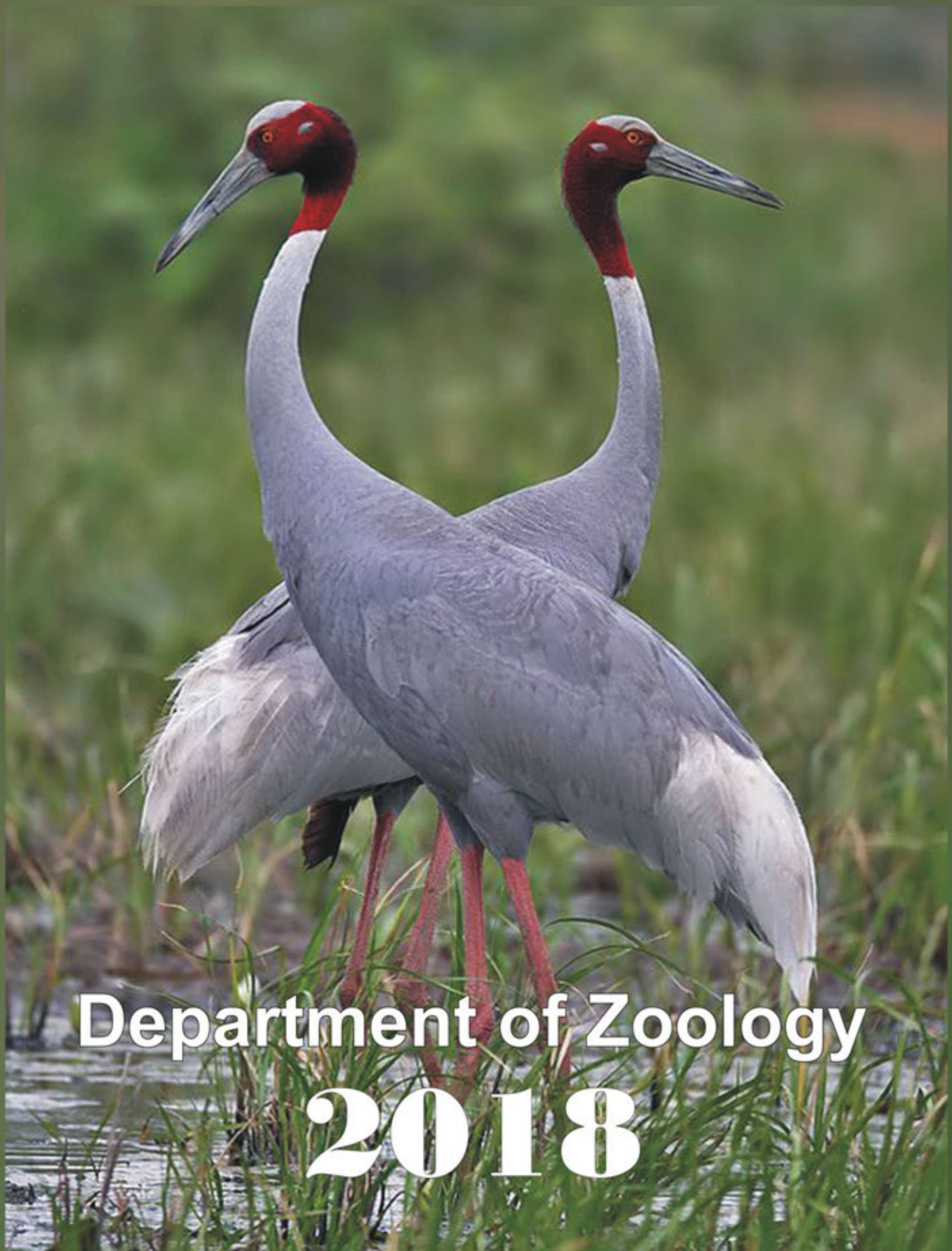
Issue 1| Year 2018

ZOONIVERSE



Department of Zoology

2018

ZOONIVERSE

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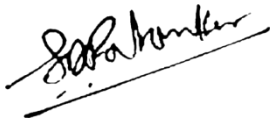
2018

Compiled and Edited by:
Vrushabh H. Borkar

Index

Principal's Desk

Zooniverse is a good attempt to provide a platform for expressing the news and experiences about the subject and related activities. Such documents become lifelong memories about institution and subject and maintain an emotional and intellectual bond with Teachers and Staff for throughout the life. It become inspiration and view to implement good practices in future which were adapted in student's life. I congratulate the convenor and staff behind this idea to start such activity and I wish that it will continue with further innovations. I also wish Best Luck for the student of final year for their future and progress in the subject.



Dr. S. D. Patankar

Principal

Message from H.O.D.

Dr. G. T. Paliwal
Head Department of Zoology
S.S.J. College, Arjuni/Morgaon

Thank you all for being my lovely students. It was really great teaching you, and great being your teacher. I had a wonderful time with you all. Thank you for making your presence so entertaining. You all were so disciplined that there was even not a fraction of a complaint.

I would like to say to you all this is your first baby step out of S.S.J. campus. I think S.S.J. has given you all the values. I know and confident that you are going to settle in a new environment with your new set of friends.

But you know what you may find that your life is all set and suddenly you will find that the life throwing bouncers at you and it will hit you hard and that is the time you are going to remember my words **get up, show up and never give up**.

You are not going to question life why me, you should tell life try me.

This is not the end of your life; it's just a new beginning….

Bless you all…….. Thank you….

Achievements in Zoology (B.Sc. 5th Semester)

Ritu L. Nakade
85.33%

Suraj S. Ukey
83.33%

Vaishnavi Khotele
82.66%

Vrushabh H. Borkar
80.66%

Alka Balbudhe
79.33%

Rajani K. Khune
78.00%

Snehal M. Gedam
76.66%

Congratulations for securing more than 75% marks in R.T.M. Nagpur University Examination.

Achievements in Wildlife Week 2017


महाराष्ट्र राज्य, वन विभाग

प्रमाणपत्र

श्री/कुमार/कुमारी/श्रीमती स्नेहल एम. गेडाम

यांना 'वन्यजीव सप्ताह २०१७' मध्ये आयोजीत केलेल्या

छायाचित्र / निबंध / चित्रकला स्पर्धेतील प्रथम क्रमांकाच्या / उत्तेजनार्थ मिळालेल्या पारितोषिकाबद्दल

प्रमाणपत्र प्रदान करण्यात येत आहे.

गोंदिया

दिनांक २०१८

Ku. Snehal M. Gedam
1st Prize in Drawing Competition


महाराष्ट्र राज्य, वन विभाग

प्रमाणपत्र

श्री/कुमार/कुमारी/श्रीमती मनिषा रामदास कावळे

यांना 'वन्यजीव सप्ताह २०१७' मध्ये आयोजीत केलेल्या

छायाचित्र / निबंध / चित्रकला स्पर्धेतील तृतीय क्रमांकाच्या / उत्तेजनार्थ मिळालेल्या पारितोषिकाबद्दल

प्रमाणपत्र प्रदान करण्यात येत आहे.

गोंदिया

दिनांक २०१८

Ku. Manisha R. Kawale
3rd Prize in Drawing Competition


महाराष्ट्र राज्य, वन विभाग

प्रमाणपत्र

श्री/कुमार/कुमारी/श्रीमती वृषभ हिरालाल बोरकर

यांना 'वन्यजीव सप्ताह २०१७' मध्ये आयोजीत केलेल्या

छायाचित्र / निबंध / चित्रकला स्पर्धेतील द्वितीय क्रमांकाच्या / उत्तेजनार्थ मिळालेल्या पारितोषिकाबद्दल

प्रमाणपत्र प्रदान करण्यात येत आहे.

