

**BIRD'S BIODIVERSITY AT NAGZIRA-NAWEGAON TIGER RESERVE:
A CASE STUDY.**

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Abstract:

Birds form an important component of any ecosystem. In the present study the bird's diversity at Nagzira-Nawegaon Tiger Reserve has been documented. The study team comprised of 3 faculty and 31 students of the Department of Zoology, Vivekananda College Thakurpukur Kolkata-700063. The total number of birds that were documented were grouped as per their respective families to get an idea of the prevalent families of birds found in the tiger reserve. The residential statuses of the documented birds were also identified.

Keywords: *Nagzira, Nawegaon, Bird, Biodiversity*

Introduction

Birds comprise a significant part of any given ecosystem and interact crucially with other species to maintain ecosystem health. Birds from a major group that help in seed dispersal, pollination and thereby play a key role in shaping the plant community structure and diversity. Birds in any ecosystem also play the major role of predators, form major prey basis in some cases and participate in a wide range of, mutualistic as well as host-parasite interaction. Therefore, in the ecosystem where any bird species is no longer represented, major ecological changes and chains of extinction can result. Thus an educational excursion to study the Bird's diversity had been conducted by the Department of Zoology, Vivekananda College, Thakurpukur, Kolkata-700063 to **Nagzira-Nawegaon Tiger Reserve [NNTR]** from 6th March to 11th March, 2016. NNTR mainly comprises of tropical deciduous forest, including moist and dry sal and teak forest, riverine forest and dry thorn forest.

Methodology

A. Site Information:

The **Nagzira-Nawegaon Tiger Reserve [NNTR]** is a miraculously preserved “Green Oasis” in the easternmost part of the state of Maharashtra and has a great importance from the bio-diversity conservation point of view. The sanctuary is locked in the arms of nature and adorned with picturesque landscapes, luxuriant vegetation and serves as living outdoor museum to explore and appreciate nature. Table.1 and Table.2 gives us a glance of the two places that were the focus of our study.

Table.1: Nagzira at a glance

State	Maharashtra
District	Bhandara, Gondia
Location	Tirora Range of Bhandara Forest Division, in Bhandara District of Vidarbha Region.
Distance	130km. to the west of Nagpur
Arrival Information	<p><u>By Rail</u> :- Nearest Station is Gondia, 45km. from the Sanctuary</p> <p><u>By Road</u> :- Nearest Bus Stand is Sakoli, 22km. from the Sanctuary on the Nagpur-Calcutta National Highway</p> <p><u>By Air</u> :- Nearest Airport is Shegaon, Nagpur, 122km. from the Sanctuary</p>
Altitude	Ranges from 30m to 650m above the sea surface (a hillock called Gaikhuri of 511m height is present at the s\centre of the Sanctuary)
Latitude & Longitude	21°12' to 21°21' North 79°54; to 80°22' East
Total Area	153.84 sq.km It is going to be declared as National Park in the next few years, when the area shall cover 283 sq. km.

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Coverage Area	152.81 sq.km
Core Area	81 sq.km
Total Compartments	157 in number
Climate	Tropical hot and wet monsoon, well defined winter, summer and rainy season.
Temperature	Ranges from 5°C to 45°C. Maximum temperature recorded during June.
Rainfall	10-100cm/year
Best time to visit	April to May
Soil Type	Hard stony type
Forest Type	Southern Tropical Dry Deciduous Forest with a great diversity of plant community.
Vegetation	Low hills and valleys clothed with rich dry mixed to moist vegetation.
Beat Offices	10 in number
Range Offices	a) Nagzira b) Kusumtondi c) Kalajhari
Entry Points	a) Pitejhari Gate, 90km from Gondia. b) Chorakhmara Gate, 34km form Gondia.
Lakes	Nagzira lake, Chorkhamari lake, Bodalkasa lake, Rengepar lake, Murpar lake, Lendezari lake, Malutola lake, Thadezari lake, Balapur Lake, Badbadya lake etc.
Major Trees	Teak, Haldu, Jamun, Kawat, Mahua, Ain, Bhel, Bhor, Dhavda, Bija, Garari, Tinsa, Tendu, Surya, Bamboo etc.
Invertebrate Species Diversity	Large number of Arthropods. (<u>Endemic</u> :- Danite egg fly, butterfly)
Vertebrate Species	34 species of mammals

