Gokhale Memorial Girls' College

Date:13/04/2023

To whom it may concern

Subject: Completion of ENVS Project by GEOA Gr. A students of Semester II in 2022

The undersigned hereby certifies that the students mentioned in the table given below have completed their AECC 2 - ENVS projects for the University of Calcutta B.A/B.Sc. Semester-II Examination, 2022. These students are mentioned in the modified template of Metric 1.3.2 (for DVV compliance) as ENVS-GEOA Gr. A with pdf link of their projects stated alongside.

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EVS PROJECT

NAME : SWATI MISHRA

CU REG. NO. : 013 -1211- 0018 - 21

CU ROLL NO. : 212013-11-0007

COLLEGE ROLL NO. : 21/BAH/0078

NAME OF COLLEGE: GOKHALE MEMORIAL GIRLS COLLEGE

SEMESTER: 2ND SEMESTER

STUDY OF COMMON PLANTS, INSECTS, FISH, BIRDS, MAMMALS AND BASIC PRINCIPLES OF IDENTIFICATION

INTRODUCTION

PLANTS

Plants are critical to other life on this planet because they form the basis of all food webs. Most plants are autotrophic, creating their own food using water, carbon dioxide and light through a process called photosynthesis. Some of the earliest fossils found have been aged at 3.8 billion years. These fossil deposit show evidence of photosynthesis. So, plants or the plant like ancestors of plants have lived on this planet longer than most other groups of organizations. At one time anything that was green and that wasn't an animal was considered to be a plant now what were once considered "Plants" are divided into several kingdoms: Protista, Fungi and plantae; most aquatic plants occur in the Kingdom plantae and Protista.

PLANTS

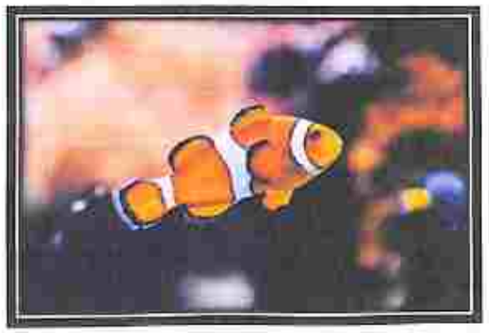
INSECTS

Insects, are a class in the phylum Arthropoda. They are small terrestrial invertebrates which have a hard exoskeleton. Insects are the largest group of animals on earth by far: about 926400 different species have been described. They are more than half of all known living species they may be over 90% of animal species on earth. New species of insects are continuously being found estimates of the total number of species range from 2,000,000 to 30,000,000 insects have 6 legs and most have wings. Insects were the first animals capable of flight. As they develop from eggs insects undergo metamorphosis. Insects live all over the planet almost all are terrestrial (live and land). Few insects live in the ocean or in cold places such as Antarctica. The most species live in tropical areas.

INSECTS

FISH

Fish is a member of paraphyletic group of organisms. This consists of gill- bearing aquatic craniates animals with limbs and digits. Most of the fishes are hagfish, cartilaginous, bony fish and lampreys. Fishes are ectothermic which means cold blooded. Fishes are abundant in most of the bodies of water. Fishes are an important resource for human worldwide especially as food because it consists of a lot of minerals, vitamins and proteins as it stays in water bodies these are served as religious symbols.



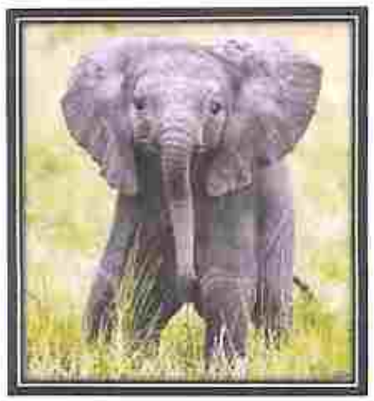
BIRDS

Birds are ready visitors that visit frequently from place to place even from continent to continent. A good number of birds visit different sites due to change of environment particularly for their food and reproduction. As the site is not homogeneous for their easy life. So, they need to move from one place to another. A good example is birds of migratory kind in our West Bengal storks and Siberian cranes are common even in lake chilka of Odisha are large number of Pelicans and flamingos are vivid examples of that kind. They come to thrive there for a temporary period to hatch eggs and carry a good number of off springs during their back journey.

BIRDS

MAMMALS

Earth has a large variety of animals living on it. Scientists classify animals into groups based on common characteristics. Mammals are a group of animals (vertebrates) that have backbones and her or far they are warm blooded (endothermic), and they have four chambered hearts they also feed their young with milk from the mother's body. The young of most mammals are born alive.



AREA OF STUDY

The area is whole Kolkata, South 24 Parganas district of West Bengal in India.

METHOD OF STUDY

Making this project we use internet to collect about birds, insects and plants.

OBSERVATION

PLANTS

FIVE COMMON PLANTS

1. **Mangosa**

   Scientific name: Azadirachta indicaluss

   Source: the leaves bark flowers fruits and seeds are used as drug.

   Family and distribution: Meliaceae, it is native of Burma but grown all over India. In Sangola taluka neem is found in large scale in rural and urban places. Some important places that Narale, Sangola, spinning mill, Hatid, Walegaon, Andhalgoan, wasteland of Sangola, it is recorded in garden school and college, Akola and Mangewadi etc.

   Chemical composition the alkaloids are the main active principles. They are nimbin, nimbinin, nimbidine, nimbosterine and nimbectin etc fatty acids present in the plant and seed contain 40 to 45% fixed oil.

   Uses: The leaves are carminative expectorant anthelmintic, diuretic and insecticidal properties. Freshly juice with salt given for intestinal worms, jaundice skin disease and malaria fever. The leaves are applied for boils chronic ulcers, swelling and wounds. Bark is used for liver complaint remove round worms. Gum is stimulant, demulcent tonic and used in debility.

MANGOSA

2. Aloe Vera

Scientific name: Aloe barbadeneses Mills

Source: Thivk fleshy leaves (pulp, dried juice) are used as a drug.

Family and distribution: Lilliaceae, it is a native to of West Indies or Mediterranean region. It grows wild in hot dry valleys of western Himalayas and southern northern part of India. Sangola is one of the drought regions it is mainly distributed in every place in rural areas some of the important places like Waki, Chindepir, Sangola, Jawala and Gherdi. It is xerophytic plant.

Chemicam composition: The main active principal present in Aloe is crystalline glucoside known as barbolin, other constituent like resin and derivates like emodin, chrysophanic acid, anthoroquinones, emocline, also it contains glucose, gluctose, mannase and galacturonic acid with protein. The plant contains aloesone and aloesin.

Uses: Aloe is chiefly used as purgative, abortifacient, blood purifier, cathartic, cooling, digestive and diuretic, inflammation, painful parts of the body. It is useful in burn, cold cough, jaundice, worms and piles. Aloe is used in preparation of vegetable Pickles, cosmetics, skin blemisars, help to prove new healthy tissue it is used as hair tonic as it stimulates the growth of hair.

ALOE VERA

3. Periwinkle

Scientific Name: Catharanthus roseus don

Source: The dried leaves and roots of this plant used as a drug.

Family and distribution: Apocynaceae, the plant is probably indigenous to Madagascar. It is cultivated in South Africa, West Indies, Sri Lanka, India, USA, Europe and Australia as an ornamental plant. It is also cultivated for its medical properties in the garden in India it is grown in Nilgiri, Kanyakumari and Kottayam etc. In Sangola it is distributed each and every waste

plant domestic places and garden plant is observed in rural area like Wanichinchale, Medisingi, Walegon, Kadlas, Sangola and Andhalgoan.

Chemical composition: Catharanthus mainly consists of glycosides s and alkaloids. The alkaloids are present in entire plant but they are found in some proportion in leaf and root. Some important alkaloids are vinblastine, vincristine and other alkaloids present in the plant are ajmalicine, serpentine, lochnerine, tetrahydroalstonine, vindolinine and catharanthine.

Uses: It is used in hypertensive antibiotic action other dimer indole-indoline used for curing the anti-cancer activity. The alkaloid wintry stain is highly active in treatment of childhood leukemia. Vincristine proves effective in breast cancer and the leaves are used in diabetes.

PERIWINKLE

4. Indian Gooseberry

Scientific name: Emblicaofficiniales Gaertn

Source: Fresh and dried fruit.

Family and distribution: Euphorbiaceae, Emblica is a small genus of the trees native of India, Sri Lanka, Malaya and China

it is found in local area of sangola like Watamabare, Hadid, Kole, Methwade, Spinning mill, Campus of Sangola cottage and Nazare.

Chemical composition: The fruit is the richest source of vitamin C. The other important constituents of Gallic acid tannic acid, gum, sugar, fat, phyllemblin, minerals Fe, P, Ca. Bark contain tannin and seeds contain fixed oil and essential oil.

Uses: Amla fruit which is acid, cooling refrigerant, diluretic and mild laxative. Fresh fruit used in intestine worms, pulp of fruits used in to cure jaundice, amenia, dysphagia and scurvy. From this fruit famous 'chavanprash' and 'triphala churn' is prepared drive fruit is used in haemorrhage (bleeding), diarrhoea, dysentery, cough. It is used as laxative, headache, piles, liver. Seed applied in scabies and itching. Fruit juices used in hair dye and seed oil and fruit juice is used in preparation of hair oil and shampoo. L.eave are used as a fodder. The fruit are also used in preparation of inks.

