidae	CR
58	Little Heron	<i>Butorides striatus</i>	Ciconiformes	Ardeidae	NR
59	Black Ibis	<i>Pseudibis papilosa</i>	Ciconiformes	Threskiornithidae	CR
60	Eurasian spoonbill	<i>Platalea leucorodia</i>	Ciconiformes	Threskiornithidae	NR
61	Painted Stork	<i>Mycteria leucocephala</i>	Ciconiformes	Ciconiidae	CR
62	Asian Open bill	<i>Anastomus oscitans</i>	Ciconiformes	Ciconiidae	CR
63	Woolly Necked stork	<i>Ciconia episcopus</i>	Ciconiformes	Ciconiidae	CR
64	Bay backed shrike	<i>Lanius vittatus</i>	Passeriformes	Danidae	CR
65	long tailed Shrike	<i>Lanius schach</i>	Passeriformes	Danidae	CR
66	southern Grey Shrike	<i>Lanius meridionalis</i>	Passeriformes	Danidae	NR
67	Rufous Treepie	<i>Dendrocitta vagabunda</i>	Passeriformes	Corvidae	CR
68	house Crow	<i>Corvus splendens</i>	Passeriformes	Corvidae	CR
69	Large Billed crow	<i>Corvus macrorhyncus</i>	Passeriformes	Corvidae	CR
70	Black hooded Oriole	<i>Oriolus xanthornus</i>	Passeriformes	Oriolidae	NR
71	Black Drongo	<i>Dicrurus macrocercus</i>	Passeriformes	Dicruridae	CR
72	Racket Tailed Drongo	<i>Dicrurus paradiseus</i>	Passeriformes	Dicruridae	CR
73	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	Passeriformes	Muscicapinae	CR
74	Common lora	<i>Aegithina tiphia</i>	Passeriformes	Aegithinidae	CR
75	Scaly Thrush	<i>Zoothera dauma</i>	Passeriformes	Turdinae	NW
76	Grey headed Canary	<i>Culicicapa ceylonensis</i>	Passeriformes	Stenostridae	CW
77	Oriental Magpie Robin	<i>Copsychus saularis</i>	Passeriformes	Turdinae	CR
78	Indian Robin	<i>Saxicoloides fulicatus</i>	Passeriformes	Turdinae	CR
79	Black Redstart	<i>Phoenicurus ochruros</i>	Passeriformes	Muscicapidae	CW
80	Common stonechat	<i>Saxicola torquatus</i>	Passeriformes	Turdinae	CW
81	Variable Wheatear	<i>Oenanthe picata</i>	Passeriformes	Muscicapidae	NW
82	Brahminy Starling	<i>Sturnus pagodarum</i>	Passeriformes	Sturnidae	CR
83	Rosy Starling	<i>Sturnus roseus</i>	Passeriformes	Sturnidae	WP
84	Asian Pied Starling	<i>Gracupica contra</i>	Passeriformes	Sturnidae	LCR
85	Common Mayna	<i>Acridotheres tristis</i>	Passeriformes	Sturnidae	CR
86	Black lored Tit	<i>Parus xanthogenys</i>	Passeriformes	Parinae	CR
87	Barn Swallow	<i>Hirundo rustica</i>	Passeriformes	Hirundinidae	NW
88	Wire Tailed swallow	<i>Hirundo smithii</i>	Passeriformes	Hirundinidae	CR
89	Red Vented Bulbul	<i>Pycnonotus cafer</i>	Passeriformes	Pycnonotidae	CR
90	Oriental white eye	<i>Zosterops palpebrosus</i>	Passeriformes	Zosteropidae	CR
91	Jungle babbler	<i>Turdoides striata</i>	Passeriformes	Timalinae	CR
92	Ashy crowned sparrow Lark	<i>Eremopterix griseus</i>	Passeriformes	Alaudidae	CR
93	Sykes's lark	<i>Galerida deva</i>	Passeriformes	Alaudidae	NR
94	Palebilled Flowerpecker	<i>Dicaeum erythrorhynchus</i>	Passeriformes	Dicaeidae	CR
95	Purple Sunbird	<i>Cimyris asiaticus</i>	Passeriformes	Nectarinidae	CR
96	House Sparrow	<i>Passer domesticus</i>	Passeriformes	Passerinae	CR



