EXCURSION TO SUNDERBANS

Field Report has been submitted for partial fulfilment to obtain the Degree of B.Sc. Zoology Honours (CBCS) of the Bidhannagar College, Government of West Bengal, Salt Lake, Kolkata affiliated to the West Bengal State University, Barasat, West Bengal

Roll 1221116 No. 17366
Registration No. 1082211400237
Paper: ZOOACOR02P

Department of Zoology
Bidhannagar
College, EB 2, Sector I, Salt Lake, Kolkata 700064

INDEX

NAME: _____ STD.: _____ SEC.: _____ ROLL NO.: _____ SUB.: _____

EXCURSION TO SUNDERBANS

Field Report has been submitted for partial fulfilment to obtain the Degree of B.Sc. Zoology Honours (CBCS) of the Bidhannagar College, Government of West Bengal, Salt Lake, Kolkata affiliated to the West Bengal State University, Barasat, West Bengal

Roll 1221116 No 17366

Registration No. 1092211400237

Paper: ZOOACOR02P

Department of Zoology

Bidhannagar

College, EB 2, Sector I, Salt Lake, Kolkata 700064

Acknowledgements

I would like to express my special thanks of gratitude to my zoology teachers as well as our principal sir who gave me the golden opportunity to do this wonderful & informative project.

Also, I would like to thank my parents & friends who helped me a lot in finalizing this project with in the limited frame.

At last, I like to thank all my helpers who have motivated me to fulfill their project before the timeline.

Date: 01/03/2023

Sarmay Pal
(Signature)

Certificate from the Head of the Department of Zoology and the Tour Supervisors

Date: 01.03.23

This is to certify that Mr/Ms. Santanu Pal Roll No.....and Registration No. 1082211400237 of this department has taken part in the Excursion to Sunderbans, conducted by the department on and from November 30 - December 02, 2022 for the partial fulfilment for the award of the Degree of Bachelor of Science in Zoology (Hons) (CBCS) (Academic Year 2022-2025) of Bidhannagar College, Government of West Bengal, Salt Lake, Kolkata, affiliated to the West Bengal State University, Barasat, West Bengal.

(Dr. S. Mondal)

Head
Dept. of Zoology
Bidhannaagar College

Head
Department of Zoology
Bidhannagar College

(Dr. R. Karmakar)

Associate Prof. & Tour Supervisor
Dept. of Zoology
Bidhannaagar College

Dr. RANAJIT KARMAKAR
Associate Professor & Head
PG & UG Dept. of Zoology
BIDHANNAGAR COLLEGE
Govt. of WB, WBES
Salt Lake, Kolkata - 700064

(Dr. S. Chakrabarti)

Principal &
Tour Supervisor
Bidhannaagar College

4.4.23

Principal
Bidhannagar College
Salt Lake, Kol-64

Fig: 1 | Map of Sunderban [source - Internet]

