

WILDLIFE IN BANGLADESH MANGROVE ECOSYSTEM¹

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(With a text-figure)

The wildlife of the mangrove ecosystems of the Sunderbans, Chakoria Sunderbans and other mangrove formations in Bangladesh comprises of about 400 species, including eight amphibians, 50 reptiles, 261 birds and 49 mammals. Several of these are either endangered or vulnerable particularly species restricted to these ecosystems.

INTRODUCTION

A great variety of wildlife, defined here as all organisms from Amphibia to Mammalia, has enriched the mangrove ecosystems of the Sunderbans, Chakoria Sunderbans and tidal forests of Bangladesh. It is quite evident from the century-old as well as current literature, viz., Baker 1887, O'Malley 1908, Law 1945, 1948a & b, 1954, Mitra 1957, Mukherjee 1959, Mandal 1964, Acharji & Mukherjee 1964, Mukherjee & Gupta 1965, Mountfort 1969, Biswas 1973, Hendrichs 1975, Mukherjee 1975, Green 1978, Seidensticker & Hai 1978, Gittins 1981, Khan 1981, 1982a & b, Khan & Ahsan 1981, and Khan & Rahman 1982.

Most of the mangrove vegetation of Bangladesh lies within the Sunderbans of Khulna district. This covers 62% of the total Sunderbans of Bangladesh and West Bengal of India, the

latter comprising 38% (Hendrichs 1975). The total area of Bangladesh Sunderbans is about 5800 km², of which 4100 km² are land and 1700 km² water. Bangladesh Sunderbans have been divided into four forest ranges, 14 blocks and 55 compartments varying in size from 40 to 160 km² (Fig. 1). There are some isolated, small patches of both planted and naturally growing mangrove vegetation along the southern parts of the districts of Patuakhali, Barisal, Naokhali and Chittagong, mostly on the inshore and offshore islands and coast. This type of forest also occurs in the Chakoria Sunderbans, 21°45'N and 92°E; Whykeong, 21°05'N and 92°12'E, and Teknaf 21°N and 92°15'E along the River Naaf, bordering Burma; and on the lone coral island of the country — St. Martin's, 23.35°N and 92.22°E (Fig. 1).

From the wildlife point of view, the forests of the Sunderbans of Bangladesh and India were studied by Hendrichs (1975) and Mukherjee (1975), respectively. The Bangladesh Sunderbans lie between 21°31'N to 22°30'N and 89°E to 90°E. Gittins (1981) working with the Rhesus Macaque of the Sunderbans divided the forest into three zones according to the salinity of the surrounding water, but without providing the range of salinity.

(i) the fresh-water zone — to the North and East of a line drawn from Cobadak

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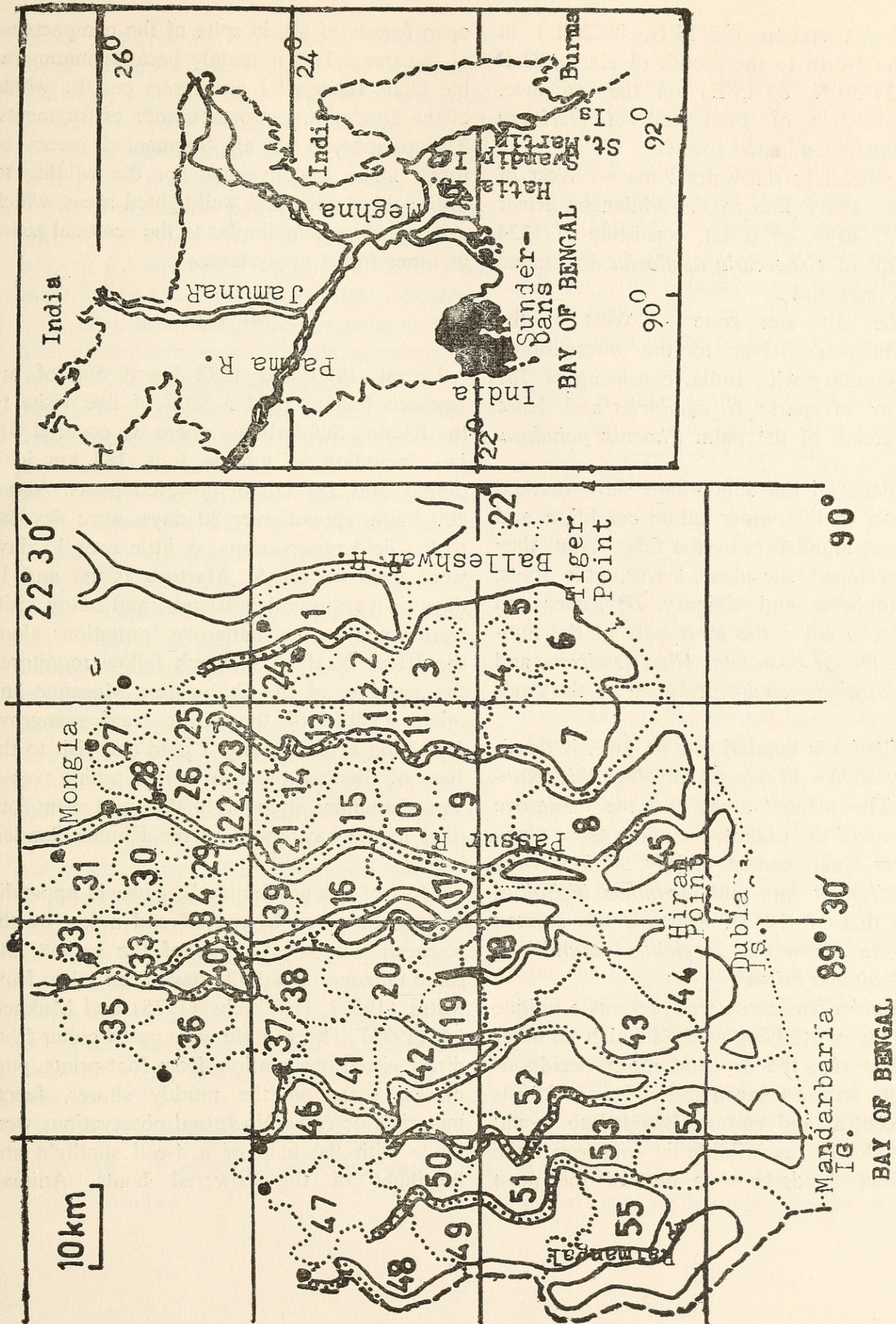


Fig. 1. Bangladesh Sunderbans showing forest compartments. Inset: Bangladesh showing Sunderbans.

