Avifauna of Navegaon National Park Dist Gondia Maharashtra

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Abstract **- Birds, the warm-blooded bipeds with amazing adaptations evolved millions of years ago from reptiles. These colorful, delicate- looking, highly evolved animals are the only creatures with feathered wings that make them capable of true and perfect flight. This ecologically valuable group of vertebrates is the subject of the present study which deals with ecology and conservation status of threatened birds in and around Navegaon National Park, Maharashtra state. Navegaon National Park, commonly known as Navegaon Bandh, is located in Gondia district. It lies between 200 45' to 210 2' North Latitude and 800 5' to 800 15' East Longitude. It is popular in the eastern Vidarbha region of Maharashtra for diversity of vegetation ranging from dry mixed forest to rain forest. This southern tropical dry forest is enriched with varied wildlife and is an important conservation unit in central India. Birds visit this beautiful lake every winter.**

The most important habitat in the park is the Navegaon Lake, home to many bird species. Flocks of migratory A total of 312 bird species from 57 different families under 14 orders have been recorded. Among these 252 were local residents, 53 winter visitors, 05 passage migrants and 02 breeding migrants. Out of total 312 avian species recorded, 12 are listed under different threatened categories (Birdlife International 2013). Ecology and conservation of these threatened species is discussed in the present study.

Index Terms **- Avifauna, Conservation, Migratory, Navegaon Bandh, Threatened.**

INTRODUCTION

Unique bio geographical features of Maharashtra have put the Maharashtra state in the list of hotspots of biodiversity. This diversity is also reflected in the avifauna of the state. About 568 different species of birds occur in Maharashtra. Recent studies indicate that habitat loss, fragmentation, over-exploitation of our natural resources, pollution, industrialization, urbanization etc. are posing great threats to the birdlife. In many parts of urban areas, it has been observed that sighting of House Sparrow has become rare in recent years. It is alarming to note that in India about 30 species are categorized as Endangered, 52 species are Vulnerable and about 66 species are Near Threatened which needs adequate conservation planning.

20th Century is witness to three phenomena of great ecological consequences. Un-precedence population growth, large scale Industrialization & Intensive agriculture based on large scale inputs of synthetic fertilizers & insecticides. All three had an immensely adverse impact on all resources of biodiversity. Terrestrial & associated aquatic habitats maintain ecological balance of flora & fauna interrelationship, regulate surrounding climate & recharge ground water.

Aquatic invertebrates are important as a source of food for birds, mammals, amphibians, reptiles & other invertebrates. Changes in terrestrial & aquatic habitat lead to changes in invertebrate assemblages which in turn increase, decrease or change food supplies for other mammals. Navegaon National Park is rich in bird fauna associated with it that includes some migratory species & ecologically an important landmark. Flocks of migratory birds visit this beautiful lake every winter. About 60 species of migratory birds visit this lake which indicates that the park and the lake is rich enough to attract these birds and induce them to spend the winter here. The National Park has all the mammals that can be expected in any good, protected forest of central India. In our preliminary studies 60 species of mammals & 46 species of herpes were recorded from this National Park (Paliwal G.T. 2013). Adequate information on this aspect of birdlife in Maharashtra is not available and immediate attention is the need of the hour. In this context it becomes necessary to identify such species & draw up a conservation plan for their sustainable existence.

MATERIAL AND METHODS

Study Area: (Navegaon Bandh Lake & Navegaon Bandh National Park)

Navegaon Bandh or Lake:
Although this Park is known as Navegaon National Park in Govt. records, because of the Navegoan (Bandh) tank, in the area it is known as Navegaon Bandh National Park. It will not be out of context to have a glimpse of Navegaon Bandh or lake as the National Park cannot be thought or perceived without Navegaon Bandh. The Navegaon Bandh is an impounded Fresh water lake having water spread area of 11 Sq. km and max depth of 75 feet.

Navegaon Bandh National Park:
Navegaon national Park is situated in Gondia district of Maharashtra state. It lies between 20 45' to 21 2' North latitude and 80 5' to 80 15' East longitude. It is about 35 km from Sakoli town on N.H. No. 6, 140 km from Nagpur and about 65 to 70 km from the district head quarter Gondia. The nearest Rly station is at Dewalgaon which is about 2 km. The area of National Park is 129.55 Sq. kms. In addition, P.F. areas equal to 4.33 Sq km of villages Zankargondi, Kawale wada, Tumadimenda and Malkazari which are situated inside the National Park is also given for management to the park authorities. Thus, the total area for management comes to 133.88 Sq km. This area is divided into four rounds viz. Paoni, Kokna, Kosbi and Nishani. The rounds are further divided into 13 beats. The area is being made inviolate as the MoEF has in principle agreed to declare 562 Sq km Navegaon - Nagzira as a new tiger reserve. It includes Navegaon (133.88 Sq km), Navegaon wildlife Sanctuary (122.75 Sq km), Nagzira (153.89 Sq km) and New Nagzira W.L. Sanctuary (151.33 Sq km).

Avian fauna:
Birds were observed by using spotting scope (10 x – 45 x) and binocular (07 x 50). They were identified using physical features with the help of guides and reference books. Birds were identified up to species level (Ali, 1983) and their habitats were also recorded. Observations were made every Sunday throughout the year during 2016 to 2018 i.e. for two years from morning 05 am to evening 06 pm. Bird watching was done from representative areas like all ranges of the park, wetlands and under according to their abundance (Abdulali, 1972). They were marked as C- Common, U- Uncommon, O- Occasional, and E- Rare. Status of birds is classified into Residents (R), Winter Migrants (W), Breeding Migrants (B) and Passage Migrants (P). Migratory birds were recorded by constructing hide outs near the marginal area of the lake and photographed by using Canon 1200 D Camera.

