

**A FIELD STUDY REPORT ON COMMONLY FOUND
BIRDS OF CHINTAMANI KAR BIRD SANCTUARY
(CKBS) AND BARUIPUR MARSHES IN WINTER**

UNIVERSITY OF CALCUTTA

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DISCLAIMER

ALL PHOTOGRAPHS USED IN THIS REPORT ARE ORIGINALLY TAKEN BY OUR TEAM. NO HARM WAS DONE TO ANY ANIMALS AND PLANTS DURING PHOTOGRAPHY AND STUDY OF BIRDS.

PREFACE

The subject of Zoology continues to amaze us with its unique blend of both theoretical and practical aspects, but a practical or better to say a field experience was one that was missing. The field excursion filled the gap. The experience that we gathered taught us to observe wildlife in their natural habitat.

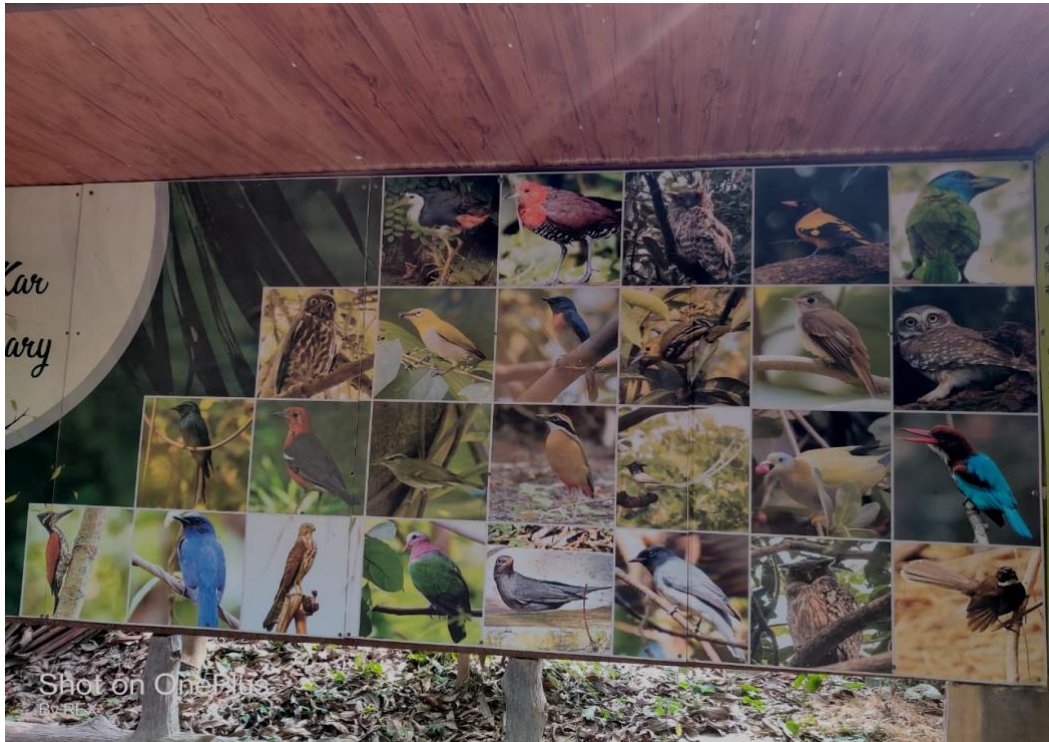
The study aimed at observing the birds closely during the winter season in a semi urban area, their photographic documentation and identification. Based on these, a brief report has been prepared which will help in further study of their biodiversity, seasonal and ecological impact and also help in the conservation of these birds.