Forest station (22°15'N, 89°20'E) in the North to the mouth of Katka Khal (21°50'N, 89°45'E) on the sea face, consisting of 1920 km² of *Heritiera fomes* dominated forest:

- (ii) moderately salt-water zone — West of the above line to the Malancha River (21°40'N, 89°18'E), consisting of 1324 km² of *Excoecaria agallocha* dominated forest: and
- (iii) the salt-water zone — West of the Malancha River to the international boundary with India, consisting of 781 km² of sparse *E. agallocha* and dense patches of the palm *Phoenix paludosa*.

The plants of the Sunderbans show marked adaptation to life under saline condition and to frequent inundation by the tides. Thus, they have developed succulent leaves, stilt roots, pneumatophores and vivipary. *H. fomes* and *E. agallocha* cover the most part of the Sunderbans. *Oryza coarctata*, *Nipa fruticans* and *Imperata cylindrica* are prevalent on the mud-flats.

The Chakoria Sunderbans, 84 km², is dominated by *Dalbergia spinosa* and *Aegialitis rotundifolia*. The planted areas and the mangrove formations of the islands, including those along the River Naaf, consist mainly of *Sonneratia* spp., *Avicennia* spp. and *Acanthus ilicifolius*, whereas that of the St. Martin's has stunted *Lumnitzera racemosa*, *Aegialitis rotundifolia* and *Caesalpinia crista*.

The Sunderbans ecosystem presents a unique opportunity of studying wildlife which no other ecosystems viz., the dry and moist deciduous sal forests, semi-evergreen and evergreen forests of the central and eastern Bangladesh, could provide. As far as wildlife is concerned, the Bangladesh Sunderbans is one of the most

open forests of all, in spite of the compactness of the trees. This is mainly because innumerable khals (channels) and rivers cut the whole of the Sunderbans into thousands of fragments. The peripheries of all fragmented pieces of forest make it convenient for the wildlife to utilize these open and well-lighted areas, which are to some extent similar to the ecotonal zones of other forest ecosystems.

METHOD

During 1980 and 1982 I and one of my research fellows paid a total of five visits to the Khulna Sunderbans, where we covered 608 km, including 64 km on foot, 187 km in a dinghy and 357 km in powered boats. About 200 hours spread over 30 days, were devoted to the field observations. A little over 15 days were spent on the St. Martin's Island and 15 days on various other islands, and many visits were made to the mangrove formations along the River Naaf. A research fellow monitored the activities of the Crab-eating Macaque and other wildlife of the River Naaf mangrove formation at Whykeong. I paid one visit to the Bay of Bengal on board the fishing vessel 'Anushandhani' in January 1981 and spent four days in the bay, south of the Khulna Sunderbans.

Most of the wild animals, given in appendix I, were observed by myself and a few by the research fellows. Records of the extinct and some uncommon wildlife have been taken from Mitra (1957), Hendrichs (1975) and Mukherjee (1975). The wildlife were noted either from direct visual observation, from foot-prints, pug-marks, scats on the muddy shores, faecal materials or calls. Nocturnal observations were made with the help of a 4-cell spotlight and headlight of the powered boats. Animals

which occurred in the human habitations or forest villages bordering the Sunderbans have also been included in the appendix and in all calculations. The number of such wildlife species probably does not exceed five per cent of the total number of species listed.

The stratification patterns or vertical layering of the wildlife of the various mangrove ecosystems are based on the mode of food gathering and not on the habitat preferences. They have been categorized as aquatic, terrestrial, amphibious, arboreal, arbo-terrestrial and shore-dwellers, depending upon collection of food from water, land, and both, from foliage, foliage and land, and from mud-flats and/or sand-flats. The arboreals included those animals which fed on both plant and animal matter from the trees or shrubs/herbs, and winged insects/animals through aerial pursuits, e.g., flycatchers, bee-eaters, bats, etc.

The wildlife has been classified as carnivores, omnivores and herbivores basing on the natural feeding behaviour. Those found by us or known to be feeding on live or dead animals, from invertebrates to mammals, have been categorized as carnivores. These include both insectivores, piscivores, carrion-feeders and other flesh-eaters. Omnivores include these wildlife which fed almost equally on animal and plant matter. The herbivores either fed on ground vegetation through grazing; on climbers, lianas and shrubs through browsing; or on leaves, fruits, buds and bark of mangrove trees. Wildlife which normally fed on animal matter and casually collected nectar and other such plant matter have been included under carnivores, e.g., drongos, magpie-robins, babblers, etc.

Attempts have been made to provide a population estimate of chital (spotted deer) and rhesus macaque.

RESULTS AND DISCUSSION

The amphibia included eight species belonging to four genera of four families (appendix I). It is dominated by *Rana hexadactyla* — a brackish water species, the toad *Bufo melanostictus* and the tree frog *Rhacophorus maculatus*. During the monsoon, between June and September, the last two species occur almost all over the Sunderbans, except the southern part, facing the sea. The remaining species were noted in the peripheral areas of the Sunderbans.

The reptilian fauna included 10 species each of chelonians and lizards, 29 species of snakes and one species of crocodile. Of these, the common batagur *Batagur baska*, does not occur outside the Sarankhola Range of the Sunderbans Forest Division. Four species of marine turtles, *Chelonia mydas*, *Caretta caretta*, *Lepidochelys olivacea* and *Eretmochelys imbricata*, visit the sandy southern islands such as Katka, Supati, Nilkamal, Dubla and Putney. The other turtles occur in the north-eastern rivers and in the villages bordering the forests. The lizards belonged to five genera and four families. The house lizards, *Hemidactylus frenatus* and *H. brooki*, wall lizard *Gekko gecko*, and ring lizard *Varanus salvator* were found almost everywhere. The snakes belonged to 22 genera and nine families. The keelbacks, water snakes, cobra, sea snakes and pit vipers were commonly found in the Sunderbans, either inside the forest, or in the khals and rivers. Two rare species the rock python *Python molurus* and king cobra, *Opiophagus hannah* are represented by fairly good populations in the Sunderbans. The sand boa *Eryx conicus*, and the wart snake *Acrochordus granulatus* have been reported by Mukherjee (1975) from the West Bengal part of the Sunderbans. I presumed these to be present in our part too. The

whitebellied mangrove snake *Fordonia leucobalia*, and glossy marsh snake *Gerardia pre-vostiana* and the Malacca sea snake. *Hydrophis caeruleus* have been seen so far in the Sunderbans only.