OBSERVATIONS AND RESULT

A total of 312 bird species from 57 different families under 14 orders have been recorded. Among these 252 were local residents, 53 winter visitors, 05 passage migrants and 02 breeding migrants. Out of total 312 avian species recorded, 12 are listed under different threatened categories. As shown in the Table: 1.

Table No: 1 Avian Diversity of Navegaon National Park

Sr. No	Zoological Name	Common Name	Status
1.	*Accipiter badius* (Temminck)	Shikra	R / C
2.	*Accipiter nisus* (Hume)	Eurasian Sparrowhawk	RW / U
3.	*Acridotheres fuscus* (Sykes)	Jungle Myna	R /O
4.	*Acridotheres tristis* (Linnaeus)	Common Myna	R / O
5.	*Acrocephalus agricola* (Jerdon)	Paddyfield Warbler	W /O
6.	*Acrocephalus dumetorum* (Blyth)	Blyth's Reed-Warbler	W /E
7.	*Acrocephalus stentoreus* (Jerdon)	Clamorous Reed-Warbler	R / E
8.	*Aegithina tiphia* (Gmelin)	Common Iora	R/ C
9.	*Alauda gulgula* (Franklin)	Orintal Skylark	R /U
10.	*Alcedo atthis* (Kleinschmidt)	Common Kingfisher	R / C
11.	*Alcippe poiocephala* (Hume)	Brown-cheeked Fulvetta	R / C
12.	*Amandava amandava* (Linnaeus)	Red Avadavat	R / C
13.	*Amaurornis akool* (Sykes)	Brown Crake	R/ C
14.	*Amaurornis phoenicurus* (Pennant)	White- brested Waterhen	R /C
15.	*Ammomanes phoenicurus* (Franklin)	Rufous-tailed Lark	R /C
16.	*Anas acuta* (Linnaeus)	Northern Pintail	W/ C
17.	*Anas clypeata* (Linnaeus)	Northern Shoveler	W /U
18.	*Anas crecca*(Linnaeus)	Common Teal	W /C

19.	*Anas Penelope* (Linnaeus)	Eurasian wigeon	W / C
20.	*Anas platyrhynchos* (Linnaeus)	Mallard	W /U
21.	*Anas poecilorhyncha* (Forster)	Spot-billed Duck	R / C
22.	*Anas querquedula* (Linnaeus)	Garganey	W / C
23.	*Anas strepera* (Linnaeus)	Gadwall	W / C
24.	*Anastomus oscitanus* (Boddaert)	Asian Openbill	R / C
25.	*Anhinga melanogaster* (Pannant)	Oriental Darter(Snakebird)	R / U
26.	*Anser anser* (Swinhoe)	Greylag- Goose	W/ E
27.	*Anser indicus* (Latham)	Bar-headed Goose	W/ U
28.	*Anthracoceros albirostris* (Shaw)	Oriental –Pied Hornbill	R / O
29.	*Anthracoceros coronatus* (Boddaert)	Malabar-Pied Hornbill	R / U
30.	*Anthus hodgsoni* (Richmond)	Olive-backed pipit	W/U
31.	*Anthus rufulus* (Vieilot)	Paddyfield Pipit	R /C
32.	*Anthus similis* (Jerdon)	Brown-Rock-Pipit	R/ O
33.	*Apus nipalensis* (Gray)	House Swift	R/ C
34.	*Ardea cinerea* (Linnaeus)	Grey Heron	R / C
35.	*Ardea purpurea* (Meyen)	Purple Heron	R / C
36.	*Ardea qrayii* (Sykes)	Indian Pond-Heron	R / C
37.	*Athene brama* (Temminck)	Spotted Owlet	R / C
38.	*Aythya ferina* (Linnaeus)	Common Pochard	W/ C
39.	*Aythya fuligula* (Linnaeus)	Tufted Duck	W / C
40.	*Aythya nyroca* (Guldenstadt)	White-Eyed Pochard	W / C
41.	*Bubo bubo* (Franklin)	Eurasian Eagle-Owl	R / C
42.	*Bubo coromandus* (Latham)	Dusky Eagle-Owl	R / U
43.	*Bubo nipalensis* (Hodgson)	Forest Eagle-Owl	R / E
44.	*Bubulcus ibis* (Boddaert)	Cattle Egret	R / C
45.	*Buceros bicornis* (Hodgson)	Great Pied Hornbill	R/ E
46.	*Burhinus cedicnemus* (Salvadori)	Eurasian Stone Curlew	R / U
47.	*Butastur teesa* (Franklin)	White-eyed Buzzard	R / C
48.	*Buteo buteo* (Linnaeus)	Common Bazzard	W /U
49.	*Butorides striatus* (Horsefied)	Little Green Heron	R / U
50.	*Calandrella brachydactyla* (Leisler)	Greater Short-toed Lark	R /U
51.	*Calandrella raytal* (Blyth)	Indian Short-toed Lark	R/ C
52.	*Calidres minuta* (Leisler)	Little Stint	W /U
53.	*Calidris ferruginea* (Pallas)	Curlew Sandpiper	W /O
54.	*Caprimulgus affinis* (Franklin)	Savanna Nightjar	R/ C
55.	*Caprimulgus asiaticus* (Latham)	Indian Nightjar	R /C
56.	*Caprimulgus indicus* (Latham)	Indian Jungle Nightjar	R /C
57.	*Caprimulgus macrurus* (Tickell)	Large-tailed Nightjar	R / C
58.	*Carpodacus erythrinus* (Blyth)	Common Rosefinch	R /U
59.	*Casmerodius albus* (Gray)	Great Egret	R / C
60.	*Celeus brachyurus* (Matherbe)	Rufous Woodpecker	R/ U
61.	*Centropus sinensis* (Stresemann)	Greater Coucal	R / C
62.	*Cercomela fusca* (Blyth)	Indian Chat	R / C
63.	*Ceryle rudis* (Reichenbach)	Pied Kingfisher	R/ C
64.	*Ceyx erithacus* (Linnaeus)	Black-backed Kingfisher	R / U
65.	*Chalcophaps indica* (Linnaeus)	Emerald Dove	R / U
66.	*Charadrius alexandrines* (Linnaeus)	Kentish Plover	R/U
67.	*Charadrius dubius* (Legge)	Little Ringed Plover	W/C
68.	*Chlidonias hybridus* (Stephens)	Whiskered Tern	W/ O
69.	*Chloropsis aurifrons* (Pelzeln)	Golden-fronted Leafbird	R/ C
70.	*Chloropsis cochinchinensis* (Blyth)	Blue-winged Leafbird	R /U
71.	*Chrysocolaptes festivus* (Boddaert)	White- naped Woodpecker	R/ C
72.	*Chrysomma sinensis* (Gmelin)	Yellow eyed Babbler	R /C
73.	*Ciconia episcopus* (Boddaert)	Woolly-necked Stork	R /U
74.	*Ciconia nigra* (Linnaeus)	Black Stork	W/ E
75.	*Circaetus gallicus* (Gmelin)	Short-toed Snake Eagle	R / U
76.	*Circaetus gallicus* (Gmelin)	Short-toed Snake Eagle	R / C
77.	*Circus aeruginosus* (Linnaeus)	Western Marsh Harrier	W/ C
78.	*Circus macrourus* (Gmelin)	Pallid Harrier	W/ E
79.	*Circus melanoleucos* (Pennant)	Pied Harrier	W /U
80.	*Cisticola juncidis* (Franklin)	Streaked Fantail Warbler	R/ C
81.	*Columba livia* (Strickland)	Rock Pigeon	
82.	*Copsychus malabaricus* (Scopoli)	White-rumped Shama	R /U