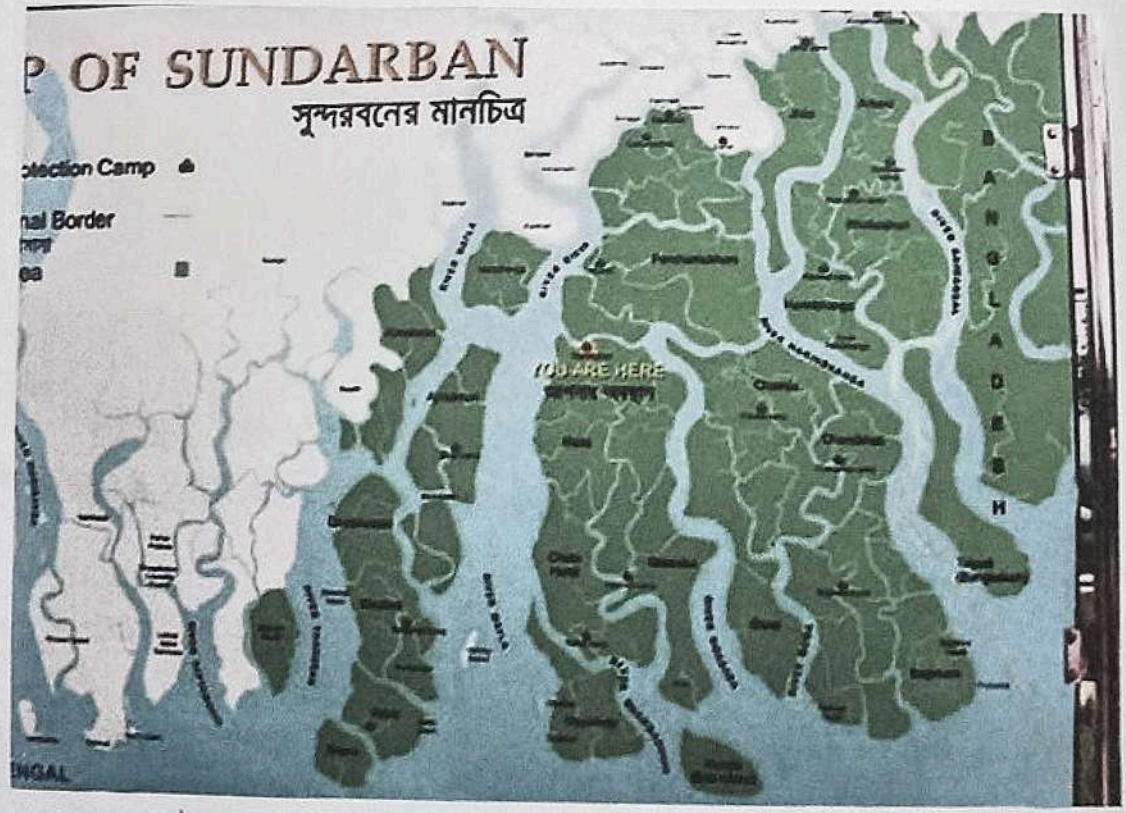

Fig: 2 | Sunderban Reserve Forest map in Jhingakhali

☒ The Sunderbans at a Glance

I. **LOCATION ⇒**

Latitude 21.9497° N, Longitude 89.1833° E

II. **AREA ⇒**

The total area is 9630 km^2, out of which the Reserve Forest occupies around 4260 km^2.

III **STATUS ⇒**

Declared Tiger Reserve in 1973, a National Park in 1984, a Biosphere Reserve in 1989 & world Heritage in 1987.

IV **CLIMATE ⇒**

The average annual temperature is 25°C. The average annual rainfall is 192 cm. The rivers remain calm from December to February.

V **PRINCIPAL RIVERS ⇒**

Hooghly, Matla, Icharrati, Raimongal, Bidyadhari, Kalindi, Saptamukhi, Thakuran e.t.c.

VI. **THREATS ⇒**

Reduced flow of freshwater with the construction of embankment to protect human habitations combined with the encroachment of human settlement into the mangrove forests, uncontrolled prawn seed collection, poaching e.t.c has threatened the world Heritage site.

Fig: 3| Tour party group photo at Hasnabadh Railway station

VII TOURISM =>

There are watch towers for tourists in Dobanki, Sudhanyakhali, Saynekhali, Netadhopani, Burir Dabru, Harikhali, Sundarkhali. Ferry and launches are available from Godkhali, Namkhana, Canning, Sonakhali, Hasnabad etc. The WETDC, Government of West Bengal has set up tourist lodges in Saynekhali, Pakhiralaa (Private lodges are ~~three~~ there). The most luxurious and expensive accommodation can be available at the Sunderban Tiger Camp, Dayapur. There is also the crocodile breeding centre at Bhagabatpur.

• TOUR PARTY

The tour party consisted of two teachers, one laboratory attendant and twenty six students.

1. Dr. Saurabh Chakraborti, Principal
2. Dr. Ranajit Karmakar, Associate Professor
3. Mr. Sanjoy Mukherjee, Laboratory attendant
4. Ms. Snigdha Sikdar
5. Ms Srijita Dev
6. Ms Pratasha Banerjee
7. Ms Sudeshna Basak
8. Ms Puspita Bhakat
9. Ms Anusya Sahu
10. Ms Mondisha Bhadury
11. Ms Saini Chatterjee
12. Ms Labanya Ray
13. Ms Gulnar parween
14. Ms Ankita santra
15. Ms Tithi Hazra
16. Ms Ankita Rakshit
17. Ms Shreya Paul
18. Ms Varsha Priya
19. Ms Surajya khatun
20 Ms Barnali Pal
21. Mr Rosen Hansda
22. Mr Dipanjan Das

Fig 4| Outside Seaddaha Railway station

Fig:5| Students gathering at Sealdaha Railway station

Fig 6 | Reached at Hasanabad Station

Fig 7 | Launch Journey

23. Mr. Sanjay Pal
24. Mr. Kutubuddin Laskar
25. Mr. Maharshi Mazumder
26. Mr. Mahadi Hasan Molla
27. Mr. Sourjo Debnath
28. Mr. Pravash Halder
29. Mr. Tajmel Sk.

TOUR ITINERARY

- **Day 1 (30.11.2022):**

Sealdaha Railway station to Hasnabad Railway station Hasnabad Railway Station to ferry ghat. To kalitala (by Launch). Local village visit & night stay in lodge in kalitala.

- **Day 2 (01.12.2022):**

Jhingakhali, Burir Dabri & Harikhali and back to lodge at kalitala and night stay.

- **Day 3 (02.12.2022):**

Kalitala to Hasnabad ferry ghat by launch. Ferry ghat to Hasnabad Railway station. Hasnabad Railway Station to Sealdaha Railway station.

Fig:10 | zoology Department UG semesterI , 2022 gathering at Jhingakhali Beat

Photographs of the Sunderbans landscape, and also on sites of visit. We have produced some representative photographs of our study trip to Sunderbans. There has been no provision to stay overnight on the lands or on the launch in the river so we have to come back to our hotel at kalitala for a night's stay.

☒ Why Excursion?

A short trip or outing to some place, usually for a special purpose & with the intention of a prompt return and maybe a pleasure trip or a trip for an educational purpose to gather knowledge about almost everything about that place.

The bookish knowledge within the four walls of a classroom does not fulfil the demand of the student's subject may it be, whether humanities or science. Our knowledge also gets confined to the pages of books. This educational tour helps us gather knowledge remaining within the system, otherwise known as practical or field knowledge. Practical or field knowledge strengthens the conception obtained from the textbook.

The subject zoology signifies the scientific study of several aspects of animals, including habit, habitat, behaviour, and interaction with other conspecific and interspecific animals and plants and gains experience on these issues students must take part in a field trip keeping in mind the ecology of the place of visit.