The estuarine or salt water crocodile *Crocodylus porosus*, occurs only in the Sunderbans. Although there is a single report of its occurrence in the coast of Cox's Bazar, eastern Bangladesh (Fr. R. W. Timm, pers. comm.). Hendrichs's (1975) report of the gharial *Gavialis gangeticus*, from the Sunderbans is possibly erroneous as it appears to be a purely freshwater species and no one else has seen it in the Sunderbans. The marsh crocodile, *Crocodylus palustris*, is possibly extinct from the Sunderbans and it occurs nowhere else in the country, excepting two small captive populations: 4-5 in a tank at Bagerhat, under Khulna district, and three in the only zoo of the country at Dhaka (Khan 1982c).

It is most likely that the reptilian list will expand once an extensive collection of lizards and snakes is made in the Sunderbans.

Of the 261 species of birds, recorded from the mangrove ecosystems, 14 have been taken from Hendrichs (1975) and Mukherjee (1975) and one from a Yale University collection reported by Ripley (1982). Altogether, 180 species of 105 genera and 32 families were non-passerine; 81 species of 50 genera and 19 families passerine. One hundred and sixty three species were resident and 98 migratory. All locally migratory and summer visitors have been considered under the resident category, as they breed either in the Sunderbans or elsewhere in the country. The non-passerines included 107 resident and 73 migratory species.

So far 11 species of kingfishers have been reported from Bangladesh (Khan 1982a), of which eight are present in the Sunderbans.

Out of these the brownwinged kingfisher *Pelargopsis amauroptera* and the ruddy kingfisher *Halcyon coromandra* were found only in the Sunderbans. Two other species, blackcapped and whitecollared kingfishers, *Halcyon pileata* and *H. chloris*, do not occur outside the mangrove ecosystems of the Sunderbans, Chakoria Sunderbans, coastal and the St. Martin's islands. The whitebellied and goliath herons, *Ardea insignis* & *A. goliath*, white stork *Ciconia ciconia*, whitebellied sea eagle *Haliaeetus leucogaster*, oriental hobby *Falco severus* & Indian skimmer *Rhynchops albicollis* (reported by Mukherjee 1975), swamp partridge *Francolinus gularis*, masked finfoot *Heliopais personata*, parasitic skua *Stercorarias parasiticus* (found in the Swatch-of-no-ground, at the Bay of Bengal), lesser & large crested terns *Sterna bengalensis* & *S. bergii* (reported by Mukherjee 1975), oystercatcher *Haematopus ostralegus*, avocet *Recurvirostra avosetta*, European starling *Sturnus vulgaris* (seen on St. Martin's Island), mangrove whistler *Pachycephala grisola* and orangebellied flowerpecker *Dicaeum trigonostigma* have so far been sighted in the mangrove formations.

There are many species of birds which are opportunistic in the sense that they roost inside the Sunderbans and other mangrove areas but gather food from the neighbouring areas, mostly cultivated fields, e.g. most of the mynas, parakeets, doves, pigeons, egrets, etc. These birds breed in the mangrove vegetations also. Many smaller species of passerine birds such as warblers and non-passerine charadriids could not be identified. Netting followed by specimen collection may reveal the presence of several more species, thereby raising the total figure to 300 or so, that means half of the Bangladesh avifauna.

The living mammals of the Sunderbans are

represented by 42 species belonging to 37 genera and 22 families. In addition the crab-eating macaque *Macaca fascicularis*, occurs in the mangrove formations of the River Naaf. The species of mammals which have disappeared in the recent past from the mangrove areas of Bangladesh include onehorned rhinoceros, *Rhinoceros unicornis*; smaller onehorned rhinoceros, *R. sondaicus*; wild buffalo *Bubalus bubalis*; swamp deer, *Cervus duvauceli*; hog deer, *Axis porcinus*; and the leopard, *Panthera pardus*. The royal Bengal tiger, *Panthera tigris* and chital, *Axis axis* have disappeared from the whole of Bangladesh, excepting the Kulna Sunderbans. Possibly the biggest populations of tiger, chital, rhesus macaque *Macaca mulatta*; smooth Indian otter *Lutra perspicillata* and wild boar *Sus scrofa* occur in the Sunderbans. The Irrawaddy dolphin, *Orcaella brevirostris*; shortfinned pilot whale, *Globicephala macrorhynchus*; finless porpoise *Neophocaena phocaenoides*; and the Malay dolphin *Stenella malayana* are rather restricted to the Sunderbans estuary.

Stratification pattern

In all, 15 species of mammals were terrestrial; 12 arboreal, including 11 species of flying mammals; 7 arbo-terrestrial (crab-eating macaque also come under this category); 6 aquatic and two amphibious. All extinct mammals were terrestrial.

About 83 non-passerine species of birds were aquatic, 32 terrestrial, 30 shore-dwellers, 21 arboreal, 11 amphibious and 3 arbo-terrestrial. Twenty passerine species were terrestrial, 44 arboreal and 17 arbo-terrestrial.

Among the reptiles all the chelonians were aquatic, 4 lizards arboreal, two skinks and three monitor lizards were normally terrestrial and casually arboreal, 11 species of snakes

were aquatic, 10 terrestrial, 3 arboreal, 3 arbo-terrestrial and 2 amphibians. The crocodile is amphibious too. The amphibians comprised 6 terrestrial and 2 aquatic species.

Out of the total, 112 species of wildlife of the mangrove ecosystem of Bangladesh gathered food from the aquatic environment, 89 from land, 84 from air and foliage, 30 from mud-, sand-flats, 36 from land, air and foliage and the remaining 17 from both water and land.

Feeding habits

Of the wildlife recorded from the mangrove ecosystem, 24 mammals were carnivorous, 11 herbivorous and 8 omnivorous; 157 non-passerine birds were carnivorous, 12 omnivorous and 11 herbivorous; 60 passerine species were carnivorous, 13 omnivorous and 8 herbivorous; 46 reptiles were carnivorous, and 4 omnivorous when 7 amphibians were carnivorous and one, *Rana hexadactyla*, almost invariably fed on dragon and damselflies although some algal materials were found in the stomach. The presence of algal material in the stomach might be merely accidental.

A total of 294 species were carnivorous, including insectivores, piscivores and flesh-eaters; 38 omnivorous and 30 herbivorous, both folivorous and frugivorous.

International status

International Union for Conservation of Nature and Natural Resources (IUCN) defines endangered species as those in danger of extinction and whose continued survival is unlikely if the casual factors continue operating. The common batagur, green turtle, olive ridley turtle, hawksbill turtle, rock python, peregrine falcon, royal Bengal tiger and leopard of the mangrove ecosystems are endangered so far

as the Red Data Book (RDB) of IUCN is concerned. The RDB has included the estuarine crocodile as a vulnerable species, meaning that this species is believed likely to become extinct in the near future if the adverse casual factors continue operating.