83.	*Copsychus saularis* (Liiaeus)	Oriental Magpie-Robin	R /C
84.	*Coracias benghalensis* (Linnaeus)	Indian Roller	R / C
85.	*Coracina macei* (Lesson)	Large Cuckoo-Shrike	R / O
86.	*Coracina melanoptera* (Sykes)	Black-headed Cuckoo-Shrike	R / U
87.	*Corvus levaillantii* (Sykes)	Jungle Crow	R / C
88.	*Corvus splendens* (Vieillot)	House Crow	R/ C
89.	*Coturnix chinensis* (Linnaeus)	Blue brested Quail	R/U
90.	*Coturnix coromandelica* (Gmelin)	Rain Quail	R /C
91.	*Coturnix coturnix* (Linnaeus)	Common Quail	R/ C
92.	*Cuculus canorus* (Linnaeus)	Common Cuckoo	R/ C
93.	*Cuculus micropterus* (Gould)	Indian Cuckoo	R/ C
94.	*Cuculus varius* (Vahl)	Common-Hawk Cuckoo	B / U
95.	*Cursorius coromandelicus* (Gmelin)	Indian Courser	R / C
96.	*Cyornis tickelliae* (Blyth)	Tickell's Blue Flycatcher	R /C
97.	*Cypsiurus balasiensis* (Gray)	Asian Palm-Swift	R / C
98.	*Delichon urbicum* (Linnaeus)	Northern house martin	W/ C
99.	*Dendrocitta vagabunda* (Blyth)	India tree pie	R /C
100.	*Dendrocopos mahrattensis* (Latham)	Yellow-Crowned Woodpecker	R / U
101.	*Dendrocopos nanus* (Jerdon)	Brown-capped Woodpecker	R/ O
102.	*Dendrocygma javanica* (Horsfield)	Lesser-Whistling-Duck	R / C
103.	*Dendronanthus indicus* (Gmelin)	Forest Wagtail	W /O
104.	*Dicaeum erythrorhynchos* (Latham)	Pale-billed Flowerpecker	R / U
105.	*Dicrurus caerulescens* (Linnaeus)	White-bellied Drongo	R/ U
106.	*Dicrurus leucophaeus* (Hay)	Ashy Drongo	R /U
107.	*Dicrurus macrocercus* (Vieillot)	Black Drongo	R /C
108.	*Dicrurus paradiseus* (Linnaeus)	Racket-tailed Drongo	R / U
109.	*Dinopium benghalensis* (Whistler)	Black rumped Flameback	R / C
110.	*Dryocopus javensis* (Jerdon)	White-bellied Woodpecker	R / O
111.	*Ducula aenea* (Blyth)	Green Imperial-Pigeon	R / O
112.	*Dumetia hyperythra* (Franklin)	Tawny-bellied Babbler	R / U
113.	*Egretta garzetta* (Linnaeus)	Little Egret	R / C
114.	*Egretta intermedia* (Wagler)	Median Egret	R / C
115.	*Elanus caeruleus* (Latham)	Black-Winged Kite	R/ C
116.	*Emberiza bruniceps* (Brandt)	Red-headed Bunting	W /O
117.	*Emberiza melanocephala* (Scopoli)	Black-headed Bunting	W /U
118.	*Eremopterix grisea* (Scopoli)	Ashy-crowned Sparrow Lark	R /C
119.	*Eudynamys scolopacea* (Linnaeus)	Asian Koel	R / C
120.	*Eumyias thalassina* (Swainson)	Verditer Flycatcher	R /C
121.	*Falco peregrinus peregrinator* (Sundevall)	Shaheen Falcon	W/ O
122.	*Falco chicquera* (Daudin)	Red-naked Falcon	R / U
123.	*Falco jugger* (Gray)	Laggar Falcon	R / U
124.	*Falco peregrines* (Gmelin)	Peregrine Falcon	W/ U
125.	*Falco subbuteo* (Linnaeus)	Eurasian Hobby	W /U
126.	*Falco tinnunculus* (Linnaeus)	Common Kestrel	R/ C
127.	*Ficedula parva* (Bechstein)	Red-breasted Flycatcher	W /C
128.	*Ficedula superciliaris* (Jerdon)	Ultramarine-Flycatcher	R /C
129.	*Francolinus francolinus* (Gmelin)	Black Francolin	R /O
130.	*Francolinus pictus* (Jardine&Selby)	Painted Francolin	R / C
131.	*Francolinus pondicerianus* (Gmelin)	Cray Francolin	R / C
132.	*Fulica atra* (Linnaeus)	Common Coot	R /C
133.	*Galerida cristata* (Linnaeus)	Crested Lark	R / C
134.	*Galerida malabarica* (Scopoli)	Malabar Lark	R / O
135.	*Gallicrex cinerea* (Gmelin)	Watercock	R/ U
136.	*Gallinago galliango* (Linnaeus)	Common Snipe	R/ C
137.	*Gallinago stenura* (Bonaparte)	Pintail Snipe	W/ C
138.	*Gallinula chloropus* (Blyth)	Common Moorhen	R / C
139.	*Galloperdix lunulata* (Vallenciennes)	Painted Spurfowl	R / C
140.	Galloperdix spadicea (Gmelin)	Red Spurfowl	R / C

