APICULTURE (SEC, SEM-1)

SYLLABUS AS PER NEP 2020

Objectives of the Course: The objective of this SEC course is to know the basic concepts of beekeeping by undergraduate students, and beginners. Students will get knowledge about different bees, culture techniques, honey harvesting, and the knowledge of diseases and enemies of honey bees. The knowledge gained by the students can be utilized in the field or even to start their own enterprise after completion of the course.

SL. NO.	TOPICS (Credits: 2)	TOTAL NO. OF LECTURES (30)
1.	History and importance of apiculture; the systematic position of bees; different species of common honey bees and their description.	3
2.	The life cycle of the honey bee; general morphology and anatomy of different castes of honey bees; emphasis on mouth parts; Non-Apis bee species.	4
3.	Structure of different bee hives or honey comb; colonial organization; bee language and communications.	3
4.	Methods of Bee Keeping: Indigenous methods and its disadvantages.	2
5.	Apiary: selection of good apiary site; selection of good bee.	2
6.	Modern methods of Apiculture: Discovery of the movable hive; Langstroth and Newton hive; description of modern movable bee hive; accessory equipment used in beekeeping industry; Extraction of honey; important points regarding the handling of bees.	4
7.	Products of Apiculture: Honey, wax, etc., chemical compositions; use; other products like propolis, royal jelly, apitoxin, etc.	3
8.	Diseases and enemies: parasitic diseases; other enemies.	3
9.	Types of beekeeping, economics: Stationary and migratory; economics of beekeeping, the position of this industry fromthe Indian perspective.	3
10.	Entrepreneurship in Apiculture: Beekeeping as a source of employment and livelihood; the role of KVIC for beekeeping in India; proposal preparation for funding.	3

Reference Books:

A Handbook of Economic Zoology. Jawaid Ahsan and S. P. Sinha, S. C. Publication.
Vinesh: A Text Book of Apiculture (SEC) Dr.HemRaj. S. Vinesh& Co.
Saras Apiculture. K. V. Jayashree, C. S. Tharadevi, N. Arumugam.
Textbook of Apiculture (Beekeeping). D. K. Belsara et. al. Himalaya Publishing House.
Modern Textbook of Zoology Invertebrates. R. L. Kotpal.
Biology of Animal. Ganguly, Sinha, Adhikari. New Central Book Agency.
Apiculture ICAR PDF Book:, AgriMoon.com. Free download.

APICULTURE PRACTICAL (Credit: 1)

Visit pharm/lab, viva-voce and submit reports **Full Marks:** 10

To,

The Principal

Abhedananda Mahavidyalaya

Sainthia, Birbhum

Subject: Application for praying permission to study tour.

Sir,

The undersigned like to inform you that the students (Semester-1, 3years & 4years major and minor) and teachers of Botany Department (Kiran Kumar Mondal) and Zoology Department (Md. Nazimuddin, Mampy Dey and Abdus Satter) are going to botanical excursion (Excursion field: Ballavpur wildlife sanctuary, Shantinketan), dated on 19/12/2023, according to NEP 2020 syllabus requisition, which is already known to you.

In this respect kindly give the official permission for excursion to leave the station as on stipulated date with teachers and students. I am also attaching the teachers and students list (with guardian permission form) here with for your approval for this said excursion.

Your kind cooperation and necessary action will be highly solicited by us.

Thanking you.

Yours faithfully,

Kiran Kumar Mondal

(Kiran Kumar Mondal)

Head, Department of Botany &

Date: 18/12/2023

Allowed excursion in this twenty nine three teachers and students.

18/12/23.

Principal
Abhedananda Mahavidyalaya
Sainthia, Birbhum

Md. Nazim Uddin

(Md. Nazimuddin)

Head, department of Zoology

ABHEDANANDA MAHAVIDYALAYA

SAINTHIA, BIRBHUM, WEST BENGAL, PIN 731234

Founder: SrimatSatyanandaDev (1965)

(Affiliated to the University of Burdwan and Accredited by NAAC)

Phone: 9434182461 E-mail: abhedanandamahavidyalaya@gmail.comWebsite: www.abhedanandamahavidyalaya.ac.in

Date: .....

Ref. No. .....

From: The Principal

PROJECT COMPLETION CERTIFICATE

This is to certify that the following students have successfully completed their Review work (under Department of Zoology) relating to the paper ZOOL2011(CHORDATES) in the academic Year 2023-24:

Title of the Project: Biodiversity of Chordates Animal

Name of the Supervisor: _ MD. NAZIM UDDIN & Mampi Dey Department of ZOOLOGY Abhedananda Mahavidyalaya, Sainthia.