Schedule I of the Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES) includes 7 turtles and tortoises, Bengal and yellow lizards, rock python, white stork, spotted green shank, Ganges river dolphin, finless porpoise, royal Bengal tiger and leopard cat. Another seven species — ring lizard, marsh crocodile, rhesus macaque, smooth Indian and clawless otters, fishing and jungle cats — are in Schedule II of the CITES.

Population estimation

Hendrichs (1975) for the first time attempted estimating the populations of tiger, otter, wild boar, chital, rhesus macaque and some other vertebrates and invertebrates of the Khulna Sunderbans. Gittins (1981), and Khan & Ahsan (1981) attempted estimating the population of the rhesus macaque, while I have made an attempt to provide a rough estimate of the spotted deer (chital).

Hendrichs (1975) estimated the total population of the tiger in the Sunderbans to be 350, otter 20000, wild boar 20000; chital 80000 and rhesus macaque 40000. His estimated density of these were tiger — $0.1/\text{km}^2$, otter — $5/\text{km}^2$, boar $5/\text{km}^2$, chital — $20/\text{km}^2$ and macaque — $10/\text{km}^2$. Gittins (1981) noted 2.6 groups of macaques with 20 individuals in each group, that is a density of $52/\text{km}^2$. He has estimated the total population of macaque in 2274- km^2 of natural forests to be 118,248, and another 7972 in 1533- km^2 scrub forest of the Sunder-

bans. In the scrub forest the density of the macaque was $5.2/\text{km}^2$.

Ahsan and I covered 608 km linear distance, equivalent to 20.83 km^2 of transects, where we encountered 1.58 groups/ km^2 with 17.05 macaques/ km^2 and the total population was estimated to be 68,200 in an area of about 4000 km^2 . The population estimation done by the three authorities showed much variation. Our estimation of 68,200 macaques is much nearer to Hendrich's 40,000 than Gittins' 126,220.

In the 608 km of linear distance and 15.2 km^2 of transects which we covered we encountered 200 deer. The density of chital was $13.15/\text{km}^2$. The Sunderbans, therefore, supports an estimated 52,600 deer. This is 34.25% less than the estimated population given by Hendrichs (1975). But the difference is close to his 25% range of deviation. This difference is mainly because he devoted more time and covered each of his sampling areas in great detail, which we could not do because of lack of time and logistic support.

RECOMMENDATIONS

The Government of Bangladesh has already gazetted three areas of the Sunderbans mangrove forest as wildlife sanctuaries. These are the East, West and South Wildlife Sanctuary, consisting of compartments no. 6 (54 km^2), part of no. 54 (90 km^2), and part of no. 43 and the whole of no. 44 (177 km^2) respectively. Unfortunately, these declarations have paid little or no attention to the earlier recommendations made by several expeditions and an enquiry committee meetings by the experts of FAO, IUCN, WWF and the Government Forest Department, viz., Mountfort & Poore 1968, Seidensticker and Hai 1978, and Oliver

1979. Although these recommendations were based on sound ecological considerations.

To save the wildlife from extinction, to stop appreciable changes in the mangrove ecosystem, and to make the already declared sanctuaries meaningful so that these support viable populations of wildlife I strongly recommend that:

1. Compartment no. 3 to 8, 11, 12 and 45 be declared as the Sunderbans National Park, incorporating the existing East Sanctuary;
2. The remaining portion of the Compartment no. 43 be added to the existing South Sanctuary;
3. Instead of West Sanctuary a new one be declared in the North, comprising compartments no. 30 to 33;
4. The sanctuaries/national parks be sufficiently manned by technical staff so that they can monitor the faunal and floral changes year round.
5. Cheaper tourist facilities be developed to compensate the revenue lost due to discontinuation of forestry practises.

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APPENDIX I

CHECKLIST OF THE WILDLIFE OF BANGLADESH MANGROVE ECOSYSTEMS

Sl. No.	Scientific name	Common name
AMPHIBIA		
1.	<i>Bufo melanostictus</i>	Common Toad
2.	<i>Microhyla ornata</i>	Ornate Microhylid
3.	<i>Rana hexadactyla</i>	Pond/Green Frog
4.	<i>Rana cyanophlyctis</i>	Skipper Frog
5.	<i>Rana tigrina</i>	Indian Bull Frog
6.	<i>Rana limnocharis</i>	Cricket Frog
7.	<i>Rana temporalis</i>	..
8.	<i>Polypedates maculatus</i>	Maculated Tree Frog
REPTILIA		
9.	<i>Batagur baska</i>	Common Batagur/Tuntong
10.	<i>Kachuga tecta</i>	Roofed Turtle
11.	<i>Melanochelys tricarinata</i>	Threekeeled Land Tortoise
12.	<i>Morenia petersi</i>	Yellow Turtle
13.	<i>Lissemys punctata</i>	Spotted Flap Shell
14.	<i>Pelochelys bibroni</i>	Bibron's Soft Shell
15.	<i>Chelonia mydas</i>	Green Turtle
16.	<i>Caretta caretta</i>	Loggerhead Turtle
17.	<i>Lepidochelys olivacea</i>	Olive Ridley Turtle
18.	<i>Eretmochelys imbricata</i>	Hawksbill Turtle
19.	<i>Hemidactylus brooki</i>	House Lizard
20.	<i>Hemidactylus flaviviridis</i>	Common House Lizard
21.	<i>Hemidactylus frenatus</i>	Common House Lizard
22.	<i>Gekko gekko</i>	Wall Lizard
23.	<i>Calotes versicolor</i>	Garden Lizard
24.	<i>Mabuya dissimilis</i>	Skink
25.	<i>Mabuya carinata</i>	Common Skink
26.	<i>Varanus bengalensis</i>	Bengal/Grey Lizard
27.	<i>Varanus salvator</i>	Ring/Monitor Lizard
28.	<i>Varanus flavescens</i>	Yellow/Common Lizard
29.	<i>Typhlina porrectus</i>	Slender Worm Snake
30.	<i>Python molurus</i>	Rock Python
31.	<i>Eryx conicus</i>	Common Sand Boa
32.	<i>Lycodon aulicus</i>	Common Wolf Snake
33.	<i>Amphiesma stolata</i>	Striped Keelback
34.	<i>Xenochrophis piscator</i>	Checkered Keelback
35.	<i>Xenochrophis cerasogaster</i>	Darkbellied Marsh Snake
36.	<i>Atretium schistosum</i>	Olive Keelback
37.	<i>Acrochordus granulatus</i>	File/Wart Snake
38.	<i>Ptyas mucosus</i>	Rat Snake/Dhaman
39.	<i>Dendrelaphis tristis</i>	Common Bronzeback Tree Snake
40.	<i>Ahaetulla nasutus</i>	Common Vine Snake
41.	<i>Enhydryis enhydryis</i>	Common Smooth Water Snake