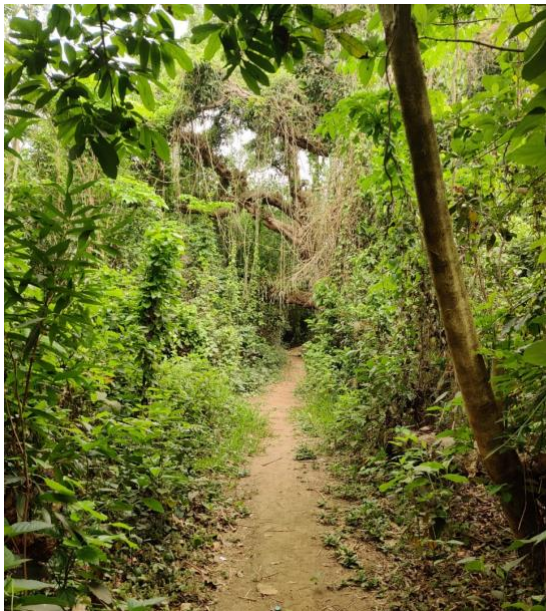
OUR GROUP PHOTO



INSIDE CKBS



BIRD DIVERSITY AT CKBS



THE JUNGLE



THE MAP OF CKBS

OUTLINE OF WORK

DATE OF VISIT- 09/01/2024

TIME OF VISIT- 8.30 A.M. to 11.10 NOON

LIST OF STUDENTS-

**ANWESHA MARICK
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MUZAINA KHATUN
RAMKRISHNA GAYEN**

GUIDED BY- DR. SUBHASREE THAKUR

INTRODUCTION

- Biodiversity is the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystem and the ecological complexes of which they are part; these include diversity within species , between species and of eco systems.
- Biodiversity forms the foundation of the vast array of eco services that critically contribute to human wellbeing.

IMPORTANCE OF BIODIVERSITY:

- Economic-biodiversity provides humans with raw materials for consumption and production. Many livelihoods such as those of farmer's, fishermen and timber workers are dependent on biodiversity.
- Ecological life support - biodiversity provides functioning ecosystems that supply oxygen, clean air and water, pollination of plants, pest control, waste water treatment and ecosystem services.
- Recreation- many recreational pursuits rely on our unique biodiversity such as bird watching, hiking camping and fishing. Our tourism industry also depends on biodiversity.
- Cultural- Indian culture is closely connected to biodiversity through the expression of intent of spirituality and through aesthetic appreciation. Our culture has strong connections with nature as is evident from our idols riding on animals or sending them as messengers and also different flowers used for offering to different deities.
- Scientific-biodiversity represents a wealth of systematic ecological data that help us to understand the natural world and its origins.

REASONS FOR SELECTING CKBS AS OUR AREA OF STUDY

Chintamani Kar bird Sanctuary is one of the major bird sanctuaries in and around Kolkata. We chose this destination for our field study due to following reasons:

- This Sanctuary is ideally located far away from the pollution and disturbance of the metropolis
- There is dense vegetation here which provides shelter to all life forms in the sanctuary
- A variety of birds can be observed here which range from indigenous species to migratory birds
- This sanctuary is free from human intervention as not many people know about this place
- The natural environment here provides a good ecosystem for all animals.

PRECAUTIONS TAKEN BY US DURING THE VISIT

The following precautions were taken by us in order to minimize disturbance:

- Our teachers told us to wear light colored or camouflaged dress and avoid flashy dress.
- We tried to avoid making any undesired sound which could potentially disturb the wildlife of the area.
- We were told not to throw any plastic and unwanted materials in the zone.
- We tried to avoid making shutter sound of camera.
- We kept our phones on silent mode.
- We did not go into bushes and overgrown areas.

DESCRIPTION OF THE SITE

The sanctuary has been named as Chintamani Kar bird sanctuary (CKBS) after the name of Chintamani Kar, a world famous sculptor and artist, who was a resident of adjacent locality. The area is located in mouza Ukila paikpara under Rajpur-Sonarpur municipality, P.S.- Sonarpur, District- South 24- Parganas, West Bengal, India.

