



# e-Phoenix

*An annual newsletter of Zoology Department, Pragjyotish College*



*Published by*

**ZOOLOGY DEPARTMENT  
PRAGJYOTISH COLLEGE**

*Editor*

**LANGTUK TERANG**

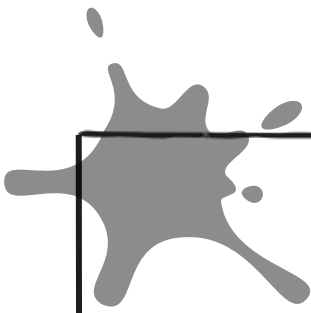
# Message from the HoD

The readers, writers, and staff members of **e-Phoenix**, the e-magazine of the Zoology Department, are my special greetings to all of you with great pleasure. This medium, created through the joint work of our bright students and faculty, is a representation of creativity, knowledge-sharing, and academic spirit. In today's ever-changing world, interdisciplinary studies, research, and innovation are the key elements for the continuum of our existence.

The sphere of zoology is vast and thus opens the way for us to approach life and the environment from perspectives that are both captivating and provoking. Bring yourself to me through the words of this magazine, and you will see the world from differing points of view, have the satisfaction of knowing current research news, and creatively explore the variety of talents of our department.

At last, I would like to express my deepest gratitude to all the editors, contributors, and supporters of the **e-Phoenix**. May this number carry on with the following slogans: bring awareness, cause debates, and provoke the achievements of a superior quality in our lives to all the people present.

***Dr Jayanta Deka (HoD)***  
***Associate Professor***



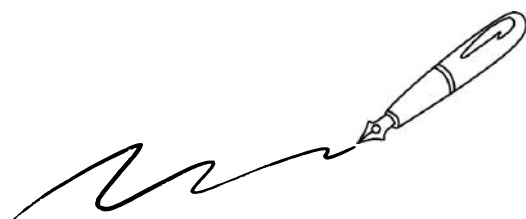
# Editorial Note

We are happy to bring you the latest edition of **e-phoenix**, our department's magazine. This annual e-magazine is a way for students and teachers to share their ideas, knowledge, and creativity. We believe that learning is not just something that happens in the classroom, but also in the world around us.

In this issue, you will find many interesting articles, stories, and creative works. Students and faculty have written about their research, shared their thoughts on society, and even contributed poems and essays. We are also excited to show you beautiful photographs and artworks made by our talented community.

We hope that this edition will inspire and inform you. Our aim is to encourage you to think, explore, and learn new things. We believe everyone has something valuable to share, and we look forward to reading your contributions in the future.

Thank you for your support. We hope you enjoy reading e-phoenix!



**Mr Langtuk Terang**

Assistant Professor

# Editorial Team

## Advisors

Seema Kaur  
Dr Jayanta Deka  
Dr Makibur Rahman  
Dr Seemashri Bora

## Editor

Langtuk Terang

## Members

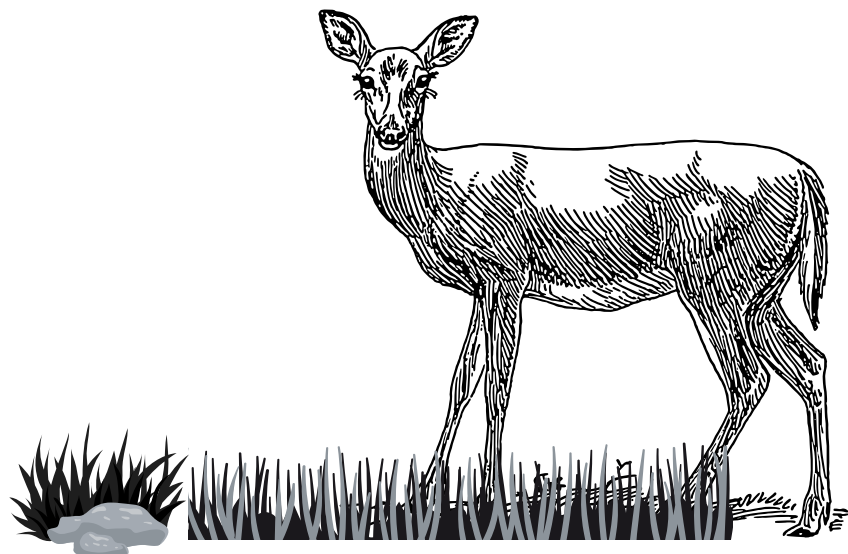
Dr Sangeeta Das  
Sagarika Das  
Dipshikha Hazarika  
Abhinab Sarma