Sl. no.	Scientific name	Common name
42.	<i>Cerberus rhynchops</i>	Dogfaced Water Snake
43.	<i>Gerardia prevostiana</i>	Glossy Marsh Snake
44.	<i>Fordonia leucobalia</i>	Whitebellied Mangrove Snake
45.	<i>Bungarus caeruleus</i>	Common Krait
46.	<i>Bungarus fasciatus</i>	Banded Krait
47.	<i>Naja naja</i>	Monocellate/Bengal Cobra
48.	<i>Ophiophagus hannah</i>	King Cobra
49.	<i>Enhydrina schistosa</i>	Hooknosed Sea Snake
50.	<i>Hydrophis nigrocinctus</i>	Blackheaded Sea Snake
51.	<i>Hydrophis obscurus</i>	Estuarine Sea Snake
52.	<i>Hydrophis caeruleus</i>	Malacca Sea Snake
53.	<i>Microcephalophis gracilis</i>	Common Narrowheaded Sea Snake
54.	<i>Microcephalophis cantoris</i>	Cantor's Narrowheaded Sea Snake
55.	<i>Vipera russelli</i>	Russell's Viper
56.	<i>Trimeresurus gramineus</i>	Bamboo Pit Viper
57.	<i>Trimeresurus erythrurus</i>	Spot-tailed Pit Viper
58.	<i>Crocodylus porosus</i>	Estuarine/Saltwater Crocodile

AVES: Non-passerine birds

		Status
59.	<i>Podiceps ruficollis</i>	R (resident)
60.	<i>Pelicanus onocrotalus</i>	M(migratory)
61.	<i>Phalacrocorax niger</i>	R
62.	<i>Anhinga rufa</i>	R
63.	<i>Ardea insignis</i>	R
64.	<i>Ardea goliath</i>	M
65.	<i>Ardea cinerea</i>	R
66.	<i>Ardea purpurea</i>	R
67.	<i>Ardea alba</i>	R
68.	<i>Ardeola grayii</i>	R
69.	<i>Ardeola striatus</i>	R
70.	<i>Bubulcus ibis</i>	R
71.	<i>Egretta intermedia</i>	R
72.	<i>Egretta garzetta</i>	R
73.	<i>Nycticorax nycticorax</i>	R
74.	<i>Gorsachius melanolophus</i>	R
75.	<i>Ixobrychus minutus</i>	R
76.	<i>Ixobrychus cinnamomeus</i>	R
77.	<i>Ixobrychus flavicollis</i>	R
78.	<i>Mycteria leucocephala</i>	R
79.	<i>Anastomus oscitans</i>	R
80.	<i>Ciconia episcopus</i>	R
81.	<i>Ciconia ciconia</i>	M
82.	<i>Leptoptilos dubius</i>	R
83.	<i>Leptoptilos javanicus</i>	R

* possibly extinct now.

WILDLIFE IN BANGLADESH MANGROVE ECOSYSTEM

Sl. no.	Scientific name	Common name	Status
84.	<i>Threskiornis aethiopica</i>	White Ibis	R
85.	<i>Anser fabalis</i>	Bean/Pinkfooted Goose	M
86.	<i>Anser anser</i>	Grey Lag Goose	M
87.	<i>Anser indicus</i>	Barheaded Goose	M
88.	<i>Dendrocygna javanica</i>	Lesser Whistling Teal	R
89.	<i>Tadorna ferruginea</i>	Ruddy Shelduck	M
90.	<i>Anas acuta</i>	Pintail	M
91.	<i>Anas crecca</i>	Common Teal	M
92.	<i>Anas platyrhynchos</i>	Mallard	M
93.	<i>Anas strepera</i>	Gadwall	M
94.	<i>Anas penelope</i>	Wigeon	M
95.	<i>Anas clypeata</i>	Shoveller	M
96.	<i>Anas querquedula</i>	Ganganey	M
97.	<i>Netta rufina</i>	Redcrested Pochard	M
98.	<i>Aythya ferina</i>	Common Pochard	M
99.	<i>Aythya nyroca</i>	White-eyed Pochard	M
100.	<i>Aythya fuligula</i>	Tufted Duck	M
101.	<i>Nettapus coromandelianus</i>	Cotton Teal	R
102.	<i>Elanus caeruleus</i>	Blackwinged Kite	R
103.	<i>Pernis ptilorhynchus</i>	Honey Buzzard	R
104.	<i>Milvus migrans</i>	Pariah Kite	R
105.	<i>Haliastur indus</i>	Brahminy Kite	R
106.	<i>Accipiter badius</i>	Shikra	R
107.	<i>Buteo rufinus</i>	Longlegged Buzzard	M
108.	<i>Buteo buteo</i>	Buzzard	M
109.	<i>Aquila rapax</i>	Tawny Eagle	M
110.	<i>Aquila pomarina</i>	Lesser Spotted Eagle	M
111.	<i>Haliaeetus leucogaster</i>	Whitebellied Sea Eagle	R
112.	<i>Haliaeetus leucoryphus</i>	Pallas's Fishing Eagle	R
113.	<i>Ichthyophaga ichthyaetus</i>	Greyheaded Fishing Eagle	R
114.	<i>Gyps bengalensis</i>	Whitebacked Vulture	R
115.	<i>Circus macrourus</i>	Pale Harrier	M
116.	<i>Circus melanoleucos</i>	Pied Harrier	M
117.	<i>Circus aeruginosus</i>	Marsh Harrier	M
118.	<i>Circaetus gallicus</i>	Short-toed Eagle	R
119.	<i>Spilornis cheela</i>	Crested Serpent Eagle	R
120.	<i>Pandion haliaetus</i>	Osprey	M
121.	<i>Falco peregrinus</i>	Peregrine Falcon	M
122.	<i>Falco subbuteo</i>	Hobby	R
123.	<i>Falco chiquera</i>	Redheaded Merlin	R
124.	<i>Falco tinnunculus</i>	Kestrel	M
125.	<i>Francolinus gularis</i>	Swamp Partridge	R
126.	<i>Gallus gallus</i>	Red Jungle Fowl	R
127.	<i>Rallus aquaticus</i>	Water Rail	M
128.	<i>Porzana fusca</i>	Ruddy Crake	R
129.	<i>Amaurornis phoenicurus</i>	Whitebreasted Water Hen	R
130.	<i>Gallicrex cinerea</i>	Water Cock	R