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97	White Wagtail	<i>Motacilla alba</i>	Passeriformes	Mottacilidae	CW
98	Yellow Wagtail	<i>Motacilla flava</i>	Passeriformes	Mottacilidae	CW
99	Grey Wagtail	<i>Motacilla cinerea</i>	Passeriformes	Mottacilidae	CW
100	Baya Weavers	<i>Ploceus philippinus</i>	Passeriformes	Ploceidae	CR
101	Indian Silverbill	<i>Euodice malabarica</i>	Passeriformes	Estrildidae	CR
102	White-rumped Munia	<i>Lonchura striata</i>	Passeriformes	Astrildinae	NR

Status:- CR=Common Resident 67, CW= Common Winter Visitor 08, NR= Not Common Resident 21, NW= Not Common Winter Visitor 04, V= Vagrant 02

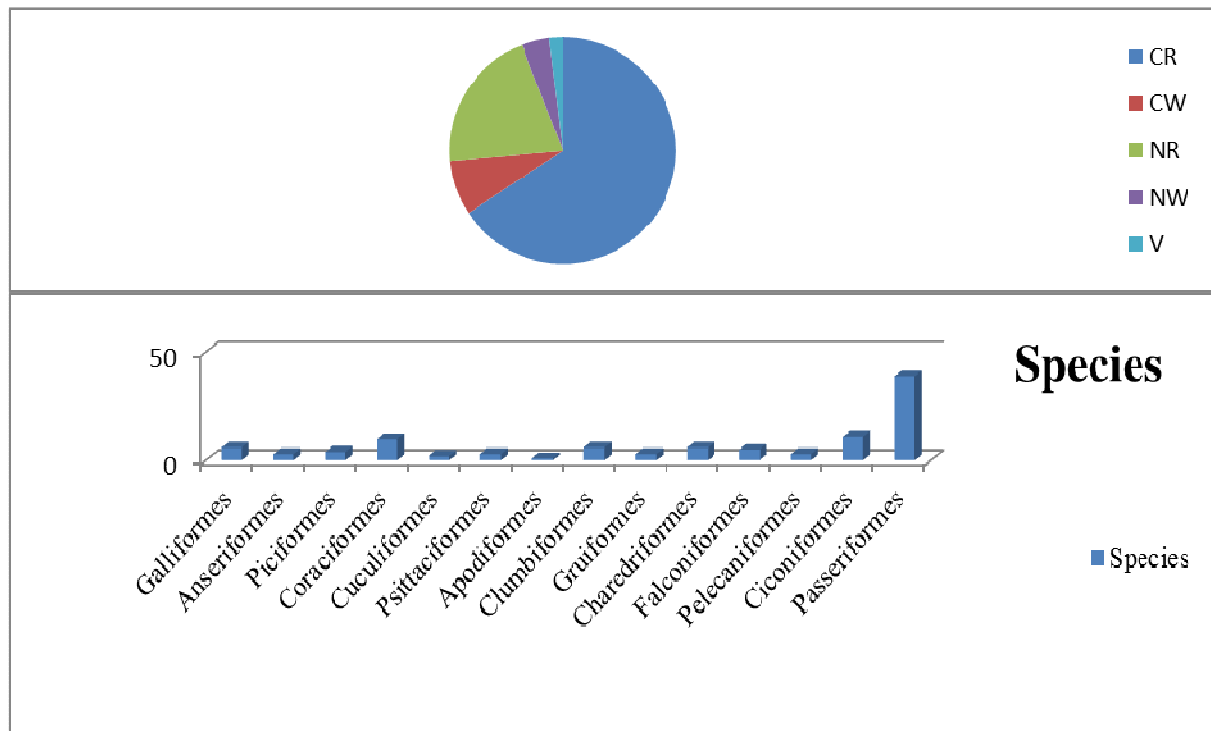


Fig1- Bar diagram showing the distribution of species in different orders

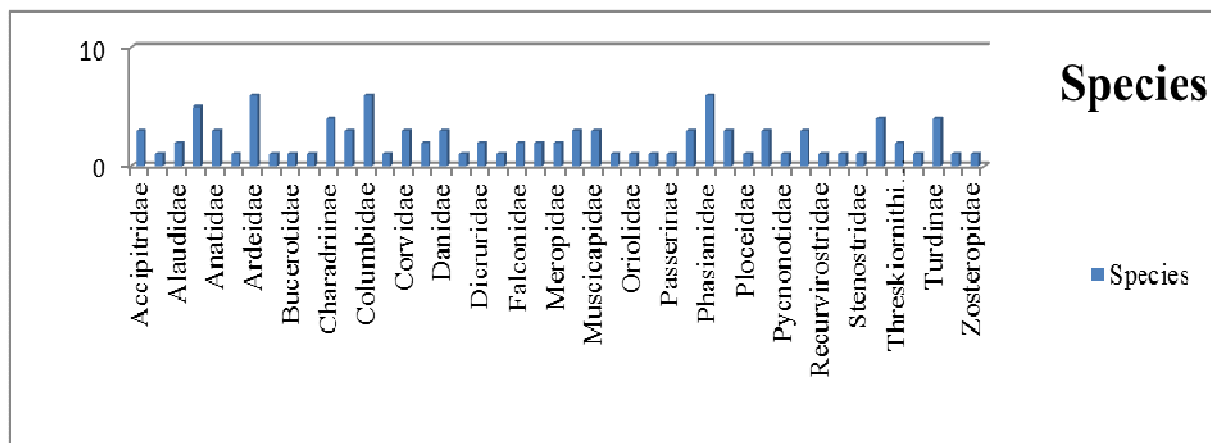


Fig 2- Bar diagram showing the No. Of Species in different Families



A total of 102 (32 aquatic and 70 terrestrial) species belonging to 14 orders and 45 families were recorded during the study period in this forest, Order Passeriformes with 39 species was found most diversified while order Apodiformes with only one species showed least diversity. Family Ardeidae, Columbidae and Phasianidae found equally diversified with 6 species (5.8%) each followed by Alcedinidae with 5 species (4.9%), 3 families Charadriidae, Sturnidae and Turdinae showing equal number of species and making (3.9%), Family Accipitridae Anatidae Ciconiidae Corvidae Danidae Mottacilidae Muscicapidae Phalacrocoracidae Picidae Psittacidae Rallidae has 3 species (2.9%) each Family Alaudidae, Cuculidae, Dicruridae, Falconidae, Hirundinidae, Meropidae, Threskiornithidae has 2 species (1.9%) each while Apodidae, Capitonidae, Estrilidae Stenostriidae and all remaining families showed least diversity with only one species. J.Sethy *et al.