Cover Photo by  
Lakhinandan Dutta  
BSc 5th Semester



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# Bioluminescence

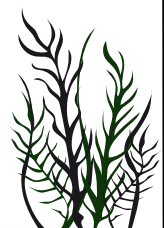
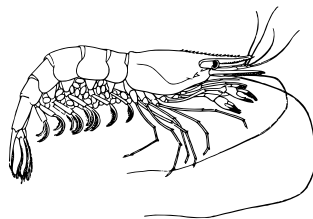
**Mrs Seema Kaur**

Assistant Professor (Selection Gr)

Have you ever wondered about fireflies glowing in the dark? Do you know what it is? This phenomenon is known as bioluminescence. It is defined as the ability of living organisms to produce light in their bodies. The bioluminescent property serves various purposes for the organisms that produce it. Let us learn more about bioluminescence and its significance below.

## **What is Bioluminescence?**

Bioluminescence is a natural phenomenon in which an organism produces and emits light due to a chemical reaction where chemical energy is converted into light energy. The sparkle of fireflies on a summer night is produced as a result of a chemical reaction in their glowing abdomens. Bioluminescence occurs due to a chemoluminescence reaction, where the enzyme luciferase catalyzes the pigment luciferin. Energy is utilized in most of the reactions. The reaction takes place inside or outside the cell. Many organisms produce luciferase, which helps them accelerate the rate of the reaction. Some organisms bind oxygen with luciferin in a photoprotein. It lights up the moment some ion is present.



## **Bioluminescent Animals**

Bioluminescence is common in sea dwellers. Jellyfish, starfish, crustaceans, squid, and sharks are some of the marine organisms that exhibit bioluminescence. Bioluminescent organisms can be found from the surface to the seafloor, near the coast, and in the open ocean. Many plankton, such as dinoflagellates, bloom on the surface of the water under optimal conditions, which makes the ocean sparkle at night and provides it with a reddish-brown color during the day.

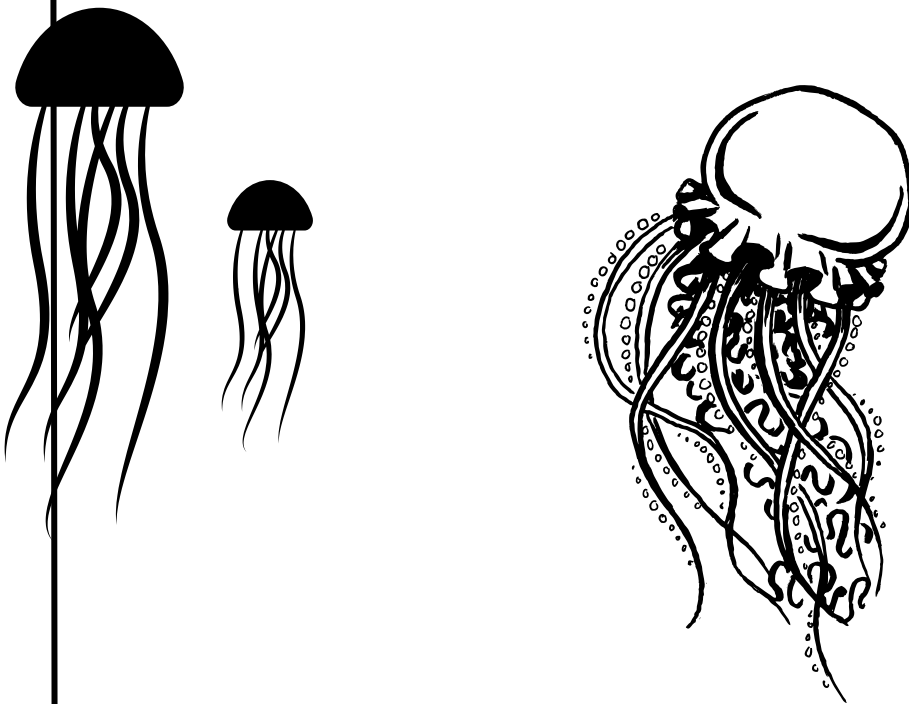
### **Purpose of Bioluminescence**

To survive in a dark environment, such as the depths of the ocean.

