3rd BHOJ WETLAND WINTER BIRD COUNT 2021-22

An Estimated Bird Count Report

SPONSORED BY

MADHYA PRADESH STATE WETLAND AUTHORITY, EPCO

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BHOPAL BIRDS CONSERVATION SOCIETY
VAN VIHAR NATIONAL PARK, BHOPAL
&
VNS NATURE SAVIOURS, BHOPAL

BWBC
2021-22
Bhoj Wetland Winter Bird Count

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BHOPAL BIRDS
Committed to save nature

VNS
VNS Nature Saviours


3rd BHOJ WETLAND WINTER BIRD COUNT
2021-22
VAN VIHAR NATIONAL PARK AND ZOO

हरदीप सिंह डंग

मंत्री म.प्र. शासन
नवीन एवं नवकरणीय ऊर्जा,
पर्यावरण विभाग

संदेश

यह अत्यन्त हर्ष का विषय है कि भारत में पाये जाने वाले पक्षियों और प्रवासी पक्षियों की लगभग 1300 प्रजातियों में से भोज वेटलैंड में 208 प्रकार के पक्षियों की प्रजातियों की पहचान की गयी है। इस वर्ष भोज वेटलैंड, भोपाल द्वारा पक्षियों की प्रजातियों की पहचान एवं उनकी गणना का जो कार्य किया गया है, वो पक्षियों के संरक्षण की दिशा में एक महत्वपूर्ण कदम है। इन जानकारियों से पर्यावरणविद शोधकर्ताओं एवं पक्षियों के जीवन में रूचि रखने वाले आम नागरिकों एवं प्रदेश की सरकार को पक्षियों के संरक्षण में किये जा रहे महत्वपूर्ण प्रयासों को सुदृढ़ करने में मदद मिलेगी

भोज वेटलैण्ड, भोपाल द्वारा पक्षियों की प्रजातियों की पहचान एवं उनकी गणना के कार्य में राज्य वेटलैण्ड प्राधिकरण, एप्को भी सहभागी रहा, इसका मुझे संतोष एवं गर्व है। इस महत्वपूर्ण कार्य के लिए मैं सभी पक्षी के जिज्ञासुओं एवं भोपाल बर्ड्स कंजर्वेशन सोसाइटी को हार्दिक बधाई एवं शुभकमाना देता हूँ ।

(हरदीप सिंह डंग)

संदेश

भोज वेटलैंड जिसे हम बडे तालाब एवं छोटे तालाब के नाम से जानते हैं एक महत्वपूर्ण प्राकृतिक धरोहर है, जिसे अंतर्राष्ट्रीय स्तर का रामसर साईट का दर्जा प्राप्त है। रामसर साईट चिन्हांकन के मानदंड में से एक, पक्षियों की विविध प्रजातियों की पहचान,उनकी गणना एवं संख्या की बहुलता संबंधी जानकारी होना महत्वपूर्ण है | भोज वेटलैण्ड जलीय पक्षियों जीव-जन्तुओं एवं पादप प्रजातियों की दृष्टि से समृद्ध वेटलैण्ड है। इसी प्राकृतिक समृद्धता के आधार पर भोज वेटलैंड, भोपाल को वेटलैण्ड के अंतर्राष्ट्रीय मानचित्र पर पहचान मिली है। इस जैव-विविधता और समृद्धता को बनाये रखने के लिए यह जरूरी है कि पक्षियों की पहचान एवं उनकी गणना का कार्य निरंतर प्रति वर्ष किया जाये |

राज्य वेटलैंड प्राधिकरण, वन विहार राष्ट्रीय उद्यान एवं भोपाल बर्ड्स कंज़र्वेशन सोसाइटी के संयुक्त तत्वाधान में वर्ष 2021-22 में आयोजित भोज वेटलैंड विंटर बर्ड काउंट कार्यक्रम में पक्षियों की गणना, डाटा संग्रहण एवं मापदंडों का आकलन करने का कार्य उपयोगी साबित हुआ है।

यह अत्यंत हर्ष का विषय है की इस कार्यक्रम में राज्य वेटलैंड प्राधिकरण भी सहभागी बना है | मैं इस आयोजन के सभी आयोजनकर्ताओं तथा वालंटियर्स को बहुत शुभकामनायें देता हूँ जिन्होंने भोज वेटलैंड के पक्षियों की गणना में अपना योगदान दिया। आशा है कि "भोज वेटलैंड विंटर बर्ड काउंट" प्रतिवेदन पक्षियों के संरक्षण एवं संवर्धन की दिशा में उपयोगी अध्ययन कार्य सिद्ध होगा।

शुभकामनाओं सहित

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संदेश

भोज वेटलैंड, भोपाल विश्व की सुप्रसिद्ध रामसर साईट में से एक है। नैसर्गिक सौंदर्य से परिपूर्ण वन विहार राष्ट्रीय उद्यान एवं जू भी इस वेटलैंड का एक महत्वपूर्ण भाग है। भोपाल बडर्स कंजर्वेशन सोसाइटी पूर्वानुसार द्वारा इस वर्ष 2021–22 में की गई अनुमानित गणना में मध्य प्रदेश राज्य वेटलैंड अथॉरिटी, वन विहार राष्ट्रीय उद्यान एवं बी. एन. एस. नेचर सेवियर्स, भोपाल ने आर्थिक, तकनीकी एवं पक्षी विज्ञान से संबंधित संसाधन उपलब्ध कराए हैं, एवं समाज के हर वर्ग को सम्मिलित कर वैज्ञानिक अध्ययन को मान्यता प्रदान करने का सफल प्रयास है।

यह अत्यंत हर्ष का विषय है की पिछले 3 वर्षो से वन विहार राष्ट्रीय उद्यान इस कार्यक्रम का सहयोगी रहा है तथा उद्यान के अधिकारी एवं कर्मचारी इस गणना में प्रत्येक वर्ष सहभागिता करते आ रहे हैं।

इस वर्ष की गणना में 208 पक्षी प्रजातियों के 53,325 पक्षियों की अनुमानित गणना के समक (डाटा) सामने आए हैं. जिनमें आई.यू.सी.एन. द्वारा उल्लेखित 12 संकटग्रस्त प्रजातियों भी सम्मिलित हैं। ये सभी वैज्ञानिक अध्ययन आने वाले अनुसंधानकर्ताओं के लिए बेंचमार्क का कार्य करेंगे।

इस वैज्ञानिक एवं वृहद अध्ययन के लिए मैं सभी प्रतिभागी संस्थानों एवं छात्रों, पक्षी विज्ञानियों, पक्षी प्रेमियों महाविद्यालयों के शिक्षकगणों और वैज्ञानिकों का आभार ज्ञापित करता हूँ और आशा करता हूँ कि भविष्य में भी इस तरह के अध्ययनों की सततता बनाए रखेंगे।

शुभकामनाओं सहित,

(एच.सी.गुप्ता) भा.व.से

संचालक

वन विहार राष्ट्रीय उद्यान– जू भोपाल

Bhoj Wetland Winter Bird Count 2021-22
An Estimated Count Report

Acknowledgment

I would like to thanks MP State Wetland Authority, MP Forest Department, Van Vihar National Park and VNS Group of Institution for their kind support in this count.

I would like to express my special thanks to Mr. Aniruddhe Mukerjee (IAS, Principal Secretary, Environment, GoMP), Mr. Shriman Shukla (IAS, Member Secretary, MPSWA & ED-EPCO) ,Dr. Sanjay Shukla (IFS, Member Secretary, CZA, MoEF&CC, GOI), Mr. Harish Gupta (IFS, Director, Van Vihar National Park, Bhopal), Mr. Lokendra Thakkar (Officer-Incharge & Senior Sceintific Officer, MPSWA) ,Dr. D.K Swamy (Group Director, VNS) and Dr.Pradip Nandi (DG,NCHSE) for their constant support .

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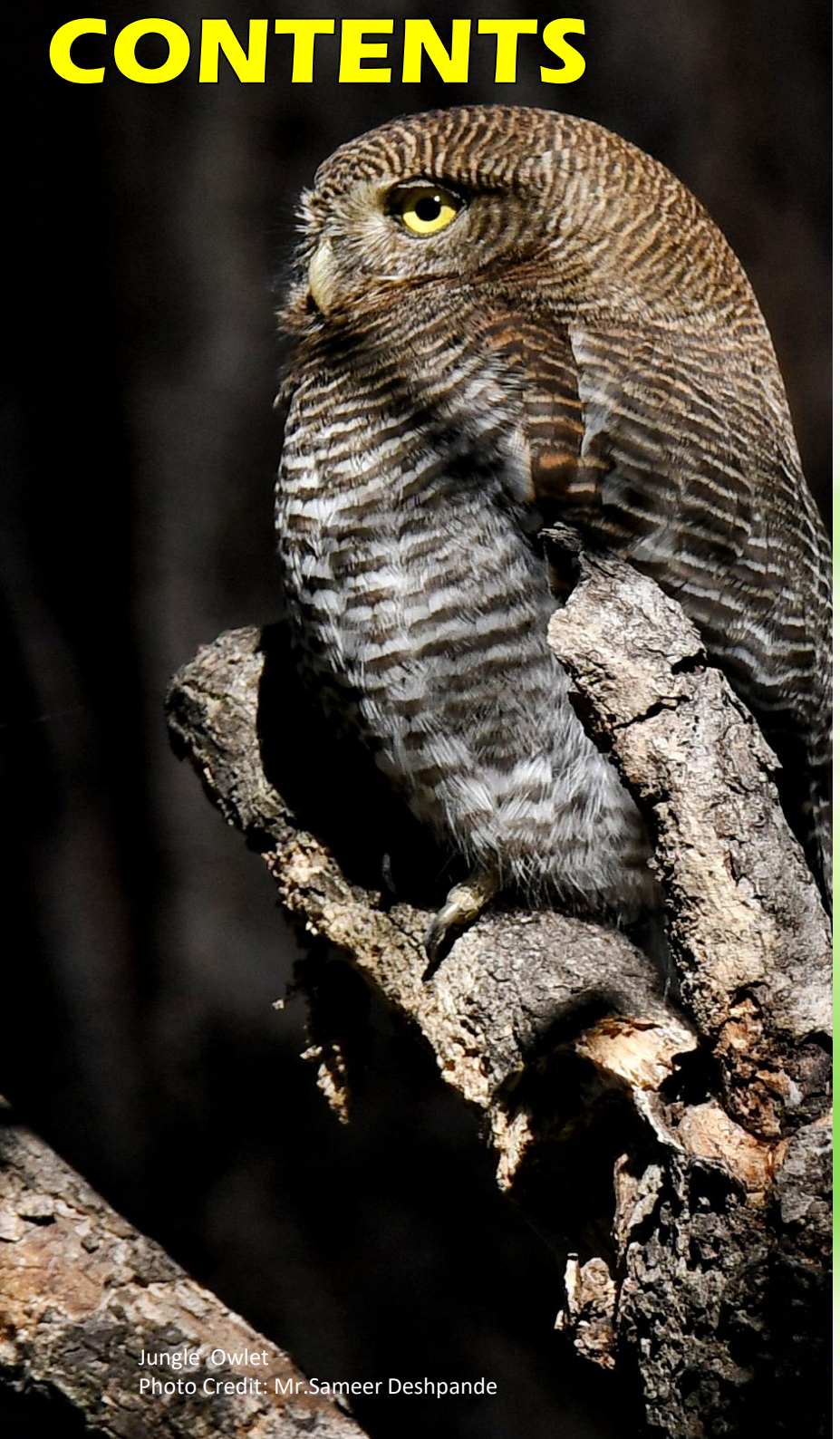

Jungle Owlet
Photo Credit: Mr.Sameer Deshpande

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Photo Credit: Mr.Mohd Khalique

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Black Redstart
Photo Credit: Mr.Sameer Deshpande

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REPORT AT A GLANCE

54 Families of Birds Observed

208 Species of Birds Recorded

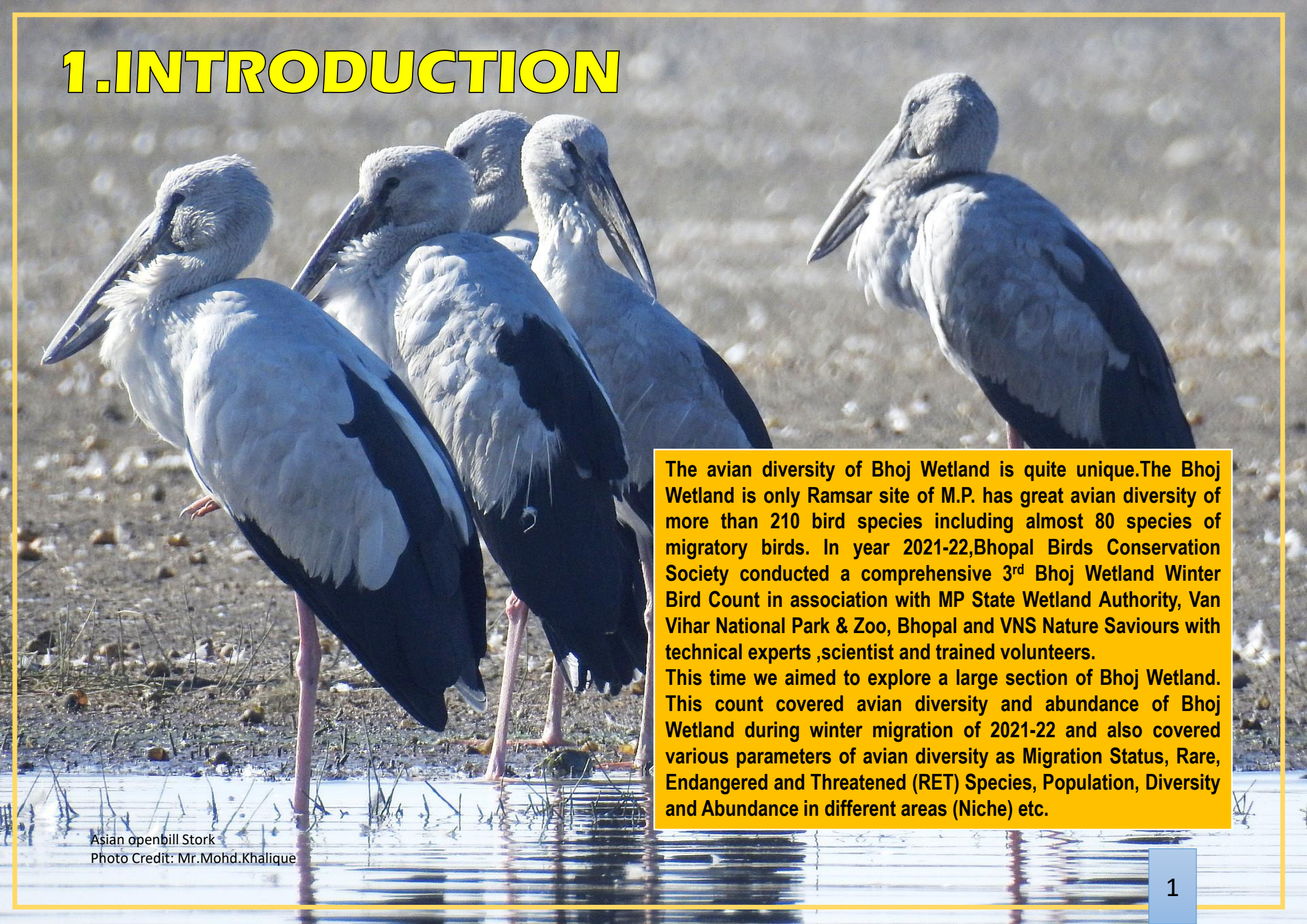
53,325 Total Estimated Population of Birds Recorded