Diversity	170 species of birds 36 species of reptiles 4 species of amphibians Number of fishes
Snakes	Rock Python, Common Krait, Russels' Viper, Bamboo Pit Viper, Green Pit Viper/.
Birds	Jungle Babbler, Grey Jungle fowl, Pea Fowl, Red Spur Fowl, Serpented Eagle, Asian Drongo, Racket-tailed Drongo, Common Bee-eater, Parakeet, Spotted Dove, Collared Dove etc.
Mammals	Tiger, Panther, Leopard, Gaur, Sloth Bear, Sambar, Spotted Deer, Barking Deer, Mouse Deer, Four-headed Antelope, Blue Bull, Civet Cat, Jackal, Jungle Cat, Wild Dog, Spotted Hyena, Hare, Langur, Rhesus Monkey, Wild Boar, Squirrel.
Tigers Present	12
Sanctuary Closed	Wednesday and Thursday of every week. From 16 th June to 30 th September every year.

Table.2: Nawegaon at a glance

State	Maharashtra
District	Gondia
Location	Situated in the Arjuni Tahsil of Gondia district
Distance	190Km from Nagpur
Arrival information	By Rail:- Nearest station is Deulgaon,2 kms from Nawegaon national park By Road:- Nawegaon National park is well connected to major cities by road network. By Air:- Nearest airport is Nagpur airport,150kms from the national park
Altitude	30-702 metres above sea level

Latitude and longitude	20°56'0"N 80°10'0"E
Total area	133.88 square kilometres
Climate	Tropical hot and wet monsoon with well-defined seasons
Temperature	About 40°C
Rainfall	Average of 50-90cm/year
Best time to visit	April to May and October to June
Soil type	Hard stony type
Forest type	Southern mixed dry deciduous type
Vegetation	Hilly with mixed vegetation
Lakes	Nawegaon lake
Major trees	Teak, Haldu, Jamun, Mahua, Bhor, Bhel etc.
Invertebrate species diversity	Large number of arthropods
Snakes	Common krait, Indian cobra, skink snake, python, Russel's viper etc.
Birds	Rosy starling, scarlet minivet, jungle babbler, common bee-eater, green bee-eater, Indian Roller, white-eyed buzzard, honey buzzard, Paradise flycatcher, common kingfisher etc.
Mammals	Leopard, Indian bison, cheetal, sambhar, wild boar etc.
Sanctuary closed	June to september

B. Equipments used

1. 5 Binoculars were used by the group for spotting:
 - a. Specification-
 - i. Olympus 8 x 40 DPSI Field
2. Camera's 10 in number were used for photographing purpose:
 - a. Specification:
 - i. Canon PowerShot SX420 IS-8 cameras

Table.3: Checklist of observed Forest Birds

Sr No.	Family	Common Name	Scientific Name	Where Found		Status	
				NJ	NG	Loca I	IUC N
1	Phasianida e	Jungle Bush Quail	<i>Perdica asiatica</i>		+	R	LC
2		Red Spur Fowl	<i>Galloperdix spadicea</i>	+	+	R	LC
3		Grey Jungle Fowl	<i>Gallus sonneratti</i>	+	+	R	LC
4		Peafowl	<i>Pavo cristatus</i>	+	+	R	LC
5	Accipitrid ae	Black Kite	<i>Milvus migrans</i>		+	R	LC
6		Shikra	<i>Accipiter badius</i>	+	+	R	LC
7		Grey Headed Fish Eagle	<i>Ichthyophaga ichthyetus</i>	+		R	LC
8		Crested Serpent Eagle	<i>Spilornis cheela</i>	+	+	SM	LC
9		Crested Hawk Eagle	<i>Nisaetus ciurhatus</i>	+	+	R	LC
10		Oriental Honey Buzzard	<i>Pernis ptilorhyncus</i>	+	+	R	LC
11	White Eyed Buzzard	<i>Butastur teesa</i>		+	R	LC	
12	Burhinidae	Eurasian Thick Knee	<i>Burhinus oedicnemus</i>	+		R	LC
13	Columbida e	Spotted Dove	<i>Stigmatopelia chinensis</i>	+	+	R	LC
14		Oriental Turtle Dove	<i>Streptopelia orientalis</i>	+	+	WM	LC
15		Emerald Dove	<i>Chalcophaps indica</i>	+	+	R	LC
16		Yellow Footed	<i>Treron</i>		+	R	LC

