

# CONSERVATION OF NANDUR MADHAMESHWAR WETLAND, INDIA

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**Key words:** Nandur Madhameshwar, wetland protection, wetland management, wetland conservation, migratory birds

The importance of wetlands, the way they sustain biological diversity, harbour and attract migratory birds is well known. How these wetlands can be protected, managed and conserved are important issues. In the present paper the authors, being managers of protected areas, have tried to illustrate these issues with specific reference to Nandur Madhameshwar wetland.

Nandur Madhameshwar wetland, situated in the proximity of Nasik city in Niphad Tehsil, was formed by the dam constructed at the confluence of Godavari and Kadwa rivers in 1907. The wetland has been included in the directory of Asian wetlands and Dr. Sálím Ali opined that it is a lovely area that has the potential of becoming the "Bharatpur of Maharashtra". In addition to its rich resident avifauna, this wetland attracts many migratory birds, mainly demoiselle cranes, flamingoes, spoonbills, many species of storks, ibises, herons, egrets, ducks, sand pipers, stilts, and other waders. It was notified as a sanctuary as per the provisions of the Wildlife (Protection) Act 1972 in 1986. However, the efforts of protecting, managing and conserving it were started by the Wildlife Wing of the Forest Department only in 1994. The problems in settling the claims of local people, other agencies and departments on the land, the resource study of the area, fluctuations in the population of migratory birds, planning of research studies, threats to the area and management issues have been described in this paper with practical and particular reference to Nandur Madhameshwar wetland.

## INTRODUCTION

The vast area of the Deccan plateau, in Maharashtra state in India, faces acute water shortage in summer, in spite of sufficient rainfall. The rivers flowing through this tract are full of water, occasionally threatening to flood in the monsoon. It is a peculiar situation. To alleviate the continuous suffering of the scarcity affected people of Nasik and Ahmednagar districts, the British Government formulated the Godavari canal system scheme by constructing dams across the Darna river at Nandgaon and at the confluence of

the Godavari and Kadwa rivers at Nandur-Madhameshwar in 1907-1913. The Nandur Madhameshwar water reservoir is situated in Niphad tehsil near Nasik. In 1956, an earthen dam was constructed at Gangapur across the Godavari river, close to its origin at Tryambakeshwar, from which Nandur Madhameshwar reservoir gets water when it is released from the Gangapur and Darna reservoirs. The water stored at Nandur Madhameshwar is subsequently released through canals to far off areas in Nasik and Ahmednagar districts for irrigation. With the flow of water, a lot of silt and organic matter was deposited in the reservoir and in the surrounding areas which were mainly agricultural fields. With the passage of time, small islands of silt and organic matter were formed, many shallow ponds created, providing biological conditions that favoured the growth and stabilization of aquatic vegetation and fauna. Thus the man-made reservoir and surrounding areas (i.e. agricultural fields having winter crop) turned into a good wetland habitat.

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NANDUR MADHAMESHWAR WETLAND

Dr. Sálím Ali, during his last visit to the Nandur Madhameshwar wetland on March 6, 1983, revealed that the site was known to him and other members of the Bombay Natural History Society since 1941, and opined that it had the potential to become the Bharatpur of Maharashtra. The first survey was undertaken by the BNHS in 1975. Mr. Debi Goenka and Mr. Lavkumar Khacher undertook a survey in 1982 (Khacher 1983). However, real attention and demand for its protection started when nature lovers raised their voice through newspapers to prevent poaching of birds in the wetland in 1982-83. In response to their demands, and having ascertained the ecological importance of the area, the Government of Maharashtra declared it as a closed area in 1983 and in 1986 declared it a Wildlife Sanctuary, as per the provisions of the Wildlife (Protection) Act, 1972. The notification dated February 25, 1986 states the area details for Nandur Madhameshwar Wildlife Sanctuary as follows:

- |                                  |   |                   |
|----------------------------------|---|-------------------|
| 1. Waterspread area              | = | 1757.92 ha        |
| (under Irrigation Department)    |   |                   |
| 2. Area under Revenue Department | = | 21.86 ha          |
| 3. Village area (Private lands)  | = | 8177.87 ha        |
| 4. Forest area                   | = | 55.06 ha          |
| (under Forest Department)        |   |                   |
| Total area                       | = | 10012.73 ha       |
|                                  |   | or 100.12 sq. km. |

Thus the Wildlife Sanctuary has 81.7% private land, 17.8% land belonging to the Irrigation and Revenue Departments, and just about 0.5% forest land. The Forest Department has protected wildlife in the notified area since 1983, with the result that rampant poaching has come to a halt. Also the forest area was afforested subsequently in 1987-1989. However, the area (which is not in the charge of the Forest Department) being large, management activities in this part could not gather momentum. Similarly, as private lands were

included in the notified sanctuary, there were large scale protests against the constitution of the sanctuary by local people. The Collector of Nasik, appointed as the Enquiry Officer as per the provisions of Wildlife (Protection) Act 1972, could not complete the inquiry into the peoples' rights.

VALUE OF NANDUR MADHAMESHWAR AS A WETLAND

The most valuable resource of Nandur Madhameshwar wetland at present is its biological richness, as it is the habitat for a diverse variety of flora and fauna. According to the Pakshi Mitra Mandal (Friends of Birds Group) of Niphad and Nasik, 231 species of resident and migratory birds, and 24 species of fishes have been reported from this area (see Appendix I). According to Mr. M. R. Almeida, 463 species of plants, including over 80 aquatic species.

During the bird migration season (October-November to February-March) each year, the area attracts lots of migratory birds from far off places, chiefly various species of ducks, storks, ibises, cranes, flamingoes, and waders.

Besides the area being so rich in avifaunal and floral values, the use of Nandur Madhameshwar reservoir for irrigation is highly important. Similarly, the situation of the Nandur Madhameshwar dam at the confluence of the Godavari and Kadwa rivers, and near the various temples, is of religious importance also.

For proper management of Nandur Madhameshwar and 5 other sanctuaries with a view to biodiversity conservation, the post of Deputy Conservator of Forest (Wildlife) Nasik was created in November 1993 in the Wildlife Wing of the Forest Department, under the Maharashtra Forestry Project, and the Nandur Madhameshwar Wildlife Sanctuary was transferred to Dy. Conservator of Forests (Wildlife) Nasik in March 1994. The management priorities for the wildlife sanctuary are listed as follows:

**Completion of Enquiry:** Nandur Madhmeshwar wetland has been declared a wildlife sanctuary as per Section 18 of the Wildlife (Protection) Act, 1972; accordingly, the Enquiry Officer should enquire into and determine the rights of the people over the notified area. With the same notification dated February 25, 1986, the Collector of Nasik was appointed as Enquiry Officer, but the process could not be completed. Meanwhile, in 1991, there was an amendment to the Wildlife (Protection) Act 1972. As per the amended Act, the sanctuary area needs to be protected, propagated and developed only for the welfare of the wildlife therein. Under the circumstances, the scope of the said enquiry has increased. To expedite the enquiry, the Government of Maharashtra *vide* its notification dated July 14, 1994, delegated the powers of the Collector of Nasik to the Sub-Divisional Officer, Niphad for this purpose.

After committed follow-up by the office of the Dy. Conservator of Forests (Wildlife), Nasik, to complete the enquiry, the Sub-Divisional Officer, Niphad has undertaken the work and it is hoped that the enquiry will be completed in 1996, so that the area can be notified as the finally constituted sanctuary, as per the provision of Section 26 of the said Act.

**Protection:** Protection has been made effective. Already, non-governmental organizations such as Pakshi Mitra Mandal (Friends of Birds) are observing the birds. The Dy. Conservator of Forests (Wildlife) Nasik interacts with various such organisations, nature lovers, school children, other government departments and local people to involve them and create awareness. The ecological importance of the area was explained to the people through meetings and site visits. These groups have become conservation conscious, and they themselves want to minimize disturbance to the wetland by controlling fishing, movement of cattle, collection of firewood and other such activities.