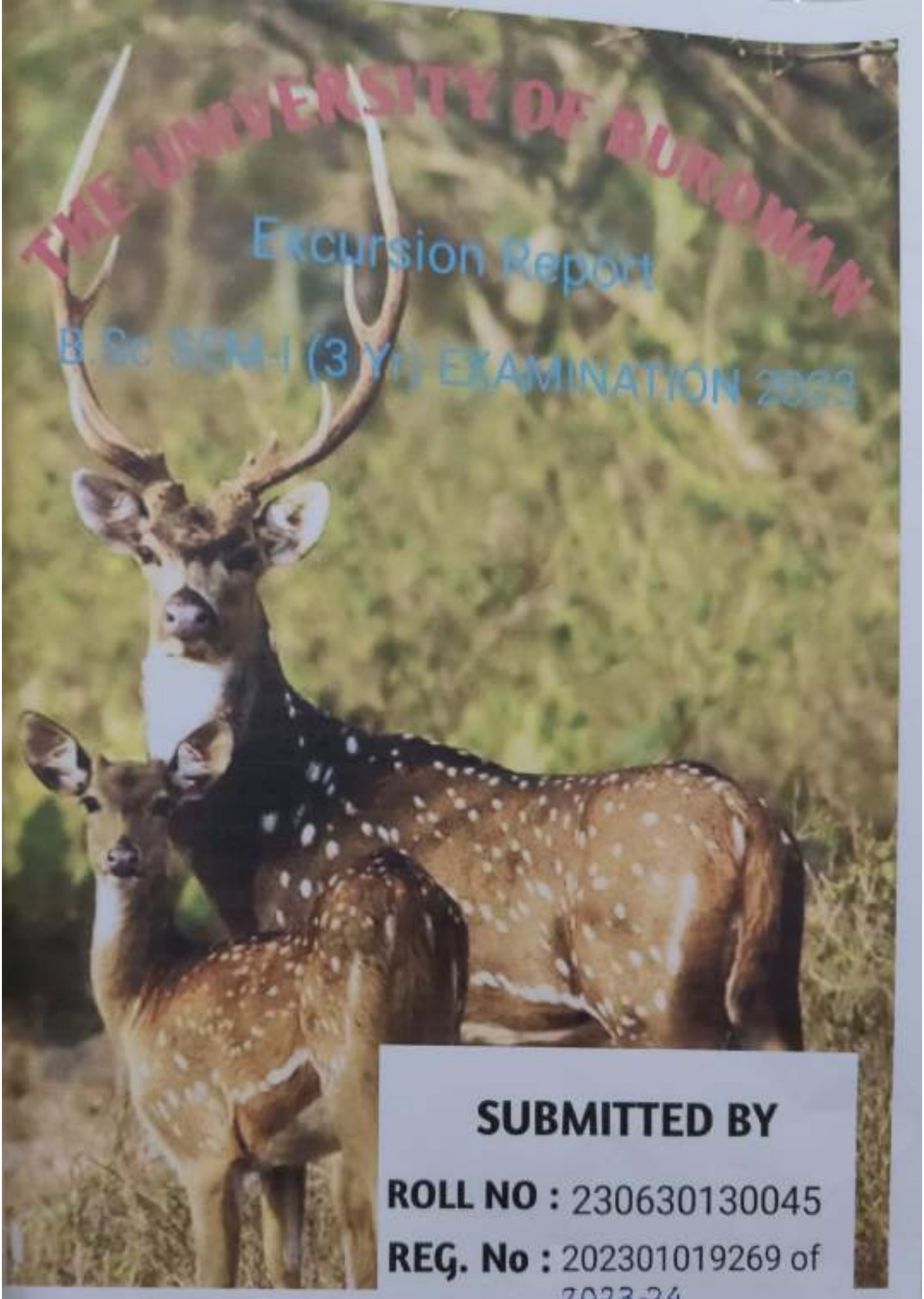
List of Students:

Name of The Student

Sl. Nos.	Roll No.	Course	Paper	Year	Name of the Student
1	230330140007	MAJOR	ZOOL2011	2023-24	ARNAB DHARA
2	230330140008	MAJOR	ZOOL2011	2023-24	ARPITA DAS
3	230330140017	MAJOR	ZOOL2011	2023-24	MONAMI MAJUMDER
4	230330140020	MAJOR	ZOOL2011	2023-24	PARVIN KHATUN
5	230330140022	MAJOR	ZOOL2011	2023-24	PRIYANKA KESHRI
6	230330140031	MAJOR	ZOOL2011	2023-24	SASWATI SAHA
7	230330140037	MAJOR	ZOOL2011	2023-24	SHUVO PRAMANIK
8	230330140038	MAJOR	ZOOL2011	2023-24	SNITA MONDAL
9	230330140039	MAJOR	ZOOL2011	2023-24	SUBHA MONDAL

Principal
Abhedananda Mahavidyalaya
Sainthia Birbhum

10	230630130004	MAJOR	ZOOL2011	2023-24	AJANTA MONDAL
11	230630130010	MAJOR	ZOOL2011	2023-24	ARPITA DE
12	230630130015	MAJOR	ZOOL2011	2023-24	EKITA MONDAL
13	230630130021	MAJOR	ZOOL2011	2023-24	ISHA GHOSH
14	230630130027	MAJOR	ZOOL2011	2023-24	KRISHNALAL ROY
15	230630130028	MAJOR	ZOOL2011	2023-24	KUSHANKUR MONADL
16	230630130030	MAJOR	ZOOL2011	2023-24	MAHAMMAD ARIF SHAIKH
17	230630130031	MAJOR	ZOOL2011	2023-24	MD WASIM DENISH ALI
18	230630130034	MAJOR	ZOOL2011	2023-24	PIU MONDAL
19	230630130035	MAJOR	ZOOL2011	2023-24	PRITI MONDAL
20	230630130039	MAJOR	ZOOL2011	2023-24	RIYA MONDAL
21	230630130044	MAJOR	ZOOL2011	2023-24	SARIFUL SK
22	230630130045	MAJOR	ZOOL2011	2023-24	SATHI RAKSHIT
23	230630130046	MAJOR	ZOOL2011	2023-24	SAYAN KUNDU
24	230630130048	MAJOR	ZOOL2011	2023-24	SIDDHIKA TIWARI
25	230630130053	MAJOR	ZOOL2011	2023-24	SUBHAM DAS



THE UNIVERSITY OF BURDWAN

Excursion Report

B. Sc. SEM-I (3 Yr.) EXAMINATION 2023

SUBMITTED BY

ROLL NO : 230630130045

REG. No : 202301019269 of 2023-24

ACKNOWLEDGEMENT

We are thankful to the principle Gautam Sen for his kind permission and provide financial support for Conducting of this exclusion. We are highly thankful to the head of the Department of Zoology Md-Nazim Uddin for kin interest, constant encouragement and all kinds of administrative as well as academic helps without which the excursion could not have been Conducted. Thanks are due to all teachers and staff members our department for their advice, help and co-operation. Our heartfelt thanks to Mompy Dey, Abdus Satter faculty members of our department for accompanying as and thaking all troubles and care for overcoming ever problem encountered during the excursion.

We are heavily indebted to pradip Haldar Rang officer of Ballarpur Wildlife Sanctuary, for her active involvement, guidance demonstration and sorts of facilities provided.