12 Threatened Species of Birds Reported As Per IUCN Category

Red Crested Pochard found highest populated species with Estimated population of 14,222

White-tailed Lapwing Observed first time in Bhopal during count

1.INTRODUCTION



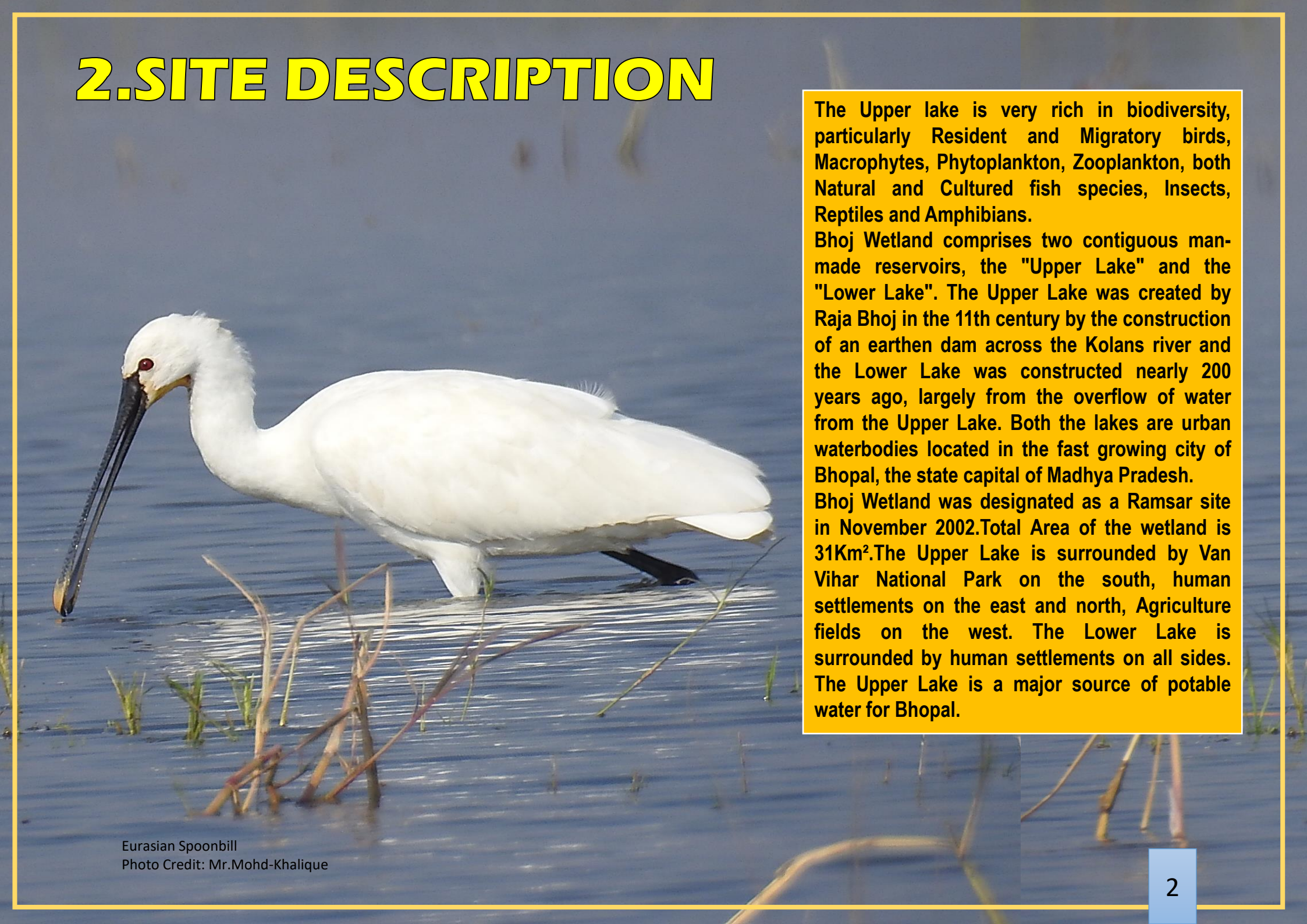
The avian diversity of Bhoj Wetland is quite unique.The Bhoj Wetland is only Ramsar site of M.P. has great avian diversity of more than 210 bird species including almost 80 species of migratory birds. In year 2021-22,Bhopal Birds Conservation Society conducted a comprehensive 3rd Bhoj Wetland Winter Bird Count in association with MP State Wetland Authority, Van Vihar National Park & Zoo, Bhopal and VNS Nature Saviours with technical experts ,scientist and trained volunteers.

This time we aimed to explore a large section of Bhoj Wetland. This count covered avian diversity and abundance of Bhoj Wetland during winter migration of 2021-22 and also covered various parameters of avian diversity as Migration Status, Rare, Endangered and Threatened (RET) Species, Population, Diversity and Abundance in different areas (Niche) etc.

Asian openbill Stork
Photo Credit: Mr.Mohd.Khalique


वन विभाग
राज्य स्तरीय
सप्ताह
Azadi Ka Amrit Mahotsav
BIRD COUNT
BWBC
MPEDB

2.SITE DESCRIPTION



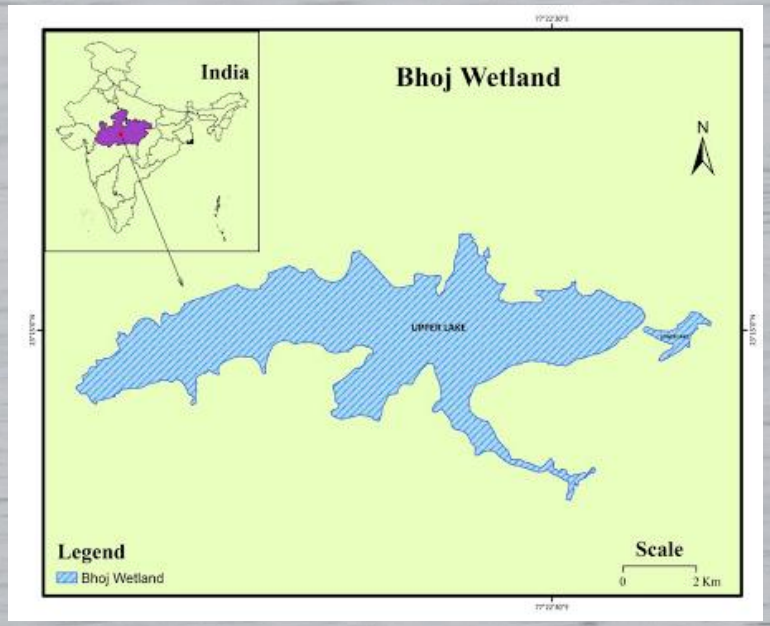
Eurasian Spoonbill
Photo Credit: Mr.Mohd-Khalique

The Upper lake is very rich in biodiversity, particularly Resident and Migratory birds, Macrophytes, Phytoplankton, Zooplankton, both Natural and Cultured fish species, Insects, Reptiles and Amphibians.

Bhoj Wetland comprises two contiguous man-made reservoirs, the "Upper Lake" and the "Lower Lake". The Upper Lake was created by Raja Bhoj in the 11th century by the construction of an earthen dam across the Kolans river and the Lower Lake was constructed nearly 200 years ago, largely from the overflow of water from the Upper Lake. Both the lakes are urban waterbodies located in the fast growing city of Bhopal, the state capital of Madhya Pradesh.

Bhoj Wetland was designated as a Ramsar site in November 2002.Total Area of the wetland is 31Km^2.The Upper Lake is surrounded by Van Vihar National Park on the south, human settlements on the east and north, Agriculture fields on the west. The Lower Lake is surrounded by human settlements on all sides. The Upper Lake is a major source of potable water for Bhopal.

Bhoj Wetland has great diversity of Birds. More than 210 species are recorded included Resident, Migratory, Wetland, Terrestrial, Rare and Common birds species. It provides Food, Shelter, Breeding and Nesting ground to birds. Every year thousands of birds come across the different parts of the world which designated Bhoj Wetland as a Ramsar site as well as IBA (Important Bird Area).



Ruddy Shelduck
Photo Credit: Mr.Mohd-Khalique

3.AIMS & OBJECTIVES

1. To prepare an updated checklist of bird in migratory season of year 2021-22.
2. To prepare a database of estimated bird population in Bhoj Wetland in year 2021-22.
3. To find out Rare Endangered and Threatened species existing in Bhoj Wetland.
4. To aware and sensitize people about birds and their conservation.
5. To promote citizen science initiative with participation of large number of people in this count.
6. To understand long term pattern of migration in Bhoj Wetland and contributed in conservation of birds.

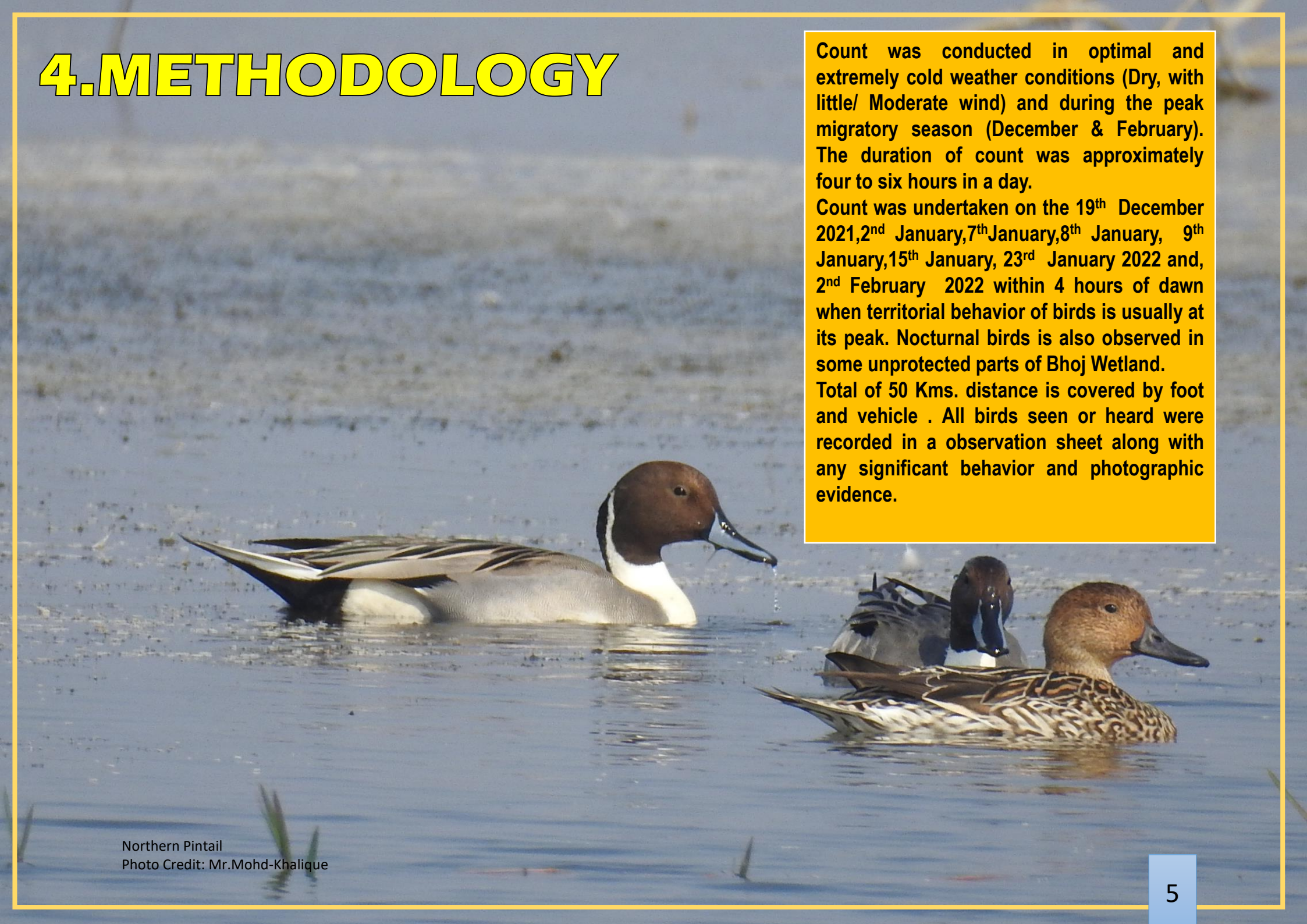
Common Stonechat
Photo Credit: Mr.Ankit Chaturvedi

4.METHODOLOGY

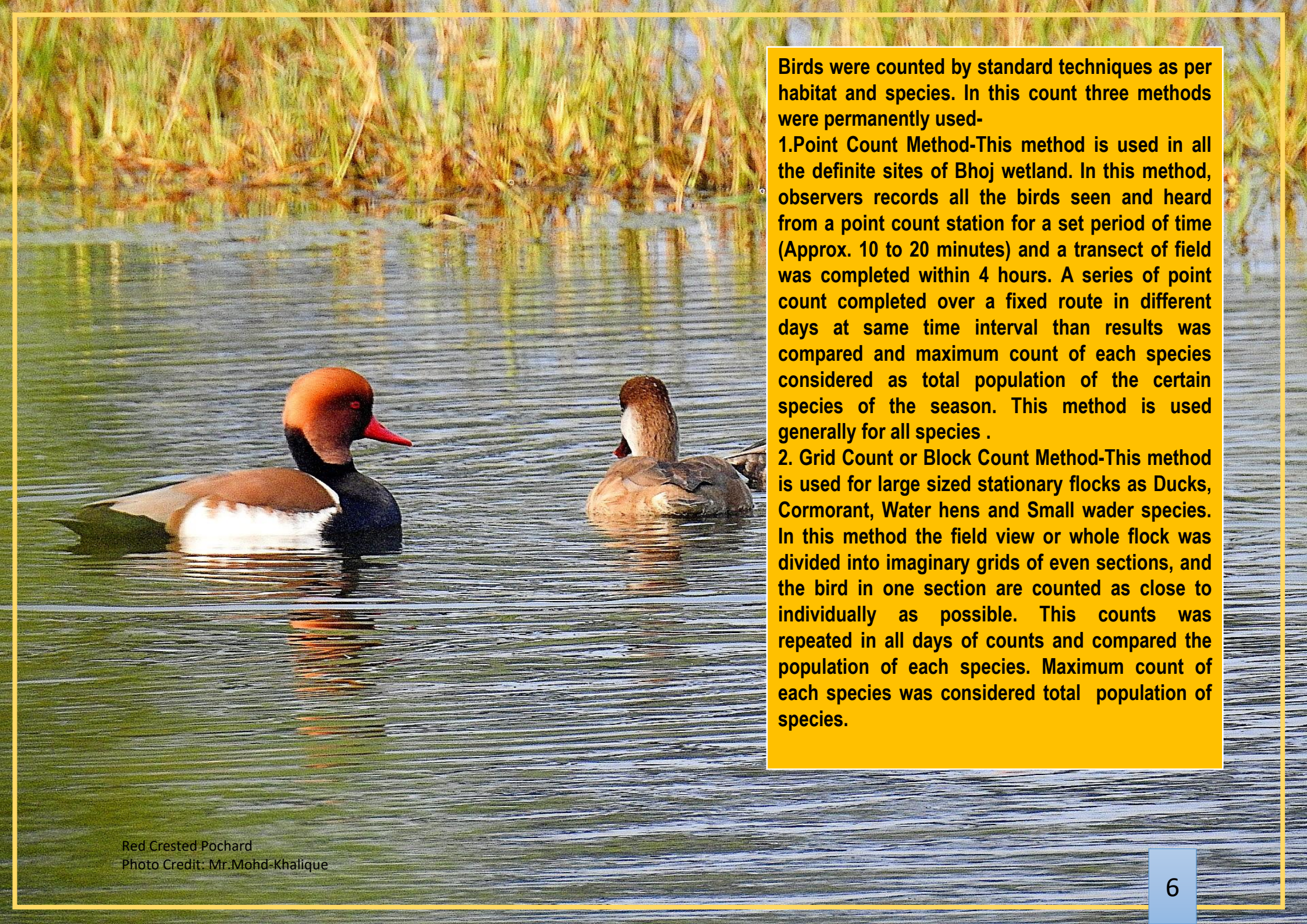
Count was conducted in optimal and extremely cold weather conditions (Dry, with little/ Moderate wind) and during the peak migratory season (December & February). The duration of count was approximately four to six hours in a day.