It was once a famous orchard of the area known as 'Koyaler Bagan'. Bird lovers have identified this place as one of the best bird habitat near Kolkata and have requested the Forest department to take initiative, as the orchard was planned to be sold out as plots. The Forest department had bought this place from the owner for the purpose of saving the habitat.

The area was declared as Narendrapur Wildlife Sanctuary vide G.O No.3019 , dated 8th September,2004 and subsequently renamed as Chintamani Kar Bird Sanctuary , vide G.O No.4300 FR /1/6c-c/04 dated 21.10.2005

The total area of the sanctuary is 17.19 acres or, 6.96 hectares.

Type: Bird sanctuary

Local Name: 'Koyaler bagan' or Chintamani Kar Wildlife Sanctuary

Area: 17.19 acres

Country: India

City: Kolkata

Recognized as sanctuary by: Govt. of West Bengal



Year of Establishment: 1982

Latitude: 22.42 °N

Longitude: 88.40°E

MATERIALS USED

- During the present day study of of bird biodiversity, Olympus 10 X 50 Explorer S Binoculars 10X was used for bird watching, Canon EOS 1500D camera with 55mm- 250 mm telephoto lens was used for photographic purpose, and also some photos were shot on mobile phone such as Redmi note 9 Pro and One plus. Other details were noted in notebooks.

STUDY OF AVIFAUNAL DIVERSITY OF CHINTAMANI KAR BIRD SANCTUARY IMPORTANCE OF BIRD COMMUNITY:

- Avifaunal species are very important bio-indicators which determine the health of forests and wetlands. Birds occupy many levels of trophic webs, from mid-level consumers to top predators. As with other native organisms, birds help maintain sustainable population levels of their prey and predator species and, after death, provide food for scavengers and decomposers. Many birds are important in plant reproduction through their services as pollinators or seed dispersers. Birds also provide critical resources for their many host-specific parasites, including lice that eat only feathers, flies adapted for living on birds, and mites that hitchhike on birds from plant to plant and even between countries.
- Some birds are considered keystone species as their presence in (or disappearance from) an ecosystem affects other species indirectly. For example, woodpeckers create cavities that are then used by many other species.
- After the extinction of the dodo, it was discovered that a tree whose fruits had been a primary food of the dodo was unable to reproduce without its seeds passing through the dodo's digestive tracts, a process which scarified the seed coat and enabled germination. Our study was conducted to record the diversity of birds during winter season at Chintamani Kar Bird Sanctuary.

OBSERVED BIRDS

COMMON NAME	SCIENTIFIC NAME
Fulvous- breasted woodpecker	<i>Dendrocopos macei</i>
Oriental magpie- robin	<i>Copsychus saularis</i>
Red- Whiskered bulbul	<i>Pycnonotus jocosus</i>
Coppersmith barbet	<i>Psilopogon haemacephalus</i>
Blue throated Barbet	<i>Megalaima asiatica</i>
Rufous treepie	<i>Dendrocitta vagabunda</i>
Red- vented bulbul	<i>Pycnonotus cafer</i>
Jungle babbler	<i>Argya striata</i>
White- throated fantail	<i>Rhipidura albicollis</i>
White- breasted waterhen	<i>Amaurornis phoenicurus</i>
Cinereous tit	<i>Parus cinereus</i>
Laughing dove	<i>Spilopelia senegalensis</i>
Purple sun bird	<i>Cynnirus asiaticus</i>
Greater Coucal	<i>Centropus sinensis</i>