गोंदिया

दिनांक २०१८

Mr. Vrushabh H. Borkar
2nd Prize in Essay Competition

| | Congratulations | |

Eassay and Poster competition organized by M.S. Forest Department on the occasion of Wildlife Week 2017.

Amazing Facts About Birds
- Ku. Ritu L. Nakade

1. **Ostriches** have the largest eyes of any land animal that lives on land (though they can't rival some of the massive creatures that inhabit the depths of the sea). Approximately the size of a billiard ball, their eyes are actually bigger than their brains.

2. **Cardinals** (along with several other bird species) sometimes cover themselves in crushed or living ants, smearing them over their feathers, or allowing living ants to crawl on them. While scientists still aren't sure what the purpose of "anting" is, some believe the birds use the formic acid secreted during their ant bath to help get rid of lice and other parasites.

3. Some **Ducks** sleep with one eye open, when they nap in groups. While the other ducks sleep more deeply, those on the outside of the circle also keep one side of their brain awake, even as they doze, so that predators won't be able to sneak up on them.

4. **Hummingbirds** are incredibly lightweight. The averag Hummingbird is around 4 grams (one gram less than the nickel) while the smallest, the bee hummingbird, is closer to 1.6 grams, less than the weight of penny. The largest member of the hummingbird family, meanwhile, is the aptly named giant hummingbird, which can get up to 24 grams- enormous for a hummingbird, but only equivalent to about a handful of loose change.

5. Some **Swiftlets**, approximately named Edible-nest swiftlets, build nests almost exclusively from their hardened saliva. The saliva nests are considered a delicacy in some countries – in China, they are most frequently used to make bird's nest soup-and are one of the most expensive foods in the world, despite having little flavour and no real nutritional value.

6. Acorn **Woodpeckers** store acorns by drilling holes in tress, fenceposts, utility poles, and buldings, and depositing their nuts there. They have been known to store up to 50,000 acorns- each in its own tiny hole- in a single tree, called a "granary tree."

7. Though they disappear after three months, young **Hoatzin** (also known as "stink birds" for their unique stench) have two claws on each wing, which they can use to climb across tree branches or pull themselves out of water onto dryland. The claws also help chicks hide from predators: after jumping from their nests into the water below, the little hoatzin swim some distance, then pull themselves on land with their claws. When the coast is clear, they use their claws to climb up onto a tree branch.

Cavefish (*Cryptotora thamicola*)
- Ku. Payal P. Sonagre

- The species Cavefish (Cryptotora thamicola) was found by reserchers in the completely dark cave of Northern Thailand. This fish could be an important discovery in learning more about how seafaring creatures made the evolutionary jump up to the terrestrial mammals we all our ancestors.
- Cavefish can walk up walls like reptiles.
- It is depigmented and has no visible eyes.
- It can walk up rocks in fast flowing water and on well surfaces in air.
- The fish can grow to 11 inches.
- "Cryptotara are found any in rapids and not in lentic pools" Dr. Flammang and Co-authors wrote in a paper published in the journal scientific reports.
- While it is anecdotally know that these fish can walk the rare and protected salas of these fish has limited research into the functional morphology of their walking behaviour according to the team the waterfall climbing cave fish possesses morphological features that have previously only been attributed to tetrapod's.
- "We show that the blind Cavefish (Cryptotora thamicola) walk and climbs waterfalls with a salamander like diagonal couplets lateral sequence gait and has evolved a robast pelvic girdle that shares morphological features associated with terrestrial vertebrates

CUB EMBRACING ITS MOTHER IN TADOBA TIGER RESERVE

- Ku. Monika V. Balgujar

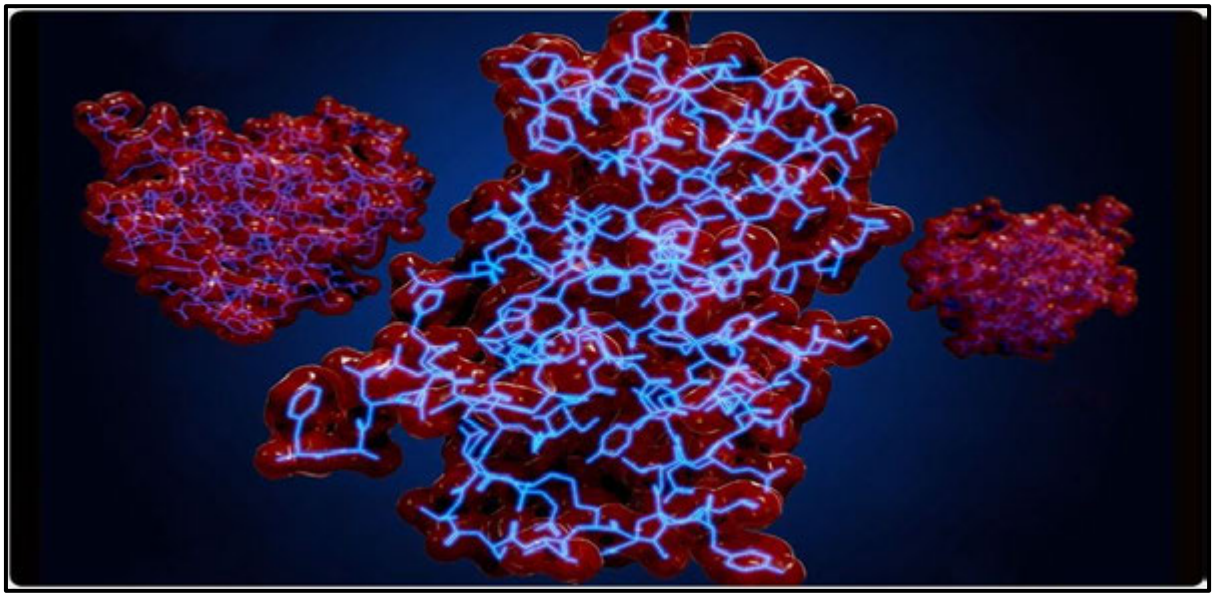
Amol Bais, a resident of Chandrapur couldn't find his enthusiasm as he recollected the first day of 2016 as if was yesterday. Seated in an open vehicle during the morning safari, He saw Maya. The tigress from Tadoba, getting a 'hug' from her cub, and even as he immortalised that moment he had no clure that months later his iconic image would end up being used on a postal stamp. Bais, a wildlife photographer and headmaster of a school for tribal students at Durgapur on the periphery of Tadoba Andheri National Park, said his joy knew no bounds when he got to know that State Forest Minister Sudhir Mungantiwar was not only impressed with this adorable picture but has also selected it to be used for the stamp. An amazing picture of a tigress caressing her cub in Pandharpauni forests in Tadoba-Andhari Tiger Reserve, captured by Amol Bais an avid wildlife enthusiasts from Nagpur, has now been picked up to be used on stamp tickets of India Post. In the picture the cub is seen cudding the tigress who has been fondly named as Maya. Similar picture has also been carried in UK's famed daily newspaper mirror.