Count was undertaken on the 19th December 2021,2nd January,7thJanuary,8th January, 9th January,15th January, 23rd January 2022 and, 2nd February 2022 within 4 hours of dawn when territorial behavior of birds is usually at its peak. Nocturnal birds is also observed in some unprotected parts of Bhoj Wetland.

Total of 50 Kms. distance is covered by foot and vehicle . All birds seen or heard were recorded in a observation sheet along with any significant behavior and photographic evidence.



Northern Pintail
Photo Credit: Mr.Mohd-Khalique

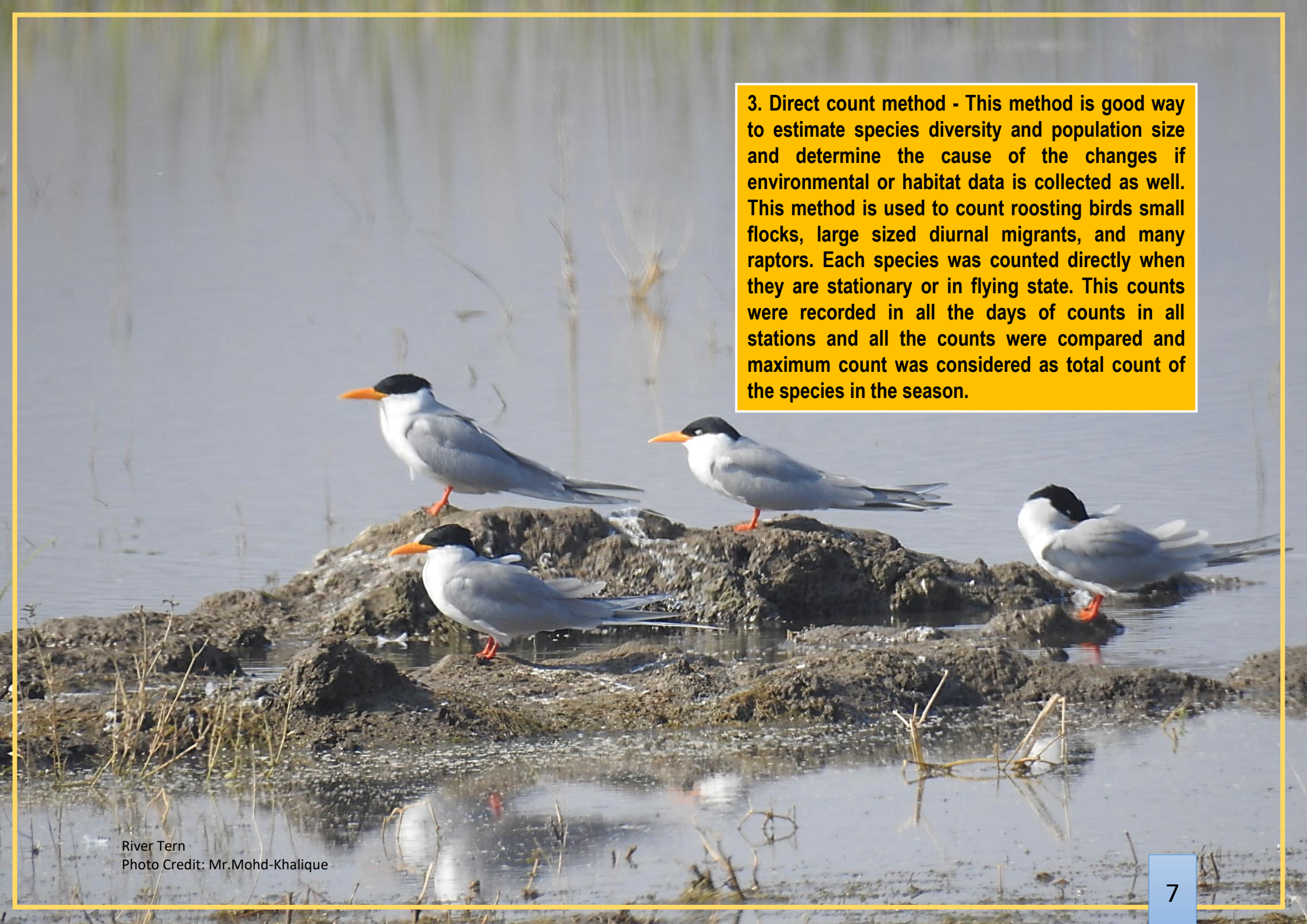


Birds were counted by standard techniques as per habitat and species. In this count three methods were permanently used-

1.Point Count Method-This method is used in all the definite sites of Bhoj wetland. In this method, observers records all the birds seen and heard from a point count station for a set period of time (Approx. 10 to 20 minutes) and a transect of field was completed within 4 hours. A series of point count completed over a fixed route in different days at same time interval than results was compared and maximum count of each species considered as total population of the certain species of the season. This method is used generally for all species .

2. Grid Count or Block Count Method-This method is used for large sized stationary flocks as Ducks, Cormorant, Water hens and Small wader species. In this method the field view or whole flock was divided into imaginary grids of even sections, and the bird in one section are counted as close to individually as possible. This counts was repeated in all days of counts and compared the population of each species. Maximum count of each species was considered total population of species.

Red Crested Pochard
Photo Credit: Mr.Mohd-Khalique



3. Direct count method - This method is good way to estimate species diversity and population size and determine the cause of the changes if environmental or habitat data is collected as well. This method is used to count roosting birds small flocks, large sized diurnal migrants, and many raptors. Each species was counted directly when they are stationary or in flying state. This counts were recorded in all the days of counts in all stations and all the counts were compared and maximum count was considered as total count of the species in the season.

River Tern
Photo Credit: Mr.Mohd-Khalique

COORDINATION COMMITTEE MEETING

A meeting was held on 10th December, 2021 at Van Vihar National Park on planning of bird count of Bhoj Wetland of year 2021-22. The meeting was organized by Bhopal Birds Conservation Society with committee members of supporting agencies MP State Wetland Authority, Van Vihar National Park and VNS Nature Saviours, committee member and experts of birds. The purpose of meeting was to planning the frame work of count and its implementation. The meeting was chaired by Dr. Sanjay Shukla (IFS, Member Secretary, CZA) and Mr. Harish Gupta (Director, VVNP), Mr. Ashok Kumar Jain (Asst. Director, VVNP) ,Dr. Vipin Dhote and Dr. B.S.Bhadouriya (VNS Nature Saviours), Dr. Pradip Nandi (DG, NCHSE), Mohd. Khalique (Bhopal Birds) and Dr. Sangeeta Rajgir (Bhopal Birds) were also present in this meeting.

After introductive session, a brief PPT Presentation on count was given by Dr. Sangeeta Rajgir includes need and techniques of Bird Count.

Mr. Mohd Khalique described about different zones of counts and dates of pre and final counts. The chaired officials and other experts were discussed on the dates and zones of the count and suggested digitalization of data and also assured to give support to the program.

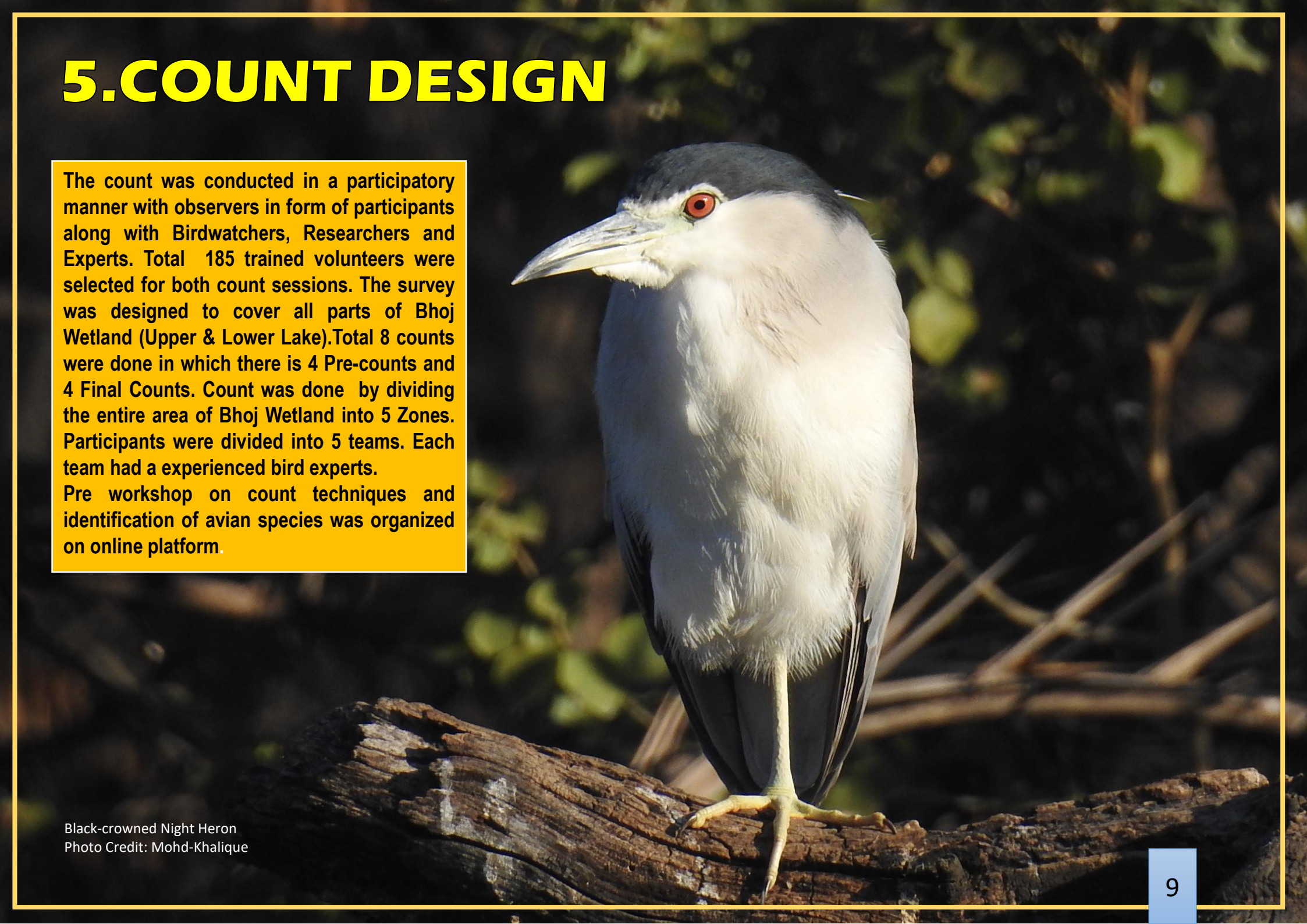
Vote of thanks was given by Mr. Mohd Khalique at the closing session on the meeting.


3rd BHOJ WETLAND
19th December,20
BWBC

5.COUNT DESIGN

The count was conducted in a participatory manner with observers in form of participants along with Birdwatchers, Researchers and Experts. Total 185 trained volunteers were selected for both count sessions. The survey was designed to cover all parts of Bhoj Wetland (Upper & Lower Lake).Total 8 counts were done in which there is 4 Pre-counts and 4 Final Counts. Count was done by dividing the entire area of Bhoj Wetland into 5 Zones. Participants were divided into 5 teams. Each team had a experienced bird experts.

Pre workshop on count techniques and identification of avian species was organized on online platform.



Black-crowned Night Heron
Photo Credit: Mohd-Khalique

SCHEDULE

BHOJ WETLAND WINTER BIRD COUNT 2021-22

19th DECEMBER -2021 to 9th JANUARY-2022

S.no	Dates	Route	Time
1	19th December, 2021 (Sunday)	Route-1:Iconic school to Beelkheda Route-2:Bahmori Village to Bahmori Plantation Route-4:Borvan entry park to Borvan park end point Route-5:Lower lake to Borvan	6.30 am to 2.30 pm
2	2nd January, 2022 (Sunday)	Route-1: Iconic School to Beelkheda	6.30 am to 11.00 am
3	7th January,2022 (Friday)	Route-2:Bahmori Village to Bahmori Plantation	7.00 am to 12.00 pm
4	8th January,2022 (Saturday)	Route-3:Borvan entry park to Borvan end point	7.00 am to 11.00 am
5	9th January,2022 (Sunday)	Route-1:Iconic school to CPA Plantation Route-2:Bahmori Village to Bahmori Plantation Route-3:Van Vihar National Park Gate-1 to Gate-2 Route-4:Borvan entry park to Borvan park end point Route-5:Lower lake to Borvan	7.00 am to 1.00 pm

SCHEDULE

BHOJ WETLAND WINTER BIRD COUNT 2020-21

15th JANUARY 2022 TO 2nd FEBRUARY 2022

S.no	Dates	Route	Time
6	15th January, 2022 (Saturday)	Route-1:Iconic school to CPA Plantation Route-2:Bahmori Village to Bahmori Plantation Route-4:Borvan entry park to Borvan park end point	7.00 am to 12.00 pm
7	23rd January, 2022 (Sunday)	Route-5:Lower lake to Borvan	7.00 am to 11.00 am
8	2nd February ,2022 (Wednesday)	Route-3:Van Vihar National Park (Gate No.2 to Gate No.1)	7.00 am to 12.00 pm