INDEX

What Is Excursion:

Excursion is a trip guided by the teachers to understand Several subject maters included within the Syllabus. The purpose of the trip is usually observation for education. non-experimental research to provided students with experience outside their everyday activities, such as going coming with teachers and their classmates. The aim of this research is to observe the subject in its state and possibly collect sample. The only way to find out how any organism survives, reproduces and interacts with other organisms is to study it in its natural habitat. These ecology practical science. These are three main approaches to study of ecology. The simplest method is to observe and record the organism in its natural environment. This is sometimes described as observation 'in the field' or field ~~work~~ work.

Significance and Importance of Excursion:

The first and foremost objective of a field study is to specifically analyza the various topics of interest regarding (i.e, behaviour, autoecology), flora and faura diversity etc.) and to perform detailed observations and drawing out conclusions. No to perform detailed observation and drawing out conclusions. No, to mention that ecology can't be studied theoretically but also it needs a partical way of approach by which can from the exact issue of our interest. B. This makes studing ecology in a broader sense. Compared to experiment performed in the laboratory, studing on field elements and. Observing them leads to more accurate result since we get a visual outlook on them. Its important can be mentioned in the following points :- 1. Understand basic ecological principles as applied to global and local ecosystems. 2. Be able to apply an understanding of ecological principal to issues of environmental concern. 3. Have experienced and used a variety of 'Modern expedmental' and 'traditional'

field studies teeth · techniques during practical investigations of a range of natural and managed ecosystem.
4. To study the biodiversity, positions of organism within an ecosystem and the interrelationship among themselves. 5. Be familiar with aspects of preservation and management of natural and semi natural habitants of conservations importance.

Excursion at the Biodiversity rich area:

Biodiversity is the variation of life forms within a given ecosystem, biome, or for the entire earth. Biodiversity is often used as a measure of the helth of the biological system. The biodiversity found on earth today consist of many millions of distinct biologically species which is the products of nearly 3.5 billion years of evolutions.

Biodiversity also supports a number of natural eco-system process and service. Some ecosystem services that benefit society are air quality, climate (both global & local), water purification pollination, Co sequenstration & prevention of erosion.

The economic value of the reservoir of genetic traits present in wild varieties & traditionally grown land races is extremely important in improving crop performance. important crops, such as the potato & coffee, are often derived from only a few genetic strains. When rice grassy virus struck rice field from Indonesia to India in 1970s 6293 varieties were tested resistance. One was found to be resistant, an Indian variety. known to science only since 1966. The variety formed a hybrid with other varieties & is now widely grown.

A wide range of industrial materials are derived directly from biological resource. This includes building materials, fibers, dyes, resin rubber & oil. The degree to which bio diversity support business varies between regions & between economic sectors, however the importance of biodiversity of issues of resource security (water quantity & quantity,

timber, paper & liber, food & medical resource etc) are increasingly recognized as universal. As a result, the loss of biodiversity is increasingly recognized as a significance risk factor in business development & a threat to long term. economic sustainability. A member of case studies recently complied by the World Resources Institute demonstrated. Some of these ~~nip~~ risks as indefinite by specific inducbies.

Description of the Visit

An excursion is as an essential part of the syllabus. Therefore, an educational ~~down~~ tour was organized at Ballavpur Wild life Santuary, bolpur, birbhum, West Bengal.

Duration of Excursion : 19.12.2023

Number of Students participated : 19

Accompanying Teachers : 3

We have studied the ecological diversity of a wildlife Sanctuary prevailing in birbhum, west Bengal. After Stating the importance and significance of the ecological field study, we will now give a brief at out west Bengal. its ecological significance, its features and characteristics along with conservation strategies.

About the Ballavpur Wild life Sanctuary :

The Sanctuary is named after the place Ballavpur. In 1977, the area of 2021 km was declared as Wildlife Sanctuary. The Sanctuary has natural Sal forest in 1954-1955 Accacia, Sissa, Cashew nut and trees are planted to green the barren land Deer park established in 40 hectare area where Black buck and Spotted deer but only the Spotted deer Survived. This Sanctuary has three water bodies which attracts large number of winter migratory birds. Commonly found animals are wolf, Civet, Jungle cat etc.

History of Ballavpur wildlife Santuary

Physical Features :

This arid region is apart of western plateau region of west Bengal. Its physical features can be described as an under plateau modified in-to somewhat plain feature. Gully soil erosion is prevalent.

Soil :

Hard, rocky, Sandy red laterite, Soil made up of gravel, This soil supports little vegetation as water holding capasity is low.

Humidity :

Maxium 80% and minimum 55%.

Temperature :

During Summer the temperature reaches up to ~~440~~ 44°c and 32°c minimum and it is rather cold during winter, at that time the temproeature remains in between the 60°c to 10°c.

Rain fall :

Monsoon rain comes to Santiniketan in late Summer months. The maximum amount of rain fall is an the month of June & July.

In these two months the amount of Rain fall is approximately 169.8 cm & 258.7 cm respectively.

But the average amount of rainfall in this region is 137 cm per year. The rain fall has an effect on the different vegetation along with breeding activities.

OBSERVATION AT BALLAVPUR WILDLIFE SANCTUARY

The flora and fauna in Ballavpur Wild Sanctuary are listed below:-

Habit	Common Name	Scientific Name
Tree	Shal	Shorea robusta
	Sonajhuri	Acacia auriculaformis
	Bandar lathi	Cassia fistula
	Minjiri	Cassia Siamea
	Kaju	Anacardium occidentale
	Sisoo	Dalbergia sissoo
	Amloki	Emblica officinalis
	Haritaki	Terminalia balerica
	Mohua	Madhuka longifolia
	Jam	Syzygium cumini
	Aam	Mangifera indica
	Teatul	Tamarindus indica
	Rain tree	Samanea Saman
	Pea-Sal	Pterocarpus marsupium
	piyal	Bachmania lenzem
	palash	Bwea monosperma
	Bot	Ficus benghalensis
	Sirish	Albizzia lebbek
	Arjun	Terminalia arjuna
	Gamar	Gmelina arborea
	Simul	Bombax ceiba
	Segun	Tectona gradis
	Neem	Azadirachta indica
	Mahaneem	Ailanthus excels
	Kend	Diospyros melanaxylon
	Jarul	Lagerstroemia speciosa
	Lohakut	Xylia dolabriformis

Habit	Common Name	Scientific Name
Algae	Algae	Div ehlorophyta
	Type-1	Daldinia sp.
Fungi	Type-2	polyporus sp.
	Type-3	Schizophyllum sp.
	Type-4	Member of pdy poraceae
	Type-5	Xylaria sp.
Aves	Bee eater	Merops sp.
	Type-1	Cuculiforms sp.
	Sparrow	Passer sp.
	Crow	Corvus sp.
Mammalia	Deer	Axis axis

Spotted Deers

Analysis of the Diversity In That Commun;

To study the diversity of that area, we choose Shannon weaver diversity method.