Excursion gives us ample opportunity to observe plants and animals in situ, which may not be available in and around the college campus. Besides the academic importance, the excursion has immense value on the

Fig: 11| Watch tower in sunderban

Fig: 12| Royal Bengal Tiger (Panthera tigris tigris Linn) the keystone species of Sunderban was seen in Intertidal zone

Fig. 13 | Visited Buriddabri Beat (Sunderban)

social behaviour of the students who are the future responsible citizens of society. The excursion away from home teaches students a lot about interaction among themselves such as sharing, caring, group leading e.t.c. It definitely gives us fresh air outside the classroom 'chalk and talk' learning process.

• Why Sunderbans National Park ?

Sunderbans is the largest single block of tidal halophytic mangrove forest in the world and additionally, it is a UNESCO World Heritage site. The great Sunderbans have been designated by different names and these are National Park, Tiger Reserve, Biosphere Reserve e.t.c. The beautiful forests of Sunderbans embracing mysterious tracts of Wilderness are located in the lower Ganga delta of Bengal. The mangrove forests & the overall ecosystem in Sunderbans are the ideal habitats for a large group of terrestrial, aviatl, and aquatic fauna, starting from Protozoa to Mammals. It contains the richest biodiversity among the intertidal forest in the world and is the only natural mangrove forest in the world, where the tiger (Panthera tigris tigris L.) resides. The dense mangrove forests are on of the largest reserves for the Bengal Tiger. The reason for high faunal diversity is that the ocean and land come in contact with each other. The succession from ocean to land and to fresh water / brackish-water through estuaries, changes in water salinity from almost nil to high through grades of different concentration, newly formed islands with soft swampy mud to mature old islands with hard saline banks provide fascinating habitat opportunities to various

Fig: 14| Sunderban after typhoon "Aila" (2009) (Source: Google)

Fig: 15| Pneumatophores of sundari tree after low tide

organism. The present Sunderbans National Park was declared the core area of the Sunderbans Tiger Reserve in 1973 and a wildlife sanctuary in 1977. On May 4, 1984, it was declared a National Park. The name Sundarbans can be literally translated as "beautiful forest" in the Bengali language (Sundar, "beautiful" and ban/bon, "forest"). The name may have been derived from the Sundari trees that were found at a time in the Indian Sunderbans in large numbers.

Typhoon Aila on May 25, 2009, devastated Sunderbans and the serious damages caused by the devastation were almost managed by Sunderbans within three years and the beautiful forest came to true colour and on its track with bubbling activities. Sunderbans are a tide dominated allochthonous type of mangrove wetland. The geomorphology of this mangrove estuary is funnel-shaped with numerous linear tidal mudflats and a network of tidal channels. Mudflats are found at the estuary and on the deltaic islands where the low velocity of river and tidal currents occurs and these are exposed in low tides and submerged in high tides, thus being changed morphologically even in one tidal cycle. The tidal action deposits silts back on the channels and raising the bed, it forms new islands & creeks contributing to uncertain geomorphology. The MSL in the Sunderbans is about 3.30m & the mean highest high water level and mean lowest high water level is 5.94m and 0.94 m respectively. Due to the gentle slope of the coast and large tidal amplitude, tidal water penetrates at an average distance of 110 km inland from the shoreline and in some areas, the effect of the tides is felt over 300 km inland.