He said, "As tiger is on the apex of food chain, it has to be saved at any school cost. Realising all this I am roaming all the Forests of India and capturing their images exclusively in the wild." Detailing on this worthy shot, he said. "I clicked this particular photograph in Tadoba –Andhari Tiger Reserve. On the first morning of January I certainly had no idea about what would be going to happen that morning. Maya the tigress ruling the Pandharpauni area of Tadoba Tiger Reserve was sighted alone on the main road that heads to Tadoba Lake. She was in search of prey. She spotted some deer on the back of our gypsy. But soon the deer got alert as one of the deer from the group spotted her, they all fledaway.

She was bit disappointed. Maya then growled to call her cubs. One of the Cubs came down to the road and hugged her mom just in front of gypsy. It was a very rare sight and touched us from within. I was watching from my camera. It was unforgettable for me. I have been doing wildlife photography from 5 years and I have never seen such adorable moment ever in my life. The day I clicked this image posted it on Facebook. Since then I received lots of wishes and appreciation from across the world. This photograph has received 2.43 million likes 22K Comments and 25K shares, so far" The cute photography may have been a huge hit online, but Amol insists that there is an important message behind it. 'Spreading awareness among the tribes about wildlife and educating them through photographs helps to save the natural heritage of nature. With the tiger being the apex of the food chain, it has to be saved any cost.'

Discovery of new enzyme in adipose tissue.
– Ku. Vaishnavi Khotele

Scientists at Brown University have discovered a a new enzyme in adipose tissue that helps regulate inflammation. The enzyme, known as sucrose non-fermenting related kinase (SNRK), could help in the battle against obesity.



The scientists found that SNRK increases metabolism in brown-fat, and suppresses inflammation in white-fat. The study was published in *Diabetes*, and was led by Jie Li, a research associate in epidemiology at Brown University, and Bin Feng, a research associate at the Warren Alpert Medical School of Brown University and Rhode Island Hospital's Hallett Centre for Diabetes and Endocrinology. The body has two different types of fat, also known as adipose tissue. White fat is an energy reserve for the body and a thermal insulator, that consists of a single large lipid droplet containing triglycerides. Brown fat contains a number of smaller lipid droplets with a higher percentage of mitochondria, giving it its darker colour. White fat stores excess calories and is associated with obesity, whereas brown fat burns calories in order to produce heat. Brown fat has been a major area of research as a means of combating obesity.

"This study suggests that there may be dual benefits if we can find a way to enhance SNRK production in fat tissue," said Simin Liu, Professor of Epidemiology at Brown University.

SNRK is a member of AMPK-related kinase family, but its role in inflammation and adipose energy homeostasis is unknown. The research team identified SNRK as an enzyme that seems to regulate the physiology of both fat types in mice, by decreasing inflammation in

white fat tissue whilst promoting the ability of brown fat to burn calories. Preliminary genetic evidence included in the study suggests that SNRK performs similar functions in humans, making it a possible new drug target in the war against obesity and its complications. "Reducing inflammation in white fat may ease associated complications such as insulin resistance, while at the same time, increasing brown fat metabolism may aid in weight loss. Those possibilities will need to be followed up in further studies in humans," Simin Liu, Professor of Epidemiology at Brown University. SNRK was first discovered in fat tissue by the author of this study, Professor Haiyan Xu, whilst she was a researcher in the Molecular Epidemiology and Nutrition Lab of Brown's Center for Global Cardiometabolic Health.

Zoology Fascinating Facts
- Mr. Suraj S. Ukey

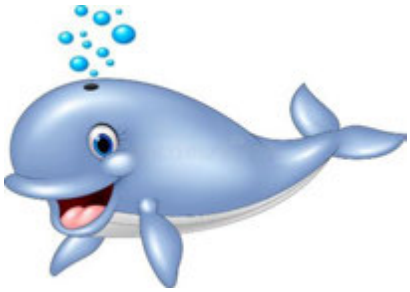
Zoology is the area of systematic biology that studies the animal kingdom. Systematic biology (or just systematics) is "the scientific study of the kinds and diversity of organisms"

Do You Know ?

Only female mosquitoes bite.

There are more chickens than people in the world.

The blue whale makes the loudest sound of any other animal.



Polar bears look white, but they actually have black skin. Unlike other bears , their fur is transparent and reflects visible light. This allows polar bears, which live in the arctic tundra , to blend in with their snow covered environment.

Snakes always keep their eyes open, even when they are asleep. Snakes can't close their eyes because they do not have eyelids. They do have eye scales which cover their eyes and shed when the snake sheds its skin.

Cobras are able to kill with a bite as soon as they are born. Baby cobra venom is just as potent as an adult cobra's venom. Their bite is dangerous because cobras can inject large amounts of venom in a single bite. Cobra venom contains a neurotoxin that affects the central nervous system and can lead to paralysis, respiratory system failure, and death.

Ostriches can run faster than horses, and the male ostriches can roar like lions.

Bats are the only mammals that can fly, but wouldn't it be awesome if humans could fly too?

Kangaroos use their tails for balance, so if you lift a kangaroo's tail off the ground, it can't hop.

On average, there are 50,000 spiders per acre in green areas. Bet you'll think twice before going outside now – unless you're this guy.

Tigers not only have stripes on their fur, they also have them on their skin. No two tigers ever have the same stripes.

Fleas can jump up to 200 times their height. This is equivalent to a man jumping the Empire State Building in New York.

A cat has 32 muscles in each ear. All the better for them to eavesdrop on your conversations and plot your demise.

Koala bears almost exclusively eat only eucalyptus leaves and nothing else.

Oysters can change gender depending on which is best for mating. Talk about successful adaptation.

Butterflies have two compound eyes consisting of thousands of lenses, yet they can only see the colors red, green and yellow

You can tell a turtle's gender by the noise it makes. Males grunt and females hiss.

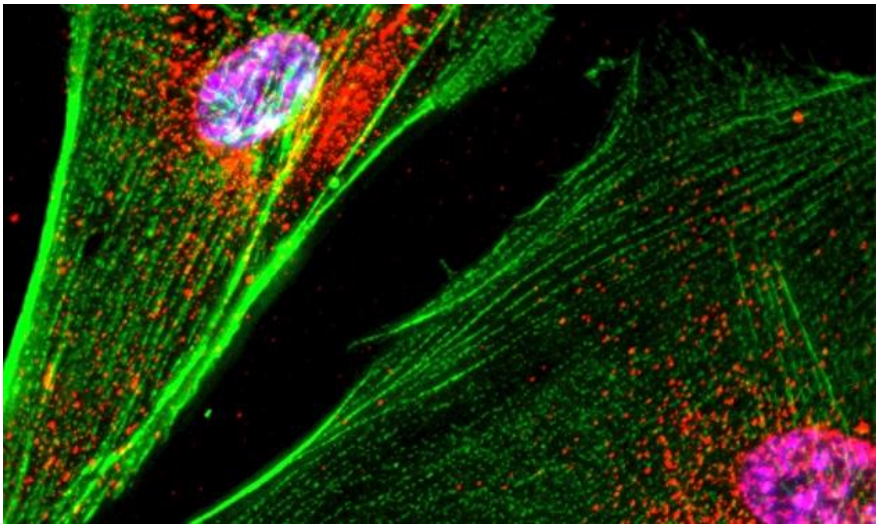
You might want to thank a squirrel the next time you enjoy the shade of a tree. Millions of trees are accidentally planted by squirrels that bury nuts and then forget where they hid them.

The slowest fish is the seahorse, which moves along at about 0.01 mph.