**Database:** Data is being collected on the key characteristics of the wetland, estimation of different attributes responsible for the functioning of the wetland, assessment of the various impacts and problems, so as to make area management more effective.

**Monitoring:** Bird counts have been arranged in the Sanctuary to monitor the numbers of various species, timing of migration for a particular species, and diversity of migrants.

**Identification of research needs:** Based on the data collected, research needs to be done on:

- a. Fluctuating water level in the reservoir: As water from the Darna and Gangapur dam is released periodically for irrigation, the water level in Nandur Madhameshwar reservoir keeps fluctuating. Sometimes the reservoir is filled to capacity and there are hardly any shallow ponds for waders. When all the water is released through canals, the reservoir becomes dry. This becomes a pinch period for birds. Studies are needed to find out the optimum level of water in the reservoir and regulate it accordingly. This is much more important during the migration period. (As there is a large number of water bodies in the proximity of Nandur Madhameshwar, the birds have temporary refuge in case this reservoir is either full of water or temporarily dry. Necessary protection measures for the birds are taken by the management.)
- b. The migration pattern and movement of birds in the proximity needs to be undertaken.
- c. The nesting, breeding of resident birds, particularly swallows.
- d. Effect of siltation in the reservoir on the floral and faunal characteristics of the wetland.
- e. Effect of water chemistry on the wetland ecosystem.
- f. Effect of invasion of weeds such as *Ipomoea*, *Eichhornia* and *Parthenium* on the wetland ecosystem.

g. Assessment of the damage said to be done by birds, particularly cranes, in the adjoining agricultural fields.

**Problems faced by the management:**

(1) Cultivation over the "Galpera" area: The area required for water submergence to the extent of 1,758 ha was acquired by the Government for the Irrigation Department. Due to siltation part of the area is rarely submerged and has become very fertile. The Government of Maharashtra distributed such land to the surrounding local people for cultivation on annual lease through the Revenue Department in the past. The extent of such area is nearly 587 ha, and there are 557 beneficiaries, mostly tribals and members of farming cooperative societies. Though the Revenue Department has not renewed the leases after declaring this area as a sanctuary, these people have not been evicted. The cultivation must be discontinued, as the birds are affected by human movement, use of land, use of machinery, livestock grazing, etc.

(2) The local tribal fishermen customarily fish in the reservoir through cooperative societies. This needs to be stopped and the fishing rights, if any, settled by the Enquiry Officer.

(3) There are numerous irrigation channels and pipelines from the reservoir and main river for the use of the farmers, who also use diesel engines and electric motors to draw the water. As this creates a lot of pollution, it should be stopped.

(4) Movement of people and livestock: Presently, the local people move through the area of the water reservoir to access their own cultivation areas, which needs to be regulated. Similarly, the movement of professional graziers with their livestock, and labourers for cutting sugarcane, causes disturbance in the habitat.

The abovementioned problems can be sorted out, once the enquiry by the Enquiry Officer, is completed as per the various provisions of the Wildlife (Protection) Act.

IMPORTANT BIRDS

The Asian waterfowl census report published the maximum number of migratory birds as 15,000 in the past. But according to the observations made in association with local nature lovers and bird watchers, the approximate number of these birds estimated through bird counts in 1996 is 20-25,000. Notable amongst these are:

1. White stork: Seems to have reappeared after a long gap, in the flock of nearly 100.

2. Lesser flamingo: In this season (1995-96), a flock of about 250 flamingoes arrived. Barring a few individuals, this flock shifted to nearby waterbodies.

3. Demoiselle crane: Many flocks of this species arrived and about 1,000 moved within a radius of 30 - 40 km around this wetland.

4. Spoonbill: A flock of nearly 150 spoonbills were continuously observed in 1995-96.

5. Curlew: Nearly 200 curlews in groups of 10-15 were seen.

6. Brahminy duck: Up to 500 were seen.

7. Mallard, pintail, wigeon, shoveller, tufted and redcrested pochard, different species of teals, spotbills, coots, etc.: These species appeared in much larger numbers this year (1995-96).