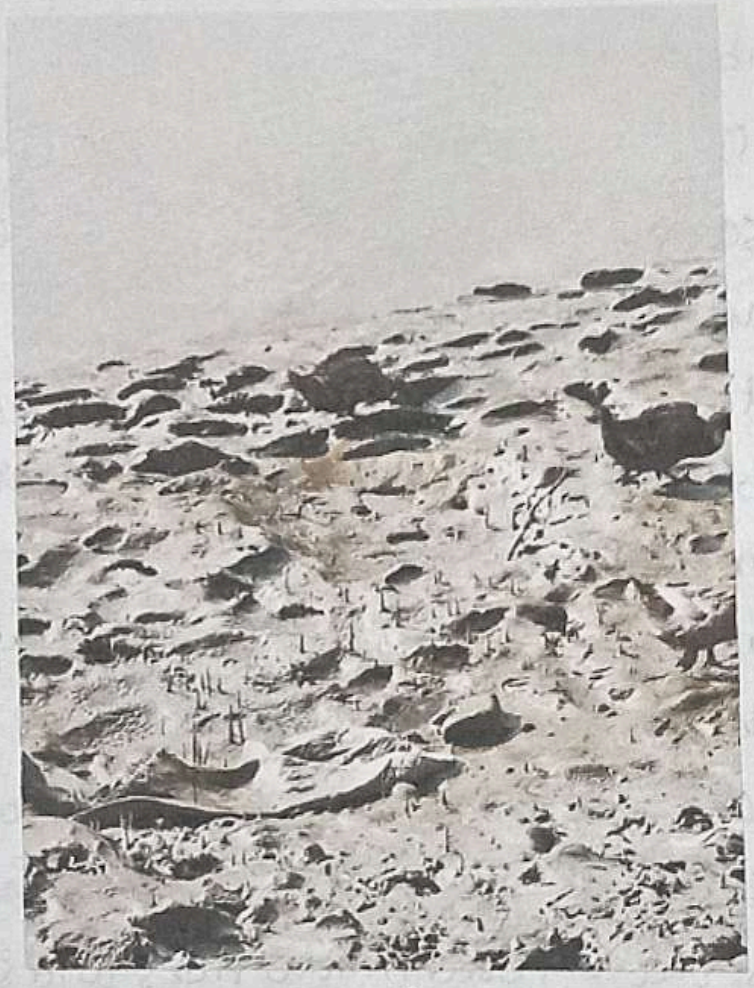

Fig16| Soil of Sunderban

- **Soil types & Salinity:**

The soil type is silty clay loams or sandy clay and loams with organic and peaty deposits. The soil is deficient in oxygen & nitrogen and pH is more or less acidic. Though the soil contains adequate water, plants cannot avail because of the high concentration of salts (Mostly chloride, sulphate & bicarbonate salts of sodium, magnesium and calcium). The salinity of the surface soil is governed by the quantity of freshwater flow and monsoon rainfall. The average soil salinity is the highest in the middle of summer and lowest in the rainy months.

- **Climate:**

Mostly the warm humid climate. The average maximum and minimum temperatures are 40°C & 18°C, respectively with an annual rainfall of about 1600 to 1800 mm. This region receives rainfall during the southwest monsoon season, which starts in June and continues until October, with occasional rainfall throughout the year. Rainfall is negligible in the winter months (December to March), these four months are considered dry months). Occasionally, during May & October, violent cyclonic storms accompanied by high sea waves and tides devastate the coastal Sunderbans area.

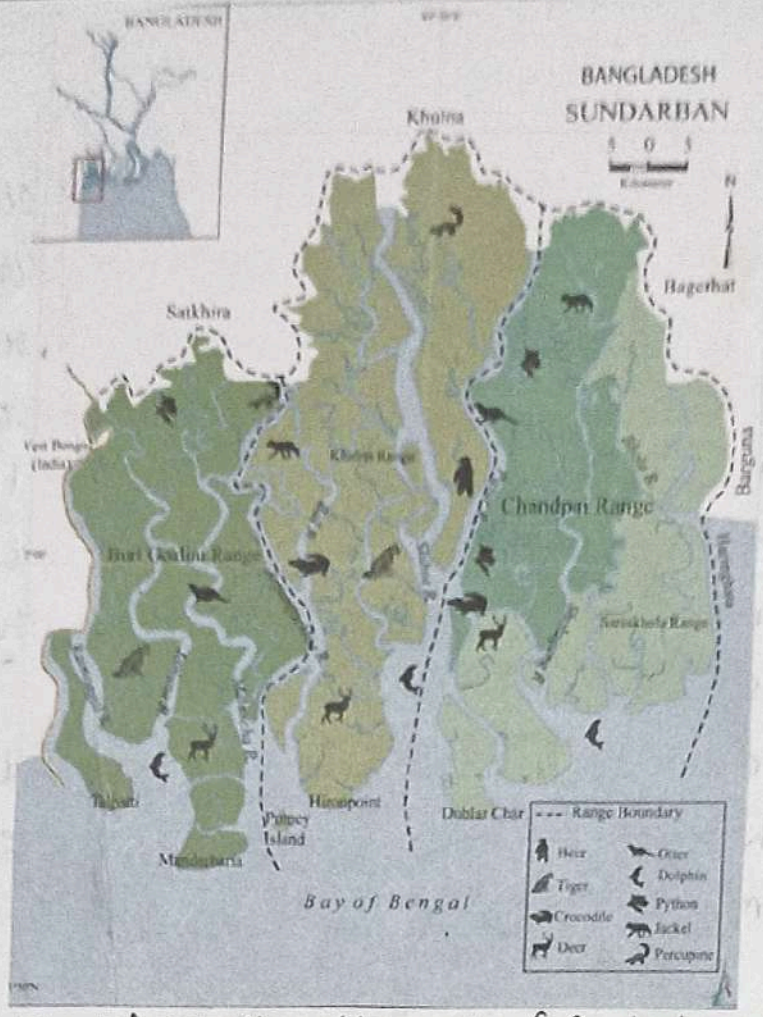

Fig: 17| Biodiversity map of Sunderban (source: Google)

Fig: 18| Floral diversity of Sunderban (source: Google)

- **Biodiversity:**

The large spatial & temporal variability in hydrological regimes (both freshwater inflows and the tides), topography and texture of the substratum, the salinity, and their interactions, result in very high habitat heterogeneity in the mangrove ecosystems, and thereby ensure equally diverse biodiversity. Overall, there are relatively small differences between the species composition of the Indian and Bangladesh parts. An assessment of the total biodiversity in Indian Sundarbans is given below.

- **Floral diversity:**

The interior parts of the mudflats are home to luxuriant mangroves. There are ~ 84 species of true mangroves, mangrove associates and back mangrove plants found. However, the distribution is not uniform and is primarily controlled by the level of salinity, and not by tidal inundation. Basically, the true estuarine zone, comprising the estuarine banks along the mouths of the rivers with new depositions, is dominated by the Jatibaen (Avicennia officinalis), Peearabaen (A. alba), kalabaen (A. marina), e.t.c. The middle estuarine zone where the salinity is lower but the tidal current passing through the narrow creeks and channels is high, is dominated by Garjan (Rhizophora apiculata), Goran (Ceriops decandra), Mathgoran (C. tagal), keora (Sonneratia apetala) e.t.c. The inner estuarine or riverine zone comprising elevated areas with less saline soil & more freshwater flow is dominated by Genwa (Excoecaria agallocha)

Fig: 19 | Garjan Tree with Stilt root [Rhizophora apiculata]

Fig: 20 | Golpata plant at river bank [Nypa fruticans]

Fig: 21 | Faunal diversity Chart at Jhingakhali Beat.

kankra (Bruguiera gymnorrhiza), khalsi (Aegiceras corniculatum) and Ora (Sonneratia caseolaris). Hental (Phoenix paludosa) forest exists in relatively highland and compact soil. However, some mangrove plant species are rare, endemic and restricted to specific salinity. The distribution of these trees like Amur (Aglaia domestica), Dhundul (Xylocarpus granatum), Passur (X. mekongensis), Sundari (Heritiera fomes) and Golpata (Nypa fruticans) is extremely limited. Sundari and Golpata are scarcely sighted in the wild among these species.