COMMON NAME	HABITAT & FEEDING BEHAVIOUR
Fulvous- breasted woodpecker	Its natural habitats are subtropical or tropical dry forest, subtropical or tropical moist lowland forest, and subtropical or tropical moist montane forest.
Oriental magpie- robin	It is found in open woodland and cultivated areas often close to human habitations
Red- Whiskered bulbul	It is a passerine bird native to tropical Asia. It has been introduced in many tropical areas of the world where populations have established themselves. It has a loud three or four note call, feeds on fruits and small insects and perches conspicuously on trees. It is common in hill forests and urban gardens.
Coppersmith barbet	Throughout its range, it inhabits gardens, groves and sparse woodland. Habitats with dead wood suitable for excavation of nests are important
Blue throated Barbet	It inhabits lowland and montane forests
Rufous treepie	It inhabits open forest consisting of scrub, plantations and gardens. In the Garhwal Himalayas, it migrates seasonally between different elevations
Red- vented bulbul	It is a bird of dry scrub, open forest, plains and cultivated lands. In its native range it is rarely found in mature forests. A study based on 54 localities in India concluded that vegetation is the single most important factor that determines the distribution of the species.
Jungle babbler	It is a common resident breeding bird in most parts of the Indian subcontinent and is often seen in gardens within large cities as well as in forested areas.
White- throated fantail	Found in a wide range of wooded habitats, from dense forest to forest edge and gardens, from lowlands up into the mountains.
White- breasted waterhen	They are dark slaty birds with a clean white face, breast and belly. They are somewhat bolder than most other rails and are often seen stepping slowly with their tail cocked upright in open marshes or even drains near busy roads
Cinereous tit	Resident of light woodlands Very active; feeds at the middle and upper-strata of forests and woodlands and in gardens and cultivated areas, but avoids dense forests.
Laughing dove	This dove is found in dry scrub and semi-desert habitats where pairs can often be seen feeding on the ground
Purple sun bird	Found in gardens, cultivated areas and forests. Feed chiefly on nectar and small insects.
Greater Coucal	They are found in a wide range of habitats from jungle to cultivation and urban gardens. They are weak fliers, and are often seen clambering about in vegetation or walking on the ground as they forage for insects, eggs and nestlings of other birds.

COMMON NAME	DESCRIPTION
Fulvous-breasted woodpecker	A medium-sized, pied woodpecker. Upper parts black, heavily barred white. Under tail red, breast and belly buff with light flank barring and slight side streaking. Whitish cheeks partly bordered by black line. Crown red in male with orange forehead, black in female.
Oriental magpie-robin	This species is 19 cm long, including the long tail, which is usually held cocked upright when hopping on the ground. When they are singing a song the tail is normal like other birds. The male has black upperparts, head and throat apart from a white shoulder patch. The under parts and the sides of the long tail are white. Females are greyish black above and greyish white under. Young birds have scaly brown upperparts and head.
Red-Whiskered bulbul	It is a frugivorous songbird native to Asia. It has brown upperparts and whitish under parts with buff flanks and a dark spur running onto the breast at shoulder level. It has a tall pointed black crest, red face patch, and thin black moustachial line. The tail of this bird is long and brown with white terminal feather tips, but the vent area is red. Juveniles lack the red patch behind the eye, and the vent area is rufous-orange.
Coppersmith barbet	It is green with a red head, yellow cheeks and a yellow throat. Its underparts are streaked in grey and black. During the nesting season, the wear and tear on the feathers can cause the plumage of the upper back to appear bluish. It is 15–17 cm long.
Blue-throated Barbet	The species has bright green, blue and red plumage. It is most commonly found in pairs, and nests between March and July. The barbet eats fruits, including guava and insects.
Rufous treepie	The sexes are alike and the main colour of the body is cinnamon with a black head and the long graduated tail is bluish grey and is tipped in black. The wing has a white patch. The bill is stout with a hooked tip. The under parts and lower back are a warm tawny-brown to orange-brown in colour with white wing coverts and black primaries. The bill, legs and feet are black.
Red-vented bulbul	The red-vented bulbul is easily identified by its short crest giving the head a squarish appearance. The body is dark brown with a scaly pattern while the head is darker or black. The rump is white while the vent is red. It is about 20 cm in length, with a long black tail, tipped in white. The Himalayan races have a more prominent crest and are more streaked on the underside. The population <i>bengalensis</i> of the Central and Eastern Himalayas and the Gangetic plain has a dark hood, lacks the scale-like pattern on the underside and instead has dark streaks on the paler lower belly.