8. Purple moorhen, whitebreasted waterhen: In the past, the area was famous for waterhens, but their number was on the decline with the gradual disappearance of reeds. However, as these patches of grasses are protected, the sighting of water hens is on the increase.

9. Redshank and greenshank: This year the shanks had a large congregation numbering more than 1,000.

10. Little stint, little pratincole, yellow wagtail, snipe, sandpipers, etc.: These small waders were more distinctive this year because of larger numbers in individual flocks.

Terrestrial animals such as blacknaped hare, jackal, hyena, civet cat, jungle cat, mongoose,

many snakes, notably python have been seen very often in the Sanctuary.

In the adjoining areas where tree growth is sufficient, the number of peafowl has increased. The population of predatory birds has also increased.

Because of the publicity given to the Nandur Madhameshwar wetland through various newspaper articles, photographs, and brochures, the number of visitors is also gradually increasing.

DISCUSSION AND CONCLUSION

Nandur-Madhameshwar wetland is clearly very rich in avifaunal and floral diversity and it

certainly needs to be protected and conserved. Any disturbance to the wetland which may adversely affect the diversity, needs to be removed. It is expected that most of the problems will be solved once the enquiry process is complete and the area finally constituted as a sanctuary. Eliciting people's support is essential for the protection of this diverse ecosystem.

In a democratic country like ours, where people use different ways to put forth their demands, our feathered guests find themselves at a loss. A complete restoration of rights of avifauna over their land will be a real tribute to the great ornithologist, late Dr. Sálím Ali.

REFERENCES

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APPENDIX I

CHECKLIST OF THE BIRDS OF NANDUR MADHAMESHWAR

Sl no.	Common Name	Latin Name	Sl no.	Common Name	Latin Name
<b>Grebes</b>			19.	Blacknecked stork	<i>Xenorhynchus asiaticus</i>
1.	Little grebe	<i>Tachybaptus ruficollis capensis</i>	<b>Ibises, spoonbills</b>		
<b>Cormorants, darters</b>			20.	White ibis	<i>Threskiornis melanocephalus</i>
2.	Cormorant	<i>Phalacrocorax carbo</i>	21.	Black ibis	<i>Pseudibis papillosa</i>
3.	Indian shag	<i>Phalacrocorax fuscicollis</i>	22.	Glossy ibis	<i>Plegadis falcinellus</i>
4.	Little cormorant	<i>Phalacrocorax niger</i>	23.	Spoonbill	<i>Platalea leucorodia</i>
5.	Darter	<i>Anhinga rufa</i>	<b>Flamingos</b>		
<b>Hérons, egrets</b>			24.	Flamingo	<i>Phoenicopterus roseus</i>
6.	Eastern grey heron	<i>Ardea cinerea rectirostris</i>	25.	Lesser flamingo	<i>Phoeniconaias minor</i>
7.	Purple heron	<i>Ardea purpurea</i>	<b>Ducks, Geese</b>		
8.	Pond heron/paddy bird	<i>Ardeola grayii</i>	26.	Barheaded goose	<i>Anser indicus</i>
9.	Cattle egret	<i>Bubulcus ibis coromandus</i>	27.	Lesser whistling teal	<i>Dendrocygna javanica</i>
10.	Large egret	<i>Egretta alba modesta</i>	28.	Ruddy shelduck/ brahminy duck	<i>Tadorna ferruginea</i>
11.	Smaller egret	<i>Egretta intermedia</i>	29.	Pintail	<i>Anas acuta</i>
12.	Night heron	<i>Nycticorax nycticorax</i>	30.	Common teal	<i>Anas crecca</i>
13.	Little bittern	<i>Ixobrychus minutus</i>	31.	Spotbill	<i>Anas poecilorhyncha</i>
14.	Little egret	<i>Egretta garzetta</i>	32.	Mallard	<i>Anas platyrhynchos</i>
<b>Storks</b>			33.	Gadwall	<i>Anas strepera</i>
15.	Painted stork	<i>Ibis leucocephalus</i>	34.	Wigeon	<i>Anas penelope</i>
16.	Openbilled stork	<i>Anastomus oscitans</i>	35.	Garganey	<i>Anas querquedula</i>
17.	Whitenecked stork	<i>Ciconia episcopus</i>	36.	Shoveller	<i>Anas chrypeata</i>
18.	White stork	<i>Ciconia ciconia</i>			