INDIAN GOOSEBERRY

5. Purging Casia

Scientific Name: Casia fistula linn

2. Marsupial

Marsupial mammals give birth to babies that are not completely developed. Their babies are very tiny. The babies then crawl up the floor on the mother's belly into a pouch on the outside of the mother's abdomen. The babies drink milk from the mother and continue to develop inside the pouch. Koalas, Kangaroos, Wallabies and Opossums are some of the better-known marsupials. Today marsupials are found mostly in Australia, new Guinea and South America. The only marsupial in North America is the opossum. Opossum may give birth to as many as 21 babies at one time however the mother only has 13 nipples in her pouch the first thirteen babies to climb into her pouch and attached to their nipples are the only ones that survive.

KOALA

KANGAROO

3. Placental Mammal

A placental mammal develops inside its mother's body until its body systems can function on their own. The name of this group comes from the placenta and organ in pregnant female mammals that pass materials between the mother and the developing baby. Food and oxygen carried by blood passed from the mother to the baby through the placenta. Wastes passed from the baby to the mother where they are eliminated by her body. Most mammals including humans are placental mammals.

HUMANS

ELEPHANT

CONCLUSION

1. PLANTS

Each plant is characterized by one of the three histories haploid, diploid or the most common haploid -diploid. Within each of these three types there are also variations of the plant with haploid type cycles most algae lock a dikaryotic phase. While most fungi have dikaryotic phase. There are also other algae and fungi that are characterized by diploid lifecycles. Lastly plans with a haploid diploid life history undergo an alternation of generations either similar or dissimilar in all of these life cycles are asexual reproduction may occur but it is it is sexual reproduction that is responsible for genetic diversity. Due to diversions arising separately at different rates the evolution of land plans did not follow a linear sequence before land plants algae with haploid lifecycle but land plants later originated.

2. INSECTS

Insects play many important roles in nature they aid bacteria fungi and other organisms in the decomposition of organic matter and in soil formation. The decay of Carrion, for example brought about mainly by bacteria is accelerated by the maggots of flesh flies and blowflies. The activities of this larva which distribute and consume bacteria are followed by these of moths and beetles which breakdown hair and feathers. Insects and flowers have evolved together. Many plants depend on insects for pollination. Some insects are predators of others.

3. FISH

Fish has a closed loop circulatory system They are an omnivorous group because they feed on plants and other small sea animals of waterbodies. Fishes extract nitrogen and ammonia. Fishes reproduce highly in the open water column only. The eggs have an average diameter of 1 millimeter only.

4. BIRDS

We conclude that species spatial distribution is directly affected by global warming and subsequently climate change. In general terms it has been started by the scientific community that the distribution of species has been moving in a poleward trend. Within the realm of our study, we found no conclusive evidence to prove or disprove this statement. The evidence that we did find and sited leads as to conclusion that the distribution of species is infant being altered by climatic change. But we were unable to determine exactly what that change was. This project focus on bird species evidence found specifically from birds shows that there is a correlation between bird population characteristics and alteration in climatic factors such as temperature and precipitation.

5. MAMMALS

Mammals have about 6000 different species or kinds of animals in their group or class. Mammals can be divided into three more groups based on how their babies develop these three groups are monotremes, marsupials and the largest group placental mammals.

ACKNOWLEDGEMENT

The success and final outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along the completion of our assignment work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them. I respect and thank DR. MAHUA DUTTA MADAM for giving us an opportunity to do this assignment work cannot be completed without the effort from our friends. Last but not least, we would like to express our gratitude to our classmates on the topic Study of common plants, insects, fish, birds, mammals and basic principles of identification and providing us all support and guidance which made us to complete the assignment on time, We are extremely grateful to her for providing such a nice support and guidance. This assignment and respondents for support and willingness for this project.

BIBLIOGRAPHY

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Examined
18/6

GOKHALE MEMORIAL GIRLS' COLLEGE

AECC- ENVS PROJECT

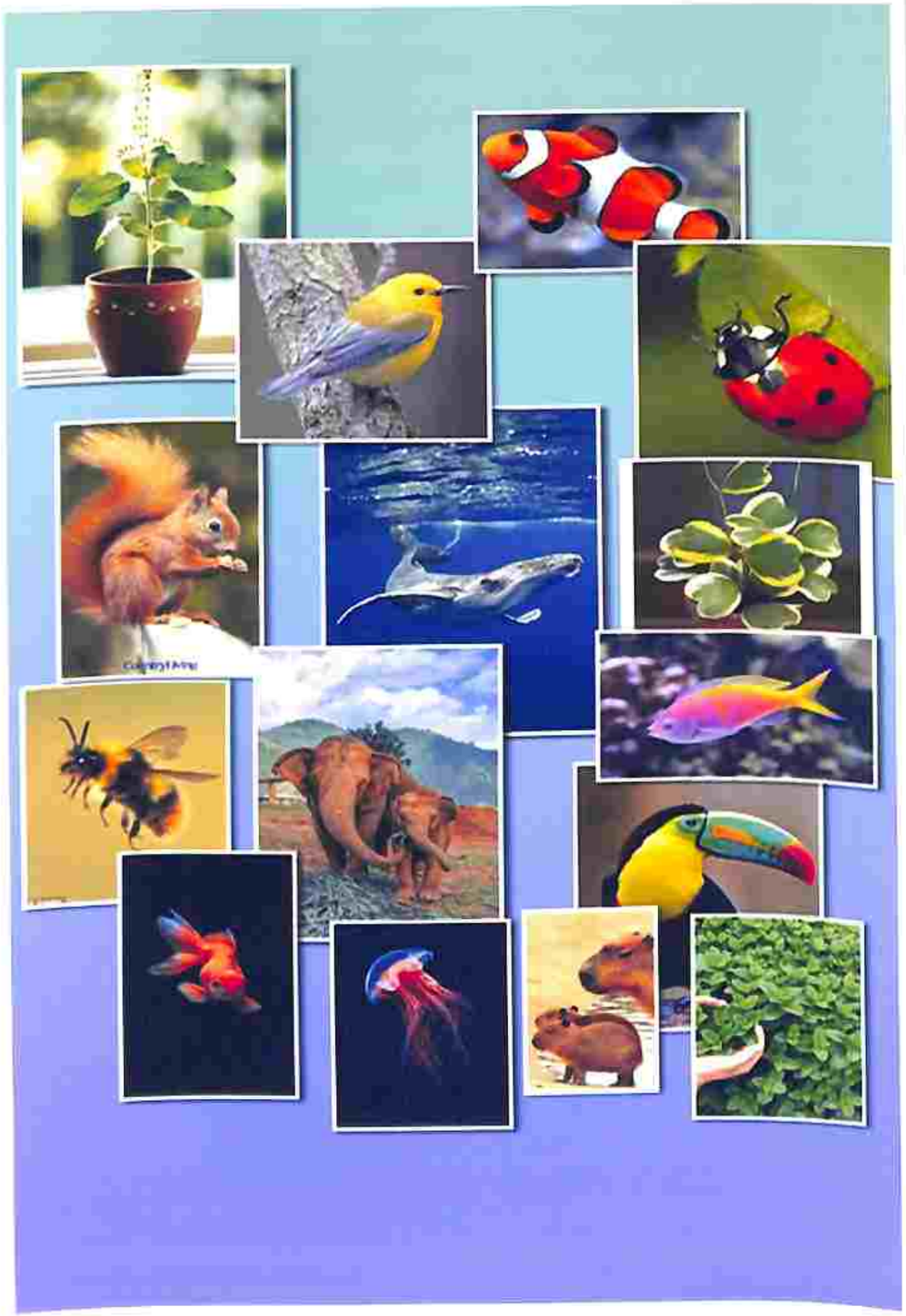
NAME : SRIPARNA PAL

C.U. ROLL NO: 212013-11-0037

C.U. REGISTRATION NO: 013-1211-0054-21

COLLEGE ROLL NO: 21/BAH/0155

18/6



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Today Marsupials are found mostly in Australia, New Guinea and South America. The only marsupial in North America is the opossum. Opossum may give birth to as many as twenty one babies at one time. However, the mother only has thirteen nipples in her pouch. The first thirteen babies to climb into her pouch and attach to her nipples are the only ones that survive.

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A Placental Mammal develops inside its mother's body until its body systems can function on their own. The name of this group comes from the placenta, an organ in pregnant female mammals that pass material between mother and the developing baby. Food and oxygen, carried by blood, pass from the mother to the baby through the placenta. Wastes pass from the baby to the mother, where they are eliminated by her body. Most mammals, including humans, are placental mammals.

CONCLUSION

PLANTS

Each plant is characterized by one of the three life histories; haploid (1n), diploid (2n) or the most common haploid-diploid. Within each of these types, there are also variations. Of the plants with haploid life cycles, most algae lack a dikaryotic phase, while most fungi have a dikaryotic phase. There are also other algae and fungi that are characterized by diploid life cycles. Lastly, plants with haploid-diploid life history undergo an alternation of generations, either similar or dissimilar. In all of these life cycles, asexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversities. Due to variations arising seperately and at different rates, the evolution of land plants did not follow a linear sequence. Before land plants, algae with haploid life cycles, but land plants later originated.