COMMON NAME	DESCRIPTION
Jungle babbler	It has short rounded wings and a weak flight. The sexes are identical, drably coloured in brownish grey with a yellow-bill. The upper parts are usually slightly darker in shade and there is some mottling on the throat and breast.
White- throated fantail	A distinctive fantail, all dark except for a white throat and a short white eyebrow. The tail, often fanned, is a shade darker with white tips to all tail feathers except the central pair. Juvenile is like adult, but with reduced white on face and brownish edges to the dark body feathers.
White- breasted waterhen	Adult white-breasted water hens have mainly dark grey upperparts and flanks, and a white face, neck and breast. The lower belly and under tail are cinnamon or white coloured. The body is flattened laterally to allow easier passage through the reeds or undergrowth. They have long toes, a short tail and a yellow bill and legs.
Cinereous tit	An uncrested gray, black, and off-white tit. Males and females have a white cheek patch, a gray back, and a white wingbar. A broad black central line, that is widest on throat, runs from the throat to the lower belly. The female has a narrower central line on its under parts and is slightly duller overall.
Laughing dove	The laughing dove is a long-tailed, slim pigeon, typically 25 cm in length. It is pinkish brown on the underside with a lilac tinged head and neck. The head and under parts are pinkish, shading to buff on the lower abdomen. A chequered rufous and grey patch is found on the sides of the neck of adults and is made up of split feathers. The upper parts are brownish with a bluish-grey band along the wing. The back is uniform and dull brown in the South Asian population.
Purple sun bird	During breeding season, the male is metallic blue and purple with maroon feathers on the breast. The female is olive above and yellow below and has a darkish eye stripe. The outer tail feathers are tipped in white in both the sexes.
Greater Coucal	This is a large species of cuckoo about 48 cm in length. The head is black, upper mantle and undersides are black glossed with purple. The back and wings are chestnut brown. There are no pale shaft streaks on the coverts. The eyes are ruby red.

ECOLOGICAL NOTE

The common plants inside the sanctuary include tropical fruit trees like banana, mango, wild fig, bamboo groves, different creepers and epiphytes. We also observed bracket fungi on a cut tree trunk.



Banana plant



Epiphyte



Bracket fungi



DENSE FOREST

- **The above photograph depicts the distinct stratification of a forest.**
- **It is a dense forest area, as has been made apparent by the infiltrating solar radiation.**
- **The floor of the forest is covered by litter. This litter is an important component of the ecosystem.**

STUDY OF AVIFAUNAL DIVERSITY OF BARUIPUR MARSHES

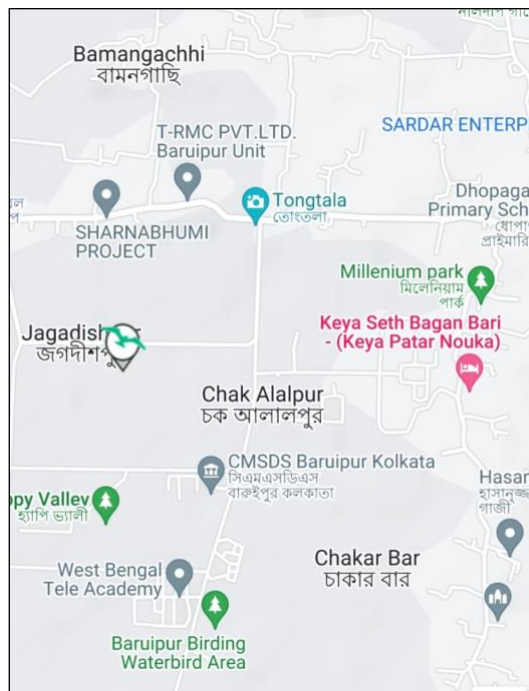
The Baruipur Marshes Wetlands has recently gained immense interest because of the appearance of migratory birds and numerous resident birds in the water bodies and surrounding paddy fields and grasslands. So we decided to explore the area and observe the birds found in this area.

