



E-Phoenix

ZOOLOGY

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**ZOOLOGY DEPARTMENT
PRAGJYOTISH COLLEGE**

Editor

LANGTUK TERANG

Message from the HoD

“The grounding in natural sciences which I obtained in the course of my medical studies, including preliminary examinations in botany, zoology, physics, and chemistry, was to become decisive in determining the trend of my literary work”

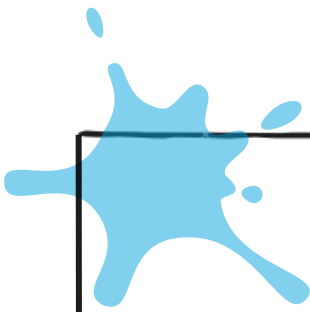
~Johannes V. Jensen

The Department of Zoology is a unique Department in the Pragjyotish College where teaching and research in Zoology have established permanent roots. It is a diverse discipline that covers all branches of Biotechnology, Molecular Biology, Biochemistry, Cell Biology, Fishery and Entomology in a dominant manner.

The Department of Zoology is one of the oldest Department in the College, started from the inception of the institution in 1972. The Department has extremely competent faculty actively involved in advanced research covering Aquaculture, Wildlife biology, Animal Behavior, Biochemistry etc. We, at the Department of Zoology, constantly strive to enrich our syllabus and programs to remain at the forefront of current trends in higher education.

All the courses in the program are carefully designed to equip the students for competitive exams like CSIR NET, SLET, and GATE etc. With this message, I would like to wish the student community a very successful experience together with us in the Department.

Dr Jayanta Deka (HoD)
Assistant Professor (SG)



Editorial Note

E-phoenix is a departmental magazine of Zoology department. It is a platform for the students and teachers to share their insights, knowledge, opinions, and experiences on various topics ranging from animals to society issues.

We believe that learning is not limited to the classroom, but extends to the world around us. We also believe that every student has something valuable to contribute, whether it is research, a personal essay, a poem, a story, or a photo.

In this issue, we collected a variety of articles that reflect the interests and passions of our department. We also included some beautiful artworks and photographs captured by the faculties and students of the department.

We hope that the readers will find this magazine informative, inspiring, and entertaining. We also hope that it will spark your curiosity and encourage you to explore new topics and perspectives.

Thank you for reading and supporting our e-magazine. We look forward to receiving your submissions for the upcoming issue.

A stylized, handwritten signature in black ink, appearing to read 'Mr Langtuk Terang', positioned above the name and title.

Mr Langtuk Terang

Assistant Professor

Editorial Team

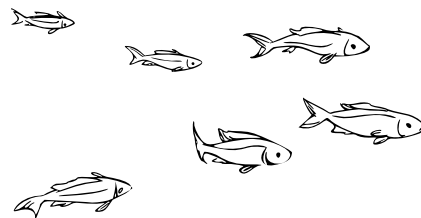
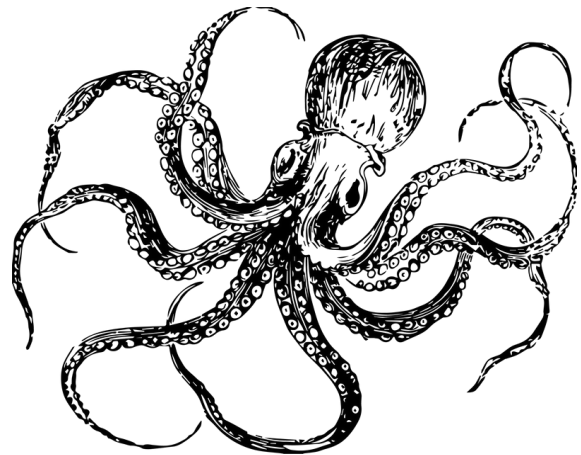
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Sagarika Das
Dipshikha Hazarika





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Japanese Encephalitis: A Brief Review

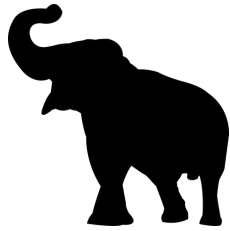
MS SEEMA KAUR

Assistant Professor (Sr)

Japanese Encephalitis (JE) is recently declared as a notifiable disease in India due to its expanding geographical distribution. The disease notification facilitates effective implementation of preventive measures and case management. JE is a vector-borne disease, spread by Culex mosquito. It can be prevented by vaccine administration. It is caused by Japanese Encephalitis virus (JEV), belonging to family Flaviviridae. Amongst the known etiological viral encephalitis agents, it is one of the leading viral agents of acute encephalitis syndrome in many Asian countries where it is identified to cause substantial morbidity and mortality as well as disability. Globally, it is responsible for approximately 68,000 clinical cases every year.