- **Faunal diversity:**

The fauna of Sunderbans has attracted much attention because of the huge economic importance of many such species. Crustaceans account for the largest proportion of animal biomass e.g. Fiddler crab, Ghost crab, and Mud crab besides a considerable harvest of Shrimps, prawns & lobsters. Sunderbans supports very rich estuarine & coastal marine fisheries. Among the diversity of insects, honeybees hold an important position in the production of large quantities of honey & wax. Sunderbans is the only mangrove forest in the world with a species of tiger, the Royal Bengal Tiger (Panthera tigris tigris Linn. 1758). The total faunal diversity of Sunderbans has been below listed.

Fig: 22| Mudskipper (Boleopthalamus sp.) was seen at river bank

Fig: 23 | Bombay duck / Lottya [Harpodon nehereus] was captured by us from fisherman's net

Fig: 24| Saddlegrunt fish [Pomadasys hasta] [Source: Internet]

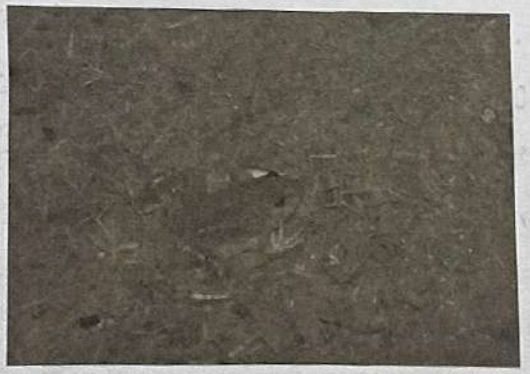

Fig: 25 | Skittering frog [Euphlyctis sp.]

A. Pisces:

The Indian Sunderban contains a large number of species (165) and it is directly related to the salinity gradients. Fishes such as Bombay duck (Harpodon nehereus), small-headed ribbon fish (Trichiurus savala), hairpin anchovy (Setipinna sp.), Pomfret (Pampus sp.), common herring (Sardinella sp.) and (Salar sp.) occur in areas with salinity, whereas Pangus (Pangasius sp.) and Asian sea bass (Lates calcarifer) occur in freshwater areas or those with very low salinity. The dominant fish in brackish water zones are Hilsa (Tenualosa) ilisha, saddle grunt (Pomadasys hasta), paradise threadfin (Polynemus sp). and goldspotted grenadier anchovy (Coilia sp.). Several marine fish also often occur within the mangroves. A unique type of amphibious fish mudskipper is available in this area. There are about 23 species available. Their pectoral fins are so designed that they can also walk in mud and jump. The eyes are also specially adapted for both above-water and under-water visions. The most common genera are Boleophthalmus sp. & periophthalmus sp.

B. Amphibia:

The amphibians are not so diverse. Various human-made water bodies are the homes of frogs. Most abundant amphibians like Indian tree frogs and common toads are accustomed to such an environment. Some endemicity might have developed due to the fragmentation of natural habitats. Skittering frog (Euphlyctis sp.).

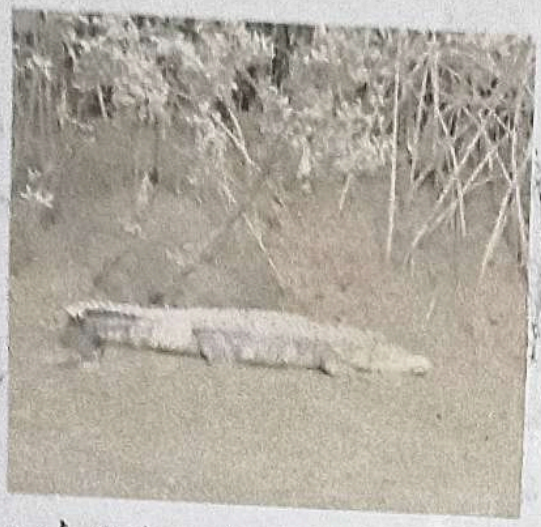

Fig: 26| Estuarine crocodile
[Crocodylus porosus]

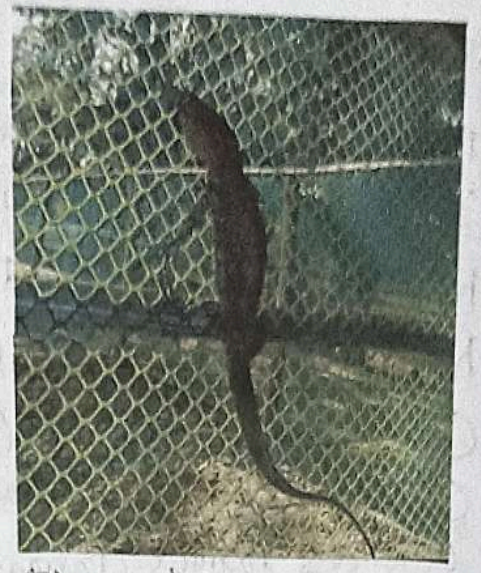

Fig: 27| Bengal water monitor lizard at Harikhali
[Varanus bengalensis]