141.	*Gallus gallus* (Robinson& Kloss)	Red Junglefowl	R / C
142.	*Gallus sonneratii* (Temminck)	Gray Junglefowl	R / C
143.	*Glareola lacteal* (Temminck)	Small Pratincole	R / U
144.	*Glaucidium radiatum* (Blyth)	Jungle Owlet	R/ U
145.	*Grus antigone* (Linnaeus)	Sarus Crane	R/ E
146.	*Gyps bengalensis* (Gmelin)	White-rumped Vulture	R/ E
147.	*Gyps indicus* (Scopoli)	Long-billed Vulture	R / E
148.	*Halcyon pileata* (Boddaert)	Black-Capped Kingfisher	R / U
149.	*Halcyon smyrnensis* (Boddaert)	White-throated Kingfisher	R / C
150.	*Haliastur Indus* (Boddaert)	Brahminy Kite	R / O
151.	*Hemiprocne coronate* (Tickell)	Crested Treeswift	R/ C
152.	*Hieraaetus fasciatus* (Viellot)	Bonelli's Eagle	R /O
153.	*Hieraaetus pennatus* (Gmelin)	Booted Eagle	W /U
154.	*Himantopus himantopus* (Linnaeus)	Black-Winged Stilt	R / C
155.	*Hippolais caligata* (Lichtenstein)	Booted Tree-Warbler	W /O
156.	*Hirundo concolor* (Sykes)	Dusky Crag Martin	R /C
157.	*Hirundo daurica* (Hodgson)	Red-rumped Swallow	R/ C
158.	*Hirundo fluvicola* (Blyth)	Streak-throated Swallow	R /U
159.	*Hirundo rupestris* (Scopoli)	Eurasian Crag Martin	R/ U
160.	*Hirundo rustica* (Linnaeus)	Barn Swallow	R/ U
161.	*Hirundo smithii* (Stephens)	Wire-tailed Swallow	R /U
162.	*Hydrophasianus chirurgus* (Scopoli)	Pheasant-tailed Jacana	R /C
163.	*Hypothymis azurea* (Boddaert)	Blacknaped Blue Flycatcher	R/ C
164.	*Ichthyophaga ichthyaetus* (Horsfield)	Grey-headed Fish Eagle	R /U
165.	*Ixobrychus cinnamomeus* (Gmelin)	Chestnut- Bittern	R / U
166.	*Ixobrychus sinensis* (Gmelin)	Yellow Bittern	R/ E
167.	*Jynx torquilla* (Linnaeus)	Eurasian Wryneck	W / U
168.	*Ketupa zeylonensis* (Gmelin)	Brown Fish-Owl	R/ O
169.	*Lanius cristatus* (Linnaeus)	Brown Shrike	W /O
170.	*Lanius excubitor* (Sykes)	Great Grey Shrike	R/ C
171.	*Lanius schach* (Blyth)	Long-tailed Shrike	R/ C
172.	*Lanius vittatus* (Valenciennes)	Bay-backed Shrike	R / C
173.	*Larus brunnicephalus* (Jerdon)	Brown Headed-Gull	P / O
174.	*Larus ridibundus* (Linnaeus)	Common Black Headed- Gull	P / O
175.	*Leptoptilos javanicus* (Horsefield)	Lesser Adjutant Stork	R /E
176.	*Limosa limosa* (Linnaeus)	Black-tailed Godwit	W/ U
177.	*Lonchura malabarica* (Linnaeus)	White-throated Silverbill	R / C
178.	*Lonchura Malacca* (Linnaeus)	Black-headed Munia	R / U
179.	*Lonchura punctulata* (Linnaeus)	Spotted Munia	R/ U
180.	*Lonchura striata* (Linnaeus)	White-rumped Munia	R /C
181.	*Luscinia svecica* (Zarudny)	Bluethroat	W /E
182.	*Lymnocryptes minimus* (Brunnich)	Jack Snipe	W /C
183.	*Megalaima haemacephala* (Latham)	Coppersmith Barbet	R / C
184.	*Megalaima zeylanica* (Walden)	Brown-headed Barbet	R/ C
185.	*Melophus lathami* (Gray)	Crested Bunting	R /U
186.	*Merops orientalis* (Latham)	Little Green Beeeater	R / C
187.	*Merops philippinus* (Linnaeus)	Blue-tailed Beeeater	R / U
188.	*Metopidius indicus* (Latham)	Bronze-Winged Jacana	R / C
189.	*Milvus migrans* (Sykes)	Pariah or black Kite	R/ C
190.	*Mirafra cantillans* (Blyth)	Singing Lark	R / C
191.	*Mirafra erythroptera* (Blyth)	Indian Lark (Red Winged)	R / C
192.	*Monticola solitarius* (Sykes)	Blue Rock-Thrush	W/ U
193.	*Motacilla alba* (Sykes)	White wagtail	W /C
194.	*Motacilla cinerea* (Gmelin)	Grey Wagtail	W /C
195.	*Motacilla citreola* (Pallas)	Yellow-hooded Wagtail	W /C
196.	*Motacilla flava* (Linnaeus)	Yellow Wagtail	W /C
197.	*Motacilla madaraspatensis* (Gmelin)	White Pied Wagtail	R / C
198.	*Muscicapa dauurica* (Pallas)	Asian Brown Flycatcher	W/ U
199.	*Mycteria leucocephala* (Pennant)	Painted Stork	R / U
200.	*Nectarinia asiatica* (Latham)	Purple Sunbird	R / C