आयोजन में सहभागी
मध्यप्रदेश इकोपर्यटन विकास बोर्ड
म.प्र. टाइगर फाउन्डेशन सोसाईटी
राज्य बाँस मिशन
वन विभाग
राज्य स्तरीय
वन्यप्राणी सप्ताह
2021
भोपाल
3rd BHOJ WETLAND WINTER BIRD COUNT
2021-22
VAN VIHAR NATIONAL PARK AND ZOO
2nd February, 2022
On the occasion of
World Wetland Day
Organised By
Bhopal Birds Conservation Society
Supported By
आयोजन में सहभाग
मध्यप्रदेश राज्य
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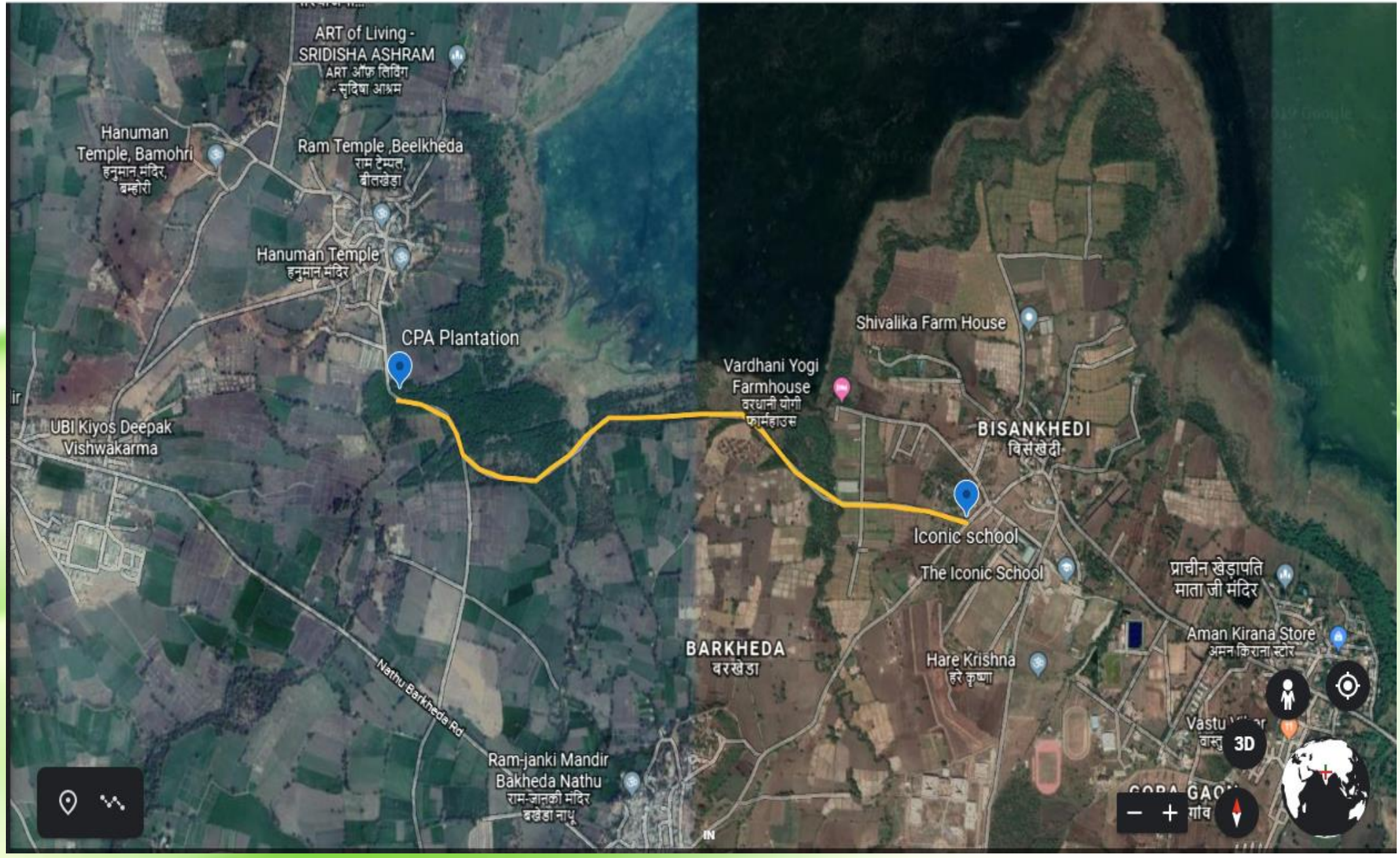
WWF
विश्व प्रकृति नि
अनुसंधान,
एवं लोकव
शिक्षा वि
मध्यप्र

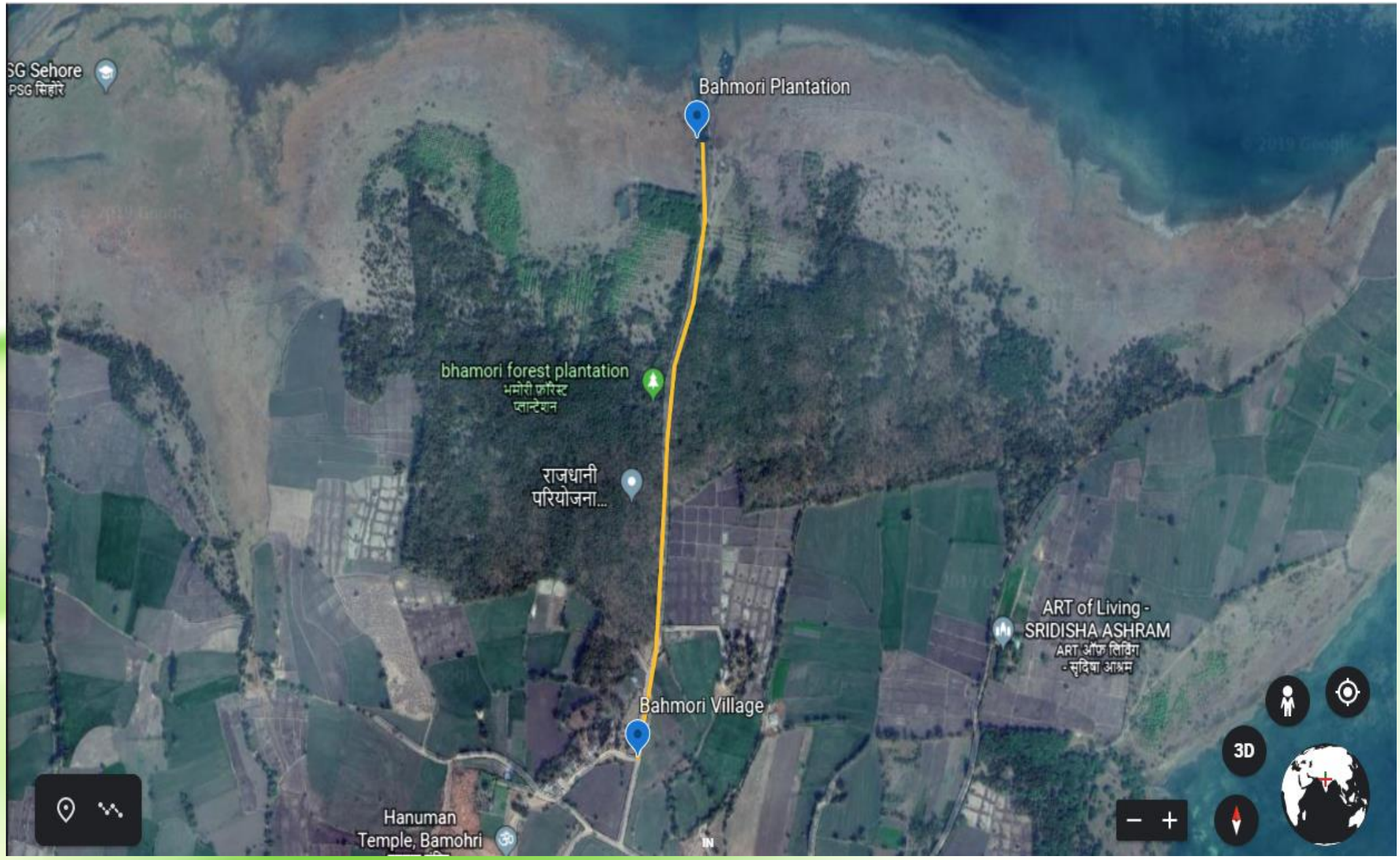
6.COUNT ROUTES

Route No.1 – Iconic School to CPA plantation
Route No.2 – Bhamori Village to Bhamori Plantation
Route No.3 – Van Vihar National Park
Route No.4 – Borvan Park, Sant Hirdaram Nagar
Route No.5 – Lower Lake to Borvan Park

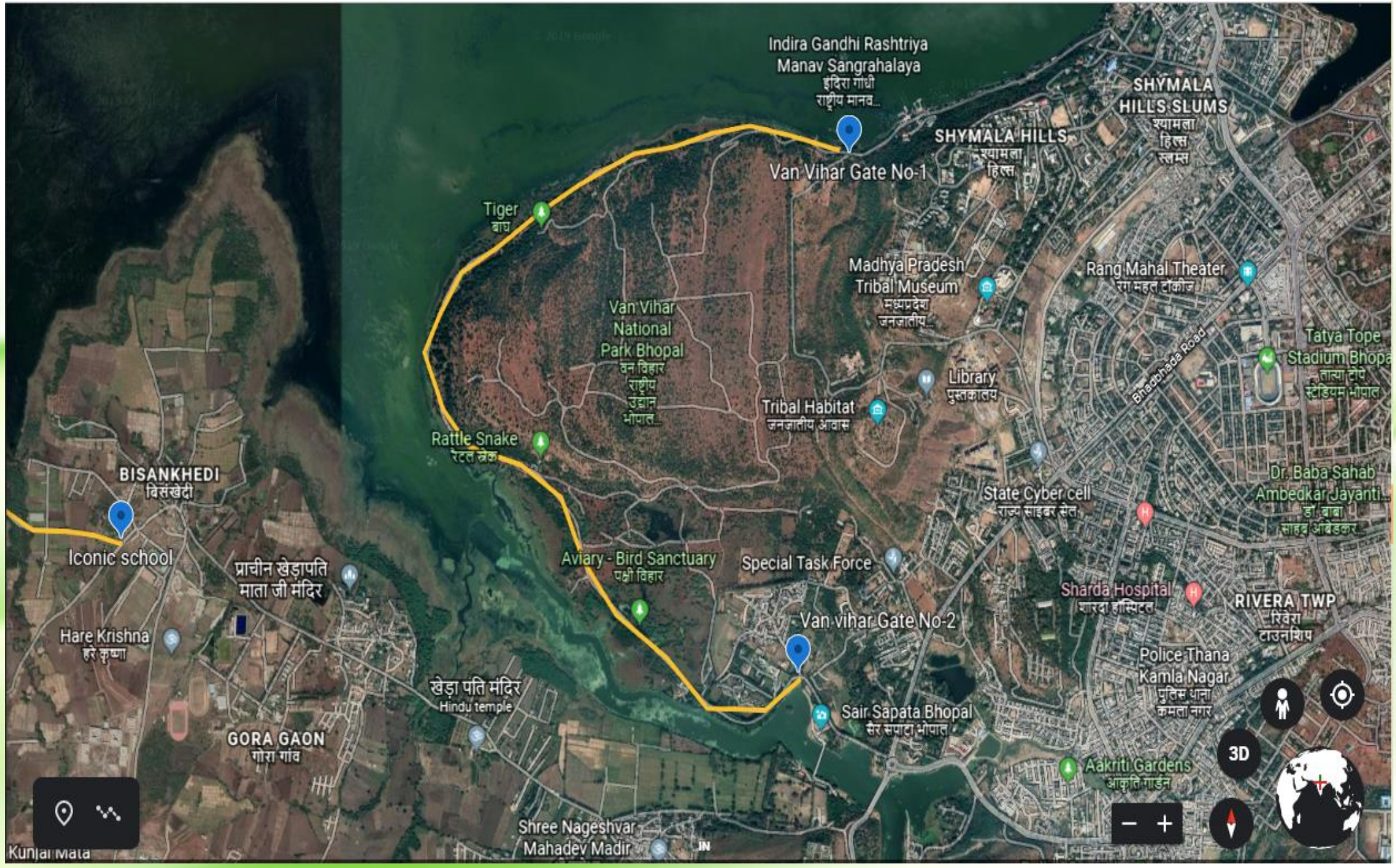
Spot-billed Duck
Photo Credit: Mr.Ankit Chaturvedi



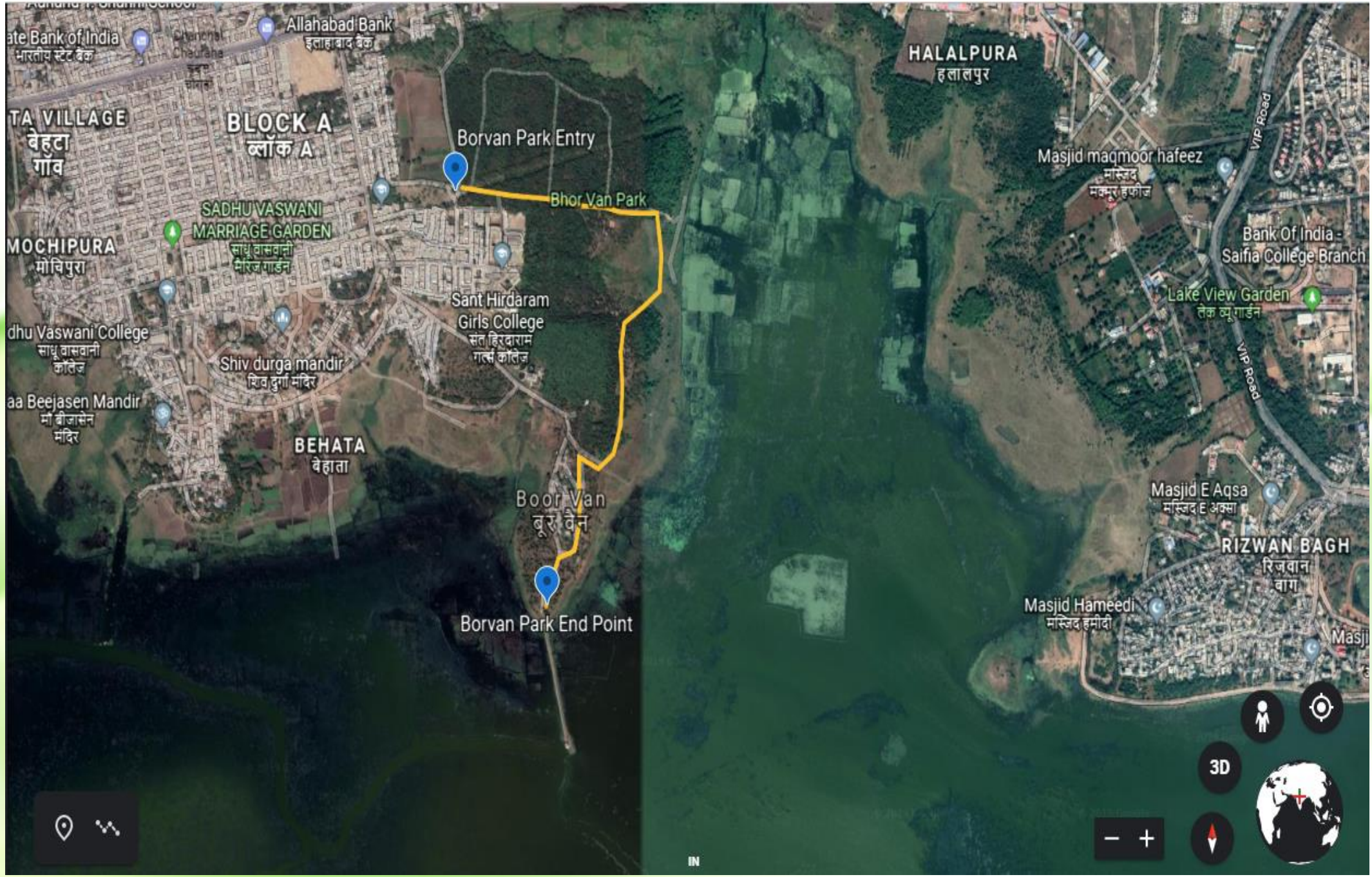
Route No.1 – Iconic School to CPA plantation