Sl. no.	Scientific name	Common name	Status
131.	<i>Porphyrio porphyrio</i>	Moorhen	R
132.	<i>Fulica atra</i>	Coot	R
133.	<i>Heliopais personata</i>	Masked Finfoot	R
134.	<i>Hydrophasianus chirurgus</i>	Pheasant-tailed Jacana	R
135.	<i>Metopidius indicus</i>	Bronzewinged Jacana	R
136.	<i>Haematopus ostralegus</i>	Oystercatcher	R
137.	<i>Rostratula benghalensis</i>	Painted Snipe	R
138.	<i>Himantopus himantopus</i>	Blackwinged Stilt	R
139.	<i>Recurvirostra avosetta</i>	Avocet	M
140.	<i>Glareola lactea</i>	Small Indian Pratincole	R
141.	<i>Vanellus cinereus</i>	Greyheaded Lapwing	M
142.	<i>Vanellus indicus</i>	Redwattled Lapwing	R
143.	<i>Vanellus spinosus</i>	Spurwinged Lapwing	R
144.	<i>Pluvialis dominica</i>	Eastern Golden Plover	M
145.	<i>Charadrius hiaticula</i>	Ringed Plover	M
146.	<i>Charadrius dubius</i>	Little Ringed Plover	M
147.	<i>Charadrius alexandrinus</i>	Kentish Plover	M
148.	<i>Charadrius placidus</i>	Longbilled Ringed Plover	M
149.	<i>Charadrius mongolus</i>	Mongolian Plover	M
150.	<i>Numenius phaeopus</i>	Whimbrel	M
151.	<i>Numenius arquata</i>	Curlew	M
152.	<i>Limosa limosa</i>	Blacktailed Godwit	M
153.	<i>Tringa erythropus</i>	Spotted Red Shank	M
154.	<i>Tringa totanus</i>	Common Red Shank	M
155.	<i>Tringa stagnatilis</i>	Marsh Sandpiper	M
156.	<i>Tringa nebularia</i>	Green Shank	M
157.	<i>Tringa ochropus</i>	Green Sandpiper	M
158.	<i>Tringa glareola</i>	Wood Sandpiper	M
159.	<i>Tringa terek</i>	Terek Sandpiper	M
160.	<i>Tringa hypoleucos</i>	Common Sandpiper	M
161.	<i>Arenaria interpres</i>	Turnstone	M
162.	<i>Limnodromus semipalmatus</i>	Snipebilled Godwit	M
163.	<i>Gallinago stenura</i>	Pintail Snipe	M
164.	<i>Gallinago gallinago</i>	Fantail Snipe	M
165.	<i>Calidris tenuirostris</i>	Eastern Knot	M
166.	<i>Calidris alba</i>	Sanderling	M
167.	<i>Calidris minuta</i>	Little Stint	M
168.	<i>Calidris temminckii</i>	Temminck's Stint	M
169.	<i>Calidris alpina</i>	Dunlin	M
170.	<i>Calidris testacea</i>	Curlew-Sandpiper	M
171.	<i>Philomachus pugnax</i>	Ruff and Reeve	M
172.	<i>Stercorarius parasiticus</i>	Parasitic Skua/Jaegar	M
173.	<i>Larus argentatus</i>	Herring Gull	M
174.	<i>Larus ichthyæetus</i>	Great Blackheaded Gull	M
175.	<i>Larus brunnicephalus</i>	Brownheaded Gull	M
176.	<i>Larus ridibundus</i>	Blackheaded Gull	M
177.	<i>Chlidonias hybrida</i>	Whiskered Tern	M

WILDLIFE IN BANGLADESH MANGROVE ECOSYSTEM

Sl. no.	Scientific name	Common name	Status
178.	<i>Chlidonias leucopterus</i>	Whitewinged Black Tern	M
179.	<i>Gelochelidon nilotica</i>	Gullbilled Tern	R
180.	<i>Hydroprogne caspia</i>	Caspian Tern	M
181.	<i>Sterna aurantia</i>	Indian River Tern	R
182.	<i>Sterna hirundo</i>	Common Tern	M
183.	<i>Sterna acuticauda</i>	Blackbilled Tern	R
184.	<i>Sterna fuscata</i>	Sooty Tern	M
185.	<i>Sterna albifrons</i>	Little Tern	R
186.	<i>Sterna bergii</i>	Large Crested Tern	R
187.	<i>Sterna bengalensis</i>	Lesser Crested Tern	R
188.	<i>Rhynchops albigollis</i>	Indian Skimmer	R
189.	<i>Treron pompadora</i>	Greyfronted Green Pigeon	R
190.	<i>Treron phoenicoptera</i>	Green Pigeon	R
191.	<i>Columba livia</i>	Blue Rock Pigeon	R
192.	<i>Streptopelia orientalis</i>	Rufous Turtle Dove	M
193.	<i>Streptopelia decaocto</i>	Ring Dove	R
194.	<i>Streptopelia tranquebarica</i>	Red Turtle Dove	R
195.	<i>Streptopelia chinensis</i>	Spotted Dove	R
196.	<i>Psittacula krameri</i>	Roseringed Parakeet	R
197.	<i>Psittacula finschii</i>	Slatyheaded Parakeet	R
198.	<i>Clamator jacobinus</i>	Pied Crested Cuckoo	R
199.	<i>Cuculus varius</i>	Brainfever Bird	R
200.	<i>Cuculus micropterus</i>	Indian Cuckoo	R
201.	<i>Cacomantis sonneratii</i>	Banded Bay Cuckoo	R
202.	<i>Cacomantis merulinus</i>	Rufousbellied Plaintive Cuckoo	R
203.	<i>Eudynamys scolopacea</i>	Koel	R
204.	<i>Rhopodytes tristis</i>	Large Greenbilled Malkoha	R
205.	<i>Centropus sinensis</i>	Crow-Pheasant/Coucal	R
206.	<i>Tyto alba</i>	Barn Owl	R
207.	<i>Otus scops</i>	Scops Owl	R
208.	<i>Otus bakkamoena</i>	Collared Scops Owl	R
209.	<i>Bubo bubo</i>	Eagle-Owl/Great Horned Owl	R
210.	<i>Bubo zeylonensis</i>	Brown Fish Owl	R
211.	<i>Bubo flavipes</i>	Tawny Fish Owl	R
212.	<i>Ninox scutulata</i>	Brown Hawk-Owl	R
213.	<i>Athene brama</i>	Spotted Owlet	R
214.	<i>Asio flammeus</i>	Shorteared Owl	M
215.	<i>Caprimulgus indicus</i>	Jungle Nightjar	R
216.	<i>Caprimulgus macrurus</i>	Longtailed Nightjar	R
217.	<i>Cypsiurus parvus</i>	Palm Swift	R
218.	<i>Ceryle rudis</i>	Lesser Pied Kingfisher	R
219.	<i>Alcedo atthis</i>	Common Kingfisher	R
220.	<i>Pelargopsis amauroptera</i>	Brownwinged Kingfisher	R
221.	<i>Pelargopsis capensis</i>	Storkbilled Kingfisher	R
222.	<i>Halcyon coromandra</i>	Ruddy Kingfisher	R
223.	<i>Halcyon pileata</i>	Blackcapped Kingfisher	R
224.	<i>Halcyon smyrnensis</i>	Whitebreasted Kingfisher	R
225.	<i>Halcyon chloris</i>	Whitecollared Kingfisher	R