201.	*Nectarinia lotenia* (Whistier)	Long-billed Sunbird	R / E
202.	*Nectarinia zeylonica* (Vieillot)	Purple-rumped Sunbird	R / C
203.	*Neophron percnopterus* (Latham)	Egyptian vulture Kite	R / O
204.	*Netta rufina* (Pallas)	Red- Crested Pochard	W / C
205.	*Nettapus coromandelianus* (Gmelin)	Cotton Pygmy Goose	R/ C
206.	*Ninox scutulata* (Tickell)	Brown Hawk-Owl	R / E
207.	*Numenius arquata* (Brehm)	Eurasian Curlew	W /U
208.	*Nycticorax nycticorax* (Linnaeus)	Black-crowned Night Heron	R / U
209.	*Ocyceros birostris* (Scopoli)	Indian Grey Hornbill	R / C
210.	*Oriolus oriolus* (Sykes)	Eurasian Golden-Oriole	R / C
211.	*Oriolus xanthornus* (Franklin)	Black-hooded Oriole	R / C
212.	*Orthotomus sutorius* (Latham)	Common Tailorbird	R /C
213.	*Otus bakkamoena* (Pennant)	Collared Scops – Owl	R / U
214.	*Oxylophus jacobinus* (Sparman)	Pied Cuckoo	B / C
215.	*Pandion haliaetus* (Linnaeus)	Osprey	W/ U
216.	*Parus major* (Linnaeus)	Great Tit	R / C
217.	*Parus spilonotus* (Blyth)	Yellow-Cheeked Tit	R / U
218.	*Passer domesticus* (Linnaeus)	House Sparrow	R /C
219.	*Pavo cristatus* (Linnaeus)	Indian Peafowl	R / C
220.	*Pelargopsis capensis*(Linnaeus)	Stork-billed Kingfisher	R/ U
221.	*Pellorneum ruficeps* (Swainson)	Puff-throated Babbler	R / U
222.	*Perdicula argoondah* (Sykes)	Rock Bush-Quail	R / C
223.	*Perdicula asiatica* (Vidali)	Jungle Bush-Quail	R / C
224.	*Pericrocotus crinnamomeus* (Linnaeus)	Small Minivet	R /U
225.	*Pericrocotus flammeus* (Forster)	Scarlet Minivet	R/ E
226.	*Pernis ptilorhyncus* (Lesson)	Oriental Honey-buzzard	R/ O
227.	*Petronia xanthocollis* (Burton)	Chestnut-shouldered Petronia	R /U
228.	*Phaenicophaeus leschenaultia* (Lesson)	Sirkeer Malkoha	R / U
229.	*Phalacrocorax carbo* (Shaw)	Great Cormorant	R / U
230.	*Phalacrocorax fuscicollis* (Stephens)	Indian Cormorant	R / C
231.	*Phalacrocorax niger* (Vieillot)	Little Cormorant	R / C
232.	*Phoenicurus ochruros* Vieillot)	Black Redstart	W /C
233.	*Phylloscopus trochiloides* (Blyth)	Greenish Leaf-Warbler	R /U
234.	*Pitta brachyura* (Linnaeus)	Indian Pitta	R / C
235.	*Platalea leucorodia* (Temminck&Schlegel)	Eurasian Spoonbill	P / O
236.	*Plegadis falcinellus* (Linnaeus)	Glossy Ibis	R / U
237.	*Ploceus benghalensis* (Linnaeus)	Black-breasted Weaver	R /U
238.	*Ploceus manyar* (Horsefield)	Streaked Weaver	R /E
239.	*Ploceus philippinus* (Linnaeus)	Baya Weaver	R /C
240.	*Porphyrio porphyrio* (Latham)	Purple Swamphen	R / C
241.	*Porzana parva* (Scopoli)	Little Crake	W/ C
242.	*Prinia buchanani* (Blyth)	Rufous –fronted Prinia	R /O
243.	*Prinia hodgsonii* (Blyth)	Grey-brested Prinia	R / C
244.	*Prinia inornata* (Gmelin)	Plain Prinia	R / C
245.	*Prinia socialis* (Sykes)	Ashy Prinia	R /C
246.	*Prinia sylvatica* (Jerdon)	Jungle Prinia	R /C
247.	*Pseudibis papillosa* (Temminck)	Red- naped Ibis	R/ C
248.	*Psittacula cyanocephala* (Linnaeus)	Plum-headed Parakeet	R / C
249.	*Psittacula eupatria* (Linnaeus)	Alexandrine Parakeet	R / C
250.	*Psittacula krameri* (Bechstein)	Rose-Ringed Parakeet	R / C
251.	*Pterocles exustus* (Neumann)	Chestnut-bellied Sandgrouse	R /C
252.	*Pterocles indicus* (Gmelin)	Painted sandgrouse	R/ U
253.	*Pycnonotus cafer* (Linnaeus)	Red-vented Bulbul	R /C
254.	*Pycnonotus jocosus* (Linnaeus)	Red-whiskered Bulbul	R/ O
255.	*Rallus aquaticus* (Linnaeus)	Water Rail	W/ U
256.	*Rallus striatus* (Linnaeus)	Bluebrested- Rail	W /O
257.	*Rhipidura albicollis* (Lesson)	White-throated Fantail	R /C
258.	*Rhipidura aureola* (Lesson)	White-browed Fantail	R /C
259.	*Rostratula bengalensis* (Linnaeus)	Greater PaintedSnipe	R/ C