Fig: 28| King cobra at river bank
[Ophiophagus hannah]

Fig: 29| River terrapin in mud
[Batagur baska]

Fig: 30| Olive Ridley turtle
(Lepidochelys olivacea)
(Source: Google)

C. Reptilia:

Among snakes, the Family Boidae is the largest with 13 species, followed by Hydrophidae (7 species), Elapidae (4 species) and Typhlopidae and Viperidae (2 species each). Noteworthy species are the king cobra (Ophiophagus hannah), Indian spectacled cobra (Naja naja) & Indian python (Python molurus). Among 14 turtles and tortoises, 6 species are nearly extinct or threatened. Of the four marine turtles, the Olive ridley turtle (Lepidochelys olivacea), though endangered is the most abundant. The Green turtle (Chelonia mydas) is rare due to excessive fishing, while the Loggerhead (Caretta caretta) and Hawksbill (Eretmochelys imbricata) are not common. The river terrapin (Batagur baska) and three of the 14 species of lizards and monitors are also endangered.

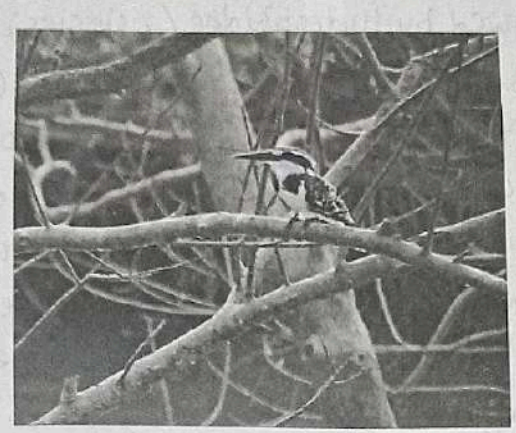

Fig: 31 | Pied kingfisher (Ceryle rudis)

Fig: 32 | Common sand piper
(Actitis hypoleucos)

D. Aves:

The avifauna of the Sunderbans is highly varied and very rich in species. Several species of kingfishers (including brown-winged and stork-billed kingfishers, Pelargopsis amauropterus and P. capensis, respectively) and the magnificent white-bellied sea-eagle (Haliaeetus leucogaster) are quite common, as are many herons, egrets, storks, sandpipers, whimbrels, curlews and other waders. There are also many species of gulls and terns, especially along the coast and the larger water ways. The grey-headed fish eagle (Ichthyophaga ichthyaetus) and Pallas's fish eagle (Haliaeetus leucoryphus) are quite rare. Apart from the species particularly associated with the sea and wetlands, there is also a considerable variety of forest birds, such as woodpeckers, barbets, shrikes, drongo, myrrah, minivet, babbler and many others.

Fig: 33 | Wild boar [Sus scrofa]

Fig: 34 | Wild bengal fishing cat [Prionailurus bengalensis]

Fig: 35 | Spotted deer [Cervus axis]

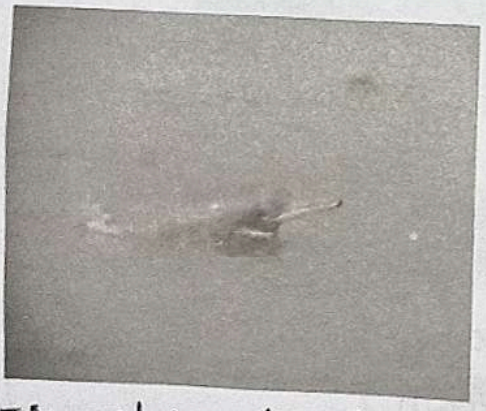

Fig: 36 | Gangetic river dolphin [Platanista gangetica]
[Source: Internet]

Fig: 37 | Rhesus Macaque [Macaca mulatta] seen at Thirgathali Beat.

E. Mammalia:

There are 31 species of mammals. Many mammals became extinct at least five species, namely, the Javan rhinoceros (Rhinoceros sondaicus), Water buffalo (Bubalus bubalis), Swamp deer (Cervus duvaucelli), Gaur (Bos frontalis) and probably the Hog deer (Axis porcinus) disappeared locally during the past century. The One-horned rhino (Rhinoceros unicornis), Indian bison (Bos gaurus) and Sambhar (Cervus unicolor), which were once common here, are also now locally extinct. The only primate is the Rhesus macaque (Macaca mulatta) which still occurs in good numbers, but its population is declining gradually. The Sunderban of Bangladesh & India support one of the largest populations of tiger (Panthera t tigris). Spotted deer (Cervus axis) and Wild boar (sus scrofa) occur in large numbers and ~~form~~ form the principal prey of the tiger. Besides three species of otters, there are Wild cats (Felis bengalensis, F. chaus and F. viverrina) and the Ganges River Dolphin (Plantanista gangetica).

Fig: 38| Bagda Prawn
[Macrobrachium Rosenbergii]

Fig: 40| Fiddler crab

Fig: 39| screw snail & its locomotory pattern
[Telescopium sp.]