In the absence of antivirals, patients are given supportive treatment to relieve and stabilize. Amongst available control strategies; vector control is resource intensive while animal and human vaccination are the most effective tool against the disease. This disease can be controlled by proper diagnosis and prophylactic interventions.





Raimona National Park

DR SEEMASHRI BORA

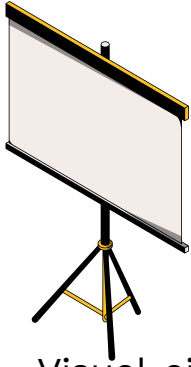
Assistant Professor

Global biodiversity has been under tremendous pressure of anthropogenic factors like deforestation and over exploitation of biological resources that adversely affected the ecosystem functionalities. Documentation and conservation of biodiversity including ecosystem restoration at landscape level has recently emerged as a global priority for effective management planning to ensure ecosystem stability and ecological functionality.

Mammals are important taxa for their key ecological roles in trophic levels which potentially influence the regeneration and restoration of forest ecosystem.

Modern scientific forestry management practices since the last decade of 19th century established the Ripu Reserve Forest (RF) of Kokrajhar district in Assam as one of the best managed forest in the country. The relentless improvement in protection and conservation activities laid down by successive working plans, the management gradually reached crescendo till the end of the eighties of the 20th century when the ethno-political movement turned into a violent armed struggle in this landscape. As a result, the wildlife habitats were severely deteriorated and major part of the forest belt of Ripu RF on its southern side has been decimated altogether converting to agricultural land and homestead settlement illegally. From 1977-2007, there was a reduction of 693.76 km² of forest cover in the Kokrajhar district which was about 38% of the total forest area available in 1977. With this trend of suicidal destruction, the forest cover of the district would reduce to 638.38 km² by 2037 which amounts a loss of 43.5% of forest cover that was available in 2007.

Deforestation and encroachment were the major threats to the sustainability of this natural landscape as well as to the livelihood of the agrarian families residing in the southern downstream of Ripu RF. To arrest this trend of suicidal destruction of such century old managed natural forest, a large part (422 km²) of Ripu RF has included in the protected area



Importance of Visual Presentation in Education

RAFIYA SULTANA

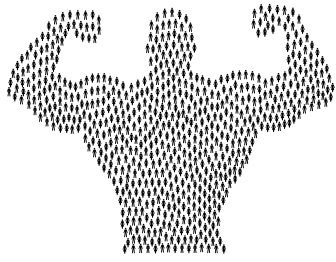
BSc 5th Sem

Visual aids help to arouse the interest of learners and teachers to explain the concepts easily. Visual are those instructional aids which are used in classroom to encourage teaching learning process. Visual presentation helps to store the information longer. They must be clear, concise and of high quality. Using graphs, charts and sometime screen is helpful to present data. Visual representations helps students develop deeper understanding of the problems they are working with, making them more effective problem solvers.

By doing presentations, students learn how to speak in front of a group, a broadly applicable professional skill. They learn how to prepare material for public presentation, and practice improves their speaking skills. Visual representations are flexible, they can be used across grade levels and types of math problems. They can be used by teachers to teach mathematics fact and by students to learn mathematics content. Visual representations can take a number of forms.

Conclusion: - Visual aids help your audience understand and remember information that you talk about.