260.	*Sarkidiornis melanotos* (Pennant)	Comb Duck	R / C
261.	*Saxicola caprata* (Sykes)	Pied Bushchat	R / C
262.	*Saxicola torquata* (Blyth)	Collared Bushchat	R / C
263.	*Saxicoloides fulicata* (Whistler)	India Robin	R / C
264.	*Sitta castanea* (Lesson)	Chestnut-bellied Nuthatch	R /O
265.	*Sitta frontalis* (Swainson)	Velvet-fronted Nuthatch	R /E
266.	*Spilornis cheela* (Jerdon)	Crested Serpent-Eagle	R / C
267.	*Spizaetus cirrhatus* (Gmelin)	Changeable Hawk-Eagle	R / C
268.	*Sterna albifrons* (Palas)	Little Tern	R / C
269.	*Sterna aurantia* (Gray)	River Tern	R/ C
270.	*Sterna hirundo* (Linnaeus)	Common Tern	W /U
271.	*Streptopelia chinensis* (Gmelin)	Spotted Dove	R / C
272.	*Streptopelia decaocto* (Frivaldszky)	Eurasian Collared Dove	R / C
273.	*Streptopelia orientalis* (Sykes)	Oriental Turtle Dove	R/ U
274.	*Streptopelia senegalensis* (Gmelin)	Laughing Dove	R/ C
275.	*Streptopelia tranquebarica* (Hemann)	Red Collared Dove	R/ U
276.	*Strix leptogrammica* (Temminck)	Brown Wood-Owl	R / O
277.	*Strix ocellata* (Lesson)	Mottled Wood-Owl	R / U
278.	*Sturnus contra* (Linnaeus)	Asian Pied Starling	R / C
279.	*Sturnus malabaricus* (Jerdon)	Greyheaded Starling	R /U
280.	*Sturnus pagodarum* (Gmelin)	Brahminy Starling	R/ C
281.	*Sturnus roseus* (Linnaeus)	Rosy Starling	W /C
282.	*Surniculus lugubris* (Hodgson)	Drongo Cuckoo	W / E
283.	*Sylvia curruca* (Linnaeus)	Lesser Whitethroat	W /U
284.	*Sylvia hortensis* (Blyth)	Orphean Warbler	W /U
285.	*Tachybaptus ruficollis* (Salvadori)	Little Grebe	R / C
286.	*Tachymarptis melba* (Hartert)	Alpine Swift	R / C
287.	*Tadorna ferruginea* (Pallas)	Ruddy Shelduck	W / C
288.	*Tephrodornis pondicerianus* (Gmelin)	Common Woodshrike	R /U
289.	*Terpsiphone paradise* (Linnaeus)	Asian Paradise-Flycatcher	R / C
290.	*Threskiornis melanocephalus* (Latham)	Black-headed Ibis	R/ C
291.	*Treron phoenicoptera* (Blyth)	Yellow-footed Green Pigeon	R / C
292.	*Treron Pompadora* (Jerdon)	Pompador Green-Pigeon	R / E
293.	*Tringa cinerea* (Latham)	Terek Sandiper	W / E
294.	*Tringa glareola* (Linnaeus)	Wood Sandpiper	W /C
295.	*Tringa hypoleucos* (Linnaeus)	Common Sandpiper	W / C
296.	*Tringa nebaularia* (Gunnerus)	Common Greenshank	W / O
297.	*Tringa stagnatilis* (Bechstein)	Marsh Sandpiper	W/ C
298.	*Tringa tetanus* (Obertholser)	Common Redshank	W / U
299.	*Turdoides affinis* (Jerdon)	Yellow billed Babbler	R / U
300.	*Turdoides caudatus* (Dumont)	Common Babbler	R / C
301.	*Turdoides malcolmi* (Sykes)	Large Grey Babbler	R / C
302.	*Turdoides striatus* (Jerdon)	Jungle Babbler	R / C
303.	*Turnix suscitator* (Sykes)	Barred Button Quail	R / C
304.	*Turnix sylvatica* (Temminck)	Small Button Quail	R / E
305.	*Turnix tanki* (Blyth)	Yellow- legged Button Quial	R / U
306.	*Tyto alba* (Hartert)	Barn owl	R / C
307.	*Upupa epops* (Linnaeus)	Common Hoopoe	R/ C
308.	*Vanellus indicus* (Boddaert)	Red-Wattled Lapwing	R/ C
309.	*Vanellus malabaricus*(Boddaert)	Yellow-Wattled Lapwing	R/ C
310.	*Zoothera citrina cyanotus* (Jardine & Selby)	Whitethroated Ground Thrush	R /C
311.	*Zoothera citrine* (Latham)	Orange-headed Thrush	R/ E
312.	*Zosterops palpebrosus* (Temminck)	White-Eye	R / C