Fig: 41| Fiddler crab from boat
seen by binocular

Fig: 42| Ghost crab

Fig: 43| Spider

F. Invertebrates:

In the Indian Sunderbans, arthropods are the most abundant invertebrates (476 species) comprised almost entirely of crustaceans (240) and insects (201 species). Molluscs (143 species), annelids (78 species) and nematodes (68 species) are the next most common groups of invertebrates, other than the protozoans (104 species). As mentioned earlier, crustaceans are of great economic importance and a large number of species of prawns (Bagda) & shrimps (Chapra) are exploited commercially. A substantial proportion of species are planktonic. Among insects, odonates and dipterans have the largest representation. At least 15 other phyla are represented in the invertebrate fauna of the Sunderbans.

- Threats to biodiversity:

The biodiversity of wetlands is governed by a large variety of factors ranging from the evolutionary history and paleoclimate to the current biophysical & anthropogenic factors, besides the nature and intensity of interactions with adjacent systems. Furthermore, various sociocultural, economic & political influences affect biodiversity directly as well as indirectly. The reduced inflow of freshwater into the estuarine Indian Sunderbans has increased the salinity of the water which has become detrimental to a variety of floral & faunal species of this area and the rarity of the Sundari tree in the Indian Sunderbans is one major indication. Bangladesh Sunderbans is not facing such a problem.

Fig: 44| Honeycollectors are harming nature [source-Internet]

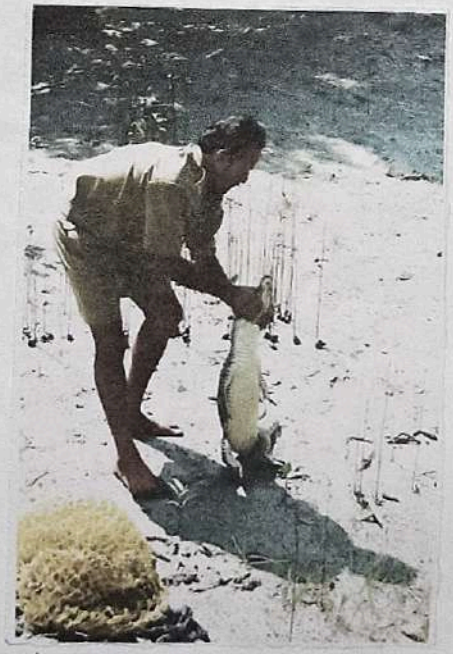

Fig: 45| Crocodile hunting at river bank (source: Internet)

HUMAN - ANIMAL CONFLICT

Besides the human-tiger various types of conflicts exist in Sunderbans. There are human-nature, human-snake, human-crocodile, e.t.c. Of the 102 islands on the Indian side of Sunderbans, 54 islands are inhabited by about 5.0 million people. Over 2.0 million people live in the active delta. These southernmost human-inhabited islands change their shape almost every day with the shifting course of river channels and powerful tidal waves. People who live over there always face the constant threat of submergence. The nature-human conflict has led to disastrous consequences in the Sunderbans, where the tiger attacks have widowed a number of women, leaving them vulnerable to poverty and social prejudice. A book published by Das (2017) in which he addresses the human-wildlife conflict vividly. The conflict is as old as the history of the human race. With time the increasing number of people has been crowding the limited amount of landmasses & subsequently the human-animal conflict is set to increase. Conflict arises in two different ways: by entering humans into the animal territory and straying off the animals into human habitation.

Fig: 46 | Nylon net fencing

সুন্দরবনে আবার দেখা দিল সেই 'বিগ বস', বিস্মিত বিশেষজ্ঞেরা

নিজস্ব সংবাদদাতা

বছর তিনেক আগে, শীতকালের এক ফুরিয়ে আসা বিকেলে শেষ বার দেখা মিলেছিল তার। আমলামেথির খালে জেলে নৌকা থেকে মাঝিরা নিশ্চুপে প্রণাম করেছিলেন— "বড় হুই গো দক্ষিণ রায় (সুন্দরবনের মানুষ বাঘের প্রতিশব্দ হিসেবে এ নামেই সম্বোধন)।"

তবে, আমজের একটা নামও ছিল তার। সুন্দরখালি থেকে [illegible] জঙ্গলে অগুন্তি পর্যটকের সামনে প্রায় বারো বছর ধরে সুঠাম চেহারা আর দরাজ হুঙ্কার তাকে পরিচিত করেছিল 'বিগ বস' নামে। বন দফতরের খাতাতেও তার নথিভুক্তি ঘটেছিল ওই ডাকনামেই।

বাঘের গড় আয়ু ১৪ থেকে ১৬ বছর ধরলে, ২০১৯ সালে শেষ দর্শনের সময়ে তার বয়সও তখন প্রায় ছিজে এসেছে। চেহারায় বার্ধক্যের ছাপ না-থাকলেও দীর্ঘদিন 'বিগ বস'-এর অদর্শনে গ্রামীণ মানুষের সঙ্গে সুন্দরবন ব্যাঘ্র প্রকল্পের কর্তারাও ধরে নিয়েছিলেন, বাদাবনের অন্দরে পরিণত বয়সেই নিভৃতে ফুরিয়ে গিয়েছে 'বিগ বস'।

তবে সব অনুমান আর অদর্শনের হিসেব ওলটপালট করে দিয়েছে শুক্রবার এক স্কুল শিক্ষকের ভিডিয়ো ক্যামেরার ছবি। এক ঝাঁক স্কুল পড়ুয়ার সঙ্গে সুন্দরবনের [illegible] জঙ্গলে বেড়াতে গিয়ে ওই শিক্ষকের তোলা সেই ভিডিয়োয় স্পষ্ট দেখা যাচ্ছে, একটি পূর্ণ বয়স্ক গরুকে নদী থেকে অবলীলায় ডাঙায় টেনে তুলছে একটি বাঘ। সে অন্য কেউ নয়, খোদ 'বিগ বস'। যা দেখে সুন্দরবনের মানুষের মতো বাঘ বিশেষজ্ঞদেরও ঘোর কাটছে না। 'বিগ বস' তা হলে বেঁচে আছে!