Stem Cells transformed into brain cells to treat the Parkinson's disease

- Ku. Shraddha Chandel

Brain cells that die in Parkinson's disease have been grown from stem cells and grafted into monkey brains in major step towards new treatment for the conditions.



Pic- A depletion of brain cells that produce dopamine is responsible for the mobility problems seen in people with Parkinson's disease.

US researchers say that have overcome previous difficulties in coaxing human embryonic stem cells survive and to become the Neuron's killed by disease. Tests showed the cells survive and function normally in animal and reverse movement problems caused by Parkinson's in monkey.

The breakthrough raises the prospect of transplanting freshly grown dopamine producing cells into human patients to treat disease.

"Previously we did not fully understands the particular signals needed to tell stem cells how to differentiate into right type of the cells." Said Dr. Lorenz Studer at the Memorial Sloan Kettering Cancer Centre in New York.

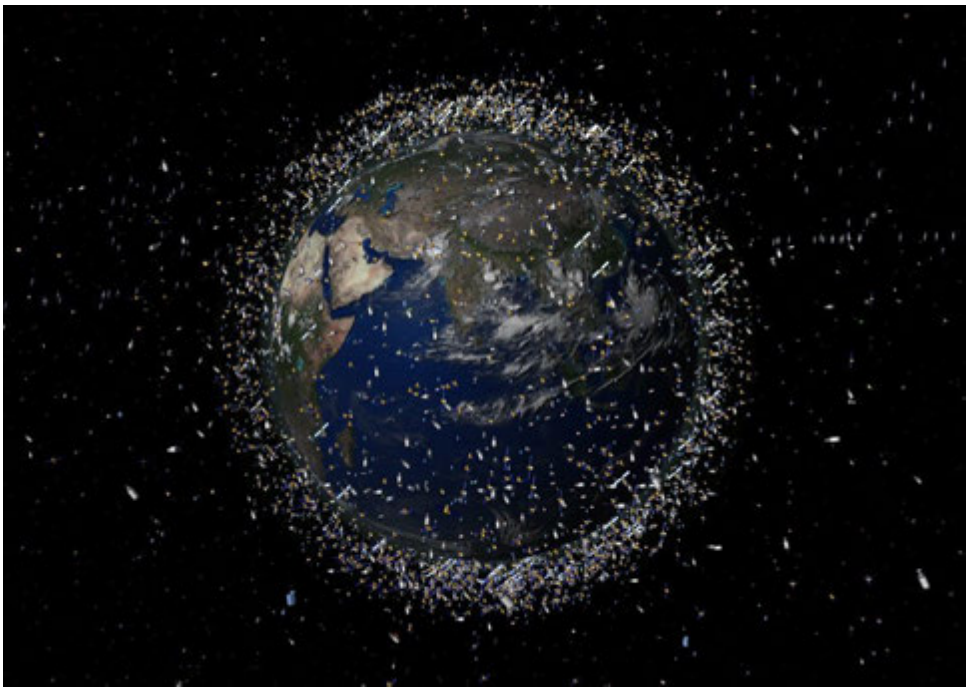
"The cells we produced in the past would produce some of dopamine but in fact were not quite the right type of cell. The main treatment for the Parkinson's are drugs that aim to control the symptoms by increasing the levels of dopamine that reach the brain and stimulating parts of brains where dopamine works.

Dr. Studer; whose work is published in the journal Nature found the specific chemical signals required to nudge stem cells into the right kind of dopamine producing brain cells.

Viruses are Everywhere……. May be in Space ?

- Ku. Bhavana Sonwane

Viruses are the most abundant and one of the least understood biological entities on earth. They might also exist in space.



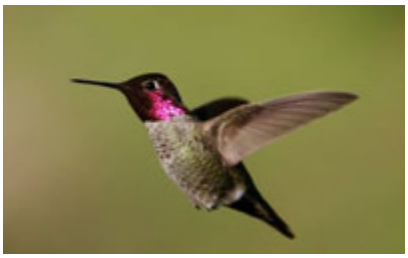
Portland State University biology professor Ken Stedman and collegues are trying to change this through their article "Astrovirology: viruses at large in the universe," published in February 2018 issue of the journal astrobiology. In this call to arms, the authors tate NASA and other space agencies should be looking for viruses in liquid sample from Saturn and jupiters moons, develop technology to detect viruses in ancient deposits on earth and mars, and determine if earth and mars, and determine if earth viruses could service in space.

"More than a century has passed since the discovery of the first viruses. "Said Stedman' who teaches at PSU's college of liberal Arts and Sciences. "Entering the second century of virology, we can finally starts focusing beyond our own planet. Stedman argues that since there are more viruses on earth – 10 to 100 times more than any other cellular organism and moons. Viruses also appear planets extremely ancient, may have been involved in the origin of life and have probably been involved in major evolutionary transitions on earth.

"With this paper, we hope to inspire integration of virus research into astrobiology and also point out pressing unanswered questions in astro-virology particularly regarding the detection of virus bio signatures and whether viruses could be spread extra terrestrially."

1 HUMMINGBIRD

Hummingbirds are the only birds that can fly backwards and their wings can beat at up to 80 times per second.



2 POODLE

Cantrary to popular belief, French poodles actually originated in Germany. Maybe you should have named her Gretl instead of Fifi.

3 PIG

Pigs communicate constantly with one another; more than 20 vocalizations have been identified that pigs use in different situations, from wooing mates to saying, "I'm hungry!"

4 SEAHORSE

The slowest fish is the seahorse, which moves along at about 0.01 mph.

5 DOG

Dog's nose prints are as unique as human fingerprints and can be used to identify them.

6 BLUE WHALE

Humpback whales create the loudest sound of any mammal. And you thought the loudest sound came from that two-year-old you sat next to on your trans-continental flight, didn't you?

7 SQUIRREL

You might want to thank a squirrel the next time you enjoy the shade of a tree. Millions of trees are accidentally planted by squirrels that bury nuts and then forget where they hide them.

8 GIRAFFE

Giraffes have no vocal cords and their tongues are blue-black in color.

9 TURTLE

You can tell a turtle's gender by the noise it makes. Males grunt and females hiss.

10 SNAIL

Don't try this at home, but a snail can grow back a new eye if it losses one.

11 BUTTERFLY

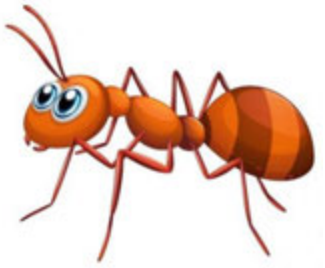
Butterflies have two compound eyes consisting of thousands of lenses, yet they can only see the colours red, green and yellow.

12 OYSTER

Oysters can change gender depending n which is best for mating. Talk about successful adaptation.

13 ANT

Beware an ant uprising! There are one million ants for every human in the world. These resilient creatures also never sleep and do not have lungs.