DISCUSSION

India has a great diversity of habitats starting from Kanyakumari to Kashmir and Gujarat to Assam. It includes desert, grassland and forest as well as the ranges of mountains in the world. All these results in having area with rich biodiversity. The seasonal environmental conditions and variation in rainfall at different regions are responsible for having different types of avifauna. The thick vegetation supports to specific adapted bird species such as abundant fruit eating and typical insectivores and carnivore birds. The Indian sub-continent supports more than 1200

species of birds which contribute more than 15% of world's bird species (Salim Ali, 2002).

In the post-independence period many Ornithologists like Salim Ali, Ripley, Koelz, Alexander, and Biswas etc. contributed much to knowledge of Ornithology. As a result of availability of large number of books on bird watching and scientific Ornithology, the Ornithological studies are extensive in Maharashtra and the country as a whole. Abdulali (1981) listed 540 species of birds from Maharashtra state.

In the present investigation 312 species of birds are recorded of which about 179 species are similar to the species reported by V.B. Sawarkar (1987) from Melghat Tiger Reserve, M.S., about 190 species are similar with the species of birds reported by Mahabal (2006) from Tadoba Andheri Tiger Reserve, M.S., about 59 species are similar with the avian species reported by Shobha Goswami (1999) from Shivpuri forest, M.P., about 140 species are similar with the avian species reported by Ashok Verma et al., (2004) from Mahul Creek, Bombay, M.S., about 125 species are similar with the avian species reported by A.M.K. Bharos (2003) from Indrawati Tiger Reserve, Chhattisgarh State., about 164 species are similar with the species of birds reported by B. Anand Mohan (2000) from Sri Venkateshwara Wildlife Sanctuary, Andhra Pradesh., and about 248 species are similar with the avian species reported by M.K.S. Pasha et al., (2004) from Pench Tiger Reserve, M.P.

According to Birdlife international (2012) about 147 species are threatened. Threats perceived to Indian birds include habitat destruction, fragmentation, pesticides and other kind of human induced threats. The trade is also contributing factor in threatening a large number of Indian birds. If the species are sorted out in various categories given in the table: 1.1 it will be seen that about 312 species of 183 genera belonging to 57 families grouped under 14 avian orders have been reported, with predominance of Passeriformes, Ciconiformes and Anseriformes, followed by Galliformes. It will be seen that more than 76% avian species belongs to order Passeriformes, Ciconiformes and Anseriformes (120 species i.e. 38% of the total avian species reported from the park belongs to order Passeriformes and leads the group far ahead).

Of the 312 species studied as per IUCN Global conservation status (2008) 2 species are CR, 01 species under EN, 2 species under VL, 11 species under NT, 286 species under LC and 10 species are under DD category. The National conservation status of the avian species under Indian Wildlife (Protection) Act 1972 was also studied and accordingly, 24 species are under Sch. I, Sch. II – Nil, Sch. III – Nil, Sch. IV-269, Sch. V- 01 and 18 species are under NS (Non-Scheduled) category.

During the study span 312 bird species from 57 families grouped under 14 avian orders have been recorded. Among the total 312 species, 252 were residents, 53 were winter migrants, 05 were passage migrants and 02 were breeding migrants (Table: 1). Further, out of 312 bird species recorded 95 were water bird species, among which 58 are residents and 37 species were migrants.

Migration is the regular seasonal journey undertaken by the birds in response to changes in food availability, habitat or weather (Berthold et al., 2001). India is of outstanding international importance for migratory birds lying on some of the central Asian flyway. Large numbers of migrants are attracted especially during winter by the extensive areas of wetlands of Indian subcontinent. These wetlands fulfill the food and habitat requirement of migratory birds and help to maintain biodiversity globally (Kedar, 2012). Many migratory birds visit Navegaon Lake during the winter. In the present investigation 53 true migrants, 05 Passage migrants and also 02 Breeding migrants visit the lake during rainy season.