NANDUR MADHAMESHWAR WETLAND

APPENDIX I (contd)  
CHECKLIST OF THE BIRDS OF NANDUR MADHAMESHWAR

SI no.	Common Name	Latin Name	SI no.	Common Name	Latin Name
37.	Redcrested pochard	<i>Netta rufina</i>			
38.	Common pochard	<i>Aythya ferina</i>			
39.	White-eyed pochard	<i>Aythya nyroca</i>			
40.	Tufted duck	<i>Aythya fuligula</i>			
41.	Cotton teal	<i>Nettapus coromandelianus</i>			
42.	Nakta/comb duck	<i>Sarkidiornis melanotos</i>			
<b>Birds of prey</b>			<b>Rail, crakes, coots</b>		
43.	Blackwinged kite	<i>Elanus caeruleus</i>	78.	Baillon's crake	<i>Porzana pusilla</i>
44.	Pariah kite	<i>Milvus migrans govinda</i>	79.	Whitebreasted waterhen	<i>Amaurornis phoenicurus</i>
45.	Blackeared kite	<i>Milvus migrans lineatus</i>	80.	Purple moorhen	<i>Porphyrio porphyrio</i>
46.	Brahminy kite	<i>Haliastur indus</i>	81.	Coot	<i>Fulica atra</i>
47.	Indian shikra	<i>Accipiter badius</i>	<b>Jacanas</b>		
48.	Sparrow-hawk	<i>Accipter nisus melaschistos</i>	82.	Pheasant-tailed jacana	<i>Hydrophasianus chirurgus</i>
49.	White-eyed buzzard-eagle	<i>Butastur teesa</i>	83.	Bronzewinged jacana	<i>Metopidius indicus</i>
50.	Longlegged buzzard	<i>Buteo rufinus rufinus</i>	<b>Plovers</b>		
51.	Black eagle	<i>Ictinaetus malayensis</i>	84.	Redwattled lapwing	<i>Vanellus indicus indicus</i>
52.	Tawny eagle	<i>Aquila rapax vindhiana</i>	85.	Yellow-wattled lapwing	<i>Vanellus malabaricus</i>
53.	Crested serpent eagle	<i>Spilornis cheela</i>	86.	Whitetailed lapwing	<i>Vanellus leucurus</i>
54.	Short-toed eagle	<i>Circaetus gallicus</i>	87.	Little ringed plover	<i>Charadrius dubius</i>
55.	Imperial eagle	<i>Aquila heliaca</i>	88.	Kentish plover	<i>Charadrius alexandrinus</i>
56.	Lesser spotted eagle	<i>Aquila pomarina</i>	89.	Lesser sand plover	<i>Charadrius mongolus</i>
57.	Griffon vulture	<i>Gyps fulvus</i>	<b>Curllews, sandpipers</b>		
58.	Indian longbilled vulture	<i>Gyps indicus</i>	90.	Whimbrel	<i>Numenius phaeopus</i>
59.	Indian whitebacked vulture	<i>Gyps bengalensis</i>	91.	Curlew	<i>Numenius arquata</i>