INSECTS

Insects play an important roles in nature. They aid bacteria, fungi, and other organisms in the decomposition of organic matter and in soil formation. The decay of carrion, for example, brought about mainly by bacteria, is accelerated by the maggots of flesh flies and blow flies. The activities of these larvae, which distribute and consume bacteria, are followed by those of moths and beetles, which break down hair and feathers. Insects and flowers have evolved together. Many plants depend on insects for pollination. Some insects are predators of others.

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We conclude that species spacial distribution are directly effected by global warming and subsequent climate change. In general terms, it has been started by the scientific community that the distribution of species have been moving in a foreward trend. Within the realm of our study, we found no conclusive evidence to prove or disprove this statement. The evidence that we did find and cited leads us to the conclusion that the distribution of species is infact being altered by climatic change, but we were unable to determine what that change was. Evidences found specifically from birds show that there is a correlation between bird population characteristics and alteration in climatic factors such as temperature and precipitation. The change in population characteristics shows that some sort of shift or generally trended movement is occuring.

MAMMALS

Mammals have about six thousand different species or kinds of animals in their group or class. Mammals can be divided into three more groups based on how their babies develop. These three groups are monotremes, marsupials and the largest group, placental mammals.

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Professor's Signature

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Examined
18/6

ENVS PROJECT

STUDY OF COMMON PLANTS, INSECTS, FISH, BIRDS, MAMMALS AND THEIR BASIC PRINCIPLES

SUBMITTED BY-

PRIYADARSHINI MISRA

CU REGISTRATION NO. 013-1211-0124-21

CU ROLL NO. 213013-11-0001

COLLEGE ROLL NO. 21/BSCH/0210

18/6

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PETUNIA HYBRIDA

CLASSIFICATION

Kingdom: Plantae

Division: tracheophyta (vascular plant)

Class: magnoliopsida (flowering plants)

POINTS OF IDENTIFICATION

1. Taproot and branched
2. Stem green, hairy, herbaceous and branched.
3. Leaves simple, exstipulate, reticulate, venation

PINUS

CLASSIFICATION

Kingdom: Plantae

Division: Tracheophyta (vascular plants)

Class: Gymnosperm (simple leaf, seeds naked, cones present, xylem lacks vessels)

Genus: Pinus sp.

POINTS OF IDENTIFICATION

1. It is an evergreen, perennial and woody plant. Main plant body is saprophyte, which is differentiated into root, stem and needle like leaves
2. It produces different kind of spores. Microsporophyll's bear microsporangia which produce microspores i.e. pollen grains. Pollen grains are light and winged. These are dispersed by the wind.

AGARICUS (MUSHROOM)

CLASSIFICATION

Kingdom: Fungi (no green, heterotrophic organisms)

Division: Eumycota (mycelium and fungal cellulose present)

Class: Basidiomycetes (bear basidiopores on basidium)

Genus: Agaricus sps.

POINTS OF IDENTIFICATION

1. It is a fleshy saprophytic fungus which grown on damp logs of wood trunks of trees and on decaying organic matter.
2. The fungal body consists of two parts: (1) Somatic: vegetative Mycelium under the ground (2) Reproductive : fructification or fruiting body above the ground

Each plant is characterized by one of the three life histories: haploid (1n), diploid (2n), or the most common haploid-diploid. Within each of these three types, there are also variations. Of the plants with haploid life cycles, most algae lack a dikaryotic phase, while most fungi have a dikaryotic phase. There are also other algae and fungi that are characterized by diploid life cycles. Lastly, plants with a haploid-diploid life history undergo an alternation of generations, either similar or dissimilar. In all of these life cycles, asexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversity. Due to variations arising separately and at different rates, the evolution of land plants did not follow a linear sequence. Before land plants, algae with mostly haploid life cycles existed, but land plants later originated from a haploid-diploid ancestor.

INSECTS

INTRODUCTION

Insects are generally considered the most successful group of living organisms on the earth. Insects have chitinous exoskeleton, a three part body, three pairs of joint legs, compact eyes and a pair of antennae. Insects are adaptable creatures that live in almost every habitat on earth, while some of them live in water 97% of them live on land.

BUTTERFLIES

Butterflies are a large group of insects belonging to the order Lepidoptera which mean scaly wing. They are characterized by their large and often colorful wings

KINGDOM: Animalia

PHYLUM: Arthopoda

STRUCTURE: Like other insects butterflies have 6 legs and three main body parts, head, thorax, and abdomen. They also have two antennae and an exoskeleton.

HABITAT: butterflies lives in a diverse habitat including salt marshes, mangroves, sandunes, lowland forest, grasslands and mountain zones.

MOSQUITO

There are about 170 different kinds of mosquitoes in North America alone. These pests are part of the same family as houseflies and fruit flies, because they have two clear, veined wings. Mosquitoes can develop from an egg to an adult in 10 to 14 days.

KINGDOM: Animalia

PHYLUM:Arthropoda

HABITAT: Mosquitoes breed in soft, moist soil or stagnant water sources such as storm drains, old tires, children's wading pools and birdbaths.

IMPACT:Mosquitoes spread diseases like **west nile virus, malaria** and **dengue fever.**

Insects play many important roles in nature. They aid bacteria, fungi, and other organisms in the decomposition of organic matter and in soil formation. The decay of carrion, for example, brought about mainly by bacteria, is accelerated by the maggots of flesh flies and blowflies. The activities of these larvae, which distribute and consume bacteria, are followed by those of moths and beetles, which break down hair and feathers. Insects and flowers have evolved together. Many plants depend on insects for pollination. Some insects are predators of others.

FISH

Fish or fishes are an aquatic group of vertebrates which live in water and reprise with gills. They do not have limbs, like arms or legs. Fish used to be a class of vertebrates, but now the term covers five classes of aquatic vertebrates:- (1) Jawless fish (2) Armoured fish (3) Cartilaginous fish (4) Rey finned fish (5) lobe finned fish

There are more fish than terrapods, there are 33,000 described species of fish. Fish are usually covered with scales. They have two sets of paired fins and several unpaired fins. Most of the fish are coldblooded. A fish takes in oxygen from the water using gills. 'Fish' is a parahyletic term in cladistics because it lacks monophyletic group of descendants.

BODY SHAPE

The shape of the body of a fish is important to its swimming. This is because streamlined body shapes makes the water drag less.

A **shark's** shape is called fusiform, and it is an avoid shape where both ends of a fish are pointy. This is the best shape for going through water quickly

Eel-like: The long ribbon like shape of an eel's body shows another shape. This enables them to hide in cracks, springing out quickly to capture prey, then returning quickly to their hiding spot.

Flatfish: Flatfish live in the bottom of the ocean or lake. Most can camouflage, they change colors to match the ocean floor, their eyes move to the upper side of their flat body

FRESHWATER FISH

41% of all five live in freshwater. There are also some important fish which breed in rivers and spend the rest of their life in the seas. Examples are : salmon, trout, the sea lamprey, and three spined stickle back. Some other fish are born in salt water, but live most of their adult life in freshwater, for example eels. Species like this change their physiology to cope with the amount of salt in the water.

Fish are a vital part of our ecosystem. Fish play an important role in nutrient cycles because they store a large proportion of ecosystem nutrients in their tissues, transport nutrients farther than other aquatic animals and excrete nutrients in dissolved forms that are readily available to primary producers. Although the influence of fish communities on food web structures, nutrient recycling, and productivity is well documented, little is known about the effects on the ecosystem of a reduction in the fish species richness. It is therefore of significant importance to evaluate the potential impacts of ongoing decreases in fish diversity.

BIRDS

INTRODUCTION

Birds are ready visitors that visit frequently from place to place even from continent to continent. The introduction of birds says that they are organization of Aves-class warm blooded vertebrates characterized by wings, hard shelled egg laying, toothless baked jaws, an increased metabolic rate, a heart with four chambers and a powerful yet light skeleton. The birds' scientific name is Aves. A good number of birds visit different sites due to change of environment for their feed and reproduction. They come to thrive there for a temporary period to hatch eggs and carry a good number of springs during their journey back.

OBSERVATION:

SPARROW

CHARACTERISTICS: Sparrows have beautiful voices and their chirping and singing can be heard all over. Other unique characteristics are their smooth round heads and rounded wings. Males have reddish feathers on their backs and females have brown and are striped

DISTRIBUTION: It is native to North Africa and was introduced to South Africa, North America and South America, Australia, New Zealand, Middle East, India ad Central Asia, where its population thrived under a variety of environmental and climatic conditions.

BAYA WEAVER

CHARACTERISTICS: A widespread weaver that is known for its nest —a long hanging nest with a bulbous chamber and a narrow tubular entrance. They have yellow forehead and crown a dark throat that contrasts with yellow underparts

DISTRIBUTION: The Baya weaver is a weaver bird found across the Indian subcontinent and Southeast Asia. Flocks of these birds are found in grassland areas.

Birds' spatial distributions are directly effected by global warming and subsequently climate change. In general terms it has been stated by the scientific community that the distribution of species have been moving in a poleward trend. Within the realm of our study we found no conclusive evidence to prove or disprove this statement. This project focused on bird species (as we found they were ideal indicators of species shifts due to the fact that their patterns of movement are already larger and more immediate than other organisms). Evidence shows that there is a correlation between climate factors and bird population.