LOCATION OF THE BARUIPUR MARSHES

Location- Jela Sadar, South 24- Parganas , West Bengal- 700145, India

Latitude-22.36294°N

Longitude-88.39019°E



LOCATION MAP



OUTLINE OF WORK

DATE OF VISIT- 09/01/2024

TIME OF VISIT- 12.30 P.M. to 3.30 P.M.

LIST OF STUDENTS-

**ANWESHA MARICK
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RAMKRISHNA GAYEN**

GUIDED BY- DR. SUBHASREE THAKUR



OUR TEAM IN ACTION

OBSERVED BIRDS

COMMON NAME	SCIENTIFIC NAME
Asian open- billed stork	<i>Anastomus oscitans</i>
Little cormorant	<i>Microcarbo niger</i>
Intermediate egret	<i>Ardea intermedia</i>
Lesser whistling duck	<i>Dendrocygna javanica</i>
Grey-headed Swamphen	<i>Porphyrio poliocephalus</i>
Pheasant- tailed jacana	<i>Hydrophasianus chirurgus</i>
Bronze- winged jacana	<i>Metopidius indicus</i>
Purple Heron	<i>Ardea purpurea</i>
Striated Heron	<i>Butorides striata</i>
Square tailed drongo cuckoo	<i>Surniculus lugubris</i>
Eurasian Moorhen	<i>Gallinula chloropus</i>
Spotted dove	<i>Spilopelia chinensis</i>
Tawny pipit	<i>Anthus campestris</i>
Asian green bee-eater	<i>Merops orientalis</i>
Black Drongo	<i>Dicrurus macrocercus</i>

COMMON NAME	HABITAT & FEEDING BEHAVIOUR
Asian open- billed stork	Usually forage in inland wetlands. They usually walk in groups with a slow and steady gait and feed on water snails.
Little cormorant	They tend to forage mainly in small loose groups and are often seen foraging alone in freshwater bodies and ponds. They propel underwater using their webbed feet and feed on fish. They are often found to spread their wings to dry.
Intermediate egret	Generally found in freshwater marshes, pools, flooded paddy fields, rivers and also brackish and saltwater lakes.
Lesser whistling duck	Found in freshwater wetlands.
Grey-headed Swamp hen	An inhabitant of marshy, vegetated freshwater bodies like swamps, rivers and lakes usually in small groups. generally feeds near water edges and in reeds or floating vegetation. Feed on roots and tubers of reeds and rushes.
Pheasant- tailed jacana	A resident of floating vegetation in lakes and wetlands. . Their main source of food is insects, molluscs and other invertebrates found in the floating vegetation.
Bronze- winged jacana	The bronze-winged jacana is a wader. It forages on lilies and other floating aquatic vegetation, the long feet spreading out its weight and preventing sinking. They feed on plant material, insects and other invertebrates picked from the floating vegetation or the water's surface.
Purple Heron	It inhabits marshes, lagoons and lakes surrounded by dense vegetation. It may frequent mangrove swamps on the coast but it usually chooses freshwater habitats. It also visits mudflats, river banks, ditches and canals. It feeds in shallow water, grabbing its prey with its powerful beak. It will often wait motionless for prey, or slowly stalk its victim. The diet consists mainly of fish, small mammals and amphibians, but nestling birds, snakes, lizards, crustaceans, water snails, insects and spiders are also eaten. Terrestrial beetles are the commonest insect prey, followed by water beetles and aquatic larvae, with grasshoppers, dragonflies, bees and flies also being consumed.
Striated Heron	The striated heron also known as mangrove heron, little green heron or green-backed heron, is a small heron, Striated herons are mostly sedentary. Their breeding habitat is small wetlands of Old World tropics. The Striated Heron feeds on crabs and other crustaceans, as well as molluscs and small fish. It stalks prey slowly,