60.	Egyptian scavenger vulture	<i>Neophron percnopterus</i>	92.	Blacktailed godwit	<i>Limosa limosa</i>
61.	Pale harrier	<i>Circus macrourus</i>	93.	Bartailed godwit	<i>Limosa lapponica</i>
62.	Montagu's harrier	<i>Circus pygargus</i>	94.	Common redshank	<i>Tringa totanus</i>
63.	Pied harrier	<i>Circus melanoleucos</i>	95.	Marsh sandpiper	<i>Tringa stagnatilis</i>
64.	Marsh harrier	<i>Circus aeruginosus</i>	96.	Greenshank	<i>Tringa nebularia</i>
65.	Hen harrier	<i>Circus cyaneus</i>	97.	Green sandpiper	<i>Tringa ochropus</i>
66.	Osprey	<i>Pandion haliaetus</i>	98.	Wood sandpiper	<i>Tringa glareola</i>
67.	Peregrine falcon	<i>Falco peregrinus japonensis</i>	99.	Common sandpiper	<i>Tringa hypoleucos</i>
68.	Shaheen falcon	<i>Falco peregrinus peregrinator</i>	100.	Pintail snipe	<i>Gallinago stenura</i>
69.	Laggar falcon	<i>Falco biarmicus jugger</i>	101.	Jack snipe	<i>Gallinago minima</i>
70.	Redheaded merlin	<i>Falco chicquera</i>	102.	Little stint	<i>Calidris minuta</i>
71.	Kestrel	<i>Falco tinnunculus</i>	103.	Temminck's stint	<i>Calidris temminckii</i>
<b>Partridges, quails</b>			104.	Fantail snipe	<i>Gallinago gallinago</i>
72.	Painted partridge	<i>Francolinus pictus</i>	105.	Curlew-sandpiper	<i>Calidris testacea</i>
73.	Grey partridge	<i>Francolinus pondicerianus</i>	106.	Ruff & Reeve	<i>Philomachus pugnax</i>
74.	Jungle bush quail	<i>Perdica asiatica</i>	107.	Painted snipe	<i>Rostratula benghalensis</i>
75.	Common peafowl	<i>Pavo cristatus</i>	<b>Stilt, avocet, courser</b>		
<b>Cranes</b>			108.	Blackwinged stilt	<i>Himantopus himantopus</i>
76.	Common crane	<i>Grus grus</i>	109.	Avocet	<i>Recurvirostra avosetta</i>
77.	Demoiselle crane	<i>Anthropoides virgo</i>	110.	Stone curlew	<i>Burhinus oedicnemus</i>
			111.	Indian courser	<i>Cursorius coromandelicus</i>
			112.	Small Indian praticole	<i>Glareola lactea</i>
			<b>Gulls, terns</b>		
			113.	Whiskered tern	<i>Chlidonias hybrida indica</i>
			114.	Indian river tern	<i>Sterna aurantia</i>
			115.	Gullbilled tern	<i>Gelochelidon nilotica</i>
			116.	Blackheaded gull	<i>Larus ridibundus</i>