MAMMALS

Mammals are a group of vertebrates constituting the class Mammalia characterized by the presence of mammary glands which in females produce milk for their young, a neocortex (a region of brain) a fur of hair, and three middle ear bones. Theircharacters distinguish them from reptiles (including birds) from which they diverged in the carboniferous, over 300 million years ago. Around 6,400 extant species of mammals have been described. Most mammals are intelligent, with some possessing large brains, self awerness and tool use.

THE ROYAL BENGAL TIGER

The Bengal Tiger is a population of the panthera Tigris sub species. It ranks among the biggest wild cats alive today. It is considered to belong to the world's charismatic mega fauna. The Bengal tiger's coat is yellow to light orange, with stripes ranging from dark brown to black; the belly and the interior parts of the limbs are white, and the tail is orange with black rings. The white tiger is a recessive mutant, which is reported in the wild from time to time in Assam, Bengal and Bihar

ONE HORNED RHINO

The Indian Rhinoceros also called the Indian rhino, is a rhinoceros species native to theIndian subcontinent. As a result of habitat destruction and climatic changes its range has gradually been reduced so that by the 19th century, it only survived in the terai grasslands of southern Nepal, northern uttarpradesh, northernBihar, North West Bengal and in the Brahmaputra valley of Assam.

ASIATIC ELEPHANT

The Asian elephant, also known as the Asiatic elephant, is the only living species genus elephas and is distributed throughout the Indian subcontinent and Southeast Asia, from India in the west, Nepal in the north, Sumatra in the south, and to Borneo in the east. The Asian elephant is the largest living land animal in Asia.

Mammals play a vital role in maintaining the atmosphere on the Earth. Through their reproduction pattern and gestation period they come to be together in controlling the pressure of eco-system in the Earth as a whole. So, it can't be considered as a common or light problem and should be taken a serious matter to have speculations in a group to come to the state to protect the endangered species. So when any one country is if suffering from such endangered problems the developed countries should take an action towards that and should launch some social programs and some rewarding state so that people can get encouraged to preserve the environment.

BIBLIOGRAPHY

LINKS

Plants- https://en.m.wikipedia.org/wiki/Plant

Insects- https://en.m.wikipedia.org/wiki/Insect

Fish- https://en.m.wikipedia.org/wiki/Fish

Birds- https://en.m.wikipedia.org/wiki/Bird

Mammals- https://en.m.wikipedia.org/wiki/Mammal

REFERENCE BOOKS

(1) Dr. Bala-Sujan Kumar- Environmental Studies, Model Field and Project Work

(2) KaushikAnubha, Kaushik C.P. New Age International Publishers.