Never Quit

DIMPI PATOWARY

BSc 5th Sem

"Never quits" is the attitude that one should carry and live life with, no matter what the situation is, one should keep- struggling and fighting with the odds. Failure is not an option for anyone. Even though you might have failed in any process you should stand up and do it , but in never again in any case you Should give up on your dreams. Success is not every one's cup of tea, It requires lots of Sleepless days and nights, lot's of sweet and a great amount of hard work and it can only be achieved. An expectation has no end. From teens to now every moment gives Some lessons. and also motivates to do something better than the previous one. As a human being, we have the desire to do something better but we Can't do it just because the situation is not favorable. And due to this we decide to quit. But the main struggle starts from that time when we get the adverse result. If you quit you will never get what you want, but it you keep trying you will find a way get what you want.

"Vince Lombardi, a famous American. football coach, once said," A quitter never wins and a winner never quits, we have heard of this saying, at least once in our lives, and we all have had the opportunity to apply the Saying. to a part of our lives.



Migration of Animals

MANJU BEGUM

BSc 5th Sem

Migration is a pattern of behaviour or seasonal movement of animals travels from one habitat to another in search of their food, better conditions or reproductive need. One of the main reasons animal migrate is to find food. For example, Wildebeest, Zebras, Gazelles etc roams the Serengeti looking for fresh grass and water.

Other animals migrates because of the climate or seasons. For example- monarch butterflies cannot survive in a freezing temperature. So, they avoid cold temperature in the winter. These butterflies fly from Canada all the way to Mexico to keep themselves warm during winter. Some animals migrate for their reproductive reasons. For example, Salmon starts their life in rivers and migrate to the sea to feed and their growth.

Some migratory animals are - Monarch butterfly, Gray whale, Bandhill Crane, Ruby throated Humming bird, Arctic Tern, Sea Turtle, Snowy Owls, Caribou, Blue Whales etc. Migrating animals are found in all major branches of the animal kingdom. One of the longest non-stop flight is performed by the bar-tailed Godwit.

In conclusion, all migration does not occur in the same way. Some migration is triggered by genetics, other migration occur due to need for resources. The movement of the animals are not only for food, water or shelter but a need for reproductive advantages as well.

Positive Thinking

BEAUTY DAS

BSc 5th Sem



Positive thinking means approaching life's challenges with a positive Outlook making the most of potential of life trying to see the best in other people and viewing ourselves and our abilities in a positive light. It does not mean avoiding difficult situations. Positive thinking improves relationships better health happiness and satisfaction. It also hell the daily affairs of life moves more smoothly and make life look bright full stop in order to make positive thinking yield results we need to develop a positive attitude towards life. Expecting a successful outcome of whatever we do but also taking necessary action to ensure are success. It is not enough to think positively for few movements and then letting fears and lack of belief enter our mind. Some efforts and inner works are necessary . Here are few actions and tips by which we can develop the power of positive thinking-

1. Allowing into our awareness only feeling of happiness strength and success.
2. Trying to disregard and ignore negative thoughts refusing to think such thought and substituting them with constructive happy thoughts.
3. Before starting with any plan or action visualizing clearly in our mind it successful outcome. If we visualize with concentration and faith we will be Amazed at the results.

4. Associating ourselves with people who think positively
5. Contemplating upon the futility of negative thinking and bodies.

Positive and expecting only favorable results and situations if our current circumstances are not as we wish them to be full stop in time are mental attitude will affects our life and circumstances and change them accordingly. Filling are mind with light ho and feelings of strength and soon life will reflect these qualities.

If we have been exhibiting a negative attitude and expecting failure and difficulties it is now the time to change the way we think. It is the time to get rid of negative thoughts and behaviour and lead a happy and successful life. Why not start today? If we have tried in failed it only means that we have not tried enough. We should know all those thinking is a habit that takes time and practice to develop. With time we will start to see the benefits in our healthy relationships and overall well being.





Human Trafficking

HIMASRI KALITA

BSc 5th Sem

Human Trafficking is the act of recruiting harbouring transporting providing obtaining patronizing or soliciting a person for labour or services or to engage in commercial sex that is induced by force fraud or coercion.

Account 27% of all the human trafficking victims worldwide and two out of every three child victims are girls. Girls are this proportionally targeted and must deal with the lifelong effects of gender inequality and gender based violence. Children are often traffic for commercial sexual exploitation or for labor such as domestic use, agriculture work factory work and my name or they are forced to fight in conflicts. They are forced to drop out of school risk their lives and sold by family members or an acquaintance lead by false promises of education and a better life- the reality is that these traffic and exploited children are held in slave like conditions without enough food shelter or clothing are often severely abused and threaten to harm them or their family and often cut off from all contact with their families. Sometimes they only have two options either leaf or cope up in such situations or die. .