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		Green Pigeon	<i>phoenicopterus</i>				
17	Psittaculio dae	Rose Ringed Parakeet	<i>Psittacula krameri</i>	+	+	R	LC
18		Plum Headed Parakeet	<i>Psittacula cyanocephala</i>	+		R	LC
19		Alexandrine Parakeet	<i>Psittacula eupatria</i>	+	+	R	LC
20	Cuculidae	Common Hawk Cuckoo	<i>Haerococcyx varius</i>	+	+	R	LC
21		Southern Coucal	<i>Centropus sinensis</i>	+	+	R	LC
22	Strigidae	Indian Scops Owl	<i>Ottus baccamoena</i>	+		R	LC
23	Caprimulgidae	Savanna Nightjar	<i>Caprimulgus affinis</i>	+		R	LC
24	Upupidae	Common Hoopoe	<i>Upupa epops</i>	+	+	R	LC
25	Coraciidae	Indian Roller	<i>Coracias benghalensis</i>	+	+	R	LC
26	Meropidae	Green Bea Eater	<i>Merops orientalis</i>	+	+	R	LC
27		Chestnut Headed Bee Eater	<i>Merops leschenaulti</i>		+	R	LC
28	Picidae	Lesser Golden back Woodpecker	<i>Dinopium benghalense</i>	+	+	R	LC
29		Rufous Woodpecker	<i>Micropternus brachyurus</i>	+	+	R	LC
30	Campephagidae	Large Cuckoo Shrike	<i>Coracina macei</i>		+	R	LC
31		Black Drongo	<i>Dicrurus macrocerus</i>	+	+	R	LC

32	Dicruridae	Greater Racket Tailed Drongo	<i>Dicrurus paradiseus</i>	+	+	R	LC
33		White Bellied Drongo	<i>Dicrurus caerulescens</i>		+	R	LC
34	Monarchid ae	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>		+	SM	LC
35		Black Naped flycatcher	<i>Hypothymis azurea</i>	+		R	LC
36	Muscicapi dae	Ultramarine Flycatcher	<i>Ficedula superciliaris</i>		+	WM	LC
37	Corvidae	Rufous Treepie	<i>Dendrocitta vagabunda</i>	+	+	R	LC
38		Jungle Crow	<i>Corvus macrorhynchos</i>		+	R	LC
39	<u>Alaudidae</u>	Rufous Tailed Lark	<i>Ammomanes phoenicura</i>	+	+	R	LC
40	<u>Pycnonoti dae</u>	Red Vented Bulbul	<i>Pycnonotus cafer</i>	+	+	R	LC
41		Red Whiskered Bulbul	<i>Pycnonotus jocosus</i>	+		R	LC
42	<u>Timaliidae</u>	Jungle Babbler	<i>Turdoides striata</i>	+	+	R	LC
43	Zosteropid ae	Oriental White Eye	<i>Zosterops palpebrosus</i>	+	+	R	LC
44	Sturnidae	Brahminy Starling	<i>Sturnia pagodarum</i>	+	+	R	LC
45	Turdidae	Orange Headed Thrush	<i>Zoothera citrina</i>		+	R	LC
46		Oriental Magpie Robin	<i>Copsychus saularis</i>	+	+	R	LC

47		White Rumped Shama	<i>Copsychus malabaricus</i>	+	+	R	LC
48	<u>Muscicapi dae</u>	Indian Robin	<i>Saxicoloides fulicatus</i>	+	+	R	LC
49		Black Redstart	<i>Phoenicurus ochruros</i>		+	WM	LC
50		Tickell's blue flycatcher	<i>Cyornis tickelliae</i>		+	WM	LC
51		Paddy Field pipit	<i>Anthus rufulus</i>		+	R	LC
52		Grey Wagtail	<i>Motacilla cinerea</i>		+	WM	LC
53	<u>Motacillid ae</u>	White Browed Wagtail	<i>Motacilla maderaspatensis</i>		+	R	LC

ii. Canon eos 1300d

iii. Sony DSC-W210

3. Lenoveo Laptop was for data keeping

C. Traditional Approaches Applied

1. The 31 member study team was divided into 4 teams, with Group-A, B and D consisting of 8 members and Group-C consisting of 7 members under a team leader.
2. Each team was provided with a Tata Sumo, a driver and a guide.
3. Overall from 7th to 10th March, the study was conducted where each day one early morning safari, from 6.30 to 9.00 am and one evening safari, from 3.00 to 5.30 pm was conducted. All total 8 such jeep safari were conducted, each safari being for 2 hours 30 mins.
4. The birds that were spotted were documented, where possible pictures taken and the whole data pooled from the 8 jeep safari were further analyzed.