(3) Singh Savindra- Environmental Geography- Allahabad, Pravalika

Examined
18/6

GOKHALE MEMORIAL GIRLS' COLLEGE

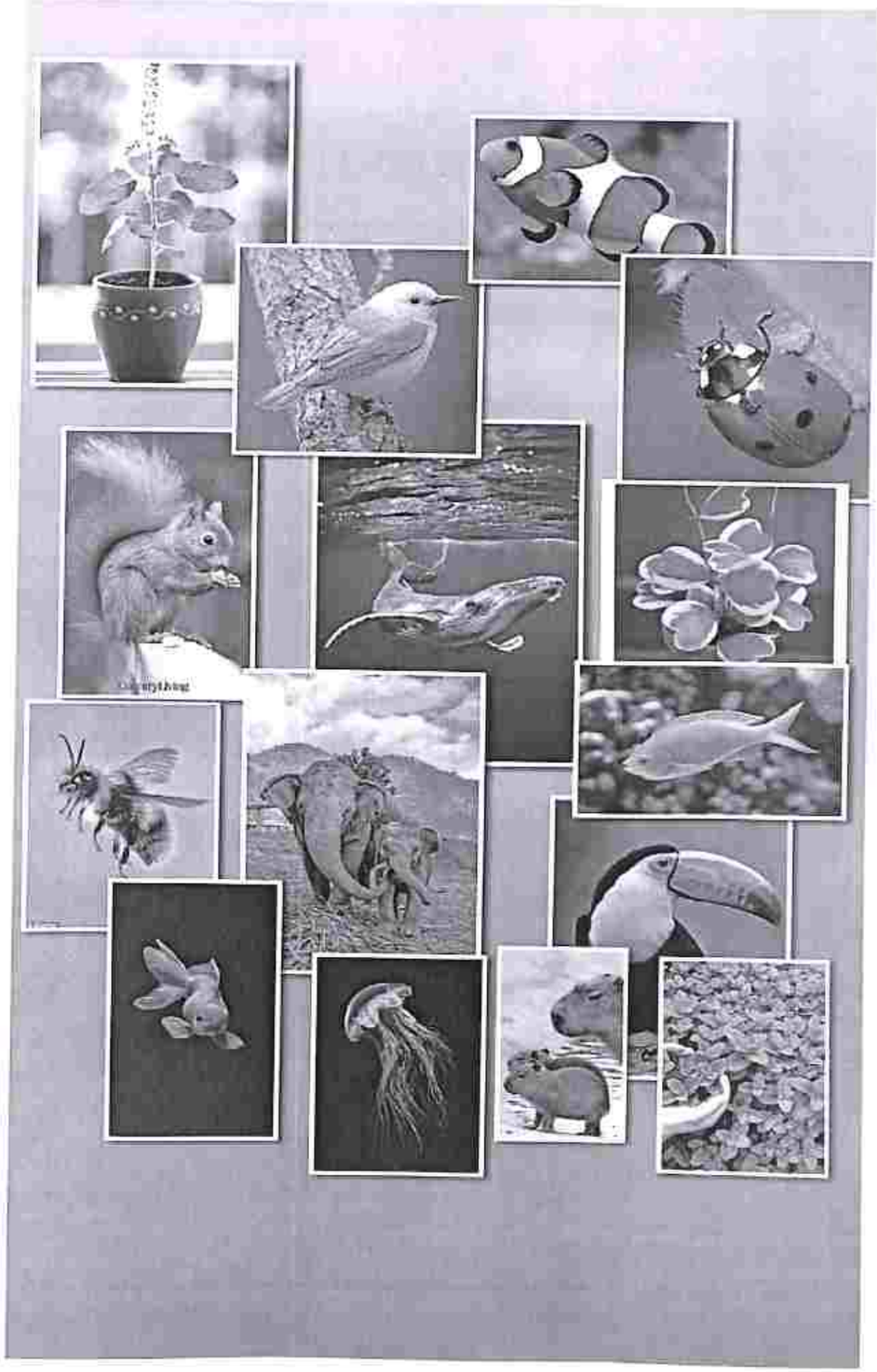
AECC- ENVS PROJECT

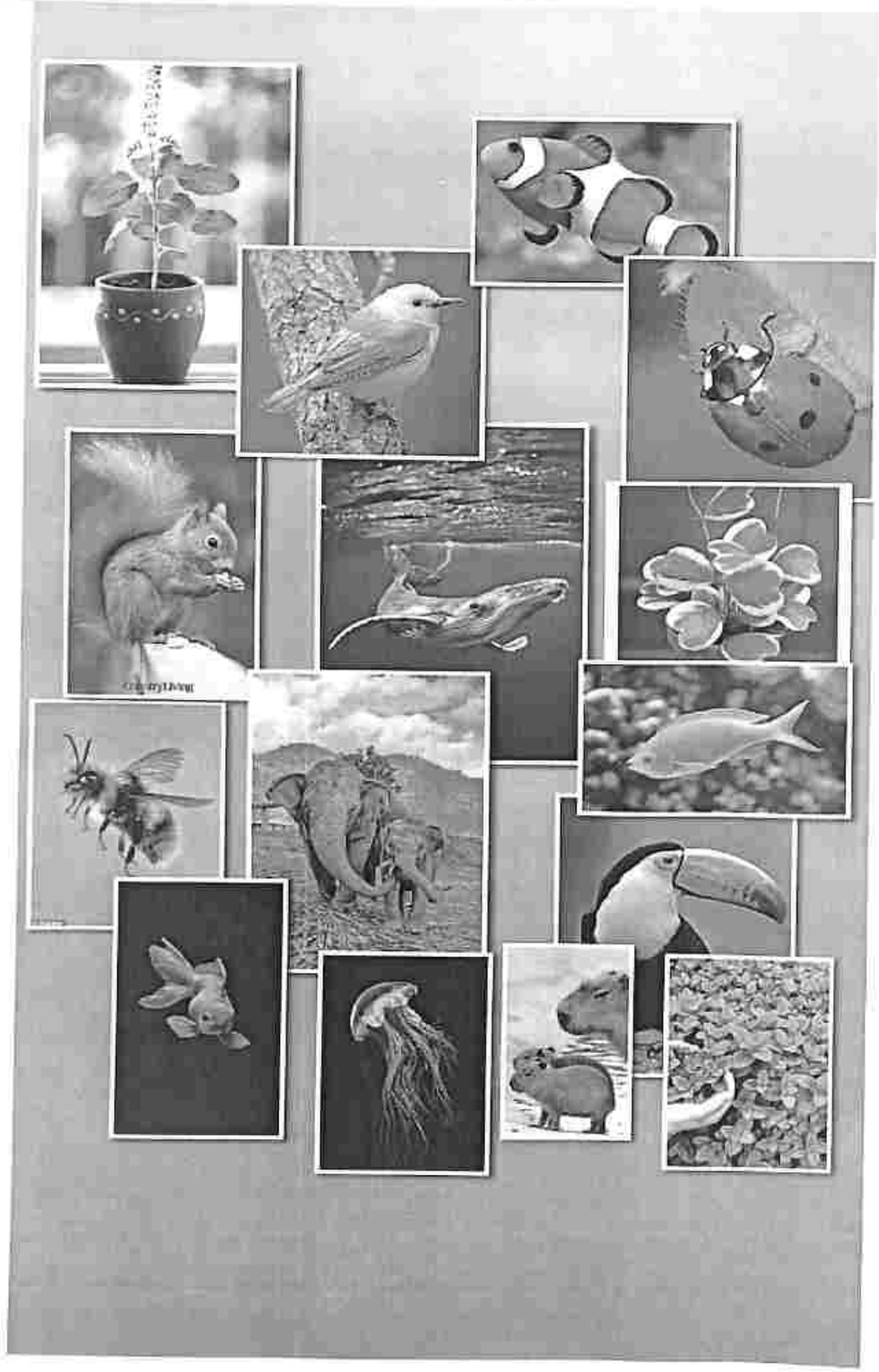
NAME-REETIKA KARMAKAR

COLLEGE ROLL NO. -21/BSCH/216

ROLL NO.-213013-11-0002

REGISTRATION NO.-013-1211-0125-21





INTRODUCTION

A. PLANTS

Plants are critical to other life on this planet because they form the basis of all food webs Most plants are autotrophic, creating their own food using water, carbon dioxide, and light through a process called photosynthesis. Some of the earliest fossils found have been aged at 3.8 billion years. These fossil deposits show evidence of photosynthesis, so plants, or the plant-like ancestors of plants, have lived on this planet longer than most other groups of organisms. At one time, anything that was green and that wasn't an animal was considered to be a plant. Now, what were once considered "plants are divided into several kingdoms Protista, Fung, and Plantae? Most aquatic plants occur in the kingdoms Plontae and Protista.

B. INSECTS

Insects, are a class in the phylum Arthropoda, They are small terrestrial invertebrates which have a hard exoskeleton. Insects are the largest group of animals on earth by far: about 926,400 different species have been described. They are more than half of all known living species. They may be over 90% of animal species on Earth. New species of insects are continually being found Estimates of the total number of species range from 2 million to 30 million Insects hove six legs; and most have wings. Insects were the first animals capable of flight. As they develop from eggs, insects undergo metamorphosis Insects live all over the planer: almost all ore terrestrial (live on land). Few insects live in the oceans or in very cold places, such as Antarctica. The most species live in tropical areas.

C. FISH

Fish are aquatic, craniate, gill-bearing animals that lack limbs with digits. Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups. Around 99% of living fish species are ray-finned fish, belonging to the class Actinopterygii, with over 95% belonging to the teleost subgrouping. The earliest organisms that can be classified as fish were soft-bodied chordates that first appeared during the Cambrian period. Although they lacked a true spine, they possessed notochords which allowed them to be more agile than their invertebrate counterparts. Fish would continue to evolve through the Paleozoic era, diversifying into a wide variety of forms

OBSERVATION

PLANTS

FIVE COMMON PLANTS

1.MANGOSA

Scientific name: Azadirachtaindicaluss.
Vernacular Name: Neem, Kadu-limb
Source:The leaves, bark, flowers, fruits and seeds are used as a drug
Family & Distribution:Meliaceae, it is native of Burma but grown all over India. In Sangola taluka neem is found in large scale in rural and urban places. Some imporntant places like Narale, Sangala, Spinning mill, Hatid, Walegaon, Andhalgaon, Wasteland of Sangola, it is recorded in garden, School and Colleges, Akola and Mangewadi etc.
Chemical composition:The alkaloids are the main active principles. They are nimbin, nimbinin, nimbidine, nimbosterine and nimbectin etc. fatty acid present in the plant and seed contain 40 to 45% fixed oil.
Uses:The leaves are carminative, expectorant, anthelmintic, diuretic and insecticidal properties. Fresh leat juice with salt given for intestinal worms, jaundice, skin disease and malarial fever. The leaves are applied for boils, chronic ulcers, swelling and wounds. Bark is used for liver complaint, remove round worms. Gum is stimulant, demulcent tonic and used in debility.

2) ALOE VERA

Scientific Name: Aloe barbadensesMills.
Vernacular Name: Korphad, Gritakumari
Source:Thick fleshy leaves (Pulp, dried, juice) are used as a drug
Family & Distribution:Liliaceae, it is native of West Indies or Mediterranean region. It grows wild in hot dry valleys of Western Himalayas and southern, Northern part of India. Sangola is the one of the drought region it is mainly distributed in every places in rural area some of the important places like Waki, Mahud, Chindepir, Rajuri, Sangola, lawala and Gherdi. It is xerophytic plant.
Chemical composition :The main active principle present in Aloe is crystalline glucoside known as barbaloin,other constituent like resin and derivatives like emodin, chrysophanic acid,anthroquinones, emoclin, also it contain glucose, galactose, mannose and galacturonic acid with protein. The plant contain aloesone and aloesin.
Uses:Aloe is chiefly used as purgative, abortificient, anthelmintic, blood purifier, cathartic, cooling, digestive and diuretic, inflammation, painful parts of the body. It is useful in burn, cold cough, jaundice, worms and piles. Aloe is used in preparation of vegetables, pickles, cosmetics, skin blemisars, help to grow new healthy tissue. It is used as hair tonic as it stimulates the growth of hair.

3.PERIWINKLE

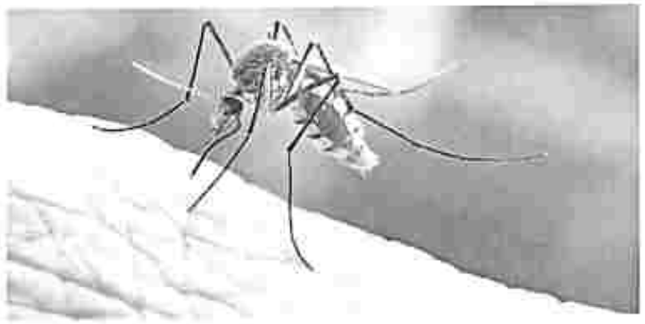
Scientific Name: Catharanthus roseus Don.

2)MOSQUITO

There are about 170 different kinds of mosquitoes in North America alone. These pests are part of the same family as houseflies and fruit flies, because they all have two clear, veined wings. Best known as a summer pest, Mosquitoes can develop from egg to adult in 10 to 14 days.
Size: 1/4" to 3/8"

Shape: Narrow, oval

• Color: Pale brown with whitish stripes across abdomen



• Legs: 6.

• Wings: Yes

Antenna: Yes

• Common Name: Mosquito

Kingdom: Animalia

• Phylum: Arthropoda

Class: Insecta

• Order: Diptera

Family: Culicidae • Species: Varies

Diet:

We usually say, "I have been bitten by a mosquito", but this is not completely true. Mosquitoes do not bite. Female mosquitoes feed on plant nectar and blood. They need the protein to reproduce. To get to the blood, they pierce our skin with their "proboscis" and suck our blood. Male mosquitoes feed exclusively on plant nectars. Mosquitoes are busiest at night and will fly up to 14 miles for a blood meal. They hunt for food by detecting body heat and Carbon Dioxide, the gas we breathe out.

> Habitat:

Mosquitoes breed in soft, maist soil or stagnant water sources such as storm drains, old

tires, children's wading pools and birdbaths.

➢ Impact:

Mosquitoes spread diseases such as West Nile Virus, malaria and dengue fever.

> Prevention:

Replace all stagnant water at least once a week VWhen sleeping outdoors or in areas where mosquito populations are heavy, surround your bed with "mosquito" netting

Remove trash from around any standing water.

3) DUST MITE

The dust mite is nearly impossible to see without magnification. A typical mattress can contain tens of thousands of dust mites. Nearly 100,000 mites can live in a single square yard of carpet!

Size: 1/75" Shape: Flat, broad, oval

Color: Off white to tan

Legs: 8

Wings: No . Antenna: No

. Common Name: Dust mite

Kingdom: Animalia

• Phylum: Arthropoda

Class: Arachnida

Order: Acariformes

Family: Pyroglyphidae Species: Dermatophagoidesfarina

▸ Diet:

Dust mites primarily feed on dead skin shed by humans and other animals. They can also

absorb moisture from the air.

Habitat:

Dust mites are most often found in beds. They may also be found living in carpet, furniture,

and clothing.

➢ Impact:

Habitat:

Pill bugs live in wet locations. They are found under damp objects or in organic garbage. If

pill bugs enter a building, they will often dry out and die.

Impact:

Pill bugs do not spread diseases or contaminate food

Prevention:

Keep your homes and the areas around your home clean and dry. Eliminate food sources such as vegetable or plant debris.

5) EARWIGS

Earwigs get their name from the myth that they crawl into sleeping people's ears and tunnel into the brain. They do not really do that! There are 22 types of Earwigs in the United States and there are over a 1,000 different species all over the world.