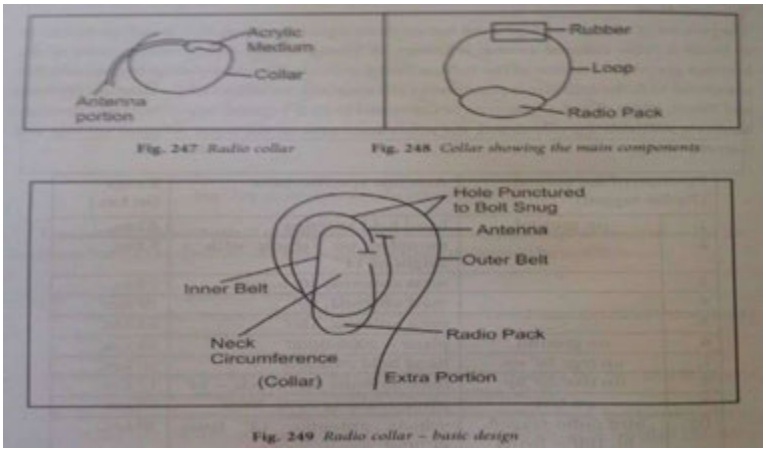
13 BEAVER

Because beaver's teeth never stop growing, they must constantly gnaw objects to keep them at a manageable length. Their teeth would eventually grow into their brain if they didn't maintain them.

Wildlife Telemetry (An Introduction to Wildlife Radio Collaring) by - Ku. Rajani K Khune

- **Radio Collaring**

Collars are the most common form of transmitter attachment for animals a valuable tool to track the movement and behavior of animals often used to obtain location data on the animal's preferred habitat, home range, and to understand population dynamics. It generates signals like pulse rate which can be picked up or identified and traced from a distance. Consists of plastic fibre ; miniature radio and a pair of battery being strapped together at the middle of the belt. An antenna protrudes out of this radio. Has essential 4 components: transmitter (or radio collar), antenna, headphone and detector (or receiver). Loteka , a manufacturing company provides RC in 2 series: 1.LMRC (Large Mammal Radio Collar). This tracking are useful for large mammals; e.g. elephant, rhino, bison, etc. 2.SMRC (Small Mammal Radio Collar). This tracking are useful for small mammals; e.g. lynx, cat, civet, etc.



- **Working Principle**

The transmitter is tuned to a certain frequency, mostly VHF 30 HZ-300 MHZ (TV, FM radio , most Bio-telemetry). Each animal is tuned to different frequency. Receiving antenna is thus, matched to the frequency transmitted by transmitter to locate a specific transmitter of known frequency and hence the location of animal can be found.

- **Transmitter**

Consist of an antenna, power source and a transmitter unit.

- **Antenna**

Propagates the signals overlong distances**.** The 2 most common transmitting antennas are:

1. Whip antenna

Characteristics: A harness loop antenna design, implemented for small birds, involves a transmitter being wrapped around the body.

2. Loop antenna

Characteristics:. Whip antennas are an Omni-directional transmitter design that produces more signal over a greater distance.

Power source:

Common power sources:

1. Lithium and silver batteries

2. Solar Cell

Components of a receiver set:

Recorder Dial: the indicator bounces with the frequency of signals received

Band switch: for tuning the required band- 4 in number

Channel: for adjusting channels-12 in number

Fine frequency tuner: (for fine adjustment)

Gain control: (analogous to volume control)

Ear phone: (to connect earphone if the animal is very close)

Antenna knob: (to hold the antenna)

Off-on-switch: (to switch the set "on" and "off")

Speaker: (for the signals)

Mains: (to connect to the external power source)

Red and Green eye: (to ascertain the battery condition. Viz., charged or uncharged)

Note: Each band has 300 kHz speed and 12 channels; each channel in turn has 25 kHz frequencies.

Bands Frequencies

1. 150.700-151.000
2. 151.000-151.300
3. 151.300-151.600
4. 151.600-151.900

Data Collection
Different data on physiological characteristics(vital signs and measurement of external form information), visit characteristics (date and environmental characteristics),observation characteristics (information on animals) and habitat information is collected in data form. Different information collected from the collared (or captured) animal is entered into computer data file on an ongoing basis to study trends, wrong data points, number of fixes needed, appropriate time intervals etc.

Radio collaring Technique:
The girth of the animal is measured with the help of a tape such that it is loose enough to digs ones palm under. The collar should be smallest as possible .i.e. it should not exceed 5% of the

animals body weight. The collar shouldn't be too tight, otherwise it might cause suffocation and discomfort. If the collar is too loose it gets snip (in case of carnivores). Further the collar is bolted and taped with adhesive plastic of same color of the collaring animal so that the color of the collar doesn't look artificial. Furthermore, the receiver and antenna are then set up at the given. frequency of the collar. Also, check, if the transmission from the collar is loud and clear. The animals code number and its radio-frequency is then labeled, Viz. A 08-232. An investigator is now all set for animal monitoring.

Homing

The method by which an operator uses the signals strength information and antenna direction to move close to the animal fitted with the transmitter to find the animal or transmitter is called homing.

Triangulation

The process of taking bearing from 2 or more signal receiving sites , based on direction to locate a radio collared animal is known as triangulation. The crossing point of the bearing gives the locations of the radio collared animal.

Butterfly Gardening
- Mr. Vrushabh H. Borkar

Introduction

In last few years there has been a tremendous increase in the interest in developing butterfly gardens (parks) in India. Many private as well as government butterfly gardens are coming up at various places across India. It is good sign, in the sense we have started appreciating the importance of butterflies as objects of aesthetic value. Life cycle of butterfly have four stages i.e. Egg, Caterpillar, Chrysalis or Pupa and Adult. Average life cycle of butterflies varies species to species.

Types of Butterfly Gardens

There are two types of Butterfly Gardens: Open Type and Closed Type.

1) Closed Type – In a closed type of Butterfly Garden entire garden is covered with green nets. The butterflies are released into this enclosed area either as adult butterflies or are reared in the garden itself. But the Indian Wildlife Protection Act (1972) considers butterflies as wild animals and it is illegal to keep any wild animal in enclosure. As soon as there is an enclosure it becomes a zoo. And to run a zoo, permission is required from Central Zoo Authority of India and also it is mandatory to follow their guidelines for establishing and managing a zoo. Getting permission from this authority is 'MISSION IMPOSSIBLE' for general citizen. The only and best option is to set up an 'open butterfly garden' on your own land.

2) Open Type – In an open type of Butterfly Garden we need to follow some steps. i.e. transforming your plot to decent butterfly garden. No enclosure is used in open type of butterfly garden. And no need of any permission from Central Zoo Authority of India.

Landscaping For Butterfly Garden

It is important to have a good location for the butterfly garden, especially the open butterfly garden. The best location will be near a patch of forest, as the butterflies can be attracted to the garden by fulfilling the necessary requirements. However, it is not necessary to having a plot near patch of forest and to have a big sized plot. You can transform your small sized plot into a decent butterfly garden. Landscaping in such way that there are places which provide shade, lot of sunshine, and wet patches too.

How to Attract Butterflies

Once the location of butterfly garden is decided, we need to know what the requirements of butterflies are or what are the things which attract them?

Attracting Nectar Loving Butterflies

As butterflies do not have teeth they cannot eat solid food. The butterflies can only sip liquid food with the help of very thin tongue called proboscis. And they do not grow once they are borne, they do not need diversity of food or physical growth. Some of the common plants which attract lot of butterfly species for nectaring are *Lantana spp.* Jamaican Blue *Stachytarphaeta spp.*, Cockscomb *Celosia spp.,* Wild *Xenia spp*. and *Ixora spp.* A small herb *Tridax procumbence* attracts lot of blue (lycaenid) butterflies for nectaring.