Sl. no.	Scientific name	Common name	Status
226.	<i>Merops orientalis</i>	Green Bee-eater	R
227.	<i>Coracias benghalensis</i>	Indian Roller/Blue Jay	R
228.	<i>Upupa epops</i>	Hoopoe	R
229.	<i>Megalaima lineata</i>	Lineated Barbet	R
230.	<i>Megalaima haemacephala</i>	Coppersmith	R
231.	<i>Jynx torquilla</i>	Wryneck	M
232.	<i>Micropternus brachyurus</i>	Rufous Woodpecker	R
233.	<i>Picus myrmecophoneus</i>	Little Scalybellied Green Woodpecker	R
234.	<i>Dinopium benghalense</i>	Lesser Goldenbacked Woodpecker	R
235.	<i>Picoides macei</i>	Fulvousbreasted Pied Woodpecker	R
236.	<i>Picoides mahrattensis</i>	Yellowfronted Pied Woodpecker	R
237.	<i>Picoides nanus</i>	Pigmy Woodpecker	R
238.	<i>Chrysocolaptes lucidus</i>	Larger Goldenbacked Woodpecker	R
AVES: Passerine birds			
239.	<i>Mirafra assamica</i>	Bush Lark	R
240.	<i>Alauda gulgula</i>	Eastern Skylark	R
241.	<i>Hirundo rustica</i>	Common Swallow	M
242.	<i>Hirundo daurica</i>	Redrumped/Striated Swallow	M
243.	<i>Lanius schach</i>	Blackheaded/Rufous Shrike	R
244.	<i>Lanius cristatus</i>	Brown Shrike	M
245.	<i>Oriolus xanthornus</i>	Blackheaded Oriole	R
246.	<i>Dicrurus adsimilis</i>	Black Drongo	R
247.	<i>Dicrurus leucophaeus</i>	Grey/Ashy Drongo	M
248.	<i>Dicrurus aeneus</i>	Bronzed Drongo	M
249.	<i>Dicrurus paradiseus</i>	Greater Racket-tailed Drongo	R
250.	<i>Artamus fuscus</i>	Ashy-Swallow Shrike	R
251.	<i>Sturnus malabaricus</i>	Greyheaded Myna	R
252.	<i>Sturnus vulgaris</i>	Starling	M
253.	<i>Sturnus contra</i>	Pied Myna	R
254.	<i>Acridotheres tristis</i>	Common Myna	R
255.	<i>Acridotheres ginginianus</i>	Bank Myna	R
256.	<i>Acridotheres fuscus</i>	Jungle Myna	R
257.	<i>Dendrocitta vagabunda</i>	Tree Pie	R
258.	<i>Corvus splendens</i>	House Crow	R
259.	<i>Corvus macrorhynchos</i>	Jungle Crow	R
260.	<i>Tephrodornis pondicerianus</i>	Common Wood Shrike	R
261.	<i>Coracina novaehollandiae</i>	Large Cuckoo-Shrike	R
262.	<i>Coracina melaschistos</i>	Smaller Grey Cuckoo-Shrike	M
263.	<i>Coracina melanoptera</i>	Blackheaded Cuckoo Shrike	M
264.	<i>Pericrocotus cinnamomeus</i>	Small Minivet	R
265.	<i>Aegithina tiphia</i>	Common Iora	R
266.	<i>Chloropsis aurifrons</i>	Goldfronted Chloropsis	R
267.	<i>Pycnonotus melanicterus</i>	Blackheaded Yellow Bulbul	R
268.	<i>Pycnonotus jocosus</i>	Redwhiskered Bulbul	R
269.	<i>Pycnonotus cafer</i>	Redvented Bulbul	R
270.	<i>Pellorneum ruficeps</i>	Spotted Babbler	R
271.	<i>Trichastoma abotti</i>	Abott's Babbler	R