To attract prey (e.g., anglerfish have a light in front of their mouth).

To defend against predators (e.g., squid emit bioluminescent fluid to protect themselves from predators).

To attract partners during mating (e.g., crustaceans and worms).





# Vulture crisis in India

**Debajit Rajbangshi**

BSc 3rd semester

Vulture population in India is facing a catastrophic decline. Both species, white - rumped vulture (*Gyps bengalensis*) and the long - billed vulture (*Gyps indicus*) common till recently, have drastically reduced by 95% . This alarming decline has caused serious ecological imbalance. It's evident by the fact that, vultures have enormous capacity for scavenging dead, rotten, petrified tissues and can rip off a carcass into pieces of bones in no time. In their absence, carcasses disposal is now at the mercy of crows, feral dogs and maggots, which are available in abundance.

## **REASON FOR VULTURE CRISIS :**

The vultures are endangered. The major reason is that are specifically targeted for their body parts. These are used for traditional medicinal purposes in the `muthi' trade as well as for meat. Vultures remain at great risk of fatal poisoning from livestock carcasses even in areas of India, where they are protected because of continued use of diclofenac, a painkiller used to treat cattle. The expansion of cities and agriculture lands reduces available habitat and food source for vultures. Deforestation is also a reason of vulture extinction. Extreme weather conditions can also hinder vulture survival.



## POPULATION STATUS :

Vulture population in India have seen a drastic decline over the last few decades. Earlier estimates indicated that numbers had fallen by more than 90% between 1990s and 2000s . As of recent reports, the population of some vulture species like Indian vulture and white- rumped vulture remains critically low, with estimates ranging from a few thousand individuals to ten thousands for the more resilient species.

Three of Indian vulture species of the genus `Gyps'- the long -billed and the slender- billed (*Gyps tenuirostris*) had crashed by the astounding 97% , while in the white - rumped, the decline was even more catastrophic at 99.9 between 1992and 2007 .

## CONCLUSION :

Vultures ability to digest infected, rotting meat without impending any negative effects to it's own health is rather peculiar attributes and may prove useful in medical science. They are nature's own cleaning devices. Vulture extinction causes the increase of stray dog population which bringing rabies to humans.

Last year, 20 vultures- bred in captivity and fitted with satellite tags and rescued were released from a tiger reserve in West Bengal. More than 300 vultures were recorded in the recent survey in southern India but more action is required.

## BIBLIOGRAPHY :

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2. Declining vulture population can cause a health crisis, Perna Singh Bindra.



# The Zoologist's Canvas

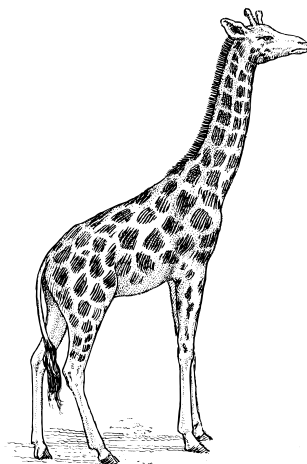
Padmasana Bhattacharjee  
BSc 5th Semester

In the realm where life's tapestry is spun,  
Where creatures thrive beneath the rising sun,  
Unraveling nature's secrets, one and all.

From the tiniest insect's delicate flight towards the sky,  
To the grandeur of beasts in the darkest nights,  
Observing the wonders with our own eyes, both great and small,  
Here in this sanctuary where knowledge enthalls.

With passion and precision we explore,  
The rhythms of life and its eternal lore,  
In labs and fields, through texts and books, Our quest is clear,  
To understand the wild and to hold it dear.