Attracting Non Nectar Loving Butterflies

It is wrong notion that all butterflies love nectar in flowers. There are many species of butterflies which never visit a flower. These butterflies like to get their stock of food from rotten fruits, decaying fish, crabs or prawns, the scat or dung or urine of wild animals and so on. Some of the butterflies which attracted to these include the Common Nawab, Tawny Rajah, Orange Oakleaf, etc. By the way, I strongly 6 smell a conspiracy in naming butterflies, which fed on urine and fecal matter and rotten things, as **Rajah** and **Nawab !**

Attracting Alkaloid Loving Males

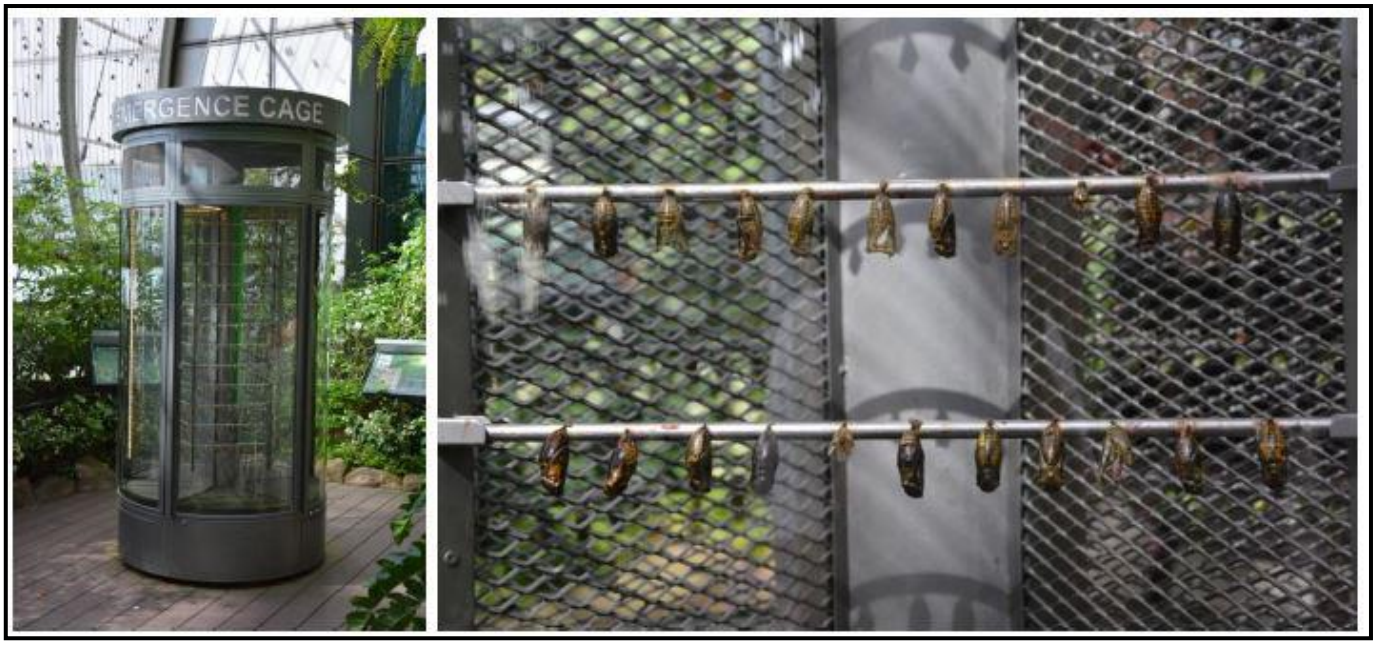
Males of some butterfly species need specific alkaloids for reproduction. These alkaloids are provided by plants like Crotalaria, Heliotropium and Eupatorium spp. They need alkaloids to synthesize sex pheromones to attract females. Growing these plants in your garden will attract flocks of butterflies namely, Tigers and Crows. Which include Blue Tiger, Glassy Tiger, Plain Tiger, Common Indian Crow and Brown King Crow.

Attracting Mud Loving Butterflies

In the landscape of the butterfly garden, if there is natural depression it should be watered more often to create a muddy spot and wet patch. Plastic sheets can be buried under this muddy spot to manage to moisture level. Fine sand should be spread along the fringe of this muddy place and rotten leaf litter be mixed in the soil from time to time. Many butterflies visit such damp and muddy places to get their daily doses of water, minerals and various chemicals for their physiological need. This is known as 'Mud-Puddling'.

What Should Not Be Done?

Avoid using Pesticide, Insecticide or any chemical fertilizers. It may kill any stage of butterfly. Do not grow any rose plant, because it do not attract any species of butterfly.



Emergence Cage

Chrysalis of Butterfly

Emergence of Butterfly

Closed Type of Butterfly Garden

Departmental Activities
Inauguration of Life Science Association 2017-18

Principal Sir announcing the names of office bearers of life science association 2017-18

Principal Sir addressing the students.

Mr. Kohade from Taluka Agri. Office delivering his lecture.

Wildlife Week 2017

India boasts a variety of species and organisms. Apart from a handful of the major farm animals such as cows, buffaloes, goats, chickens, and both Bactrian Camels and, Dromedary Camels, India has an amazingly wide spectrum of animals native to the country. It is home to Bengal and Indochinese tigers, Asiatic Lions, Leopards, Snow Leopards, Clouded Leopards, various species of Deer, including Chital, Hangul, Barasingha; the Indian Elephant, the Great Indian Rhinoceros, and many more amongst others. The region's rich and diverse wildlife is preserved in 120+ national parks, 18 Bio-reserves and 500+ wildlife sanctuaries across the country. India has some of the most biodiverse regions of the world and hosts three of the world's 36 biodiversity hotspot or treasure-houses that are the Western Ghats, the Eastern Himalayas and Indo-Burma.

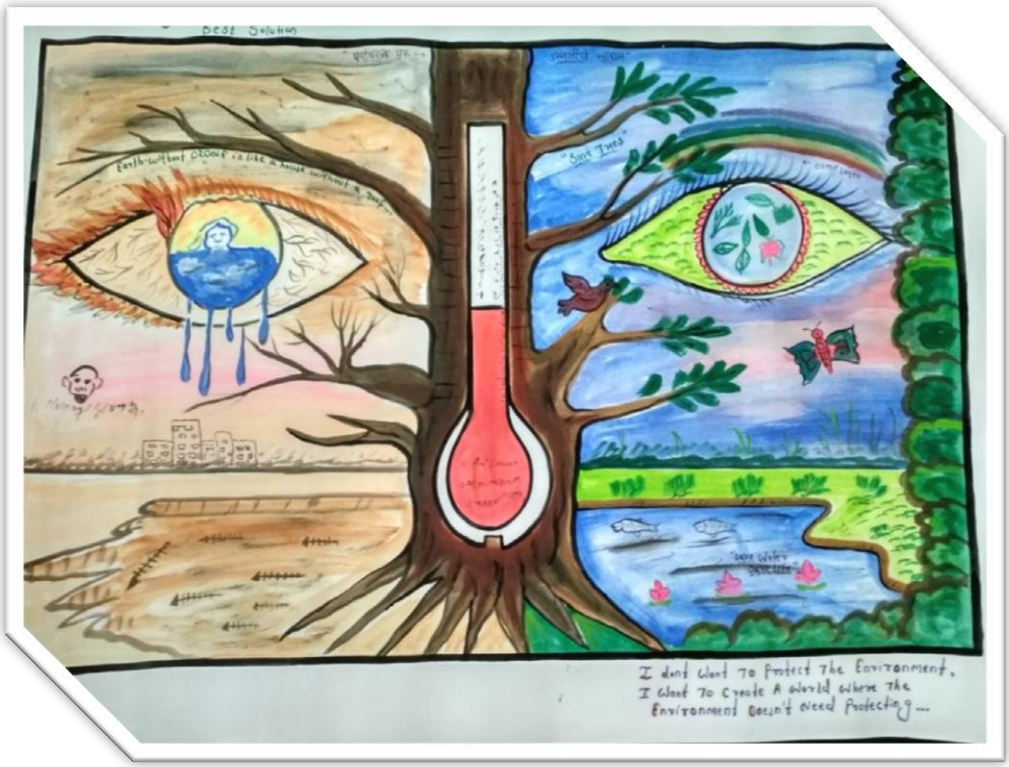
Since India is home to a number of rare and threatened animal species, wildlife management in the country is essential to preserve these species. India is one of the seventeen mega diverse countries. According to one study, India along with other 16 mega diverse countries is home to about 60-70% of the world's biodiversity. India, lying within the Indomalaya ecozone, is home to about 7.60% of all mammalian, 72.6Yo of avian (bird), 6.2% of reptilian, and 6.0 % of flowering plant species.