When victims do not comply with the social exploitation of powerlessness and passivity, the question of their responsibility often arises regarding the situation in which they find themselves. All though they are children if their participation in trafficking is understood as active and voluntary then their status as child victim gives the way to that of the criminal children who should be blade convicted and punished rather than protected. All the victim is viewed as an object of behaviours and situations beyond their control or ability to self determine the circumstances of children actively involved in criminal activities are deemed and their behaviour and condition tend to be abstracted and decontextualized. Whether they match the stereotype of a victim or not children who are victims of trafficking have no voice or do not deserve to be heard. In either case Clements called "the deafening silence of traffic people".

In India about 18 to 20 million people have faced trafficking and are in slavery full stop the first step to preventing human trafficking and prosecuting the traffickers is therefore to recognize the complexity of the crime which cannot be tackled in a vacuum. Anti trafficking strategies have to be embedded in every policy areas such as-

1. Spread awareness among parents and community-

A lot of India's poor children find themselves trapped in substance abuse and get trafficked. Educated communities are capable of understanding and effectively responding to the various ways of traffickers source children.

2. Faster the spread of education

Educated children and their families are much more aware alert and mature and they can comprehend the risk of child trafficking white well. Compassionate and understanding teachers guide children and parents to find opportunities for higher growth and employment creating community driven by ambition where traffic yours cannot thrive.

3. Strict laws in place to prevent child trafficking.

Several laws like the immoral Trafficking prevention act 1956 the bonded labour elimination act are imposed to prohibit to punish commercial sexual exploitation and forced labour respectively. It's punishment ranges from 7 years to life imprisonment full stop at the same time locals have been made vigilant to report instances of child labour at businesses so that it is actively discouraged.

In human beings especially children is a form of modern days slavery and requires a holistic multisexual approach to address the complex dimension of the problem. It is a problem that violets the rights and dignity of the victims and therefore requires essentially a child rights perspective while working on its education. In the fight against traffic in government organisations, non- government organisations civil society international bodies all have to play an important role and work in concert.

At least for our environment (As a student)

PARAG NATH

BSc 5th Sem

The present situation, our environment, it influences life, the role in day-to-day life carries vital role in sustaining, consisting climate, nature, wildlife and those things which affects health. Some minimum ways, as a student we can promote not only awareness, also take steps to healthy and clean environment, which is basic need of any individual living on this planet earth. Environment friendly strategies should be taken. First and foremost, there should be a strong emphasis of afforestation i.e., planting of trees. Not only planting, a proper maintenance due to the life span of organisms. A plant is above all, a great source of oxygen. Another important technique in environment protection or nature is succession. It faces threats from habitat destruction, pollution, and other human action. We must become knowledgeable about what we are contributing to global warming, which disrupts migration pattern and habitat, also vegetation



As students, we can pressure wildlife by adopting to greener lifestyle. Also, we can create the awareness and discourage to the products originates from endangered species of wildlife, which are basically a myth. For example, many people believe that the horn of rhino has medicinal properties. To save the rhino from extinction, we must create an awareness and stop spreading those rumors. We can also use biodegradable products whenever possible. We can also talk to write policy makers about protecting wildlife as well as such talking above. Write letters to newspapers and discuss ways to help animals and help to nature with friends and family. Preserving nature and wildlife is a heroic task, that we can contribute immensely in this endeavor by working together with conservation of those essential and life sustaining environment. In recent lockdown times, studies revealed that the ozone layer healing itself due to less human activities. We have to learn from those times and things. Unless we could not leave anything for our next generation.