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APPENDIX I (contd)

CHECKLIST OF THE BIRDS OF NANDUR MADHAMESHWAR

Sl no.	Common Name	Latin Name	Sl no.	Common Name	Latin Name
<b>Pigeons, doves</b>			<b>Barbets</b>		
117.	Blue rock pigeon	<i>Columba livia</i>	144.	Crimsonbreasted barbet	<i>Megalaima haemacephala</i>
118.	Green pigeon	<i>Trepon phoenicoptera</i>	<b>Woodpeckers</b>		
119.	Rufous turtle dove	<i>Streptopelia orientalis</i>	145.	Yellowfronted pied woodpecker	<i>Picoides maharattensis</i>
120.	Indian ring dove	<i>Streptopelia decaocto</i>	<b>Larks</b>		
121.	Red turtle dove	<i>Streptopelia tranquebarica</i>	146.	Finch lark	<i>Eremopterix grisea</i>
122.	Spotted dove	<i>Streptopelia chinensis</i>	147.	Rufoustailed finch-lark	<i>Ammomanes phoenicurus</i>
123.	Little brown dove	<i>Streptopelia senegalensis</i>	148.	Short-toed lark	<i>Calandrella cinerea</i>
<b>Parakeet</b>			149.	Malabar crested lark	<i>Galerida malabarica</i>
124.	Roseringed parakeet	<i>Psittacula krameri</i>	150.	Eastern skylark	<i>Alauda gulgula</i>
125.	Indian lorikeet	<i>Loriculus vernalis</i>	151.	Ashy crowned finchlark	<i>Eremopterix grisea</i>
<b>Cuckoos</b>			<b>Martins, swallows</b>		
126.	Pied crested cuckoo	<i>Clamator jacobinus serratus</i>	152.	Plain sand martin	<i>Riparia paludicola</i>
127.	Drongo-cuckoo	<i>Surniculus lugubris</i>	153.	Dusky crag martin	<i>Hirundo concolor</i>
128.	Koel	<i>Eudynamis scolopacea</i>	154.	Swallow	<i>Hirundo rustica</i>
129.	Crow-pheasant	<i>Centropus sinensis</i>	155.	Indian cliff swallow	<i>Hirundo fluvicola</i>
<b>Owls</b>			156.	Wiretailed swallow	<i>Hirundo smithii</i>
130.	Spotted owl	<i>Athene brama</i>	157.	Redrumped swallow	<i>Hirundo daurica</i>
131.	Brown fish owl	<i>Bubo zeylonensis</i>	158.	House martin	<i>Delichon urbica</i>
<b>Nightjars</b>			<b>Shrikes</b>		
132.	Common Indian nightjar	<i>Caprimulgus asiaticus</i>	159.	Grey shrike	<i>Lanius excubitor</i>
<b>Swifts</b>			160.	Baybacked shrike	<i>Lanius vittatus</i>
133.	House swift	<i>Apus affinis</i>	161.	Rufousbacked shrike	<i>Lanius schach</i>
134.	Palm swift	<i>Cypsiurus parvus</i>	<b>Orioles</b>		
<b>Kingfishers</b>			162.	Golden oriole	<i>Oriolus oriolus</i>
135.	Lesser pied kingfisher	<i>Ceryle rudis</i>	163.	Blackheaded oriole	<i>Oriolus xanthornus</i>
136.	Common kingfisher	<i>Alcedo atthis</i>	<b>Drongos</b>		
137.	Whitebreasted kingfisher	<i>Halcyon smyrnensis</i>	164.	King crow or black drongo	<i>Dicrurus adsimilis</i>
<b>Bee-eaters</b>			165.	Grey or ashy drongo	<i>Dicrurus leucophaeus</i>
138.	Chestnutheaded bee-eater	<i>Merops leschenaulti</i>	166.	Ashy swallow shrike	<i>Artamus fuscus</i>
139.	Bluetailed bee-eater	<i>Merops philippinus</i>	167.	Whitebellied drongo	<i>Dicrurus caerulescens</i>
140.	Common green bee-eater	<i>Merops orientalis</i>	<b>Mynas</b>		
<b>Rollers</b>			168.	Blackheaded or brahmyny myna	<i>Sturnus pagodarum</i>
141.	Indian roller or blue jay	<i>Coracias benghalensis</i>	169.	Rosy pastor	<i>Sturnus roseus</i>
142.	Indian hoopoe	<i>Upupa epops</i>	170.	Starling	<i>Sturnus vulgaris</i>
<b>Hornbills</b>			171.	Common myna	<i>Acridotheres tristis</i>
143.	Grey hornbill	<i>Tockus birostris</i>	<b>Tree pie, crows</b>		
			172.	Indian tree pie	<i>Dendrocitta vagabunda</i>
			173.	House crow	<i>Corvus splendens</i>
			174.	Jungle crow	<i>Corvus macrorhynchos</i>