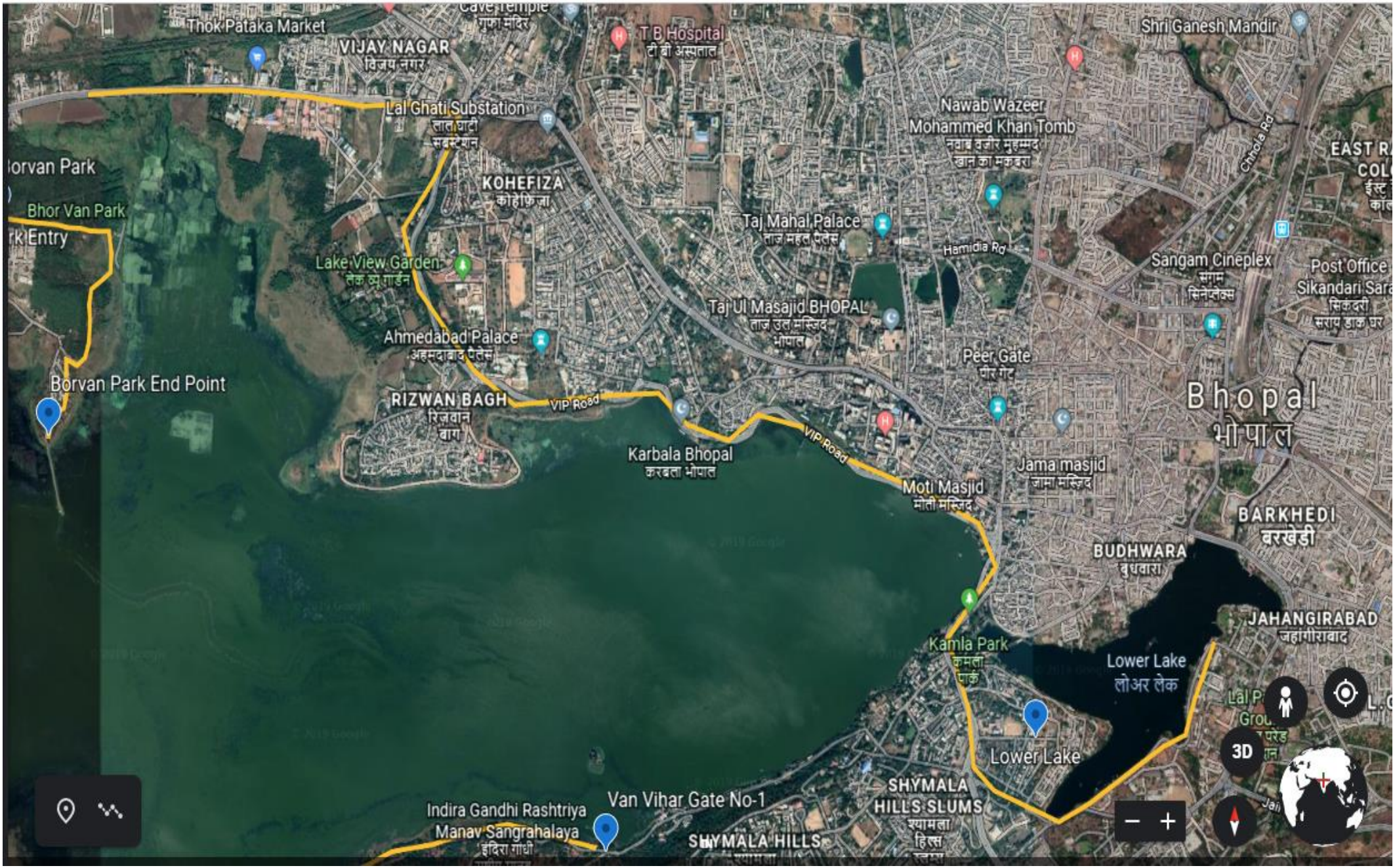
Route No.2 – Bhamori Village to Bhamori Plantation



Route No.3 – Van Vihar National Park National Park Gate No.2 to Gate No.1



Route No.4 – Borvan Park, Sant Hirdaram Nagar



Route No.5 – Lower Lake to Borvan Park

Images captured by Google Earth


3rd BHOJ WETLAND WINTER BIRD COUNT
19th December 2021 to 2nd February, 2022
ORGANISED BY
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7.SUMMARY OF ESTIMATED BIRD COUNT

Flock of Migratory Birds
Photo Credit: Mr.Mohd Khalique

S.No	FAMILY	COMMON NAME	SCIENTIFIC NAME	ROUTE-1 Iconic School to Beelkheda	ROUTE-2 Bhamori Village	ROUTE-3 Van Vihar National Park	ROUTE-4 Lower lake to Bairaghar	ROUTE-5 Borvan	TOTAL COUNT
	PODICIPEDIDAE								
1		Little Grebe	*Tachybaptus ruficollis*	100	100	54	-	20	274
	PHALACROCCORACIDAE								
2		Large Cormorant	*Phalacrocorax carbo*	500	100	1296	220	50	2166
3		Little Cormorant	*P.niger*	559	500	1369	233	50	2711
	ANHINGIDAE								
4		Oriental Darter	*Anhinga melanogaster*	1	2	5	2	-	10
	ARDEIDAE								
5		Grey Heron	*Ardea cinerea*	20	5	40	-	2	67
6		Cattle Egret	*Bubulcus ibis*	100	50	31	83	50	314
7		Large Egret	*Casmordius albus*	22	20	65	30	50	187
8		Intermediate Egret	*Mesophoyx intermedia*	59	52	175	54	100	440
9		Little Egret	*Egretta garzetta*	154	105	133	152	209	753
10		Black-crowned Night Heron	*Nycticorax nycticorax*	-	-	200	-	-	200
11		Purple Heron	*Ardea purpurea*	25	12	18	5	10	70
12		Pond Heron	*Ardeola grayll*	56	40	49	67	55	267
13		Striated Heron	*Butorides striata*	1	-	-	-	-	1
14		Cinnamon Bittern	*Ixobrynchus cinnamomeus*	1	-	1	-	-	2
15		Black Bittern	*Dupetor flavicollis*	2	-	2	-	-	4
	CICONIIDAE								
16		Painted Stork	*Mycteria leucocephala*	6	10	25	-	60	101
17		Openbill Stork	*Anastomus oscitans*	25	52	25	15	44	161
18		Woolly-necked Stork	*Ciconia episcopus*	20	5	13	-	10	48
	THRESKIORNITHIDE								
19		Black-headed Ibis	*Threskiornis melanocephalus*	12	20	18	16	16	82
20		Eurasian Spoonbill	*Platalea leucorodai*	20	10	6	-	30	66
21		Black Ibis	*Pseudibis papillosa*	2	2	3	-	6	13
22		Glossy Ibis	*Plegadis falcinellus*	30	2	23	10	15	80

	ANATIDAE								
23		Lesser whistling Teal	*Dendrocygna javanica*	*200*	*200*	*680*	*520*	*50*	*1650*
24		Ruddy Shelduck	*Trdorna ferruginea*	*10*	*5*	-	*12*	*5*	*32*
25		Northern Pintail	*Anas acuta*	*200*	*100*	-	-	*100*	*400*
26		Common Teal	*Anas crecca*	-	*223*	*5*	*53*	*85*	*366*
27		Spot-billed Duck	*Anas poecilorhyncha*	*200*	*135*	*225*	*56*	*52*	*668*
28		Comb Duck	*Sarkidiornis melanotos*	*100*	*58*	*26*	*55*	*20*	*259*
29		Norther Shoveler	*Anas clypeata*	*203*	*300*	-	-	*54*	*557*
30		Common Pochard	*Aythya ferina*	*1050*	*550*	-	-	*150*	*1750*
31		Red crested Pochard	*Rhodonessa rufino*	*10830*	*1067*	*2025*	*200*	*100*	*14222*
32		Gadwall	*Anas strepera*	*575*	*230*	*12*	*53*	-	*870*
33		Eurasian Wigeon	*Anas penelope*	*205*	*300*	*50*	-	-	*555*
34		Gargeny	*Anas querquedula*	-	-	*15*	-	-	*15*
35		Cotton Pygmy-goose	*Nettapus coromandelianus*	*250*	*110*	*200*	-	*10*	*570*
36		Bar-headed Goose	*Anser Indicus*	-	-	-	-	*25*	*25*
37		Graylag Goose	*Anser anser*	-	-	-	-	*15*	*15*
	ACCIPITRIDAE								
38		Black-Shouldered Kite	*Elanus caeruleus*	*20*	*15*	*16*	-	*5*	*56*
39		Oriental Honey-Buzzard	*Pernis ptilorhyncus*	*2*	*1*	*1*	*2*	*1*	*7*
40		Black Kite	*Milvus migrans*	*20*	*10*	*57*	*50*	*10*	*147*
41		Shikra	*Accipiter badius*	*10*	*5*	*12*	*2*	*2*	*31*
42		White-eye Buzzard	*Bustastur teesa*	*1*	-	-	-	*2*	*3*
43		Egyptian Vulture	*Neophorn percnopterus*	*6*	*4*	*6*	*4*	*2*	*22*
44		White-rumped Vulture	*Gyps beangalensis*	*5*	-	*10*	-	-	*15*
45		Greater Spotted Eagle	*Aquila clanga*	*1*	-	-	-	-	*1*

46		Steppe Eagle	*Aquila nipalnsis*	*2*	*-*	*2*	*-*	*-*	*4*
47		Booted Eagle	*Hieraaetus pennatus*	*-*	*-*	*2*	*-*	*-*	*2*
48		Marsh Harrier	*Circus aeruginosus*	*9*	*-*	*14*	*14*	*12*	*49*
49		Crested serpent Eagle	*Spilornis cheela*	*-*	*-*	*2*	*-*	*-*	*2*
50		Short-toed Snake Eagle	*Circaetus gallicus*	*-*	*-*	*-*	*-*	*1*	*1*
51		Osprey	*Pandion haliaetus*	*2*	*2*	*2*	*-*	*-*	*6*
	FALCONIDAE								
52		Common Kestrel	*Falco tinnunculus*	*2*	*1*	*-*	*2*	*2*	*7*
53		Peregrine Falcon	*Falco peregrinus*	*1*	*-*	*-*	*-*	*-*	*1*
	PHASIANIDAE								
54		Grey Francolin	*F.pondicerianus*	*20*	*10*	*37*	*-*	*24*	*91*
55		Common Quail	*Coturnix coturnix*	*5*		*2*	*-*	*10*	*17*
56		Barred Button Quail	*Turnix susciator*	*10*	*5*	*-*	*-*	*-*	*15*
57		Indian Peafowl	*Pavo cristatus*	*36*	*10*	*52*	*-*	*12*	*110*
	GRUIDAE								
58		Sarus Crane	*Grus antigone*	*20*	*10*	*-*	*-*	*12*	*42*
	RALLIDAE								
59		White breasted Waterhen	*Amaurornis phoenicurus*	*23*	*25*	*60*	*36*	*31*	*175*
60		Purple Swamphen	*Porphyrio porphyrio*	*25*	*36*	*100*	*53*	*80*	*294*
61		Common Moorhen	*Gallinula chloropus*	*52*	*20*	*160*	*-*	*58*	*290*
62		Eurasian Coot	*Fulica atra*	*3350*	*2239*	*510*	*-*	*100*	*6199*
	JACANIDAE								
63		Bronze-winged jacana	*Metopidius indicus*	*6*	*46*	*44*	*38*	*23*	*157*
64		Pheasant-tailed jacana	*Hidrophasianus chrurgus*	*-*	*22*	*36*	*-*	*30*	*88*
	ROSTRATULIDAE								
65		Painted Snipe	*Rostratula benghalensis*	*2*	*-*	*-*	*-*	*-*	*2*

	RECURVIROSTRIDAE								
66		Black-winged Stilt	*Himantopus himantopus*	*249*	*151*	*115*	*200*	*50*	*765*
	SCOLOPACINAE								
67		Black-tailed Godwit	*Limosa limosa*	*8*	-	-	-	-	*8*
68		Bar-tailed Godwit	*Limosa lapponica*	*18*	-	-	-	-	*18*
69		Little Stint	*Calidris minuta*	-	-	*12*	-	-	*12*
70		Common Snipe	*Gallinago gallinago*	-	*1*	-	-	*2*	*3*
71		Common Greenshank	*Tringa nebularia*	*4*	-	-	-	-	*4*
72		Green Sandpiper	*Tringa ochropus*	*1*	-	*2*	-	-	*3*
73		Marsh Sandpiper	*Tringa stagnatilis*	-	*10*	*10*	-	-	*20*
74		Common Sandpiper	*Actitis hypoleucos*	-	-	*8*	-	*13*	*21*
75		Wood Sandpiper	*Tringa glareola*	*1*	-	-	-	*2*	*3*
76		Common Redshank	*Tringa tetanus*	*10*	*20*	-	-	*2*	*32*
77		Spotted Redshank	*Tringa erythropus*	*5*	*2*	*1*	-	*2*	*10*
	CHARADRIIDAE								
78		Red wattled Lapwing	*Vanellus indicus*	*48*	*26*	*138*	*86*	*56*	*354*
79		Grey-headed Lapwing	*Vanellus cinereus*	-	-	-	-	*1*	*1*
80		White-tailed Lapwing	*Vanellus gregarius*	*1*	-	-	-	-	*1*
81		Little Ringed Plover	*Charadrius dubius*	*30*	*20*	*10*	-	*10*	*70*
	LARIDAE								
82		River Tern	*Sterna aurantia*	*212*	*158*	*230*	*206*	*80*	*886*
83		Brown headed Gull	*Chroicocephalus brunnicephalus*	*100*	*50*	*372*	*660*	*53*	*1235*
84		Pallas's Gull	*Larus ichthyaetus*	-	*2*	-	-	-	*2*
85		Little Tern	*Sterna albifrons*	*102*	*50*	*157*	*200*	*112*	*621*
86		Whiskered Tern	*Chlidonias hybridus*	*20*	*10*	*10*	*5*	*10*	*55*