So here we are with hearts so bold,  
To the mysteries of life, their stories told,  
In every discovery, a new world unfolds,  
In the Department of Zoology wonder holds



# Thriving together in the City

**Mr Langtuk Terang**  
Assistant Professor

*It is easier to spot birds in dusty cities than deep, dense forests*  
~Ruskin Bond

As cities around the world grew and more people moves to them for better opportunities and a modern lifestyle, we are witnessing something truly fascinating – the emergence of a new living ecosystem right in the middle of our concrete jungles. Even in India, urbanization is happening at a rapid pace, the importance of understanding these changes has never been greater. Cities, with their fast-paced life and endless conveniences, offer us a world of possibilities- drawing the large migration. But even as we chase these opportunities, our hearts still longs for a connection to nature. And so, we bring pieces of that world with us – in the form of plants we nurture on our balconies and the animals that find their way into our city lives.

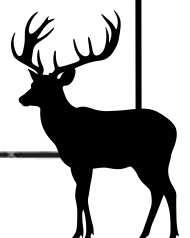


Just like us, these new companions—whether they're ornamental exotic fishes, birds, and other pets or even small gardens in urban spaces—face the struggles of adapting to the urban environment. They must navigate the noise, pollution, and rapid changes of city life. Yet, despite all these challenges, they survive. And more than that, they find ways to thrive. Their ability to adapt gives rise to a new kind of ecosystem, one that is vibrant and full of surprises.

It's amazing to see how life in cities evolves. Some species flourish, adjusting to the strange new landscape of skyscrapers and traffic, while others form unique bonds with the existing urban biodiversity. It's a dynamic world where plants and animals find their way into our lives in the most unexpected ways. While some might consider certain species invasive, they still add to the richness of this ecosystem. They break the routine, injecting moments of wildness into our structured city lives, reminding us that nature has a way of asserting itself even in the most unlikely places.

Urban ecosystems are often seen as disruptions to the natural world, but perhaps we are missing the beauty in them. Cities, with all their chaos, can become sanctuaries for species that might not have survived elsewhere. And as more people move into cities, perhaps the countryside we leave behind will have a chance to heal, to grow back, and to restore the balance that may have been lost.

Urban ecology is not just a challenge to be solved—it's a story of resilience, of life finding a way to flourish, even in the heart of the busiest, most crowded cities. It's a reminder that amidst the noise and rush, there is always room for growth, connection, and the wonders of nature.



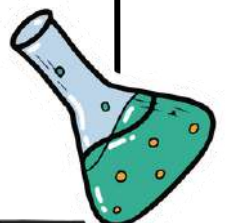
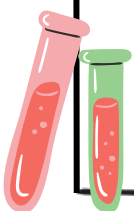
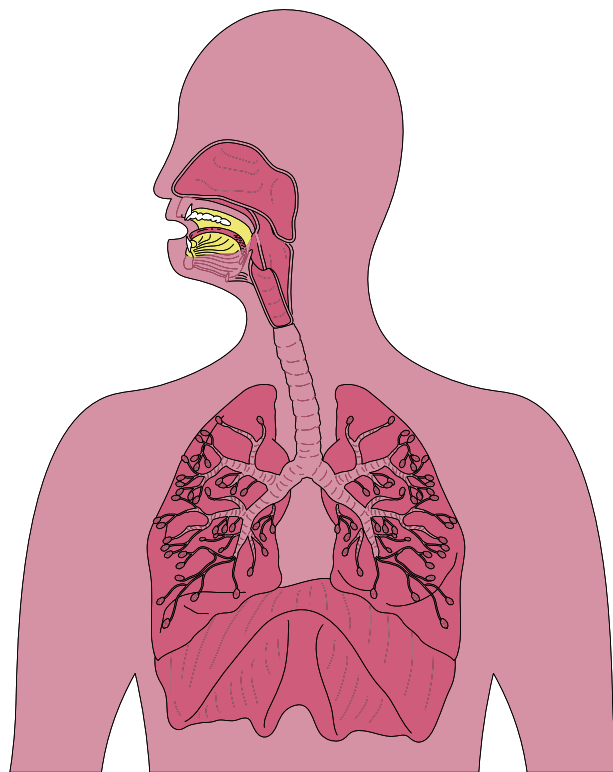