Wildlife Week is celebrated all over the country in the month of October from 2'd to 8th October every year with the view to preserve the fauna means the animal life of the India. Wild Life Week 2013 would be celebrated this year for the whole week from Wednesday (2nd October) to the Tuesday (8th October). It was first started in the year 1 952 with the great vision of saving the life of the Indian animals by taking some critical steps. It involves the planning to save animal extinction of any species of the India. The Indian Government has established an Indian Board of Wild Life which works to improve the awareness as well as the consciousness of the Indian people towards the wildlife preservation.

Like every year we also celebrated Wildlife Week in our college. During this occasion various wildlife and environment awareness programs, competitions like poster, essay were organized for students so as to encourage them about the importance of wildlife & environment.

Posters on Environment and Climate Change

Poster by Ku. Snehal Gedam



Poster by Ku. Rajani Khune

One Day Educational Tour to Krishi Vidnyan Kendra, Sakoli Dist – Bhandara (M.S.)

Memories of Tour

Students With Staff

Officials Explaining about Agro Research Center

Officials Explaining about Fish cum Paddy Culture

Officials Explaining about New Agro Implements to Students

One Day Educational Tour to Govt. Fish Seed Production Center, Shionibandh, Dist – Bhandara (M.S.

B.Sc. Sem- 5th Students with Shri. Patil and Dr. Paliwal

Shri. Patil Explaining about Fish Brooders

A Chinese Circular Hatchery Model

International Vulture Awareness Day 2017

Nine species of vulture can be found living in India, but most are now in danger of extinction after a rapid and major population collapse in recent decades. As recently as the 1980s there were up to 80 million white-rumped vultures (*Gyps bengalensis*) in India; but today the population numbers only several thousand.

The cause of the rapid plunge in the population was initially unclear, but in 2003 was traced to the anti-inflammatory drug **diclofenac**, which is lethal to vultures when they consume the carcasses of dead animals treated with it.

Vultures previously played an important role in public sanitation in India and their disappearance has resulted in a number of problems, and as such numerous conservation schemes are in place to assist in the recovery of vulture populations. After work on possible viral causes of the decline, the culprit was discovered by Dr. Lindsay Oaks and his team at The Peregrine Fund in 2003 to be diclofenac. Diclofenac is a common anti-inflammatory drug administered to livestock and is used to treat the symptoms of inflammation, fevers and/or pain associated with disease or wounds. It was widely used in India beginning in the 1990s. The drug is fatal to vultures, however, and a vulture is exposed to a mortal dose of diclofenac if it eats from the carcass of an animal that has been treated with diclofenac recently. A simulation model demonstrated that if only 1% of carcasses were contaminated by diclofenac, Indian vulture populations would fall by between 60% and 90% annually, and a study of carcasses showed that about 10% were contaminated.

The first Saturday in September each year is International Vulture Awareness Day. Vultures are an ecologically vital group of birds that face a range of threats in many areas that they occur. Populations of many species are under pressure and some species are facing extinction. The International Vulture Awareness Day has grown from Vulture Awareness Days run by the Birds of Prey Programme of the Endangered Wildlife Trust in South Africa and the Hawk conservancy Trust in England, who decided to work together and expand the initiative into an international event. It is now recognized that a co-ordinated international day will publicise the conservation of vultures to a wider audience and highlight the important work being carried out by the world's vulture conservationists. On the first Saturday in September, the aim is for each participating organization to carry out their own activities that highlight vulture conservation and awareness. This website provides a central place for all participants to outline these activities and see the extent of vulture conservation across the world. Additionally, it is a valuable resource for vulture workers to learn about the activities of their colleagues and to perhaps develop new collaborations or exchange information.

We also organized the programme on Vultures Awareness Day in our college. During this occasion Mr. Ashvinsingh Gautam, Member of SCANATURE NGO, Principal Dr. S. D. Patankar and Dr. P. S. Dange, College IQAC Co-ordinator, Dr. G. T. Paliwal and all students were present.

International Vulture Awareness Day 2017

Dr. G. T. Paliwal Speaking at the occasion.

Dr. S. D. Patankar Sir with Dr. P. S. Dange, Dr. M. R. Darve, Shri. Ashivingsingh Gautam

Dr. G. T. Paliwal Delivering his presentation on "Vultures Decline: A Shame on Humanity."

Classroom Seminar

Ku. Snehal Gedam delivering her Seminar

Students listening to the Seminar

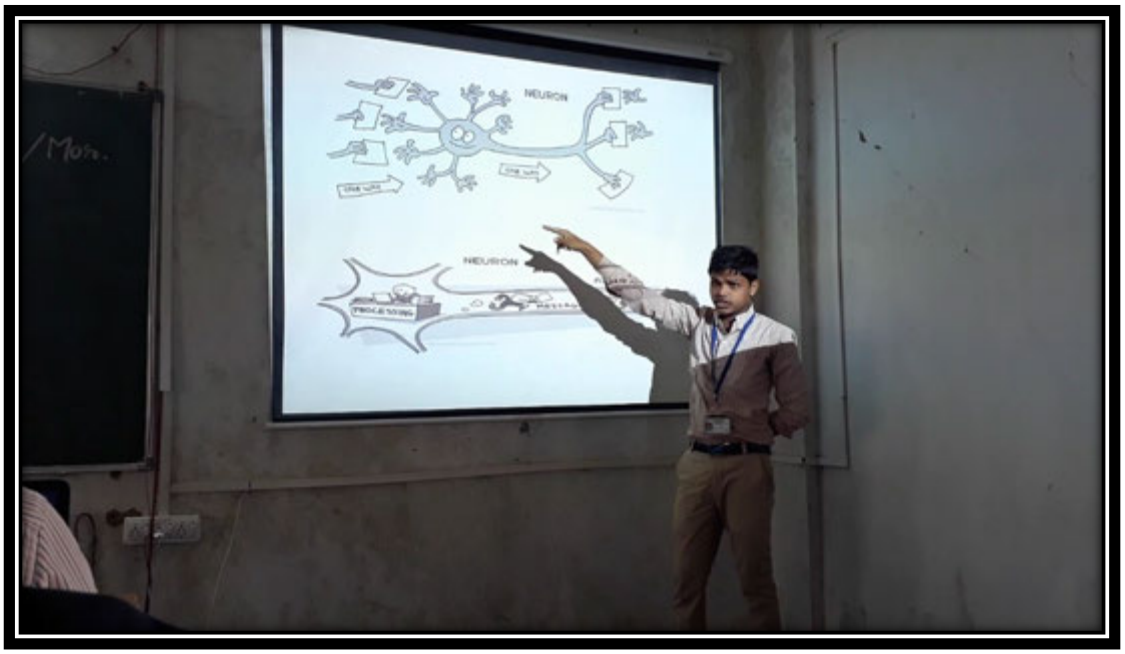
Ku. Vaishnavi Khotele demonstrating B.P. Apparatus