	COLUMBIDAE								
87		Blue rock Pigeon	*Columba livia*	*436*	*235*	*254*	*220*	*105*	*1250*
88		Eurasian Collared Dove	*Streptopelia decaocto*	*50*	*30*	*20*	-	*26*	*126*
89		Red Collared Dove	*S.tranquebarica*	*55*	*30*	*41*	*20*	*30*	*176*
90		Spotted Dove	*S.chinensis*	*50*	*30*	*61*	*20*	*35*	*196*
91		Laughing Dove	*S.senegalensis*	*146*	*55*	*119*	*130*	*50*	*500*
92		Oriental Turtle Dove	*Sterptopelia oreintalis*	-	-	*4*	-	-	*4*
93		Yellow-footed Green Pigeon	*Treron phoenicopterus*	-	-	*20*	-	*5*	*25*
	PSITTACIDAE								
94		Rose-ringed Parakeet	*Psittacula krameri*	*150*	*30*	*50*	*60*	*52*	*342*
95		Plum-headed Parakeet	*Psittacula cyanocephala*	*80*	*50*	*40*	-	*10*	*180*
	CUCULIDAE								
96		Common Hawk Cuckoo	*Hierococcyx varius*	*9*	*2*	*2*	*1*	*2*	*16*
97		Asian Koel	*Eudynamys scolopacea*	*5*	*4*	*5*	-	*6*	*20*
98		Greater Coucal	*Centropus sinensis*	*5*	*6*	*18*	*6*	*4*	*39*
	STRIGIDAE								
99		Spotted Owlet	*Athene brama*	*4*	*2*	*13*	-	*2*	*21*
100		Jungle Owlet	*Glaucidiun radiatum*	-	*2*	-	-	-	*2*
	APODIDAE								
101		Little Swift	*Apus affinis*	*270*	*50*	*65*	*104*	*222*	*711*
	HEMIPROCNIDAE								
102		Crested Treeswift	*Hemiprocne coronata*	*30*	*20*	*10*	-	-	*60*
	ALCEDINIDAE								
103		Pied Kingfisher	*Ceryle rudis*	*4*	*3*	*10*	*6*	*4*	*27*
104		Common Kingfisher	*Alcedo atthis*	*10*	*9*	*16*	*18*	*15*	*68*

105		Stork-billed Kingfisher	*Halcyon capensis*	*2*	*-*	*-*	*-*	*-*	*2*
106		White-throated Kingfisher	*Halcyon smyrrnensis*	*30*	*20*	*37*	*20*	*25*	*132*
	MEROPIDAE								
107		Green Bee-eater	*Merops orientalis*	*66*	*37*	*53*	*6*	*30*	*192*
	CORACIIDAE								
108		Indian Roller	*Coracias benghalensis*	*14*	*3*	*20*	*2*	*4*	*43*
	UPUPIDAE								
109		Common Hoopoe	*Upupa epops*	*8*	*5*	*14*	*6*	*2*	*35*
	BUCEROTIDAE								
110		Indian Grey Hornbill	*Ocyceros birostris*	*8*	*6*	*22*	*2*	*4*	*42*
	CAPITONIAE								
111		Coppersmith Barbet	*Megalaima haemacephala*	*6*	*4*	*26*		*3*	*39*
	PICIDAE								
112		Lesser Goldenback	*Dinopium benghalense*	*2*	*2*	*2*	*1*	*1*	*8*
113		Yellow-crowned Woodpecker	*Dendrocopos mahrattensis*	*4*	*2*	*1*	*-*	*-*	*7*
114		Eurasian Wryneck	*Jynx torquilla*		*1*	*1*	*-*	*-*	*2*
115		Brown-capped Pygmy Woodpecker	*Dendrocopos nanus*	*2*	*-*	*2*	*-*	*2*	*6*
	ALAUDIAE								
116		Indian Bushlark	*Mirafra erythroptera*	*1*	*-*	*6*	*-*	*2*	*9*
117		Crested Lark	*Galerida cristata*	*2*	*2*	*4*	*-*	*1*	*9*
118		Rufous-tailed Lark	*Ammomanes phoenicurus*	*10*	*5*	*15*	*-*	*12*	*42*
119		Ashy-crowned Sparrow lark	*Eremopterix grisea*	*30*	*12*	*26*	*-*	*21*	*89*
	HIRUNDINIDAE								
120		Barn Swallow	*Hirundo rustica*	*52*	*100*	*30*	*523*	*20*	*725*
121		Wired-tailed Swallow	*Hirundo smithii*	*30*	*80*	*115*	*60*	*8*	*293*
122		Red-rumped Swallow	*Cercropis daurica*	*50*	*32*	*41*	*-*	*43*	*166*

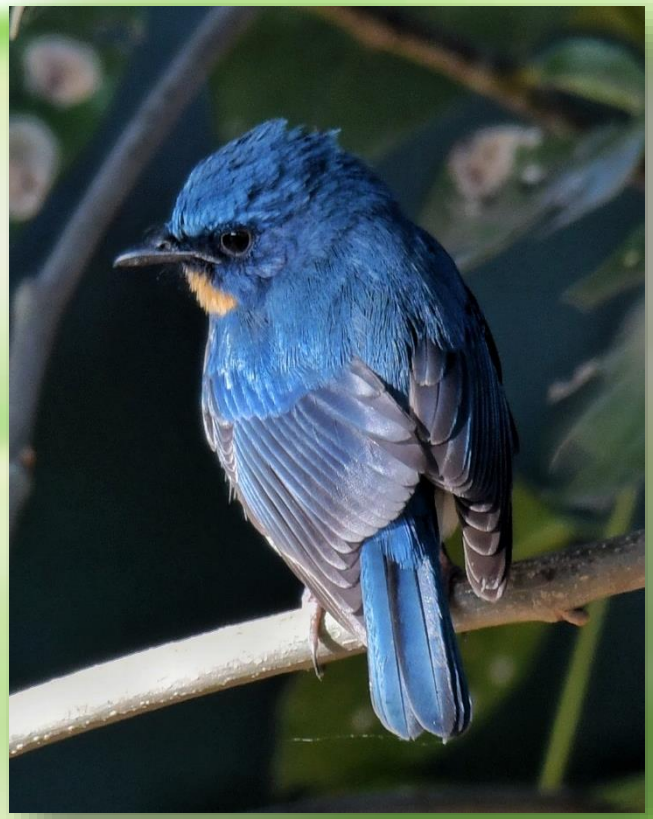
123		Dusky Crag Martin	*Hirundo concolor*	*30*	*36*	*60*	*200*	*39*	*365*
124		Streaked throated swallo	*Petrochelidon fluvicola*	*10*	*5*	*-*	*20*	*-*	*35*
	LANIIDAE								
125		Bay-backed Shrike	*Lanius vittatus*	*18*	*25*	*39*	*-*	*8*	*90*
126		Long-tailed Shrike	*Lanius schach*	*6*	*4*	*17*	*-*	*6*	*33*
127		Brown Shrike	*Lanius cristatus*	*-*	*2*	*2*	*-*	*1*	*5*
128		Southern Grey Shrike	*Lanius meridionalis*	*-*	*-*	*2*	*-*	*6*	*8*
	ORIOLIDAE								
129		Eurasian Golden Oriole	*Oriolus oriolus*	*7*	*9*	*12*	*-*	*2*	*30*
	DICRURIDAE								
130		Black Drongo	*Dicrurus macrocerus*	*35*	*20*	*65*	*17*	*22*	*159*
131		White-bellied Drongo	*Dicrurus caerulescens*	*20*	*12*	*12*	*-*	*5*	*49*
	MONARCHIDAE								
132		Black-naped Monarch	*Hypothymis azurea*	*1*	*-*	*2*	*-*	*-*	*3*
133		Asian Paradise Flycatcher	*Terpsiphone paradisi*	*4*	*1*	*2*	*-*	*-*	*7*
	STRUNIDAE								
134		Chestnut-tailed Starling	*Sturnus malabarica*	*8*	*10*	*8*	*-*	*2*	*28*
135		Brahminy Starling	*Sturuns pagodarum*	*20*	*10*	*38*	*-*	*15*	*83*
136		Asian Pied Starling	*Sturnus contra*	*34*	*20*	*60*	*12*	*10*	*136*
137		Rosy Starling	*Sturnus roseus*	*20*	*10*	*-*	*-*	*38*	*68*
138		Common Myna	*Acridotheres tristis*	*50*	*60*	*40*	*11*	*29*	*190*
	CORVIDAE								
139		Rufous Treepie	*Dendrocitta vagabunda*	*1*	*3*	*8*	*-*	*1*	*13*
140		House Crow	*Corvus splendens*	*2*	*4*	*15*	*-*	*6*	*27*
141		Jungle Crow	*Corvus macrorhynchos*	*9*	*2*	*40*	*-*	*8*	*59*

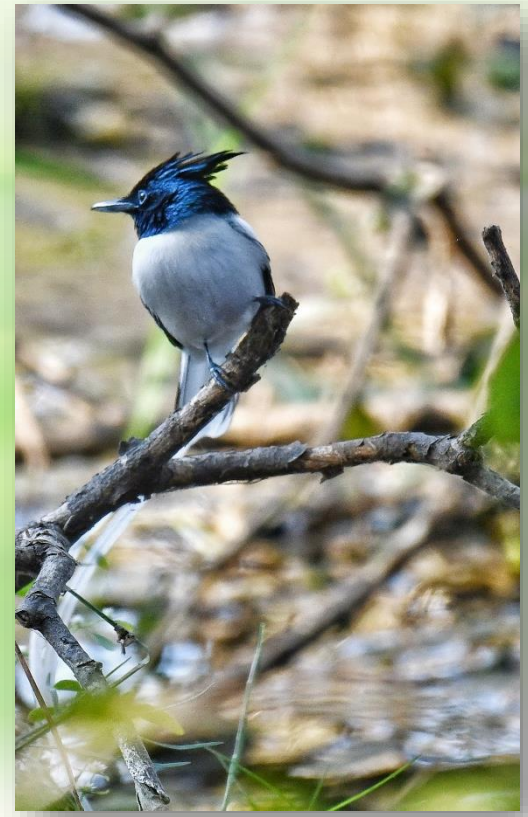
	MOTACILLIDAE								
142		Blyth's Pipit	*Anthus godlewski*	*1*	-	-	-	-	*1*
143		Paddyfield Pipit	*Anthus rufulus*	*20*	*10*	*50*	-	*14*	*94*
144		Tree Pipit	*Anthus trivalis*	*100*	*20*	*20*	-	*10*	*150*
145		White Wagtail	*Motacilla alba*	*6*	*4*	*6*	*4*	*4*	*24*
146		Yellow Wagtail	*Motacilla flava*	*20*	*10*	*4*	-	*9*	*43*
147		Citrine Wagtail	*Motacilla citreola*	*20*	*5*	*8*	-	*12*	*45*
148		White-browed Wagtail	*Motacilla maderaspatensis*	*20*	*10*	*52*	-	*8*	*90*
	CAMPEPHAGIDAE								
149		Common Woodshrike	*Tephrodornis pondicerianus*	*8*	*4*	*17*	-	*4*	*33*
150		Large Cuckoo Shrike	*Coracina macei*	-	-	*4*	-	-	*4*
151		Black-headed Cuckoo shrike	*Coracina melanoptera*	*1*	-	*2*	-	-	*3*
152		Small Minivet	*Pericrocotus cinnamomeus*	*50*	*10*	*20*	-	*20*	*100*
153		White-bellied Minivet	*Pericrocotus erythropygius*	*6*	-	*10*	-	-	*16*
154		Long-tailed Minivet	*Pericrocotus ethologus*	*2*	-	-	-	-	*2*
	RHIPIDURIDAE								
155		White-browed Fantail	*Rhipidura aureola*	*25*	*15*	*16*	-	*9*	65
	IRENIDAE								
156		Common Iora	*Aegithina tiphia*	*8*	*4*	*15*	-	*2*	*29*
157		Golden-fronted Leafbird	*Chloropsis aurifrons*	*2*	-	*3*	-	-	*5*
158		Jerdon's Leafbird	*Chloropsis Jerdoni*	*5*	-	*2*	-	*2*	*9*
	PYCNONOTIDAE								
159		Red vented Bulbul	*Pycnonotus cafer*	*150*	*70*	*153*	*59*	*18*	*450*
	TIMALIINAE								
160		Yellow eyed Babbler	*Chrysomma sinense*	*30*	*15*	*20*	-	-	*65*
161		Twany-bellied Babbler	*Dumetia hyperythra*	*10*	-	*20*	-	-	*30*

162		Common Babbler	*Turdoides caudates*	*10*	*10*	*33*	-	*6*	*59*
163		Large grey Babbler	*Turdoides malcolmi*	*25*	*20*	*12*	-	*15*	*72*
164		Jungle Babbler	*Turdoides striatus*	*30*	*25*	*83*	*50*	*25*	*213*
	NECTARINIIDAE								
165		Purple Sunbird	*Cinnyris asiatica*	*40*	*20*	*21*	*40*	*25*	*146*
166		Purple-rumped Sunbird	*Leoptocoma zeylonica*	*3*	*2*	*5*	-	-	*10*
	PARIDAE								
167		Great Tit	*Parus major*	*5*	*3*	*16*	-	*2*	*26*
	PLOCEIDAE								
168		House Sparrow	*Passer domesticus*	*50*	*60*	-	*50*	*10*	*170*
169		Yellow throated Sparrow	*Petronia xanthocollis*	*60*	*80*	*10*	-	*20*	*170*
170		Baya Weaver	*Ploceus philippinus*	*100*	*50*	*38*	-	*10*	*198*
	DICAEIDAE								
171		Thick-billed Flowerpecker	*Dicaeum agile*	-	-	*5*	-	*2*	*7*
	ESTRILDIDAE								
172		Red Avadavat	*Amandava amandava*	*20*	*30*	*70*	-	*20*	*140*
173		Black –headed Munia	*Lonchura malacca*	*10*		*20*	-	-	*30*
174		Scaly-breasted Munia	*Lonchura punctulata*	*30*	*20*	*29*	-	*13*	*92*
175		Indian Silverbill	*Lonchura malabarica*	*57*	*30*	*27*	-	*23*	*137*
	CISTICOLIDAE								
176		Zitting Cisticola	*Cisticola juncidis*	*1*	-	*1*	-	-	*2*
177		Common Tailorbird	*Orthotomus sutorius*	*4*	*2*	*12*	-	*8*	*26*
178		Grey-breasted Prinia	*Prinia hodgsonii*	*2*	*2*	*9*	*1*	*1*	*15*
179		Jungle Prinia	*Prinia sylvatica*	*1*		*4*	-	-	*5*
180		Ashy Prinia	*Prinia socialis*	*25*	*8*	*39*	-	*22*	*94*
181		Plain Prinia	*Prinia inornata*	*4*	*2*	*5*	-	*1*	*12*