Role of Planktons in an aquatic ecosystem

SAGARIKA DAS

Assistant Professor

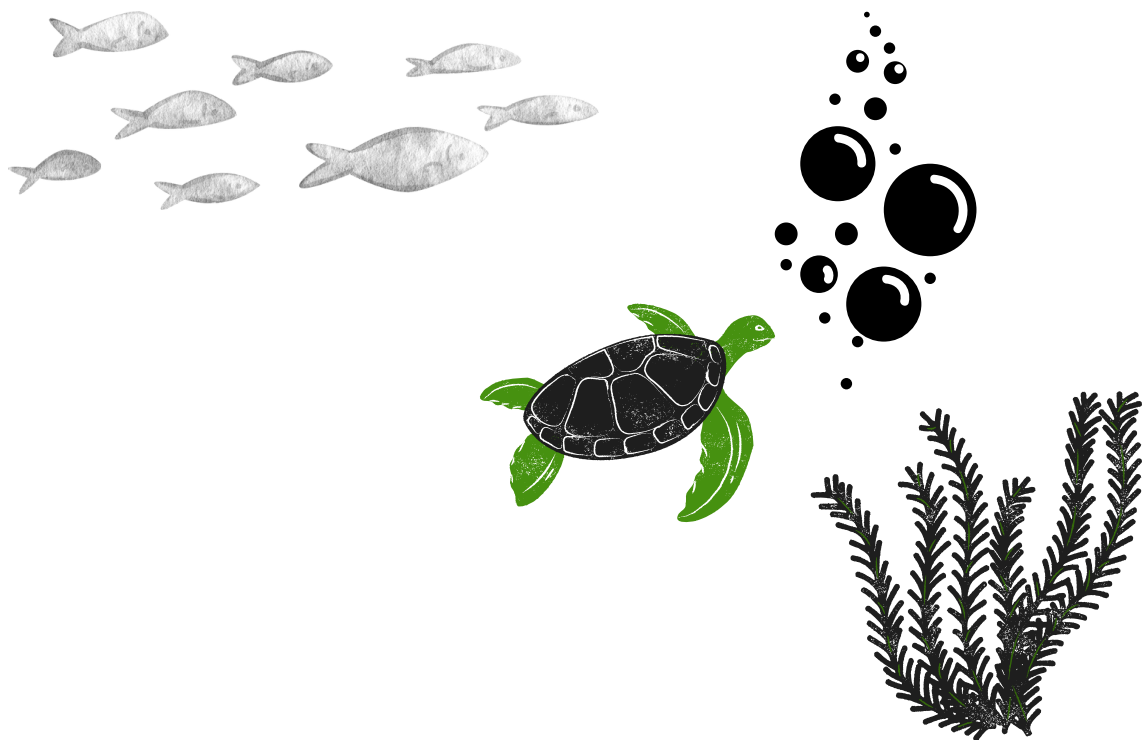
Life on earth depends on water for survival. Wvells, rivers, lakes, and oceans are full of water and are important components of the body fluids of all living things. About 71% of the earth's surface is covered by water, and over 96% of this water is in the oceans, with the remaining 3% being freshwater, three-quarters of which is found in icebergs and glaciers, the rest is in surface water (0.3%) and 2 groundwater. Water bodies are considered as the most productive ecosystems as they constitute huge floral as well as faunal diversities. It also plays a very important role in socio-economic condition of the concerned region as it is used for fish culture at commercial level. Plankton is a microscopic community of plants (phytoplankton) and animals (zooplankton), found usually free floating, swimming with little or no resistance to water current, suspended in water, non-motile or insufficiently motile to overcome transport by currents. Plankton are the microscopic organisms that drift on the water currents. Phytoplankton constitutes the very basis of nutrient cycle of an aquatic ecosystem. They play a crucial role in maintaining proper equilibrium between the biotic and abiotic component of an aquatic ecosystem. The productivity of an aquatic environment is directly correlated, with the density of phytoplankton as they play an important role as primary producers and thus can affect higher trophic levels by providing nutritional bases for zooplankton and other invertebrates and vertebrates.

The phytoplankton is the base of most of the lake food webs and fish production is linked to phytoplankton. Apart from primary production, phytoplankton plays an important role as food for herbivorous animals and act as biological indicator of water quality. The physico-chemical factors are directly related with their productions.

Phytoplankton forms the sole base of food chain in aquatic system as they act as energy transducers and convert the solar energy into chemical energy of food. Zooplankton passes this food energy to the higher trophic levels and thus provides a link between energy producers and the consumers. Zooplanktons are heterotrophic organisms that consume phytoplankton and regenerate nutrients via their metabolism and transfer energy to higher trophic levels. Zooplanktons are often an important link in the transfer of energy from producer to carnivores.