NANDUR MADHAMESHWAR WETLAND

APPENDIX I (contd)  
CHECKLIST OF THE BIRDS OF NANDUR MADHAMESHWAR

Sl no.	Common Name	Latin Name	Sl no.	Common Name	Latin Name
<b>Cuckoo-shrike, minivet, iora</b>			200.	Magpie-robin	<i>Copsychus saularis</i>
175.	Common wood shrike	<i>Tephrodornis pondicerianus</i>	201.	Black redstart	<i>Phoenicurus ochruros rufiventris</i>
176.	Little minivet	<i>Pericrocotus cinnamomeus</i>	202.	Stone chat	<i>Saxicola torquata maura</i>
177.	Common iora	<i>Aegithina tiphia</i>	203.	Pied bush chat	<i>Saxicola caprata</i>
<b>Bulbuls</b>			204.	Desert wheatear	<i>Oenanthe deserti</i>
178.	Redwhiskered bulbul	<i>Pycnonotus jocosus</i>	205.	Indian robin	<i>Saxicoloides fulicata</i>
179.	Redvented bulbul	<i>Pycnonotus cafer</i>	206.	Blueheaded rock	<i>Monticola cinclorhynchus</i>
<b>Babblers</b>			207.	Blue rock thrush	<i>Monticola solitarius</i>
180.	Yelloweyed babbler	<i>Chrysomma sinense</i>	208.	Orangeheaded ground thrush	<i>Zoothera citrina</i>
181.	Common babbler	<i>Turdoides caudatus</i>	209.	Grey tit	<i>Parus major</i>
182.	Large grey babbler	<i>Turdoides malcolmi</i>	210.	Tree pipit	<i>Anthus trivialis</i>
183.	Jungle babbler	<i>Turdoides striatus</i>	211.	Chestnutbellied nuthatch	<i>Sitta castanea</i>
<b>Flycatchers</b>			212.	Greyheaded wagtail	<i>Motacilla flava thunbergi</i>
184.	Redbreasted flycatcher	<i>Muscicapa parva</i>	213.	Yellow wagtail	<i>Motacilla citreola</i>
185.	Tickell's blue flycatcher	<i>Muscicapa ceylonensis tickelliae</i>	214.	Grey wagtail	<i>Motacilla cinerea</i>
186.	Greyheaded flycatcher	<i>Culicicapa ceylonensis</i>	215.	White wagtail	<i>Motacilla alba</i>
187.	White-browed fantail flycatcher	<i>Rhipidura aureola</i>	216.	Large pied wagtail	<i>Motacilla maderaspatensis</i>
188.	Paradise flycatcher	<i>Terpsiphone paradisii</i>	<b>Flowerpecker, sunbirds</b>		
189.	Blacknaped flycatcher	<i>Hypothymis azurea</i>	217.	Tickell's flowerpecker	<i>Dicaeum erythrorhynchos</i>
<b>Warblers</b>			218.	Purplerumped sunbird	<i>Nectarinia zeylonica</i>
190.	Streaked fantail	<i>Cisticola juncidis</i>	219.	Purple sunbird	<i>Nectarinia asiatica</i>
191.	Fanklin's wren-warbler	<i>Prinia hodgsonii</i>	220.	Small sunbird	<i>Nectarinia minima</i>
192.	Ashy wren-warbler	<i>Prinia socialis</i>	221.	White-eye	<i>Zosterops palpebrosa</i>
193.	Tailor bird	<i>Orthotomus sutorius</i>	<b>Sparrows, weavers, buntings</b>		
194.	Bristled grass warbler	<i>Chaetornis striatus</i>	222.	House sparrow	<i>Passer domesticus</i>
195.	Indian great reed warbler	<i>Acrocephalus stentoreus</i>	223.	Yellowthroated sparrow	<i>Petronia xanthocollis</i>
196.	Paddyfield warbler	<i>Acrocephalus agricola</i>	224.	Baya or weaver-bird	<i>Ploceus philippinus</i>
197.	Lesser whitethroat	<i>Sylvia curruca blythi</i>	225.	Red munia	<i>Estrilda amandava</i>
198.	Chiffchaff	<i>Phylloscopus collybita</i>	226.	Whitethroated munia	<i>Lonchura malabarica</i>
<b>Chats, thrushes</b>			227.	Spotted munia	<i>Lonchura punctulata</i>
199.	Bluethroat	<i>Erithacus svecicus</i>	228.	Blackheaded munia	<i>Lonchura malacca</i>
			229.	Whitebacked munia	<i>Lonchura striata</i>
			230.	Common rosefinch	<i>Carpodacus erythrinus</i>
			231.	Blackheaded bunting	<i>Emberiza melanocephala</i>

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