	MUSCICAPIDAE								
182		Blyth's Reed Warbler	*Acrocephalus dumetorum*	*1*	-	*4*	-	-	*5*
183		Greenish Warbler	*P.trochiloides*	*3*	*2*	*6*	-	*2*	*13*
184		Booted Warbler	*Hippolais caligata*	*10*	*5*	*11*	-	*5*	*31*
185		Tickell's Leaf Warbler	*Phylloscopus affinis*	*4*	*5*	*6*	-	*4*	*19*
186		Clamorous Reed Warbler	*Acrocephalus stentoreus*	*20*	*15*	*27*	-	*10*	*72*
187		Lesser Whitethroat	*Sylvia curruca*	*20*	*15*	*25*	-	*10*	*70*
188		Common Chiffchaff	*Phylloscopus collybita*	*2*	*2*	*5*	-	*5*	*14*
189		Bluethroat	*Luscinia svecica*	*4*	-	*3*	-	*3*	*10*
190		Magpie Robin	*Copsychus saularis*	*20*	*10*	*44*	*2*	*14*	*90*
191		Black Redstart	*Phoenicurus ochruros*	*10*	*6*	*35*	-	*5*	*56*
192		Brown Rock-chat	*Cercomela fusca*	*5*	*5*	*34*	-	-	*44*
193		Pied Bushchat	*saxicola caprata*	*20*	*6*	*14*	*2*	*6*	*48*
194		Indian Robin	*saxicoloides fulicata*	*12*	*10*	*32*	*34*	*10*	*98*
195		Blue Rock Thrush	*Monticola solitarius*	-	-	*2*	-	-	*2*
196		Indian Blackbird	*Turdus merula*	-	-	-	-	*3*	*3*
197		Asian Brown Flycatcher	*Muscicapa dauurica*	*10*	*5*	*16*	-	*5*	*36*
198		Red-breasted Flycatcher	*Ficedula parva*	*5*	*2*	*14*	-	*2*	*23*
199		Taiga Flycatcher	*Ficedula albicilla*	-	-	-	-	*2*	*2*
200		Ultramarine Flycatcher	*Ficedula superciliaris*	-	-	-	-	*1*	*1*
201		Verditer Flycatcher	*Eumyias thalassina*	*5*	*2*	*2*	-	*2*	*11*
202		Tickell's Blue Flycatcher	*Cyronis tickelliae*	*6*	*5*	*4*	-	*2*	*17*
203		Grey-headed Canary Flycatcher	*Culicicapa ceylonensis*	*2*	-	-	-	*4*	*6*
204		Common Stonechat	*Saxicola leucura*	*15*	*10*	*6*	-	-	*31*

	EMBERIZINAE								
205		Crested Bunting	*Melophus lathami*	*10*	*4*	*6*	-	*4*	*24*
206		Black-headed Bunting	*Emberiza melanocephala*	*100*	*50*	-	-	*50*	*200*
207		Red-Headed Bunting	*Emberiza bruniceps*	*200*	*150*	-	-	*60*	*410*
	ZOSTEROPIDAE								
208		Oriental White-eye	*Zosterops palpebrosus*	*50*	*30*	*86*	-	*20*	*186*
	TOTAL			**23,368**	**9,308**	**11,807**	**5,101**	**3,741**	**53,325**





Tickell's Blue Flycatcher, Common Woodshrike, Asian Paradise Flycatcher
Photo Credit: Mr.Sameer Deshpande

Estimated Count of Top Ten Species

Red Crested Pochard
Estimated Population - 14222

Eurasian Coot
Estimated Population - 6199

Little Cormorant
Estimated Population - 2711

Large Cormorant
Estimated Population - 2166

Common Pochard
Estimated Population - 1750

Lesser Whistling Teals
Estimated Population - 1650

Blue rock Pigeon
Estimated Population - 1250

Brown headed Gull
Estimated Population - 1235

River Tern
Estimated Population - 886

Gadwall
Estimated Population - 870

Community attributes such as richness, abundance, diversity and evenness have been used for describing and comparing the bird communities among the different zones.

Species richness is simply the number of different species (or other taxonomic level) present at a site. Sites with more species are considered richer and they are likely to be more ecologically complex. Potentially, such sites may be more important from environmental and ecosystem functionality perspectives.

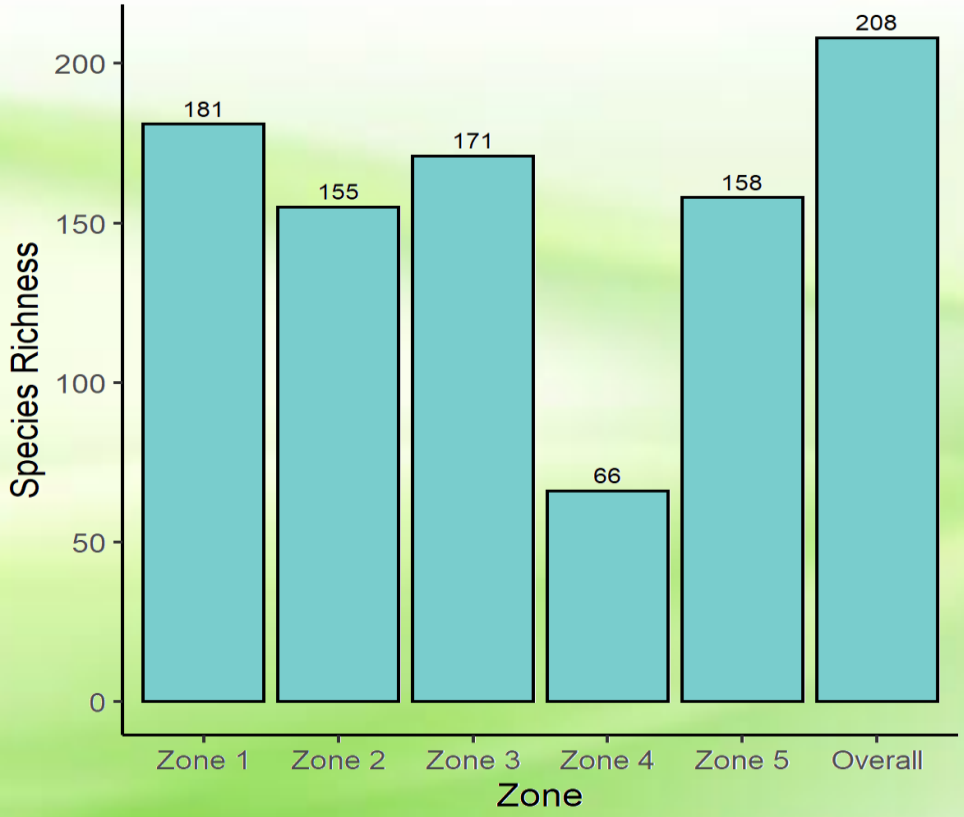


Figure 1. Zone wise estimated richness of bird species

Figure 1 shows the bird species richness estimated for different zones during Winter Bird Count 2022. By this measure, the richest zone is Zone 1 followed by Zone 3, Zone 5 and Zone 2, successively with Zone 4 having the least number of species. A total of 208 bird species have been identified during the census.

Species abundance is the total number of individuals present per area (Figure. 2). On the basis of abundance, Zones 1 is the most populous zone followed by Zone 3, Zone 2, Zone 4 and Zone 5. Abundance of top ten species found during the census at the site is given in Figure 3 which shows that Red-crested Pochard was the most abundant species followed by Eurasian Coot, Little and Large Cormorants.

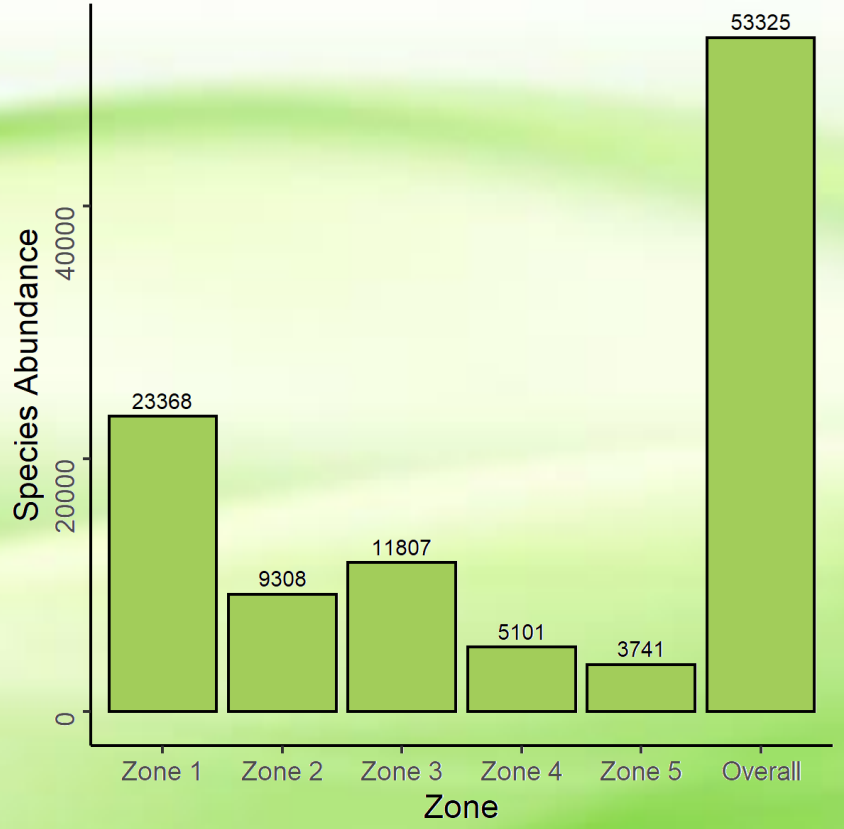


Figure 2. Zone wise estimated abundance of birds

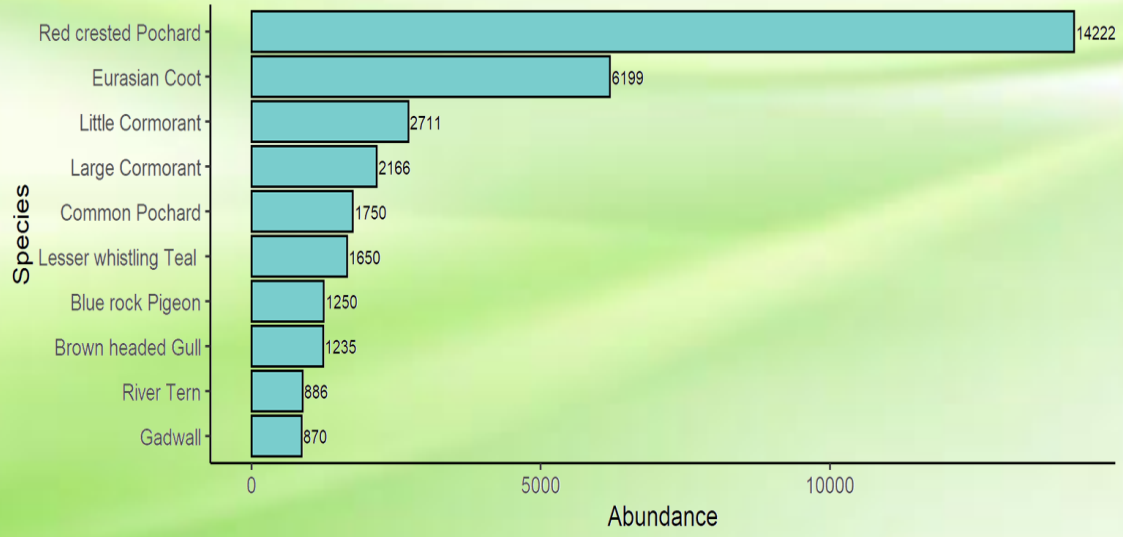


Figure 3. Top ten most abundant species

While richness and abundance are simple measures of community composition, **Species diversity** is more complex, and takes into account both species richness as well as the dominance/evenness of the species. If we have two sites with equal species richness, yet one site is dominated by a single species whereas a second site has a more even abundance of the species, then clearly we would consider the second as more diverse. There are numerous diversity indices used in ecology.

Shannon's Diversity Index (*H'*) is the most widely used diversity index. It assumes that individuals are randomly sampled from a very large community, and that all species are represented in the sample. The index is given by the expression

$$H' = -\sum_{i=1}^{S} p_i \ln p_i$$

Where *pi* is the proportion of individuals belonging to species *i.* Values of *H'* can range from 0 to 5.

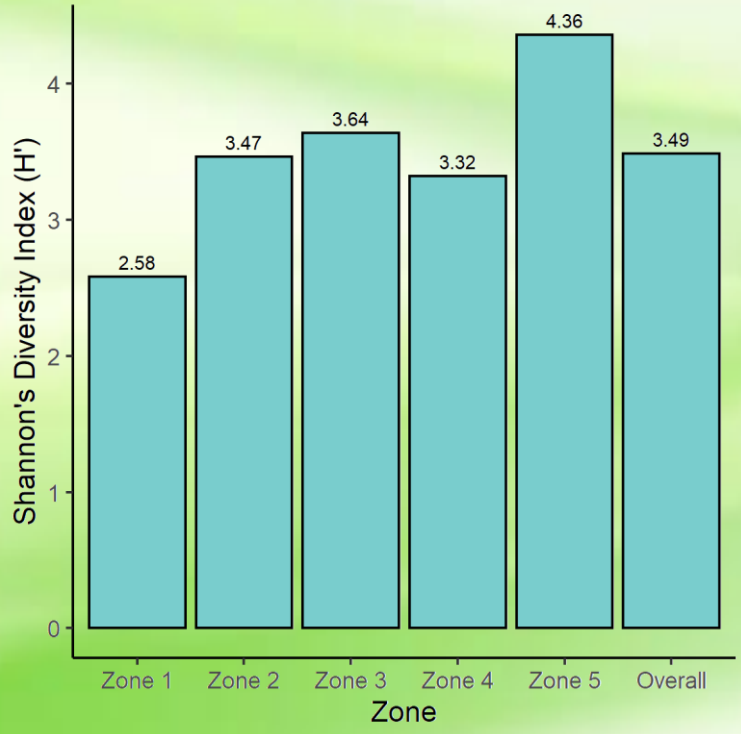


Figure 4. Zone wise estimated Shannon Diversity Index of bird species

According to the Figure 4 showing the Shannon's Diversity in different zones, Zone 5 is the most diverse zone and Zone 1 is the least one as compared to others.

Species evenness is a description of the distribution of abundance across the species in a community. Species evenness is highest when all species in a sample have the same abundance. Evenness approaches zero as relative abundances vary. Species evenness can also be described using indices, such as the Pielou Evenness Index (*J'*).

Pielou Evenness Index (*J'*) compares the actual diversity value (such as the Shannon's Diversity Index, *H'*) to the maximum possible diversity value (when all species are equally common, *H'*max = ln(S) where S is the total number of species). For the Shannon's Diversity Index, the Pielou evenness (*J'*) is given by the expression

$$J' = \frac{H'}{H'_{\max}}$$

Pielou evenness index (*J'*) is constrained between 0 and 1. The less evenness in communities between the species (and the presence of a dominant species), the lower J' is. And vice versa. Figure 5 shows that species evenness is highest in Zone 5 and lowest in Zone 1.