Size: 1

Shape: Long, narrow

Color: Dark brown

Legs: 6

• Wings: No

• Antenna: Yes

• Common Name: Earwig • Kingdom: Animal

Phylum: Arthropodal

• Class: Insecta

Order: Dermaptera

Family: Forficulda Species: Forficulaauricularia

Diet:

Earwigs feed on leaves, flowers, fruits, mold and insects.

Habitat:

Earwigs hide during the day and live outdoors in large numbers. They can be found under piles of lawn clippings, compost or in tree holes. They enter buildings through cracks in the walls.

Impact:

They do not spread disease, but they can be scary to look at

Prevention:

V Remove leaf piles, compost piles or other vegetation from around your home. VSeal cracks and crevices in the walls of your house.

E.V.S. About a study of birds, insects

C)FISH

FIVE COMMON FISH

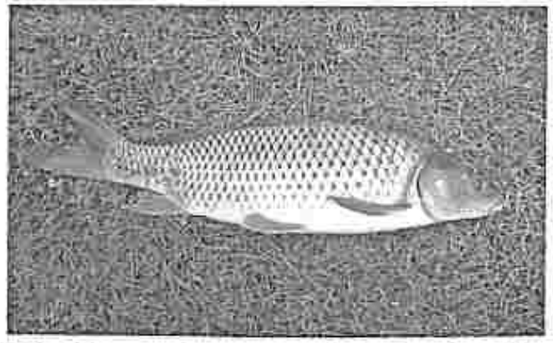
1. SIAMESE FIGHTING FISH

Scientific Name: The scientific name of Siamese Fighting Fish is known as betta splendens.

Family & History: This fish is classified under the classification of betta. It is an aquarium fish. It belongs to a family of Gourami family. Other names of this fish are pla-kad and trey krem. They can mingle with other fish. the body length of the fish is seven centimetres and it appears in colours of red green, opaque, albino, orange, yellow, and blue etc.

Lifespan: The lifespan of this fish is about a year only. Water temperature must be around 23 degrees to 27 degrees.

2. COMMON CRAP



Scientific Name: The scientific name of common carp is Cyprinus Capio. This kind of fish is found in a flaming gorge reservoir, lake mohave, aral sea, more places.

Family & History: It is classified under Cyprinus. The body mass of this fish is about 2-14 kilogram. These are grown in freshwater lakes. Mostly found in water bodies in Asia and Europe. They can tolerate low oxygen level.

These are omnivorous. It can lay up to 300000 eggs in a single spawn. This fish is taken as food by humans all over the world.

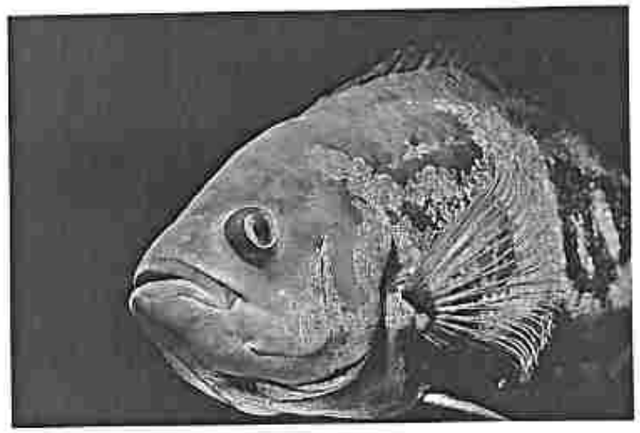
Life Span: The lifespan of common curve is until 47 years

3. GOLD FISH

Scientific Name: The scientific name of goldfish Karachi under the higher classification of it is mostly found in the lake.

Family & History : It is an aquarium fish.

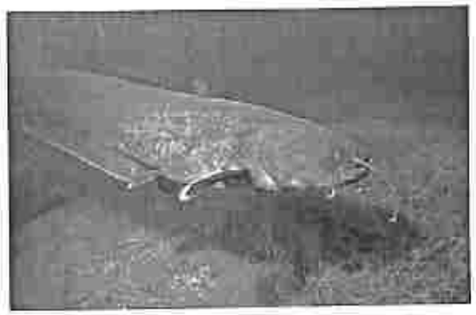
4. OSCAR



Scientific Name: The scientific name of Oscar is Astronotusoscellatus. It is classified under the higher classification of astronotus. Other names of Oscar are Tiger Oscar, Marble cichild, and velvet cichild.

Family & History : The species are found in South America, Australia, The United States and China. It is seen as aquarium fish. The body lengthof Oscar is about 36cm and the mass of the body is 1.4kg. They grow quickly and that carnivorous.

5. Well Catfish:



Scientific Name: The scientific name of Well Catfish is Siluruglanis. It is classified under the classification of Silurus. It is also called as sheat fish.

Family & History : This fish is mostly found in Lake constance. These also found in basins of Baltic, Black and Capsian Sea. Size of this fish is about 13 feet that is of 4M. Maximum weight is about 400 kg. These are mostly found in freshwater place. They feed on other animals which live in water bodies.

CONCLUSION

A)PLANTS

Each plant is characterized by one of the three life history, is haploid (1n), diploid (2n), or the most common haploid- diploid. Within each of these three types, there are also variation of the plants with haploid life cycle most algue lock are dikaryotic phase. There are also other algae and fungi that are characterized by deployed life cycle. Lastly, plants with haploid-diploid life history undergo an alternation of generation either similar or dissimilar. In all of these life cycle, a sexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversity. Due to variations arising separately and at different rates the evolution of land plants did not follow linear sequence. Before land plants algae with haploid life cycle, but land plants later originated.

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Insects play many important roles in nature. They aid bacteria, fungi and other organism in the decomposition of organic matter and in soil formation. The decay of carrion, for example brought about mainly by bacteria is accelerated by the moggots of fresh files and blow files. The activities of these larvae, which distribute and consume bacteria are followed by those of moths and bettles which breakdown hair and feathers. Insect and flower have evolved together. Many plants depend on insect for pollination. Some insects are Predator of others.

C)FISH

Fish has closed-loop circulatory system. They are an omnivorous group because they feed on plants and other small sea animals of water bodies. Fishes excrete nitrogenous and ammonia. Fishes reproduce highly in the open water column only. The eggs have an average diameter of one millimetre only.

D)BIRDS

We conclude that species spatial distribution are directly affected by global warming and subsequently climate change. In general terms it has been started by the scientific community that the distribution of species have been moving in a pole-ward trend. Within the realm of our study we found no conclusive evidence to prove or disprove this statement. The evidence that we did find and cited leads us to the conclusion that that distribution of species is infact being altered by climatic change, but we were unable to determine exactly what that change was. This project focused on birds species. Evidence found specially from birds shows that there is a correlation between birds population characteristics and alteration in climatic factors such as temperature and precipitations. The change in population characteristics shows that some sort of shift or generally trended movement is occuring.

E)MAMMALS

Mammals have six thousand different species or kinds of animals in their group or class. Mammals can be divided into three more groups based on how their babies developed. These three groups are monotrems, marsupials and the largest group, placental mammals.

REFERENCES

Have taken helps from various Environment books like:-

1) Dr. Bala-Sujan Kumar- Environmental Studies, Model Field and Project Work

2) Kaushik Anubha, Kaushik C.P- New Age International Publishers.

3) Singh Savindra- Environmental Geography- Allahabad, Pravalika Publications.

BIBLIOGRAPHY

1) https://teara.govt.nz/en/collections-of-plants-and-animals/page-1

2) https://theconversation.com/identification-of-animals-and-plants-is-an-essential-skill-set-55450

3) https://manoa.hawaii.edu/exploringourfluidearth/biological/mammals/what-mammal

4) https://www.britannica.com/animal/bird-animal

5) https://pixabay.com/images/search/wildlife/

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COLLEGE ROLL NUMBER: 21/BSCH/0070

STUDY OF COMMON PLANTS, INSECTS, FISH, BIRDS, MAMMALS AND BASIC PRINCIPLES OF IDENTIFICATION

INTRODUCTION

PLANTS

Plants are critical to other life on this planet because they form the basis of all food webs. Most plants are autotrophic, creating their own food using water, carbon dioxide and light through a process called photosynthesis. Some of the earliest fossils found have been aged at 3.8 billion years. These fossil deposit show evidence of photosynthesis. So, plants or the plant like ancestors of plants have lived on this planet longer than most other groups of organizations. At one time anything that was green and that wasn't an animal was considered to be a plant now what were once considered "Plants" are divided into several kingdoms: Protista, Fungi and plantae; most aquatic plants occur in the Kingdom plantae and Protista.

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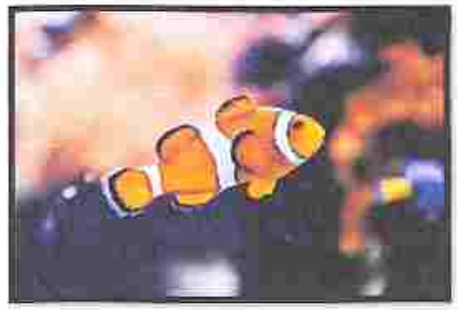
FISH

Fish is a member of paraphyletic group of organisms. This consists of gill-bearing aquatic craniates animals with limbs and digits. Most of the fishes are hagfish, cartilaginous, bony fish and lampreys. Fishes are ectothermic which means cold blooded. Fishes are abundant in most of the bodies of water. Fishes are an important resource for human worldwide especially as food because it consists of a lot of minerals, vitamins and proteins as it stays in water bodies these are served as religious symbols.