* found nearly same results in north Orissa University campus Odisha Feb.2015. Terrestrial habitat contributed much in terms of species composition 70 species (68.62%) than aquatic habitat 32 species (31.37%). We observed that terrestrial habitat had higher number of birds (4059 individuals, 90.9%) than water birds (403 individuals, 9.1%). However, in overall abundance, Common Maina (*Acridotheres tristis*) had the highest relative frequency followed by Plum headed Parakeet, Rose ringed Parakeet, Red vented Bulbul, Oriental magpie Robin, Black Drongo, Jungle babbler and Laughing Dove. During the present investigations, a total of 32 species of water birds belonging to 6 orders and 12 families were identified (Table 1). Family Ardeidae dominated the water bird community (97 individuals) whereas remaining families exhibited the lower percentages viz. Alcedinidae (63 individuals), Phalacrocoracidae (42), Charadriidae (25), Rallidae (08) Threskiornithidae and Ciconiidae showed least dominance. Not all the species were recorded at every station, higher relative frequency of birds could be contributed by high frequency of occurrences to some of the birds in different sites. Seasonal occurrence of the birds observed and recorded higher in winter followed by summer and rainy seasons, diversity and species richness of birds were recorded highest during winter when migratory population arrive and minimum during

monsoon when the migratory populations leave the area and the resident species are engaged in the nesting activities. Allen *et al.* (1996) who had reported a total of 101 bird species from Jainti range and Utpal singha Roy (2012) recorded a total of 117 bird species belonging to 42 families which includes 11 winter visitors were recorded from Gorumara National Park of north Bengal India, the studies are showing results nearly close to our findings.

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