Ku. Vaishnavi Khotele delivering her Seminar

B.Sc. Faculty Seminar Competition

Mr. Vrushabh Borkar Delivering his Seminar

Ku. Rajani Khune Delivering her Seminar



Mr. Suraj Ukey Delivering his Seminar

National Science Day 2018

Principal Sir Inspecting Science Models

Department of Zoology

Departmental Report – 2017-18

The academic session of 2017-18 started on 16th June 2017. Regular teaching started from 1st July 2017. From 2 July 2017 to 10th July 2017 **Bridge course** was organized for SEM- I students.

B.Sc. SEM-V students along with Dr. G.T. Paliwal, teacher in charge visited to Shivnibandh Govt Fish Farm, Dist. Bhandara as a part of their educational tour on 5th August 2017. Students observed fish breeding operations of IMCs. They studied breeding ponds, breeding hapas, and Chinese circular hatchery system. Shri Patil, Fisheries officer guided the students. They collected some material from the farm for the laboratory.

On the same day students also visited P.K.V. Akola based Agro-Research Center, Sakoli. Dr. Usha Dongarwar, Programe Co-ordinator of the center guided the students on various research activities carried out at the center and also gives information on modern technologies used in the agricultural field.

An**International Vulture Day** was celebrated on 4th September 2017, during this occasion a guest lecture titled "Vultures Decline: A shame on Humanity" was organized.

Wildlife Week was celebrated during 1-7th October 2017, Miss Geeta Pawar, A.C.F. N.N.T.R. delivered a lecture.

On 22nd November 2017 a workshop for Junior college student tilled **"CONCEPTS IN BIOLOGY"** was organized.

A PowerPoint competition for students was organized on 9th February 2018

STUDY TOUR

Students of B.Sc. Semester –V visited Govt. Fish seed production center, Shivnibandh Dist. Bhandara as a part of their curriculum. Students were acquainted with the various activities, management practices, fish breeding programs, techniques (Hypophization). Students observed the detailed operation of Chinese Circular hatchery system used for the artificial breeding of IMCs (Indian Major Carps).

On the same day students also visited P.K.V. Akola based Agro-Research center, Sakoli. Dr. Usha Dongarwar, Programe Co-ordinator guided the students on various research activities carried out at the center and also gives the information on modern techniques used in the field of agriculture.

We are thankful to Dr. Usha Dongarwar madam and her entire staff for their co-operation and also to Shri Patil, incharge and Fisheries officer, Govt. Fish seed production center Shivnibandh.

PROJECT

A project titled SURVEY OF FISHERMAN COOPERATIVE SOCIETIES IN ARJUNI/MORGAON TALUKA, DIST. GONDIA WITH RESPECT TO AQUACULTURE was given to the students of B.Sc. Sem-V. Students visited the lakes and fisherman co-operative societies of the Arjuni/Morgaon taluka. Students submitted their project report. The details of the project are as under.

33 students of B.Sc. Sem-V (Zoology) separated in 17 groups, surveyed the 29 different water bodies of Arjuni/Morgaon taluka and the fisherman cooperative societies which are involved in the fisheries activities.

Sr. No	Name of the Group	Name of Fisherman Co-operative Society	Name of Water Body
1	**The Lake Adventuers** • Suraj Ukey • Vaishnavi Khotele • Pratidnya Dahiwale • Shweta Ramteke	Walmiki Fisherman Co-op Society	Mama Talao 8.36 Hects
2	**The Pearl Group** • Bhagyashri Paliwal • Namrata Tawade	Saroj F. Co-op Society, Bondgaon/Devi	Ranbodi 8.04 Hects
3	**The Tejas Group** • Tejaswini Logade	Walmiki Fisherman Co-op Society	Mama Tatao 32.00 Hects
4	**The Aquaculturers** • Manisha Kawale • Priya Masram	Navegaon Bandh Fisherman Co-operative Society	Navegaon Lake 667 Hects
5	**The Rohu Group** • Alka Balbuddhe • Sushma Lothe • Nilima Sonwane	Navnath Fisherman Co-op Society	Mama Talao 4.27 Hects

	• Pallavi Meshram		
6	**Stylish Mrigals** • Sarita Gayakwad • Divya Raut • Vijayeshwari Mendhe	Walmiki Fisherman Co-op Society, Nimgaon	Motha Talao 54.43 Hects
7	**The Aqua Queens**	Vyas Fisherman Co-op Society, Mahurkuda	Patbandhare Lake- 47 Hects
8	**Exploring Nature** • Vrushabh Borkar • Akangsha Mandaogane • Shradha Chandel • Bhavana Sonwane • Snehal Gedam • Gajendra Sharma	Pansheel Fisherman Co-op Society, Tadgaon	Gav Lake- 10.40 Hects Mama Lake- 19.41
9	**The Rising Pisces** • Kaxmi Kapgate	Walmiki Fisherman Co-op Society, Keshori	Keshori Lake- 26.00 Hects Kelwad Lake- 21.6 Hects
10	**The Aquatics** • Priya Raut	Shree Gajanan Baba Fisherman Co-op Society, Nilaj/ Gondunari	Aaswalya Lake- 14.07 Hects
11	**The Hydrophilic Group** • Rajani Khune	Navegaon Fisherman Co-op Society	Yelodi- 1.25 Hects Jambhali 0.46 Channa/ Kodka – 10.73 Mungali- 5.86 Hects

12	**Interesting IMCs** • Payal Sonagre	Mahagaon Fisherman Co-op Society, Mahagaon	Chichbodi-2.95 Hects Dongargaon-4.14 Motha Talao-28.8 Lendara – 2.00 Gao Talao – 2.00 Murmada – 1.8 Maibodi – 1.4 Siroli Talao- 20 hects
13	**The Super Fishes** • Puja Deshmukh	Mahagaon Fisherman Co-op Society, Mahagaon	Murmada Lake- 2.00 Hects
14	**Love on Nature** • Ritu Nakade	Machhindra Fisherman Co-op Society, Tidka	Gao Lake- 2.00 Hects
15	**The Silver Carp Group** • Kanchan Meshram	Itkheda Fisherman Co-op Society, Itkheda	Gao Bodi- 8 Hects
16	**The Aquarium Group** • Monika Balgujar	Navnath Fisherman Co-op Society, Dabhana	Arattondi Lake, 5.26 Hects
17	**The Cyprinus Group** • Sujata Lade	Vadegaon Fisherman Co-op Society, Vadegaon	Gao Talao- 16.8 Hects.

Students Surveying Lake and Interacting with Members of Fisherman Co-op Society

Dr. G. T. Paliwal and Dr. S. V. Bhandarkar's Reference Published in Lambert Publication Germany.


"Save Our Tigers
Save Our Pride"