	either standing or waiting for prey to emerge or may sometimes plunge at it from a perch, before stabbing it with its sharp bill.
Square tailed drongo cuckoo	The resident species are confined mainly to forest and forest edge but migrants can also be found in mangroves, parks and gardens.
Eurasian Moorhen	Inhabits fresh and brackish marshes, on ponds, lakes, and along slow-moving watercourses with bordering vegetation.
Spotted dove	The spotted dove in its native range in Asia is found across a range of habitats including woodland, scrub, farmland and habitation. In India it tends to be found in the moister regions. These doves are mostly found on the ground where they forage for seeds and grain or on low vegetation.
Tawny pipit	Usually found feeding on the ground in open habitats, sand dunes, dry grasslands, and gravel pits. It is a migrant moving in winter to tropical Africa and the Indian Subcontinent. The Tawny pipit feeds on various insects, small spiders, worms, small seeds and grasshoppers. It forages on the ground by walking and running fast.
Asian green bee-eater	A small, dainty bee-eater of open woodlands, farmland, and sparse human habitation.
Black Drongo	The black drongo is a small Asian passerine bird. It is a common resident breeder in much of tropical southern Asia from southwest Iran through Pakistan, India, Bangladesh and Sri Lanka east to southern China and Indonesia and accidental visitor of Japan inhabiting forests, open country, and gardens.

COMMON NAME	DESCRIPTION
Asian open- billed stork	Greyish or white with glossy black wings and tail. The adults have a gap in their beak between the arched upper mandible and recurved lower mandible for feeding on water snails
Little cormorant	Small bird measuring about 50-55cm in length black or brown feathers with a white throat. Flat beak with hooked tip
Intermediate egret	About 56-72cm in length with all white plumage, dark legs and a yellow bill. The neck is smaller than the body length, a slightly domed head with a thick and short bill.
Lesser whistling duck	Chestnut brown colour. Crown appears dark. Head lies lower to the body while flying. Orange or yellow ring around the eyes. Fly by flapping their wings. Produce a prominent whistling sound while flying.
Grey-headed Swamphen	Large bluish purple water bird with a red bill and forehead shield, red legs and feet with long toes.
Pheasant- tailed jacana	The body is chocolate brown , the face is white. The back of the crown is black with white stripes running down the sides of the neck , separating the white of the neck and the silky golden yellow of the nape. The wings are predominantly white. The bill is slender, dull brown with a yellow base. Legs are dark bluish grey.
Bronze- winged jacana	Bronze-winged jacanas are <u>rail</u> -like, large, short tailed birds that appear dark at a distance except for the supercilium. They are 29 cm in length. The sexes are similar but the females are slightly larger than the males. The wings are bronzy brown with a green sheen and have a reduced tubercular carpal spur. The head, neck and breast are black and contrast with the broad white supercilium that runs from over the eye to the back of the neck. The lower back and tail coverts are chestnut. The tail is stubby and reddish brown with black terminal band. The greenish yellow bill has a red-base to the upper mandible. A lappet or frontal shield extends up over the forehead and is reddish purple. The legs are greenish. The toes are long and the straight and the elongated nail on the hind toe is longer than the toe.
Purple Heron	Flight is slow, with the neck retracted and the legs extending a long way behind the tail and extend their necks in flight. It is a secretive bird, spending less time out in the open but very active in dawn and dusk, tending to skulk in reed_beds. Its long toes help to walk on floating vegetation, and it sometimes walks over bushes in the same way, not making any attempt to grip the branches. It seldom perches in trees,