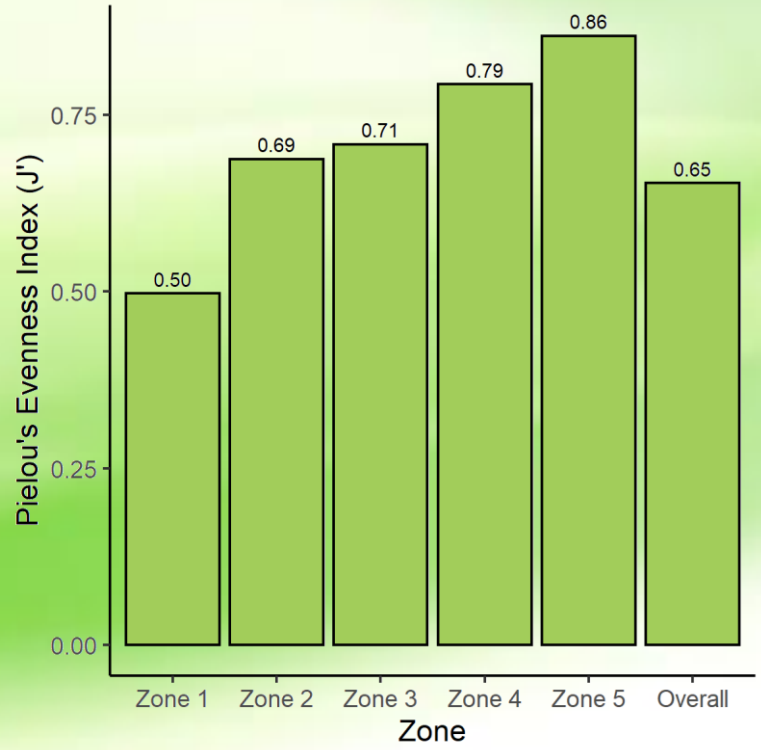
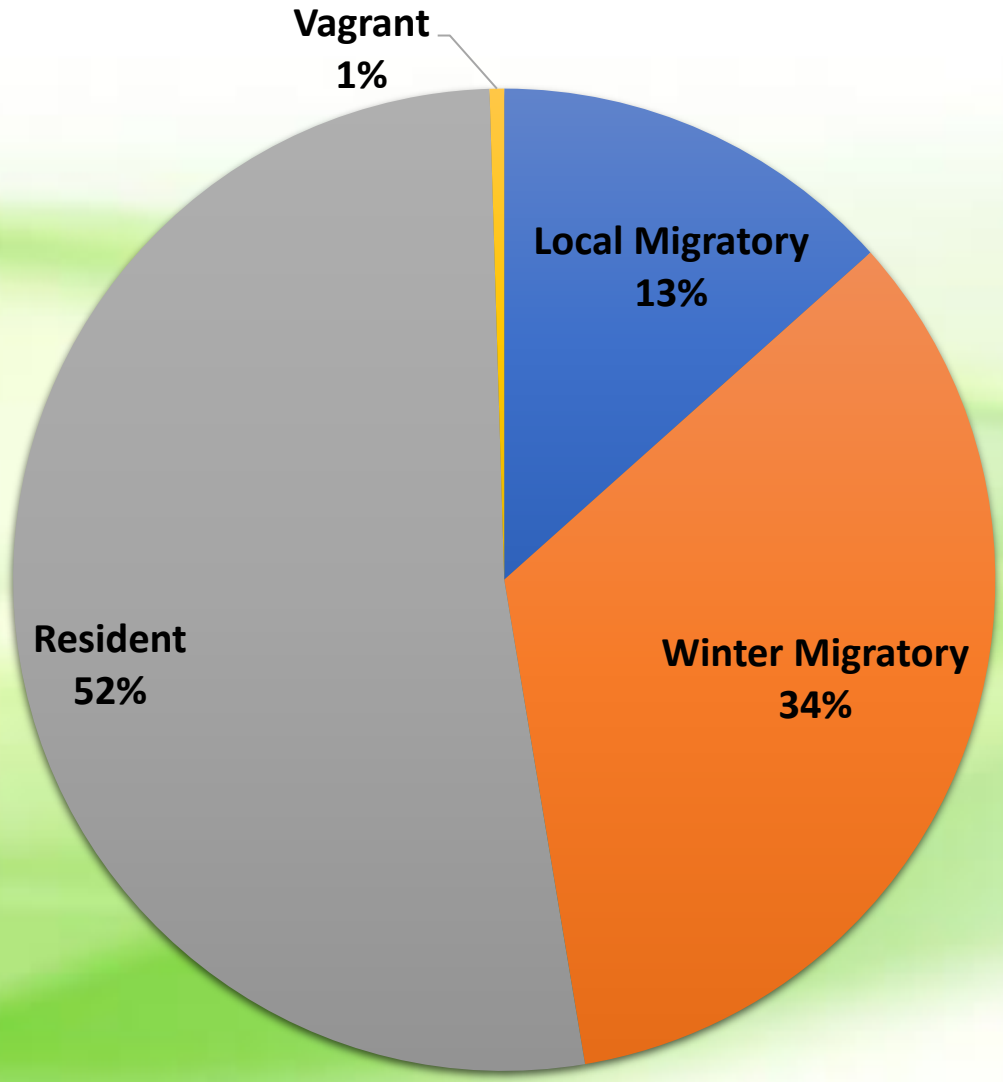


Figure 5. Zone wise estimated Pielou Evenness of bird species

Resident /Migratory Status wise Percentage of Birds Species



Threatened Species Recorded

Critically Endangered

1. White-rumped Vulture

Endangered

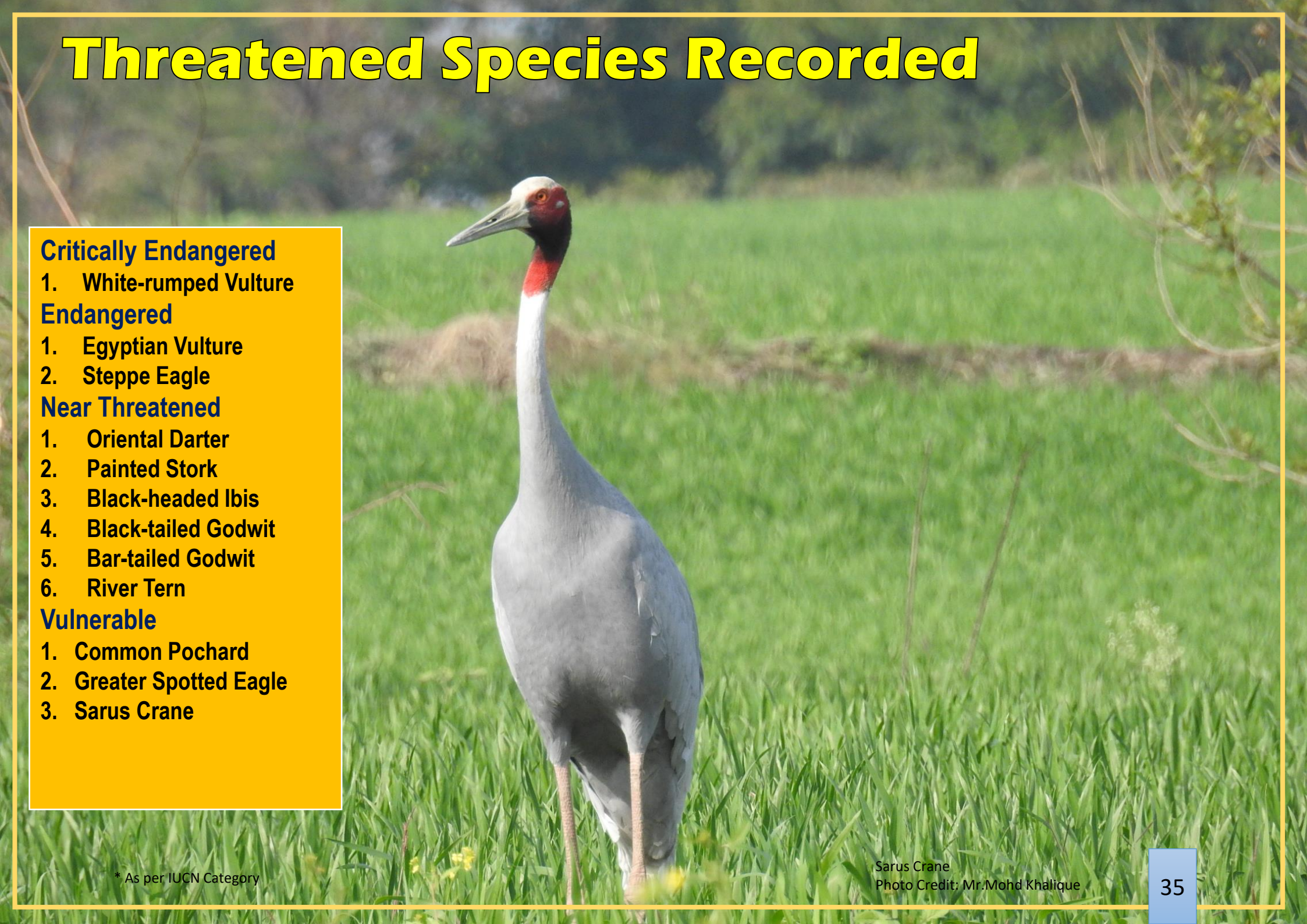
1. Egyptian Vulture
2. Steppe Eagle

Near Threatened

1. Oriental Darter
2. Painted Stork
3. Black-headed Ibis
4. Black-tailed Godwit
5. Bar-tailed Godwit
6. River Tern

Vulnerable

1. Common Pochard
2. Greater Spotted Eagle
3. Sarus Crane

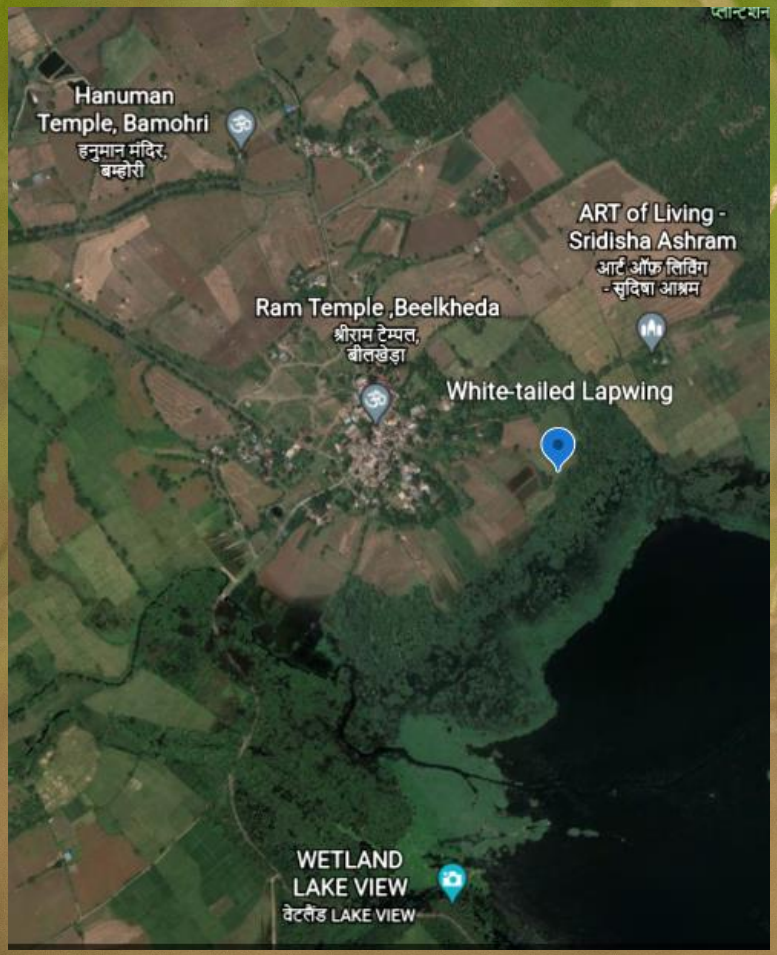


* As per IUCN Category

Sarus Crane
Photo Credit: Mr.Mohd Khalique

8.RARE SIGHTINGS

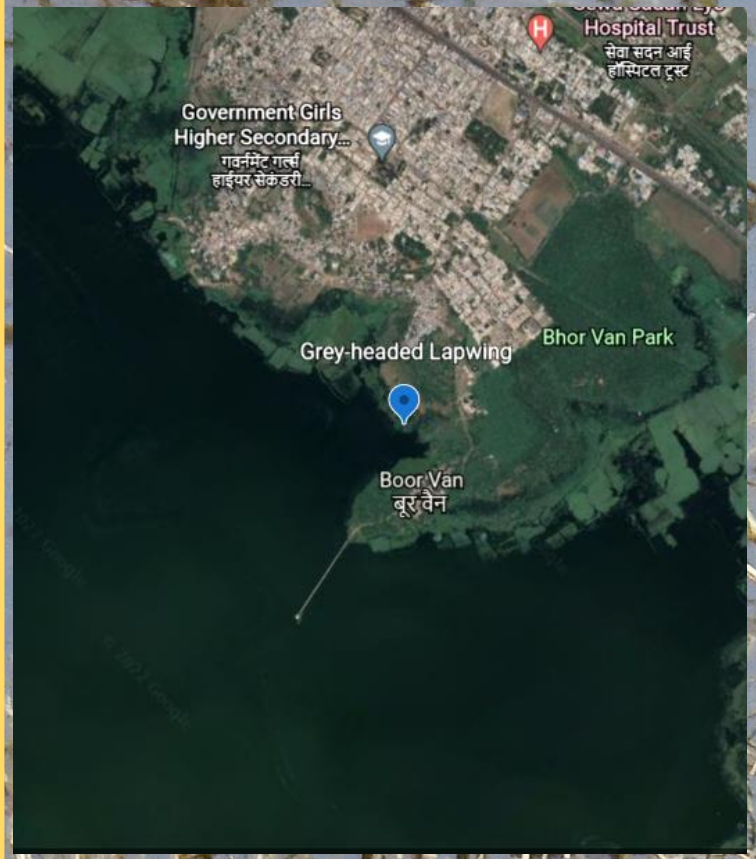
White-tailed Lapwing
Vanellus leucurus
Location : Beelkheda Village
Recorded first time in Bhopal by Mr.Salil Jain & Rahul Kahar



Google Map Location of Sighting

Photo Credit: Mr.Salil Jain

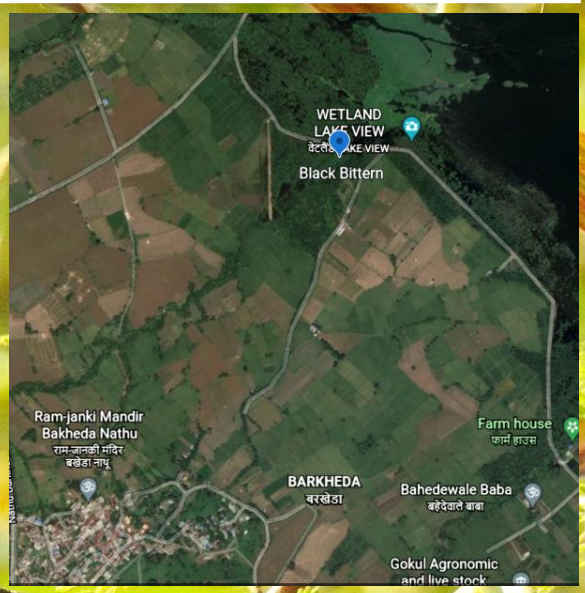
Grey-headed Lapwing
Vanellus cinereus
Location : Borvan



Google Map Location of Sighting

Photo Credit: Mr.Mohd Khalique

Black Bittern
Dupetor flavicollis
Location : Barkhedanathu



Google Map Location of Sighting

Photo Credit: Mr.Mohd Khalique

Cinnamon Bittern
Lxobrychus cinnamomeus
Location:Barkhedanathu

Google Map Location of Sighting

Photo Credit: Mr.Mohd Khalique

Peregrine Falcon
Falco peregrinus
Location : Barkhedanathu

Google Map Location of Sighting

Peregrine Falcon
Photo Credit: Mr.Mohd Khalique

10.REFERENCE

Pied Kingfisher
Photo Credit: Mr.Ashutosh Pandit

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Online :
www.ebird.org


3rd BHOJ WETLAND WINTER BIRD COUNT

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