# Science Facts

**Mr Abhinab Sarma**  
Faculty

- 50% of Human genomes don't code for any protein those are generally known as Junk DNA. But this junk DNA has significant role in our body. Telomerase enzyme, produces telomeres which are end sequence of DNA which protects the chromosomes from damage. When cell divides the telomere gets shorter and shorter then cell stops to reproduce ultimately the death of that cell occur. But, VNTR 2-1 (Variable number of tandem repeats) sequence which is part of Junk DNA is responsible for transcription of telomerase gene. If VNTR 2-1 is deleted from any cancerous cell then telomere can't grow and it's activity gets suspended finally cancerous cells can't grow further.
- Normally in Mammalian cell m-RNA is prepared from DNA process is known as Transcription and the Protein is prepared from m-RNA process is known as Translation the whole phenomenon is known as Central Dogma of Molecular biology and main objective of the cell is to code the information contained in the genetic material i.e., DNA/RNA and express the concern information in the form of protein via Translation for example Insulin which is important protein for maintaining blood glucose level in human body & the gene code for Insulin is present in DNA itself which is read by mRNA and Synthesized protein from that mRNA by the cell . But process from m-RNA to DNA is more common in Viruses known as reverse transcription. There are 14 Polymerase enzymes which involved in the process of preparation of m-RNA from DNA. But it was found in recent research that DNA Polymerase theta which produces error in producing mRNA from DNA. It was found that it works efficiently in reverse manner i.e., it produces DNA from m-RNA effectively.

- Home Pregnancy kit's work process: Home Pregnancy kit has two regions one is called 'T' region and another is called 'C' region. After 10 days of female's pregnancy her urine and blood releases one hormone called HcG(Human chorionic gonadotropin). Then urine sample of that female is taken in that kit. The kit contains some antibodies which will bind with the HcG present on the urine then it will travel to 'T' (Test) Zone of that kit, 'T' Zone has some chemicals which will bind to that HcG antibody complex. The HcG antibody complex will release some enzymes which will break the chemicals present on 'T' Zone, results in the formation of dye due to that blue or pink colour will appear on 'T' Zone. This indicates positive report for pregnancy.



# Sketches



Sketches by-  
**Wazib Akhtar**  
B.Sc 5th Sem



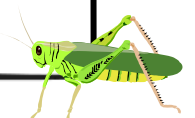
Sketches by  
**Himasri Kalita**  
PG 1st Sem



# Sketches



Sketch by-  
**Dr Sangeeta Das**  
Assistant Professor





# Photos from Photography Contest



**Lakhinandan Dutta**  
BSc 5th Sem  
Zoology Department



**Dibakar Bora**  
BSc 5th Sem  
Botany Department



**Falguni Das**  
Class : HS 1st Year  
Stream : Humanities/Arts



**Nilotpall Kashyap**  
BSc 3rd Semester  
BCA (Computer Science)



# Photo Gallery



Photograph by  
**Trishnamoni Baruah**  
BSc 3rd Semester,  
Dept of Zoology



Photograph by  
**Lakhinandan Dutta**  
B.Sc 5th Sem,  
Dept of Zoology



# Photo Gallery



Student as Teacher program



Class taken by Alumni



Campus Bird Count 3.0



Career Enrichment Program  
on Marine Biology



Environmental Education Program



Celebration of International Primates Day



# Achievements



**Ms. Saswati Kalita**  
PG Departmental Topper  
2024



**Ms. Pooja Das**  
Department of  
Zoology  
**NE SLET 2024**



**Ms. Himashri Kalita**  
UG Departmental Topper  
2024



**Ms. Gayatri Deka**  
Department of Zoology  
**NE SLET 2024**  
Selected for PhD program 2024 under  
Gauhati University.

## Students selected in Master Program in Prestigious Universities of India

- 1) **Arnab Das** :Gauhati University
- 2) **Aparna Bordoloi** : Hindu College under Delhi University
- 3) **Ankur Sharma** : Gauhati University
- 4) **Kabyashree Medhi** : Gauhati University
- 5) **Oliva Baruah** : Tezpur University
- 6) **Prakash Das** : Gauhati University

# Teaching Staff

**Seema Kaur**

**Dr Jayanta Deka**

**Dr Makibur Rahman**

**Dr Seemashri Bora**

**Langtuk Terang**

**Dr Sangeeta Das**

**Sagarika Das**

**Dipshikha Hazarika**

**Abhinab Sarma**

# Non-Teaching Staff

**Jiten Das**

**Kishore Deka**

**Pranjit Sarma**



**CONTACT:**

[hodzology@pragjyotishcollege.ac.in](mailto:hodzology@pragjyotishcollege.ac.in)