WILDLIFE IN BANGLADESH MANGROVE ECOSYSTEM

Sl. no.	Scientific name	Common name	Status
272.	<i>Turdoides striatus</i>	Jungle Babbler	R
273.	<i>Alcippe poiocephala</i>	Quaker Babbler	R
274.	<i>Muscicapa parva</i>	Redbreasted Flycatcher	M
275.	<i>Muscicapa rubeculoides</i>	Bluethroated Flycatcher	M doubtful
276.	<i>Muscicapa thalassina</i>	Verditer Flycatcher	M
277.	<i>Culicicapa ceylonensis</i>	Greyheaded Flycatcher	R
278.	<i>Rhipidura albicollis</i>	Whitethroated Fantail Flycatcher	R
279.	<i>Terpsiphone paradisi</i>	Paradise Flycatcher	R
280.	<i>Hypothymis azurea</i>	Blacknaped Flycatcher	R
281.	<i>Pachycephala grisola</i>	Mangrove Whistler	R
282.	<i>Bradypterus luteoventris</i>	Brown Bush Warbler	M
283.	<i>Cisticola exilis</i>	Fantail Warbler	R
284.	<i>Cisticola juncidis</i>	Streaked Fantail Warbler	R
285.	<i>Prinia hodgsoni</i>	Franklin's Wren-Warbler	R
286.	<i>Prinia socialis</i>	Ashy Wren-Warbler	R
287.	<i>Orthotomus sutorius</i>	Tailor Bird	R
288.	<i>Acrocephalus stentorius</i>	Great Reed Warbler	M
289.	<i>Acrocephalus dumetorum</i>	Blyth's Reed Warbler	M
290.	<i>Phylloscopus affinis</i>	Tickell's Leaf Warbler	M
291.	<i>Erithacus svecicus</i>	Blue Throat	M
292.	<i>Copsychus saularis</i>	Magpie-Robin (National Bird)	R
293.	<i>Phoenicurus ochruros</i>	Black Redstart	M
294.	<i>Saxicola torquata</i>	Collared Bush Chat	M
295.	<i>Saxicola caprata</i>	Pied Bush Chat	R
296.	<i>Monticola solitarius</i>	Blue Rock Thrush	M
297.	<i>Zoothera citrina</i>	Orangeheaded Ground Thrush	M
298.	<i>Turdus ruficollis</i>	Redthroated Thrush	M
299.	<i>Parus major</i>	Grey Tit	R
300.	<i>Sitta castanea</i>	Chestnutbellied Nuthatch	R
301.	<i>Sitta frontalis</i>	Velvetfronted Nuthatch	R
302.	<i>Anthus hodgsoni</i>	Indian Tree Pipit	M
303.	<i>Anthus novaeseelandiae</i>	Paddyfield Pipit	M
304.	<i>Motacilla flava</i>	Yellow Wagtail	M
305.	<i>Motacilla citreola</i>	Yellowheaded Wagtail	M
306.	<i>Motacilla cinerea</i>	Grey Wagtail	M
307.	<i>Motacilla alba</i>	White Wagtail	M
308.	<i>Dicaeum trigonostigma</i>	Ornamentbellied Flowerpecker	R
309.	<i>Dicaeum erythrorhynchos</i>	Tickell's Flowerpecker	R
310.	<i>Dicaeum cruentatum</i>	Scarletbacked Flowerpecker	R
311.	<i>Nectarinia zeylonica</i>	Purplerumped Sunbird	R
312.	<i>Nectarinia asiatica</i>	Purple Sunbird	R
313.	<i>Zosterops palpebrosa</i>	White-eye	R
314.	<i>Passer domesticus</i>	House Sparrow	R
315.	<i>Ploceus philippinus</i>	Baya/Weaver Bird	R
316.	<i>Ploceus manyar</i>	Streaked Weaver Bird	R
317.	<i>Lonchura malabarica</i>	Common Silverbill	R
318.	<i>Lonchura striata</i>	Whitebacked Munia	R
319.	<i>Lonchura punctulata</i>	Spotted Munia	R

Sl. no.	Scientific name	Common name
MAMMALIA		
320.	<i>Suncus murinus</i>	Grey Musk Shrew
321.	<i>Pteropus giganteus</i>	Flying Fox
322.	<i>Rousettus leschenaultii</i>	Fulvous Fruit Bat
323.	<i>Cynopterus sphinx</i>	Shortnosed Fruit Bat
324.	<i>Rhinopoma hardwickei</i>	Lesser Rat-tailed Bat
325.	<i>Taphozous saccolaimus</i>	Pouchbearing Sheath-tailed Bat
326.	<i>Megaderma lyra</i>	False Vampire
327.	<i>Coelops frithi</i>	Tailless Leafnosed Bat
328.	<i>Pipistrellus mimus</i>	Indian Pygmy Pipistrelle
329.	<i>Pipistrellus coromandra</i>	Indian Pipistrelle
330.	<i>Hesperoptenus tickelli</i>	Tickell's Bat
331.	<i>Scotophilus temmincki</i>	Lesser Yellow Bat
332.	<i>Macaca mulatta</i>	Rhesus Macaque
333.	<i>Macaca fascicularis</i>	Crab-eating Macaque
334.	<i>Canis aureus</i>	Jackal
335.	<i>Lutra perspicillata</i>	Smooth Indian Otter
336.	<i>Aonyx cinerea</i>	Clawless Otter
337.	<i>Viverra zibetha</i>	Large Indian Civet
338.	<i>Viverricula indica</i>	Small Indian Civet
339.	<i>Paradoxurus hermaphrodites</i>	Palm Civet/Toddy Cat
340.	<i>Herpestes auropunctatus</i>	Small Mongoose
341.	<i>Herpestes edwardsi</i>	Common Mongoose
342.	<i>Panthera tigris</i>	Royal Bengal Tiger (National Animal)
343.	<i>Panthera pardus</i>	Leopard/Panther (extinct)
344.	<i>Felis bengalensis</i>	Leopard-Cat
345.	<i>Felis viverrina</i>	Fishing Cat
346.	<i>Felis chaus</i>	Jungle Cat
347.	<i>Rhinoceros unicornis</i>	Onehorned Rhinoceros (extinct)
348.	<i>Rhinoceros sondaicus</i>	Smaller Onehorned Rhinoceros (extinct)
349.	<i>Bubalus bubalis</i>	Wild Buffalo (extinct)
350.	<i>Cervus duvauceli</i>	Swamp Deer/Barasingha (extinct)
351.	<i>Axis porcinus</i>	Hog Deer (extinct)
352.	<i>Axis axis</i>	Chital/Spotted Deer
353.	<i>Muntiacus muntjac</i>	Barking Deer/Muntjac
354.	<i>Sus scrofa</i>	Wild Boar
355.	<i>Lepus nigricollis</i>	Rufous-tailed Hare
356.	<i>Funambulus pennanti</i>	Fivestriped Palm Squirrel
357.	<i>Bandicota bengalensis</i>	Lesser Bandicoot
358.	<i>Bandicota indica</i>	Bandicoot Rat
359.	<i>Mus booduga</i>	Indian Porcupine
360.	<i>Mus musculus</i>	House Mouse
361.	<i>Rattus rattus</i>	Common House Rat
362.	<i>Hystrix indica</i>	Indian Porcupine
363.	<i>Orcaella brevirostris</i>	Irrawaddy Dolphin
364.	<i>Globicephala macrorhynchus</i>	Shortfinned Pilot Whale
365.	<i>Peponocephala electra</i>	Broadbeaked/Melonheaded Dolphin
366.	<i>Neophocaena phocaenoides</i>	Finless/Little Porpoise
367.	<i>Stenella malayana</i>	Malay Dolphin
368.	<i>Platanista gangetica</i>	Ganges Susu/River Dolphin



Khan, Mohammad Ali Reza. 1986. "WILDLIFE IN BANGLADESH MANGROVE ECOSYSTEM." *The journal of the Bombay Natural History Society* 83, 32–48.

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