■ ২০২২ সালে বিগ বস (উপরে)। ২০১৯-এ বিগ বস। ছবি: সংগৃহীত

বাঘ বিশেষজ্ঞ তথা বন বিভাগের উপদেষ্টামণ্ডলীর সদস্য জয়দীপ কুণ্ডুর বিস্ময়, "হিসেব মতো বিগ বসের এখন ১৯ বছরের বেশি বয়স। বন্য অবস্থায় বাঘের এত দীর্ঘ আয়ু দেখা যায় না। অবাক করছে এই বয়সে তার শারীরিক শক্তিও।" বাদাবনের জল-জঙ্গলে টিকে থাকার লড়াই সত্ত্বেও প্রান্তিক বয়সে এমন তারুণ্যের শক্তি সে ধরে রাখল কী করে তা নিয়ে তোলপাড় শুরু হয়েছে দেশ জুড়ে। বাঘ বিশেষজ্ঞ উল্লাস করান্থ বিস্মিত, "ম্যানগ্রোভ জঙ্গলে বাঘের এত দীর্ঘ আয়ু ভাবাই যায় না।" বাঘ সংরক্ষণে দেশের সর্বোচ্চ সংস্থা ন্যাশনাল টাইগার কনজারভেশন অথরিটির ডিরেক্টর এস পি যাদবের কথায়, "বন্য জীবনে ১৯ বছর বাঘ সচরাচর বাঁচে না। ঘটনাটি সত্যি হলে বিস্ময়কর।"

দীর্ঘায়ু বাঘের নজির যে একেবারে নেই, তা অবশ্য নয়। রণথম্ভোর অভয়ারণ্যের 'মছলি' নামের বাঘিনী বেঁচে ছিল প্রায় কুড়ি বছর। কুমিরের কামড়ে একটি পা খুইয়ে সুন্দরবনের 'রাজা' নামের যে বাঘটির [illegible] ঠাঁই হয়েছিল উত্তরবঙ্গের [illegible] উদ্ধার কেন্দ্রে। [illegible] যায় প্রায় ২৬ বছর বয়সে। [illegible] ধরিয়ে দিচ্ছেন, "তবে, মনে রাখতে হবে, এদের শেষ বয়সটা [illegible] কেটেছিল বন্দি-জীবনে। [illegible] বন্য জীবনের খাওয়া-থাকার লড়াইয়ের ঝক্কি তাদের পোয়াতে হয়নি। মনে রাখতে হবে, চিড়িয়াখানা কিংবা ব্যক্তিগত পোষা হিসে[illegible] বাঘের জীবনকাল প্রলম্বিত হতে [illegible] গিয়েছে। সেই স্বাচ্ছন্দ্য কিন্তু বন্য জীবনে নেই।"

এখানেই 'বিগ বস' ব্যতিক্রম। [illegible] ব্যাঘ্র-বিশেষজ্ঞ মহলে যা প্রশ্ন [illegible] দিয়েছে— বন্য জীবনে, আয়ুর নিরিখে 'বিগ বস' কি প্রতিলম্বা[illegible]

Fig 47: Article on apperance of tiger at Kalitala Sunderban (4/12/22)

Several measures have been taken to reduce the conflict. Different management interventions have been considered around the year by concerned authorities of Sunderbans to mitigate the human-animal conflict like –

(i) Stopping the collection permit of Phoenix & Nypa from the Sunderbans Tiger Reserve,

(ii) Digging of freshwater ponds.

(iii) Introduction of human face mask.

(iv) Introduction of clay models which were wrapped with energizers which are charged to 230 volts by a 12 volts battery source.

(v) Nylon net fencing

(vi) Introduction of tiger guards for the staff.

The clay models represented fisherman, woodcutters and honeycollectors. In all, six clay models were made, two for each profession, irrespective of the profession-wise pattern of tiger attacks. Fishermen were supplied with rubber made human masks which they put on the back side of the head so that the tiger which is presumably found to attack from the rear side is confused. The method was low-cost and gained popularity among the people venturing into sunderbans.

Fig 48: Fisherman wearing rubber made human masks on the back side of the head to present attack from rear side

Fig 49: Fresh pug marks seen at Buvir Sabri

Digging of freshwater ponds started from 1975 onwards to mend tiger tempers, but the statistics reveal that there was a minimal reduction in official recorded human attacks.

To curb the conflict problems a better understanding is very much required. A holistic approach must be there to find out the actual reasons attributing to the conflict situation. On analysing the framework, the concerned authorities would be in a better stand to take appropriate interventions that are ecologically, economically & socially viable. The framework, if implemented, would also open the way for a future research programme that explores relevant factors of the conflict relations between factors & indicators and their usefulness as conflict indicators.