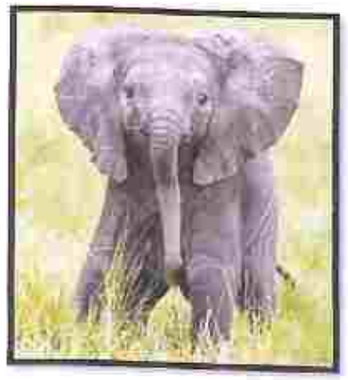
BIRDS

Birds are ready visitors that visit frequently from place to place even from continent to continent. A good number of birds visit different sites due to change of environment particularly for their food and reproduction. As the site is not homogeneous for their easy life. So, they need to move from one place to another. A good example is birds of migratory kind in our West Bengal storks and Siberian cranes are common even in lake chilka of Odisha are large number of Pelicans and flamingos are vivid examples of that kind.

They come to thrive there for a temporary period to hatch eggs and carry a good number of off springs during their back journey.

MAMMALS

Earth has a large variety of animals living on it. Scientists classify animals into groups based on common characteristics. Mammals are a group of animals (vertebrates) that have backbones and her or far they are warm blooded (endothermic), and they have four chambered hearts they also feed their young with milk from the mother's body. The young of most mammals are born alive.



AREA OF STUDY

The area is whole Kolkata, South 24 Parganas district of West Bengal in India.

METHOD OF STUDY

Making this project we use internet to collect about birds, insects and plants.

OBSERVATION

PLANTS

FIVE COMMON PLANTS

1. Mangosa

Scientific name: Azadirachta indicaluss

Source: the leaves bark flowers fruits and seeds are used as drug.

Family and distribution: Meliaceae, it is native of Burma but grown all over India. In Sangola taluka neem is found in large scale in rural and urban places. Some important places that Narale, Sangola, spinning mill, Hatid, Walegaon, Andhalgoan, wasteland of Sangola, it is recorded in garden school and college, Akola and Mangewadi etc.

Chemical composition the alkaloids are the main active principles. They are nimbin, nimbinin, nimbidine, nimbosterine and nimbectin etc fatty acids present in the plant and seed contain 40 to 45% fixed oil.

Uses: The leaves are carminative expectorant anthelmintic, diuretic and insecticidal properties. Freshly juice with salt given for intestinal worms, jaundice skin disease and malaria fever. The leaves are applied for boils chronic ulcers, swelling and wounds. Bark is used for liver complaint remove round worms. Gum is stimulant, demulcent tonic and used in debility.

MANGOSA

2. Aloe Vera

Scientific name: Aloe barbadeneses Mills

Source: Thivk fleshy leaves (pulp, dried juice) are used as a drug.

Family and distribution: Lilliaceae, it is a native to of West Indies or Mediterranean region. It grows wild in hot dry valleys of western Himalayas and southern northern part of India. Sangola is one of the drought regions it is mainly distributed in every place in rural areas some of the important places like Waki, Chindepir, Sangola, Jawala and Gherdi. It is xerophytic plant.

Chemicam composition: The main active principal present in Aloe is crystalline glucoside known as barbolin, other constituent like resin and derivates like emodin, chrysophanic acid, anthoroquinones, emocline, also it contains glucose, gluctose, mannase and galacturonic acid with protein. The plant contains aloesone and aloesin.

Uses: Aloe is chiefly used as purgative, abortifacient, blood purifier, cathartic, cooling, digestive and diuretic, inflammation, painful parts

Uses: It is used in hypertensive antibiotic action other dimer indole-indoline used for curing the anti-cancer activity. The alkaloid wintry stain is highly active in treatment of childhood leukemia. Vincristine proves effective in breast cancer and the leaves are used in diabetes.

PERIWINKLE

4. Indian Gooseberry

Scientific name: Emblicaofficiniales Gaertn

Source: Fresh and dried fruit.

Family and distribution: Euphorbiaceae, Emblica is a small genus of the trees native of India, Sri Lanka, Malaya and China it is found in local area of sangola like Watamahare, Hadid, Kole, Methwade, Spinning mill, Campus of Sangola cottage and Nazare.

Chemical composition: The fruit is the richest source of vitamin C. The other important constituents of Gallic acid tannic acid, gum, sugar, fat, phyllemblin, minerals Fe, P, Ca. Bark contain tannin and seeds contain fixed oil and essential oil.

Uses: Amla fruit which is acid, cooling refrigerant, diluretic and mild laxative. Fresh fruit used in intestine worms, pulp of fruits used in to cure jaundice, amenia, dysphagia and scurvy. From this fruit famous 'chavanprash' and 'triphala churn' is prepared drive fruit is used in haemorrhage (bleeding), diarrhoea, dysentery, cough. It is used as laxative, headache, piles, liver. Seed applied in scabies and itching. Fruit juices used in hair dye and seed oil and fruit juice is used in

Dust mites are most often found in beds. They may also be found in living in carpet, furniture and clothing.

- Impact

Dust mites are harmless to most people. They carry small foreign proteins can cause an allergic reaction in people by triggering the immune system to overreact.

- Prevention

Change your sheets often. And vacuum frequently use a vacuum cleaner with a HEPA filter. If dust mites are a real problem in your home called a pest management professional.

DUST MITE

4. Pill Bug

The Pill bug is the only crustacean that can spend its entire life on land. Their shells look like armor and they are known for their ability to roll into a ball. Sometimes children call them rollie-pollies. Most pill bugs live up for up to two years they are most active at night.

Size: 3/4"
Shape: Oval
Colour: Dark brown to black
Wings: No
Antenna: Yes
Common name: Pill Bug
Kingdom: Animalia
Phylum: Arthropoda
Class: Malacostraca
Order: Isopoda
Family: Armadilididae
Species: Armadiliumvulgare

- Diet

Pill bugs mostly eat rotting vegetation like vegetables.

- Habitat

Pill bugs live in wet locations they are found under damp objects or in organic garbage. If pill bugs enter a building they will often dry out and die.

- Impact

Pill bugs do not spread diseases or contaminate food.

- Prevention

Keep your homes and areas around your home clean and dry. Eliminate food source such as vegetable or plant debris.

PILL BUG

5. Earwigs

Earwigs get their name from the myth that they crawl into sleeping people's ears and tunnel into the brain. They do not really do that. There are 22 types of earwigs in the United States and there are over a 1000 different species all over the world.

Size: 1"
Shape: Narrow, long
Colour: Dark, brown
Legs: 6
Wings: No

Lifespan: The lifespan of common craft is until 47 years.

COMMON CRAP

3. Gold Fish

Scientific name: The scientific name of gold fish is Carassius Auratus. It is classified under the higher classification of Carassius. It is mostly found in Utah lake.

Family and history: It is an aquarium fish.

GOLD FISH

4. Oscar

Scientific name: The scientific name of Oscar is Astronotusoscelatus. It is classified under the higher classification of astronotus. Other names of Oscar are tiger Oscar, marble eichlid, and velvet eichlid.

Family and history: These species are found in South America, Australia, the United States and China. It is seen as aquarium fish.

The body length of Oscar is about 36 centimeter and the mass of the body is 1.4 KG. They grow quickly and are carnivorous.

OSCAR

5. Well Catfish

Scientific name: The scientific name of catfish is Siluruglanis. It is classified under the classification of silurus. it is also called sheat fish.

Family and history: This fish is mostly found in lake Constance. These are found in basins of Baltic, black and Caspian Sea. Size of this fish is about 13 feet that is a four-meter, maximum weight is about 400 kg. These are mostly found in freshwater place they feed on other animals which live in water bodies.

WELL CATFISH

BIRDS

FIVE COMMON BIRDS

Scientific name: columba livia

Distribution: Indian sub-continent. All parts of plain.

Characters: can be used as pets

Vegetation spectrum: in rice field and in fallow land. Plants with seeds of chrozophraplicata, crotonbonplandianum,brassica nigra, lathyrus sativa,etc are common for the birds like rock dove and common dove.

ROCK DOVE

MAMMALS

THREE COMMON MAMMALS

1. Monotremes

Monotremes are mammals that lay eggs. They only monotremes that are alive today are the spiny anteater or any echidna and platypus. They live in Australia, Tasmania and New Guinea. These mammals are really different from other mammals. Their body temperature is lower than most warm-blooded animals, a feature that has more in common with reptiles. Thin hair comes from the fact that they have only one body opening for both wastes and eggs to pass through.

Echidnas have sharp spines scattered throughout their hair. They look like spiky ball. The female anteater lays usually one leathery- shelled egg directly into the pouch on her belly. The egg hatches after only 10 or 11 days. The newborn baby is tiny about the size of a dime. After the baby hatches it stays in the pouch for several weeks and continues to develop.

ECHIDNAS

PLATYPUS

2. Marsupial

Marsupial mammals give birth to babies that are not completely developed. Their babies are very tiny. The babies then crawl up the floor on the mother's belly into a pouch on the outside of the mother's abdomen. The babies drink milk from the mother and continue to develop inside the pouch. Koalas, Kangaroos, Wallabies and Opossums are some of the better-known marsupials. Today marsupials are found mostly in Australia, new Guinea and South America. The only marsupial in North

ACKNOWLEDGEMENT

The success and final outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along the completion of our assignment work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them. I respect and thank DR. MAHUA DUTTA MADAM for giving us an opportunity to do this assignment work on the topic Study of common plants, insects, fish, birds, mammals and basic principles of identification and providing us all support and guidance which made us to complete the assignment on time, we are extremely grateful to her for providing such a nice support and guidance. This assignment cannot be completed without the effort from our friends. Last but not least, we would like to express our gratitude to our classmates and respondents for support and willingness for this project.