Diversity is the degree of heterogeneous species in a community. The purpose of measuring diversity in an ecosystem is to judge the relationship of a community properties. or its prevailing environmental conditions high taxon. diversity is related to high community composition high environmental stability, high environmental predictability and high productivity. It is claimed as an effective statistics to understand and to predict a changed environment.

As a student ecology we wants to know how the diversity of organisms there are in a particular habitat. It would not be feasible to count them all instead we could be forced to count a smaller representative part of the population. Called a ~~sma~~ sample. Sampling of plants or animals that do not move much can be done using a sampling of square, called a-quadrate.

Procedure:

1. The fixed point is first determined by a stone throwing by our professor.
2. Now within the area randomly 5 different places are Choosen and marked with the quadrate which is 1cm x 1cm in size. And all the 5 quadrates are marked with line The various animals falling under each quadrate are then noted down.

Observation:

Number of Species	Number of quadrates					Total No. of Species
	1	2	3	4	5	
Species - I	2	9	24	5	5	45
Species - II	9	18	11	7	17	62
Species - III	4	6	0	4	4	18
Species - IV	9	1	2	1	9	22
Species - V	0	0	0	21	0	1
Total No. of individual of all Species						148

Species	Total No. of each Species (n_i)	$P_i = (n_i/N)$	Log P_i	$P_i \log P_i$
Species - I	45	0.3	-0.52	-0.156
Species - II	62	0.4	-0.39	-0.156
Species - III	18	0.12	-0.92	-0.110
Species - IV	22	0.14	-0.85	-0.119
Species - V	1	0.01	-2	-0.02
	N = 148			$\sum_{n}^{n_i} P_i \log P_i = -0.561$

Shannon - Weaner Diversity Index $H = -\sum_{n}^{ni} Pi \log Pi$

$= -(-0.561) = 0.561$

Theoretical Maximum value, $H_{max} = \log S$ [where, S = Number of different Species]

$= \log 5$

$= 0.698$

From the above dataset, the calculated H is 0.561

Therefore, Interferenece $= H/H_{max}$

$= 0.561/0.698$

$= 0.804$

Interpretation:

1. It increases with the number of species i.e richness is the community. However increassing the number of Species in a community will not nessarily increase diversity.
2. More complex the community, the greather is the speeies diversity and stabillity
3. Where diversity is studied in a time scale, greather the function H, less is its stability.
4. High diversity where there is no nomerically dominant Speeies.
5. It is less sensitive to ~~near~~ rare speeies.

Comments and Inferance

1. Richness (S) = 5
2. Hmax = 0.608
3. H = 0.561
4. I = 0.804, thus all species are moderately even in distribution.
5. As the calculated value of H is nearest to theoretical maximum value of Hmax, the diversity can be said to be high.

Conclusion

A comprehensive field study particularly in forest area provides us an opportunity to observe the overall picture of the biota of the given ecosystem in their most natural habitat. The morphology, habitat preferences, cell and other related events of organisms, what ever we study in our text books and within a confined classroom cannot always provide us a perfect picture required.

But when we were exposed to the Nature's Laboratory during our extensive field study trip and interacted with various biotic and abiotic factors that exist in diverse habitat and habita patches along with ~~the brief~~, the wonderful niche utilization pattern.

In brief, the excursion gave us an opportunity for pragmatic study of biodiversity as students of biodiversity as stubent of zoology. It was a thrilling and enjoying experience throughout the excursion. We got a real touch of nature and a strong belive that all these experiences will generall love for nature and will be helpful in maintenance and conservations of our precious bio-divesity.

ABHEDANANDA MAHAVIDYALAYA
SAINTHIA BIRBHUM
ESTD: 1965

CERTIFICATE OF PERFORMANCE

CERTIFICATE NO:- AM/ZOO/FE.....

This is to certify that Sri/Smt....Sathi Rakshit..... of Department of Zoology(Hons), Abhedananda Mahavidyalaya, Sainthia,Birbhum bearing Roll No.23063013005..... has successfully completed his/her Filed work Paper ZOOL1051(Apiculture) on 19/12/2023 as per the requirement of the syllabus.

Md. Nazim uddin

Head
Board of the Department
Zoology.
Abhedananda Mahavidyalaya

6/1/24

Principal
Abhedananda Mahavidyalaya

Principal
Abhedananda Mahavidyalaya
Sainthia, Birbhum

11. Sherman, P.W.and John Alcock, Exploring Animal Behaviour, Sinauer Associate Inc., Massachusetts, USA.

4.2. DSE P1 –Animal Behaviour and Chronobiology Lab

Animal Behaviour and Chronobiology **2 Credits**

List of Practical

1. Study nests and nesting habits of the birds and social insects.
2. Study the behavioral responses of woodlice to dry and humid conditions.
3. Study geotaxis behaviour in earthworm.
4. Study the photo taxis behaviour in insect larvae.
5. Visit to Forest/Wildlife Sanctuary/Biodiversity Park/Zoological Park to study behavioural activities of animals and prepare a short report.
6. Study and actogram construction of locomotor activity of suitable animal models.
7. Study of circadian functions in humans (daily eating, sleep and temperature patterns).