Out of all the birds living on earth, approximately one fifth make the annual trip called 'Migration' (Domitriyav, 1984). The regular wintering of several migratory birds such as huge flocks of Gray lag goose, Red crested Pochard, Pintail, Garganey, Eurasian Curlew, Black tailed Godwit, Red Shank, Green Shank, Little Stint, Curlew Sandpiper, Pintail Snipe, Common Tern, Pallid Harrier, Pied Harrier, Black Stork etc. are significant to the lake.

Since this means that the habitat is rich enough to attract some of these birds and make them to spend their winter months here. Black tailed Godwit (*Limosa limosa*) was seen extensively, due to the shrinkage of water body along the marginal areas of lake the Unios and Snails become exposed. These birds prefer the molluscs as their food. The availability of ample food of choice might have made passage migrants like Eurasian Spoon bill (*Platalea leucoradia*), Black headed Gull (*Larus ridibundus*), and Brown headed Gull (*Larus brunnicephalus*) to stay for some time on

this lake while migrating from North to South or back journey.

Another passage migrant Rosy starling (*Sturnus roseus*) was found everywhere before and after winter in flocks. During the month of March their presence coincides with the flowering of plants as these birds mostly feed on the nectar from Palas (*Butea monosperma*) flowers. The trees of the Palas are covered with orange red juicy blooms in the summer that attracts the migrants along with the resident birds. The present observation is in agreement with the study conducted on roosting habits of Rosy starling in Poona, Maharashtra by Mahabal et al., (1980).

Among the two Breeding migrants Pied Crested Cuckoo (*Clamator jacobinus*) and Common Hawk Cuckoo (*Cuculus varius*) found to lay their eggs in the nests of babblers and bulbuls, which are abundant in this region. These show a very peculiar nesting behavior called as 'Brood Parasitism' which is common among the members of family Cuculidae. In the present observation 95 water bird species are recorded of which 58 are residents and 37 species were migrants. Among the resident water birds the important species are (Cotton Pygmy goose, Comb Duck, Spot- billed Duck, Ruddy Shelduck, Common Moorhen, Purple Moorhen, Indian Cormorant, Oriental Darter, Purple Heron, Night Heron, Asian open bill Stork, Painted Stork, Bronze winged Jacana, etc.). The water and the marginal area characteristics are conducive to the habitation of many water birds in this lake, besides their aesthetic and economic value water birds are the best indicators of the health of wetland habitats and they are rich stores of biodiversity providing in particular excellent habitat for water birds.

Many water birds construct their nests in the beginning of rainy season near Navegaon Bandh Lake and form mixed heronries. In the present observation such heronries were observed on Tamarind, Peepal and Mango trees etc. Many birds prefer Tamarind or Banyan trees and it is said that such trees are free from lightning strikes (Chittampalli, 2010).

Thus, the Navegaon Lake and the National Park is a heaven for the bird watchers and Ornithologists as many kinds of birds can be observed and thus get fascinated by them.

CONCLUSION

India is of outstanding international importance for migratory birds lying on some of the central Asian flyway. Large numbers of migrants are attracted especially during winter by the extensive areas of wetlands of Indian subcontinent. These wetlands fulfill the food and habitat requirement of migratory birds and help to maintain biodiversity globally (Kedar, 2012). The Indian sub-continent supports more than 1200 species of birds which contribute more than 15% of world's bird species (Salim Ali, 2002).

In the present investigation about 312 species of 183 genera belonging to 57 families grouped under 14 avian orders have been reported. Among 312 bird species 252 are residents, 53 are winter migrants, 5 are passage migrants and 2 species are breeding migrants. This clearly indicates that this National Park possesses a fairly rich avian diversity. The seasonal environmental conditions and variation in rainfall at different regions are responsible for having different types of avifauna. The thick vegetation supports to specific adapted bird species such as abundant fruit eating and typical insectivores and carnivore birds.

Since this means that the habitat is rich enough to attract some of these birds and make them to spend their winter months here. Black tailed Godwit (*Limosa limosa*) was seen extensively, due to the shrinkage of water body along the marginal areas of lake the Unios and Snails become exposed. These birds prefer the molluscs as their food.

The water and the marginal area characteristics are conducive to the habitation of many water birds in this lake, besides their aesthetic and economic value water birds are the best indicators of the health of wetland habitats and they are rich stores of biodiversity providing in particular excellent habitat for water birds. Many water birds construct their nests in the beginning of rainy season near Navegaon Bandh Lake and form mixed heronries. In the present observation such heronries were observed on Tamarind, Peepal and Mango trees etc. Many birds prefer Tamarind or Banyan trees and it is said that such trees are free from lightning strikes (Chittampalli, 2010).

Since a scanty information on the bird migration from this region was available, data of the present survey can be taken as a baseline data for further study. Migratory birds require suitable conditions in breeding and feeding grounds and along migratory routes between the two. But climate change has the potential to disrupt conditions in all three stages. Although the

ecological conditions in this area support the density of migratory birds, we must work on reducing human pressures on the natural environment from the consumption of renewable resources and the production of pollution (climate change) and try to conserve as many of the species of migratory birds, and other organisms alike, for future generations to come.

Thus, the Navegaon Lake and the National Park is a heaven for bird watchers and Ornithologists as many kinds of birds can be observed and thus get fascinated by them.

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Plate: I Avian Diversity of Navegaon National Park