Zooplanktons play an integral role and may serve as bio-indicator and it is a well-suited tool for understanding water pollution status. Planktons play a significant role in determining the productivity of a water body. The qualitative and quantitative abundance of plankton are dependent on the environment and the impacts of plankton generally reflect on the growth and survival of the fish fauna. Phytoplankton forms the basic link of food chain in the aquatic ecosystem. The metabolic activities of these organisms depend on the physico-chemical factors of the aquatic environment. All the dynamic features of water bodies like colour, clarity, trophic state, zooplankton and fish production depend to a large extent on phytoplankton.

Zooplankton abundance can give an index of fertility of aquatic environment and fishery potential as they play an important role as a source of food for higher organisms including fish. Life in an aquatic environment is largely governed by its physico-chemical characteristics and its stability. Biological production in any aquatic body is directly correlated with its physico-chemical status. Physico-chemical parameters are the most appropriate source to measure the quality of any aquatic body. A slight change in the physico-chemical properties affects the biodiversity of the ecosystem. The species composition of the planktons, are a great indicator of water quality, because of their quick response to environmental changes. These factors combine with each other to determine the water quality and consequently community of an aquatic ecosystem.



Importance of Biomedical Waste

DIPSHIKHA HAZARIKA

Assistant Professor

Hospitals have become accustomed to people from every walk of life in the society providing patients treatment with specialized equipments and staff. Hospitals and other healthcare institutions or establishments have a “duty of care” for the environment and public health and have particular responsibilities with respect to the waste they produce. Biomedical waste (BMW) can be defined as the waste which is produced during the diagnosis, research activities, treatment of patients, animals, production and testing of biological product. In order to reduce health issues ,excluding potential threats ,and treating people suffering from illness, healthcare services inescapably generate waste which itself may become hazardous to environment . There may be a high risk of infections in patients due to the poor management of biomedical waste which can lead to antibiotic resistance.

Proper biomedical waste management is essential not only to protect the health of healthcare workers, but also the public and the environment. Inadequate and improper handling of BMW can lead to the contamination of the environment, spread of infectious diseases and the exposure of workers to hazardous compounds. Most common diseases that are spread due to inappropriate management of waste are Pneumonia , Diarrhoea , Tetanus, Tuberculosis, Whooping cough etc. Hepatitis and Human Immunodeficiency Viruses (HIV) are also spread through infectious medical equipment.

India approximately generates 2kg/bed/ day and this biomedical waste encompasses waste like anatomical waste, cytotoxic waste etc., which when inadequately segregated could cause different kinds of deadly infectious diseases like Human Immunodeficiency Virus (HIV), Hepatitis C and B infections, etc., and also cause disruptions in the environment , and adverse impact on ecological balance. The occurrence of hepatitis , HIV/AIDS, sepsis, and other diseases spread by infectious medical equipment can be decreased by accurate waste management Management is also necessary due to the risk of air, water, and soil pollution, or due to improper burning emanation and ash





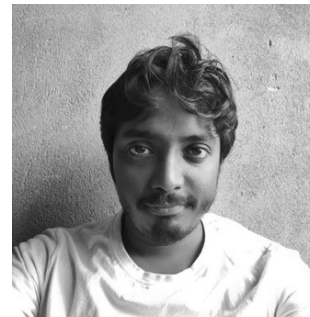
Sketch by
Dr Sangeeta Das

Our achievers

Andrew Sangma- GATE 2023
MSc 2023-24



Ashim Biswas- NET LS 2023
BSc 2020-22



Satyaranjan Deb- SLET 2023
MSc 2022-23



Department Topper

Poly Bora
BSc 2020-23



Photo Gallery



Campus Bird Count 2.0



Field Visit to Sericulture Farm



Pragjyotish College Cultural Rally by Zoology Department



Field Visit to Cherrapunjee



Hands on Training on DNA isolation and PCR



Installation of Bird box in campus

Teaching Staff

Seema Kaur

Dr Jayanta Deka

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Dr Seemashri Bora

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