Full Marks: 20

Examination Pattern:

One question from Item No. 1, 2, 3 and 4 ---------- (5X 1) = 05
One question from Item No. 6 ---------- (5X 1) = 05
One question from Item No. 7 ---------- (5X 1) = 05
Excursion Report ---------- = 03
Laboratory Note Book ---------- = 02

To,

The Principal

Abhedananda Mhavidyalaya

Sainthia ,Birbhum

Subject: Application for praying permission to study tour

Sir,

The undersigned like to inform you that the student (Sem-6) and teachers of Zoology Department are going to Zoological park to study Behavioral activates of animal and prepare a short report according to CBCS syllabus(Sem-6 DSE-1),which is already known to you.

In this respect kindly give the official permission for visit the park to leave the station as on stipulated date with teachers and student .I am also attaching the Teachers and student list here with for your approval for this said Zoological park visit.

Date- 14/6/2024

Principal
Abhedananda Mahavidyalaya
Sainthia, Birbhum

Md. Nazim uddin

Yours faithfully

Md Nazim Uddin

Head ,Department of Zoology

ABHEDANANDA MAHAVIDYALAYA

SAINTHIA, BIRBHUM, WEST BENGAL, PIN 731234

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Phone: 9434182461 E-mail: abhedanandamahavidyalaya@gmail.comWebsite: www.abhedanandamahavidyalaya.ac.in

Ref. No. ……

Date: ……

From: The Principal

PROJECT COMPLETION CERTIFICATE

This is to certify that the following students have successfully completed their Project work (under Department of Zoology) relating to the paper DSE -3 (Animal Behaviour) in the academic Year 2023-24:

Title of the Project: Behavior of Domestic Animals.

Name of the Supervisor: MD. NAZIM UDDIN , Department of ZOOLOGY ,Abhedananda Mahavidyalaya, Sainthia.

List of Students:

Name of the Student

Sl. Nos.	Roll No.	Course	Paper	Year	Name of the Student
1	200330100070	HONS	DSE-3	2023-24	TOTAN JHA
2	210330100006	HONS	DSE-3	2023-24	ANGSUMAN MONDAL
3	210330100011	HONS	DSE-3	2023-24	BIDISHA KARMAKAR
4	210330100023	HONS	DSE-3	2023-24	KOUSHIKI ROY
5	210330100026	HONS	DSE-3	2023-24	PALLOBI PRAMANICK
6	210330100032	HONS	DSE-3	2023-24	QUEEN DUTTA
7	210330100040	HONS	DSE-3	2023-24	SALMA SULTANA
8	210330100042	HONS	DSE-3	2023-24	SAPTAMI MONDAL
9	210330100050	HONS	DSE-3	2023-24	SOUMIK MONDAL

Principal
Abhedananda Mahavidyalaya
Sainthia

PROJECT
REPORT ON

BUFFALOS CLEANING /GROOMING BEHAVIOUR

B.SC. 6th SEMESTER
DEPARTMENT OF ZOOLOGY
ABHEDHANANDA MAHAVIDYALAYA
DSE -3
ANIMAL BEHAVIOUR

SUBMITTED BY
ROLL NO :21033O100006
REG NO: 202101026484 OF
2021-22

ACKNOWLEDGEMENT

The author express his sincere gratitude and indebtedness to Md Nazim Uddin(H.O.D), Dept. of Zoology, Abhedananda Mahavidyalaya, Sainthia, Birbhum, for his most valuable guidance and encouragement throughout the course of this work.

The author is also indebted to. Dr. Gautam Sen, Principal, and Abdus Sattar, for their continuous support and encouragement.

The author is also expressing his gratitude to all the respective teachers (Mumpy Dey) for their kind suggestion during the study. The author is also to laboratory attendant Sofikul Islam for his co-operation and encouragement.

(Angsuman mondal)

Certificate

THIS IS TO CERTIFY THAT **ANGSUMAN MONDAL (roll no. – 210330100006, reg no. – 2021011026484 of 2021-22)** STUDENT OF B. Sc. 6th SEMESTER ZOOLOGY (HONS) **ABHEDANANDA MAHAVIDYALAYA** HAS SUCCESSFULLY COMPLETED HIS PROJECT WORK ON **BUFFALOS CLEANING /GROOMING BEHAVIOUR** UNDER THE GUIDANCE OF **PROF MD.NAZIM UDDIN (H.O.D.).**

INDEX

INTRODUCTION :

WHAT IS ANIMALBEHAVIOUR ?

One of the basic aspects that separates living from non-living matter is the capacity of living organism to respond to changes in the environment.The response of living organisms is adaptive, That is it enhances the probability of the species to survive and reproduce. One of the most important ways of adapting to environmental change , at least for animal , is behaviour and its success depends to a great extent upon its degree of variability.

ANIMAL
BEHAVIOUR

FACTS

Generally, the term behaviour is used to refer to all those responses to environmental changes that involve the integrated Functioning of the entire organism. For instance, plants react to stimuli at the cell level, as do unicellular animals in multicellular animals genetically inherited sensory and nervous systems provide the framework for reaction, the way in which animal expriences its environment also infiuences its behaviour.

WHY DO ANIMALS HAVE TO BEHAVE?

Animals have behaviors for almost every imaginable aspect of life, from finding food to wooing mates, from fighting off rivals to raising offspring. Some of these behaviors are innate, or hardwired, in an organism's genes. For instance, this is true of the squirrel and its acorn.

WHAT IS BEHAVIOUR?

Behaviour is how animal acts. It is what a person or animal does to make something happen, to make something change or to keep things the same. Behaviour is a response to things that are happening: internally - thoughts and feelings. externally - the environment, including other people.

BEHAVIOURS OF ANIMALS:

Behaviours of animal is anything an animal does involving action and a response to a stimulas.

Some behaviours are:

1. ***Blinking Behaviour***
2. ***Eating Behaviour***
3. ***Walking Behaviour***
4. ***Flying Behaviour***
5. ***Vocalizing Behaviour***
6. ***Huddling Behaviour***
7. ***Cleaning or grooming (body care)***
8. ***Shelter seeking Behaviour***
9. ***Social behaviour***
10. ***Behavior of Maintenance***
11. ***Reproductive Behavior***
12. ***Ingestive behavior***
13. ***Eliminative Behavior***
14. ***Agonistic Behavior***
15. ***Motivation Behaviors***
16. ***Appetitive or searching behaviour***
17. ***Acquired Behaviors***

In this project report , we presenting the cleaning or grooming behaviour of buffalo.