	preferring more terrestrial sites to rest.
Striated Heron	The striated heron is 35–48 cm in length and has a wing-span of 52–60 cm. The sexes are alike. The plumage is variable, even sometimes within the same race. Adults have a blue-grey back and wings, white under parts, a black cap, a dark line extends from the bill to under the eye and short yellow legs.
Square tailed drongo cuckoo	It can be easily distinguished by its down-curved beak and the white barred vent and outer under tail, and the tail only notched with slightly flared tips. In flight a white wing-stripe is visible from below. It is a brood parasite on small babblers. It is not known how or whether the drongo- like appearance benefits this species but it is suspected that it aids in brood-parasitism.
Eurasian Moorhen	Distinctive dark water bird that resembles a cross between a duck and a chicken. Adults have a bright red bill with a yellow tip, while immature have a duller bill and legs, big white oval patches under the tail, and white streaks along the flanks. Smaller and more retiring than coot, and rarely far out on open water. Swims with jerky motion and walks with stealthy gait, the tail often slightly cocked; does not usually dive.
Spotted dove	The body colour of this long and slim dove is rosy buff below shading into grey on the head and belly. There is a half collar on the back and sides of the neck made of black feathers that bifurcate and have white spots at the two tips. The median coverts have brown feathers tipped with rufous spots in the Indian subspecies. The wing feathers are dark brown with grey edges. The centre of the abdomen and vent are white. The outer tail feathers are tipped in white and become visible when the bird takes off. The length ranges from 28 to 32 cm.
Tawny pipit	Large, slim, sandy-colored pipit with a long and broad eyebrow, a prominent dark area in front of the eye, sparsely streaked back and breast, and a long and pointed pinkish bill. Rather distinctive in its wagtail-like stance and foraging behavior.
Asian green bee-eater	Mainly green with a bluish throat, slender black eye mask and throat band, rufous or slightly rusty crown and back of the neck, and central tail streamers
Black Drongo	This bird is glossy black with a wide fork to the tail. Adults usually have a small white spot at the base of the gape. The iris is dark brown.

ECOLOGICAL NOTE

The Baruipur Marshes are mostly inhabited by tall grass, reeds and floating vegetation.



CONCLUSION

The management and study of biodiversity affects many aspects of our lives. We value biodiversity for many reasons, some utilitarian, some intrinsic. This means we value biodiversity for what it provides to humans and for the value it has in its own right.

CKBS has become an abode for the urban biodiversity of its surroundings as the dramatic change of land use pattern is happening in a rapid pace. In this changing scenario, the importance of this small yet diverse wildlife sanctuary is increasing every day and its well-being is our utmost priority.

Presently, the Baruipur Marshes have become a paradise for resident and migratory birds. However, immense construction work going around this area is and will affect the biodiversity of this area. Such anthropogenic activities need to be reduced or stopped to preserve this place.

To contribute to the sustainable future which we all would like to see, we must work on reducing our ecological footprint on the earth.

As human population continues to increase, there will consequently be increasing impacts on species worldwide. Habitat destruction and climate change will force species into regions or situations that they will be forced to adapt to. Failure to adapt to declining populations and could result in a great loss of biodiversity. It is important to acknowledge the impact that humans are having on species and also to work towards reducing our “ecological footprint”. This means countering destructive practices that humans have engaged in for centuries. This is key for ensuring a sustainable future for coming generations.

ACKNOWLEDGEMENT

I express my respect and gratitude to the Principal of Dhruba Chand Halder College for allowing us to participate in this Field Study programme at CHINTAMANI KAR BIRD SANCTUARY (CKBS) and BARUIPUR MARSHES in South 24 Parganas.

I desire to convey my gratitude and regards to Dr. Subhasree Thakur, H.O.D of Zoology Department of our college for her able guidance and valuable suggestion during the course of study.

I also express my deep sense of regards to all the faculty members of our Department of Zoology for their constant support and help.

Last but not the least, I would like to thank all my fellow friends for their constant encouragement.

S. Thakur
19/1/24

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