Discussion

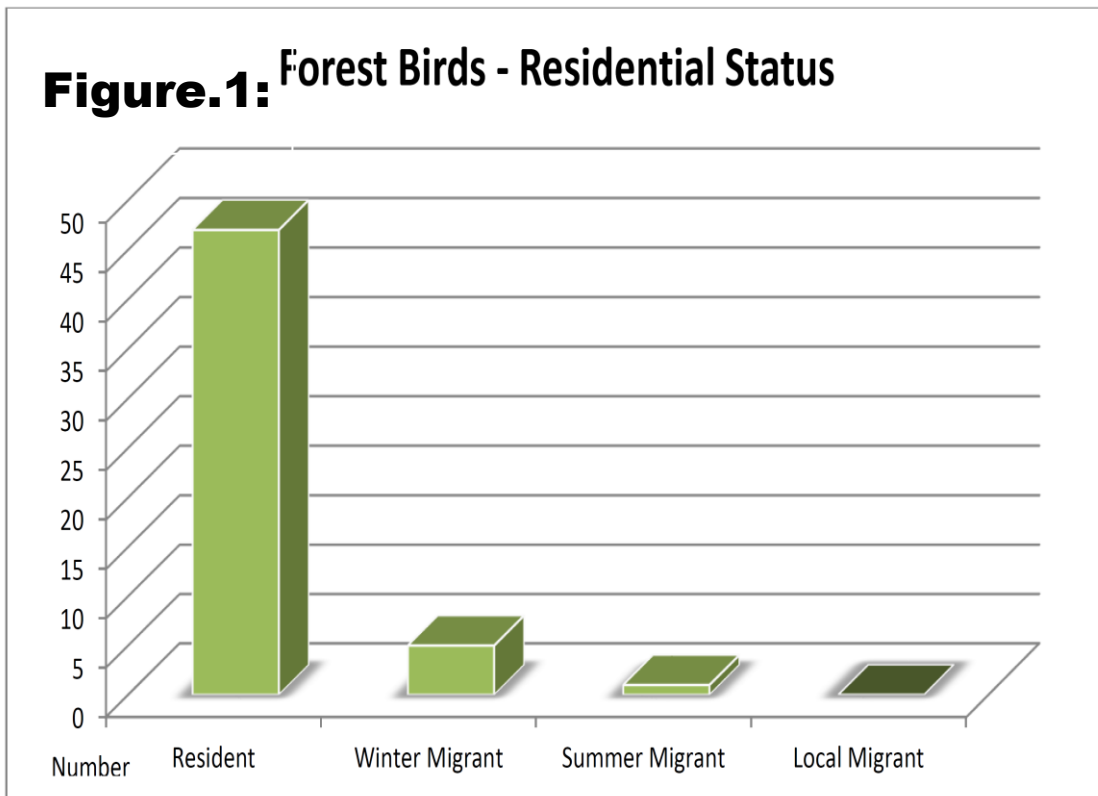
The birds that were observed during the 4 days tenure were then organized as per the following tables. **Table.3** lists the birds that were observed in the core zone of

NNTR.

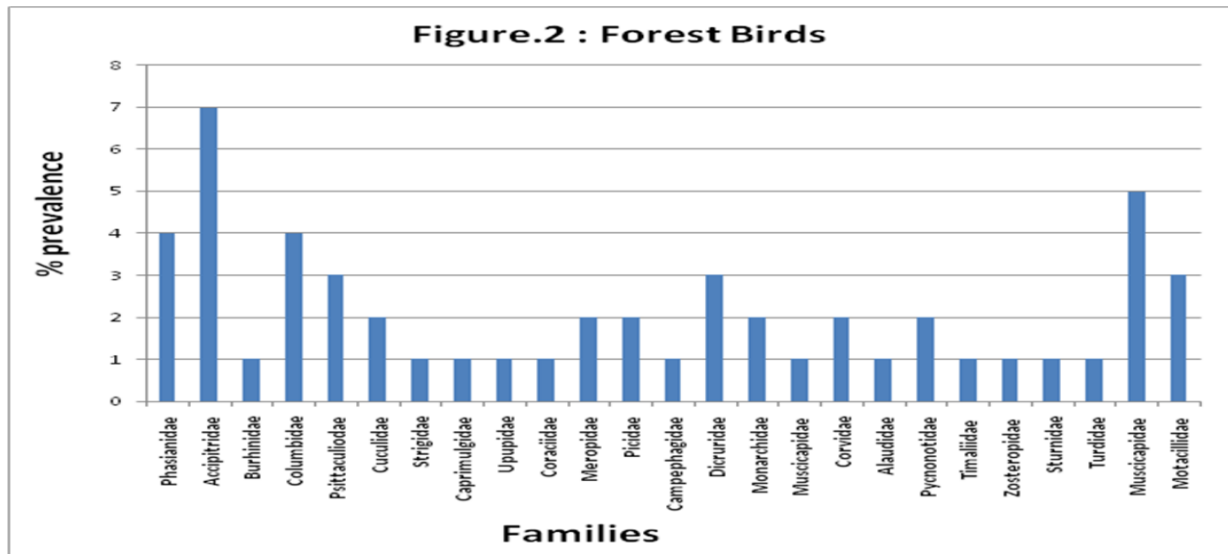
Key:

		Local Status		IUCN Status	
NJ	Nagjira	R	Resident	LC	Least Concern
NG	Nawegaon	WM	Winter Migrant	NT	Nearly Threatened
		SM	Summer Migrant	CR	Critically Endangered
		LM	Local Migrant	EN	Endangered

From the data obtained in the checklist-**Table.3**, the residential statuses of the birds were identified and thus have been represented in **Figure.1**.



On comparing the prevalence of various families found in this terrain, it was found that birds belonging to the **Families Accipitridae, Muscicapidae, Columbidae and Phasianidae** were majority as can be observed in **Figure.2**



Conclusion

From Figure.2 it can be deduced that the most prevalent families observed in NNTR were- Families Accipitridae, Muscipidae, Columbidae and Phasianidae whose characteristic features have been described in brief in the paragraphs to follow.

The Family Accipitridae includes the raptors or diurnal "Birds of Prey" such as Hawks and Vultures. They usually have a short bill with upper mandible longer than lower, curved and strongly hooked at the tip; basal portion covered with a cere which is usually bright coloured. Wings normally rounded. Feet usually strong; tarsi normally partly or fully feathered; hallux always present; claws hooked and powerful. Many species have confusingly different adult and juvenile plumages. Sexes nearly alike but females are usually larger. They feed on the flesh of animals, self-killed or carrion. Mostly breed in trees, or on crags while nest are made of sticks and often lined with leaves, grass, etc. Eggs laid usually 1-5. The rate of reproduction, specially in the larger species, is slow.[1,2]

The Family Muscipidae includes mostly Babblers, Flycatchers, Warblers, Thrushes & Chats.

The family is a vast agglomeration of superficially heterogeneous passerine birds erstwhile recognised as four discrete families, namely Timaliidae (Babblers), Muscicapidae (Flycatchers), Sylviidae (Warblers), and Turdidae (Thrushes and Chats). The occurrence of connecting forms makes it impracticable to separate them from one another on clear-cut anatomical or evolutionary criteria. Recent behavioural studies, moreover, provide further confirmation of their close inter-relationship; hence, in conformity with international consensus the families have been demoted to subfamilial rank and merged together into a single huge family. The family mainly includes small insectivorous birds with small, flattened bills, and bristles at the gape that help in capture of flying insects. They normally have a very upright stance when perched. Many species frequently flick the tail and hold the wings slightly drooped. [1,2]

The Family Columbidae mainly includes Pigeons and Doves

Arboreal or terrestrial birds with dense and soft plumage. Members of the family have a compact body with small head and short neck. Bill is of medium length, slender to stout, with a naked cere. Legs usually short to fairly long. Flight swift and powerful. Sexes are alike in most species. Food chiefly seeds, grain, drupes, etc. They drink water by immersing the bill and sucking continuously. They build nests of a few sticks in trees, on ledges or in holes in cliffs. Eggs, normally 2. Incubation and care of young is maintained by both sexes. Initially the nestlings are fed on a secretion of the parent's crop known as 'pigeon's milk'. Many species are migratory. The homing instinct of some domestic breeds have been extensively exploited for carrying messages prior to the advent of wireless telegraphy and even during the two recent World Wars. [1,2]

The Family Phasianidae such as Pheasants, Partridges, Quails, comprises the "Game Birds" which form a valuable food resource for man. They are mainly terrestrial, but may roost on trees. Bill thick and short with the upper mandible overhanging the lower. Legs stout and unfeathered, usually armed with one or

more pointed spurs in male; hallux always present; claws short, blunt and very strong for scratching the ground for food. Wings are short and rounded. Flight may be swift and strong, but not for long distances. They normally feed on grain, seeds and tender shoots; also fruits, insects, etc. The majority lay their eggs (4-8, sometimes more) on the ground in open scrapes with no or scanty lining. Young nidifugous and downy. [1,2]

Reference

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- Ali, S and Ripley, S.D.(1968-1975). Handbook for the birds of India and Pakistan, vols 1-10. Oxford University Press, Oxford.