SOMETHING ABOUT BUFFALO:

scientific name of buffalo :*Bubalus bubalis.*

- Mass: 300 – 550 kg (Adult)
- Gestation period: 281 – 334 days
- Term for young: calf
- Height: 1.3 – 1.3 m (Male, At the withers), 1.2 – 1.3 m (Female, At the withers)

CLENING OR GROOMING BEHAVIOUR OF BUFFALO:

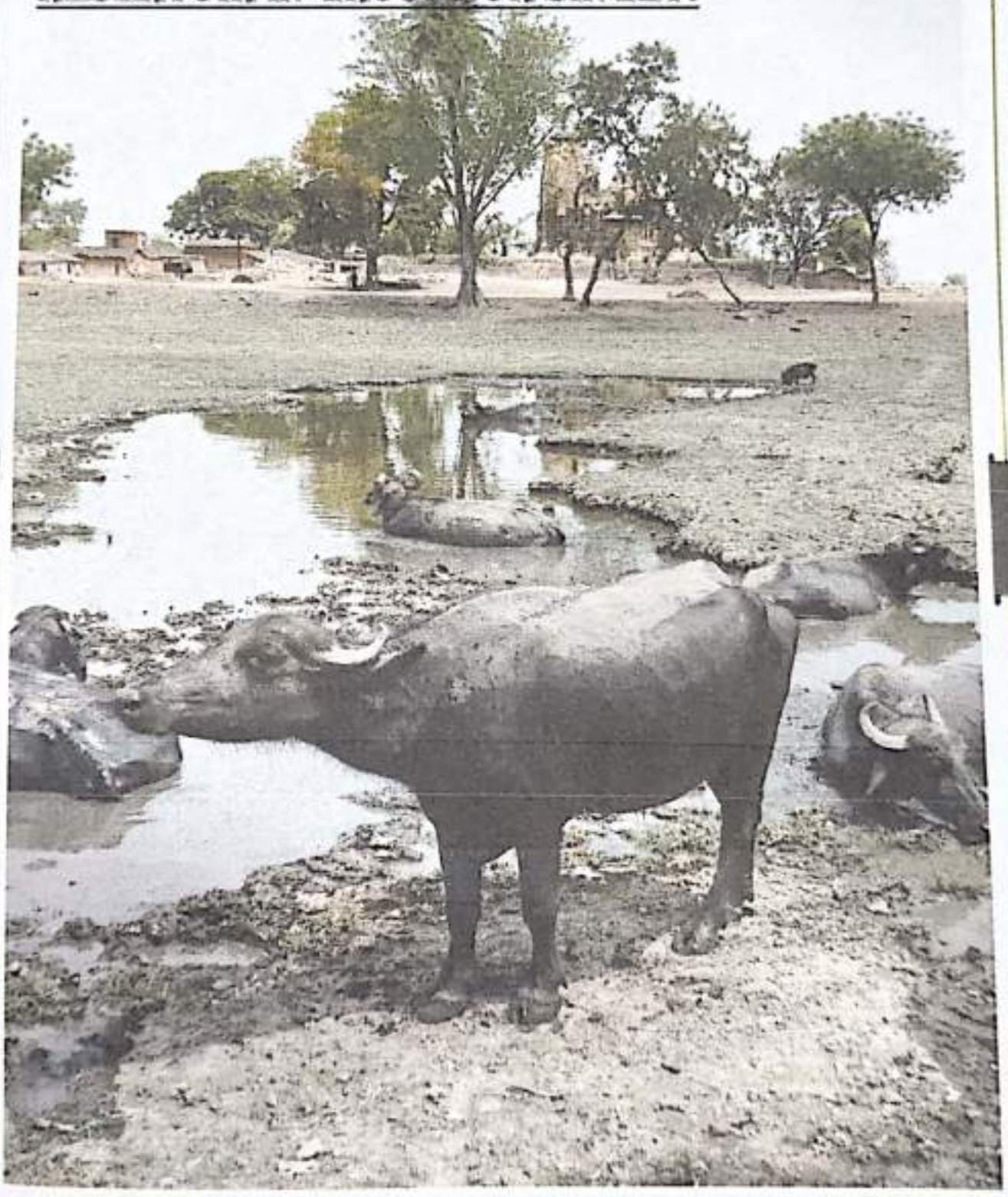
The Indian water buffalo have two cleaning behaviour:

1. *roll in wallows to groom themselves and remove loose fur. It is also thought that they take dust baths to chase off the flies that plague them during the warmer months of the year and that the dust left on their skin and fur may help prevent bites.*
2. *Buffalos descends into ponds in search of pools of water during periods of excessive heat or when the body accumulates a large amount of dirt. And they sit for a long time on top of the wet body and swim. They tie them together. By these, their body heat is reduced. In hot weather, the body is cooled and their body is clean. This is their cleaning or grooming bhaviour.*

THERE ARE SOME STEP IN BUFFALOS CLEANING OR GROOMING BEHAVIOUR:

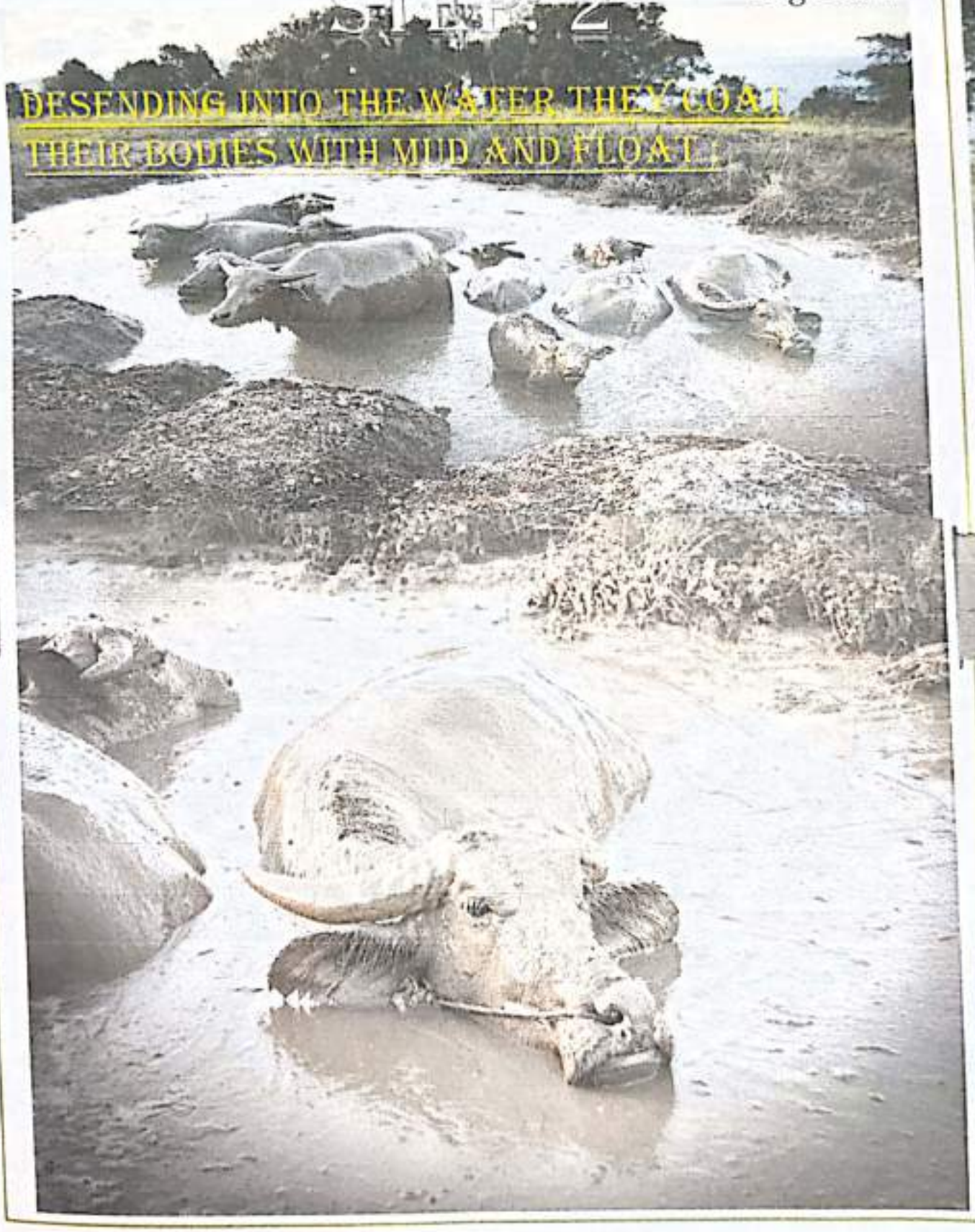
FIRST STEP : *As the heat starts to rise and the body becomes more dirty,the buffalos group starts down the river or reservoir.*

NOW THEY WILL ENTER THE POND OR RESERVOIR IN GROUPS OR SINGLY.



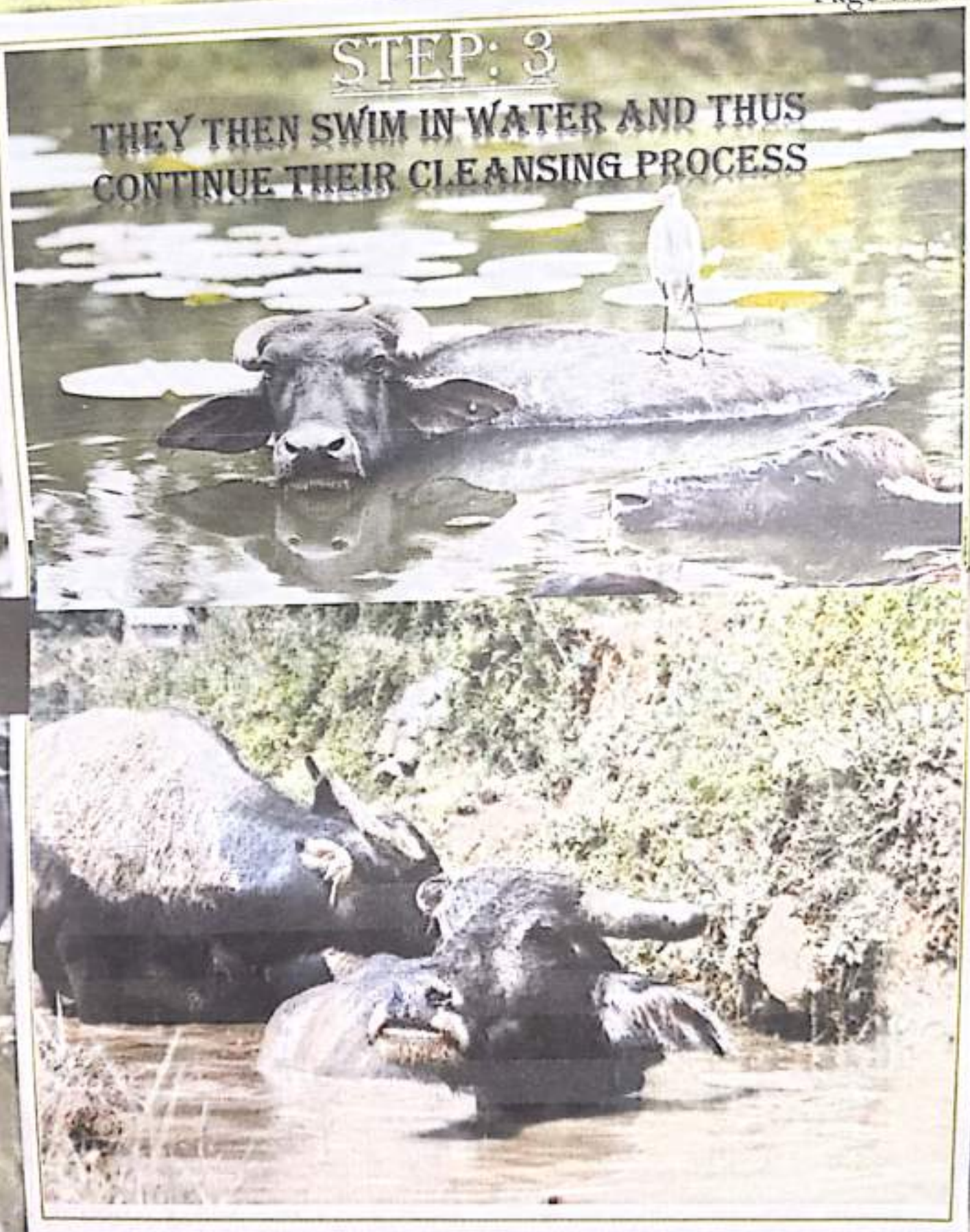
STEP 2

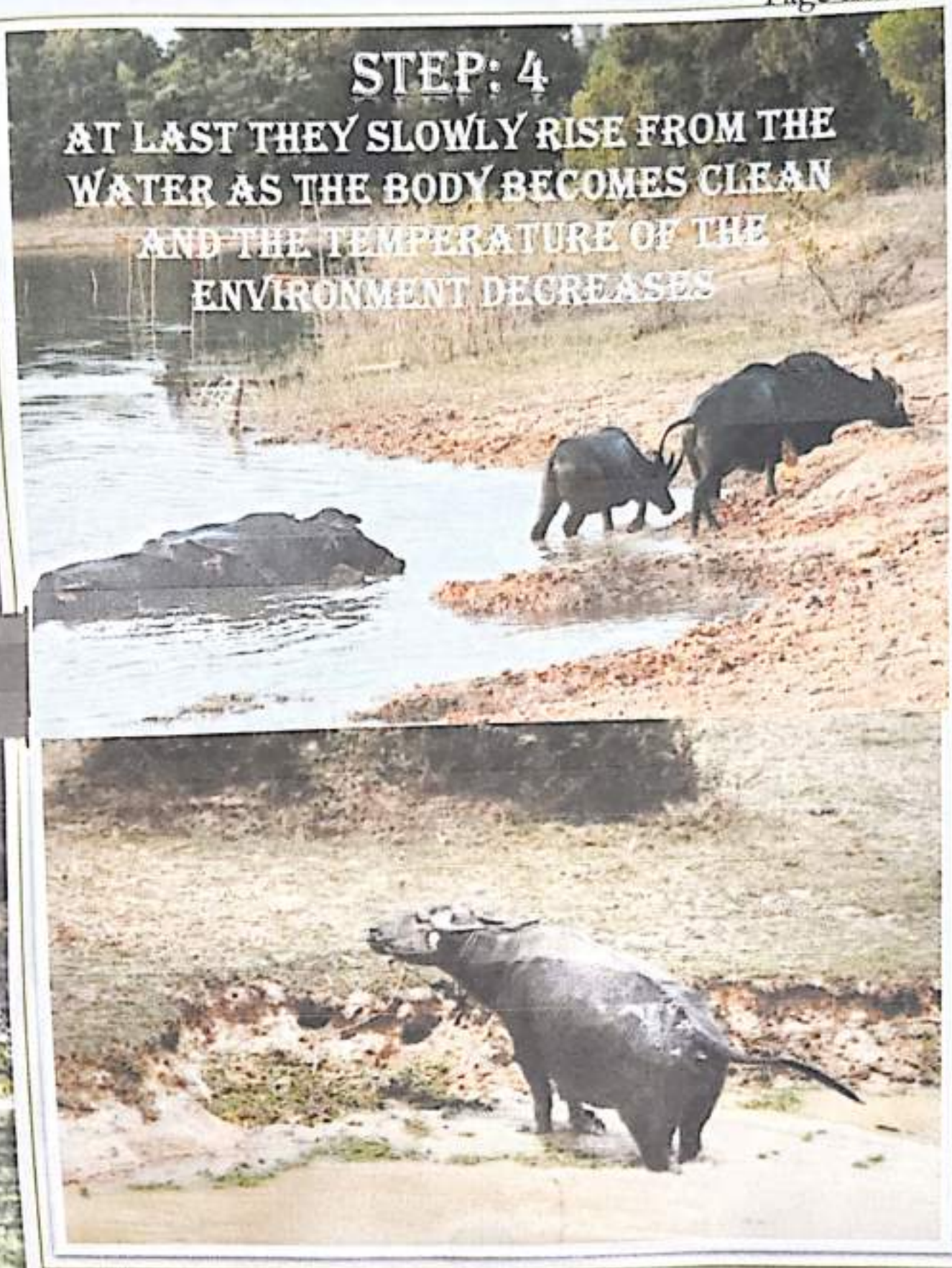
DESENDING INTO THE WATER THEY COAT THEIR BODIES WITH MUD AND FLOAT :



STEP: 3

THEY THEN SWIM IN WATER AND THUS CONTINUE THEIR CLEANSING PROCESS





CONCLUSION:

In conclusion, the grooming or cleaning behaviour of buffalo is a vital aspect of their daily lives that serves multiple purposes essential for their survival and well-being. These behaviour are not merely for maintaining hygiene but also play crucial roles in social bonding, parasite control,and overall health.

.SUMMARY OF FINDINGS :

Recap the key points discussed in the project.

.FUTURE RESEARCH :

Suggest areas for future research on buffalo groomin behaviours and their implications for conservation and animal welfare.

ABHEDANANDA MAHAVIDYALAYA
SAINTHIA BIRBHUM
ESTD: 1965

CERTIFICATE OF PERFORMANCE

CERTIFICATE NO:- AM/ZOO/PW.....

This is to certify that Sri/Smt Angsuman Mondal..... of Department of Zoology(Hons), Abhedananda Mahavidyalaya, Sainthia,Birbhum bearing Roll No. 21033010000 6..... has successfully completed his/her Project work Paper DSE -3(Animal Behaviour)e on 14/06/2024 as per the requirement of the syllabus.

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