Professor's Signature

BIBLIOGRAPHY

(1) https://teara.govt.nz/en/collections-of-plants-and-animals/page-1

(2) https://theconversation.com/identification-of-animals-and-plants-is-an essential-skill-set-55450

(3) https://manoa.hawaii.edu/exploringourfluidearth/biological/mammals/what mammal

(4) https://www.britannica.com/animal/bird-animal 5) https://pixabay.com/images/search/wildlife/

REFERENCES

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(1) Dr. Bala-Sujan Kumar- Environmental Studies, Model Field and Project Work

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Examined
18/6

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SEM → SEM-II

18/6

INTRODUCTION

PLANTS :

Plants are critical to other life on this planet because they form the basis of all food webs. Most plants are autotrophic, creating their own food using water, carbondioxide, and light through a process called photosynthesis. Some of the earliest fossils found have been aged at 3.8 billion years. These fossil deposits show evidence of photosynthesis. So plants or the plant like ancestors of plants have lived on this planet longer than most other groups of organisms. At one time, anything that was green and that wasn't an animal was considered to be a plant. Now, what were once considered "plants" are divided into several kingdoms : Protista, Fungi and plantae? Most acquatic plants occur in the kingdoms plantae and protista.

INSECTS :

Insects, are a class in the phylum Arthropoda. They are small terrestrial invertebrates which have a hard exoskeleton. Insects are the largest group of animal on earth by far: about 926,400 different species have been described. They are more than half of all known living species. They may be over 90% of animal species on Earth. New species of

nsects are continually being found estimates of the otal number of species range from 2 million to 30 illion. Insects have six legs; and most have wings. nsects were the first animals capable of flight. As ney develop from eggs, insects undergo metamorphosis nsects live all over the planet; almost all are terres- rial (live on land). Few insects live in the oceans or in very cold places, such as Antarctica. The most species live in tropical areas.

FISH

Fish is a member of the paraphyletic group of rganisms. This consists of gill-bearing aquatic ertebrate animals with fins and digits. Most of the shes are hagfish, cartilaginous, bony fish and ampreys. Fishes are ectothermic, which means cold-looded. Fish are abundant in most of the bodies of water. Fishes are an important resource for human worldwide, especially as food because it consists of a lot of minerals, vitamins, and proteins as it stays in water bodies. They are served as religious symbols.

BIRDS :

Birds are ready visitors that visit frequently rom place to place even from continent to continent. A ood number of birds visit different sites due to change environment particularly for their feed and eproduction. As the site is not homogeneous for their sy life period so they need movement from one place o other. A good example of is Birds of migratory kind. n our West Bengal, storks and siberians cranes are mmon even in lake Chilka of Odisha, A large number pelicans and Flamingos are vivid examples of that ind. They come to thrive there for a temporary eriod to hatch eggs and carry a good number of ff pelicans and Flamingos are vivid examples of hat kind. They come to thrive there for a temporary eriod to hatch eggs and carry a good number of ff springs during their back journey.

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Earth has a large variety of animals living on . Scientists classify animals into groups based on ommon characteristics. Mammals are a group of nimals (vertebrates) that have backbones and hair or r. They are warm blooded (endothermic) and they ave four-chambered hearts. They also feed their oung with milk from the mother's body. The young f most mammals are born alive.

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The area is whole Kolkata, South 24 pargana's district of West Bengal in India.

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Making this project we use internet collected information about birds, insects and plants.

OBSERVATION:

PLANTS:

FIVE COMMON PLANTS:

1. MONOSCI:-

Scientific Name: Azadirachta Indica/uss

Vernacular Name: Neem, Kadu-limb

Source: The leaves, bark, flowers, fruits and seeds are used as drug.

Family and Distribution: Meliaceae, it is native of Burma but grown all over India. In Sangola taluka neem is found in large scale in rural and urban places. Some important places like Mahule, Sangola, Spinning mill, Hatid, Walegaon, Andhalgaon, Wasteland of Sangola, it is recorded in garden, school and colleges, Akola and Mangewadi etc.

Chemical Composition: The alkaloids are the main active principles. They are nimbin, nimbidin, nimbidine, nimbosterine and nimbecetin etc fatty acid present in the plant and seed contain 0 to 45% fixed oil.

Uses: The leaves are carminative, expectorant, anthelmintic, diuretic and insecticidal properties. Fresh leaf juice with salt given for intestinal worms, jaundice, skin disease and malarial fever. The leaves are applied for boils, chronic ulcers, swelling and wounds. Bark is used for liver complaint, remove round worms. Gum is stimulant, demulcent tonic and used in debility.

2. Aloe Vera :-

Scientific Name: Aloe barbadenses Mills.

Vernacular Name: Kaurpad, Gheetakumari

Source: Thick fleshy leaves (pulp, dried juice) are used as a drug.

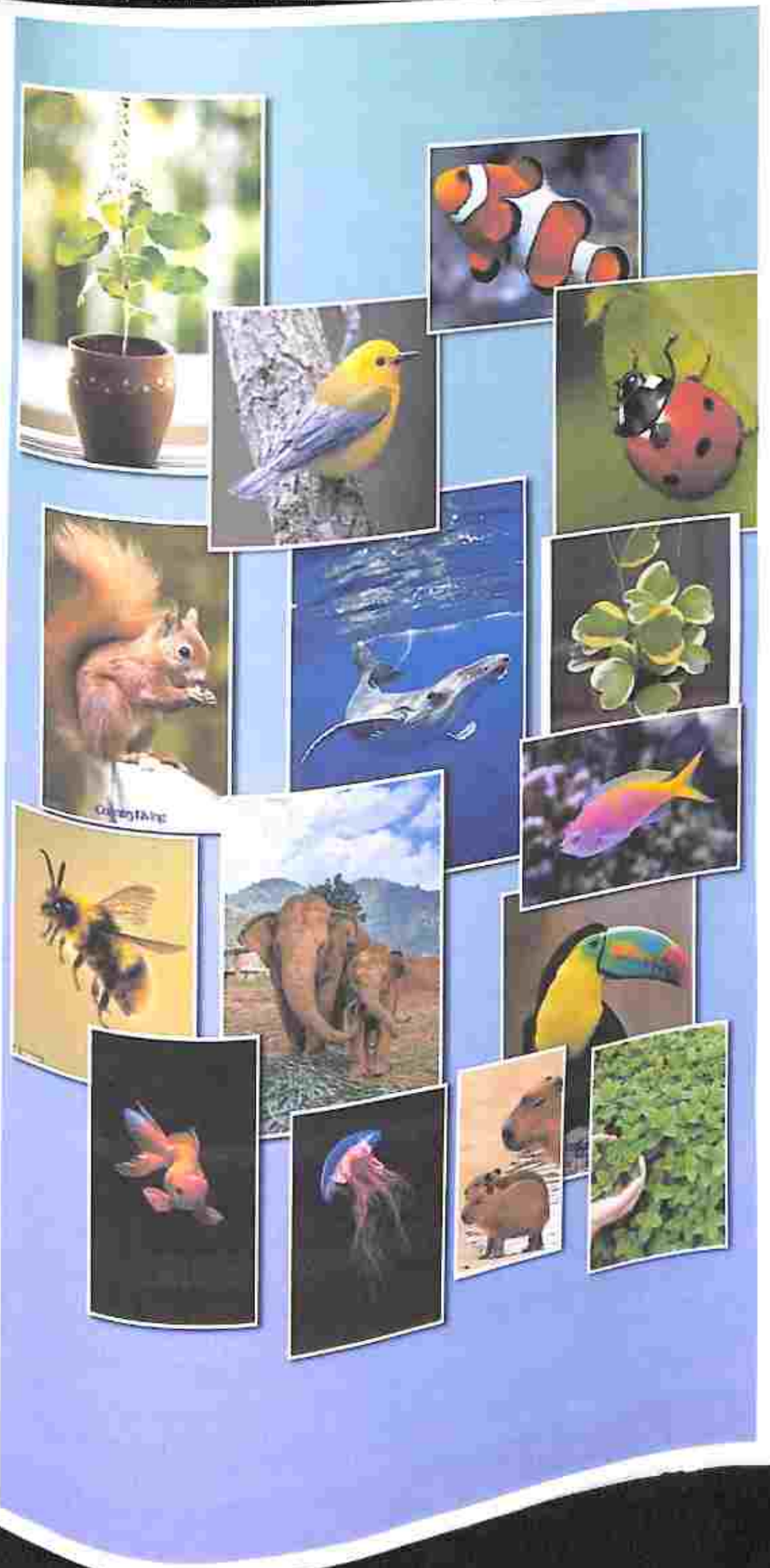
Family & Distribution: Liliaceae, it is native of west indies or Mediterranean region. It grows wild in hot dry valleys of western Himalayas and southern, Northern part of India. Sangola is the one of the drought region it is mainly distributed in every places in rural areas some of the important places like Waki, Mahud, Chindepir Rajuri, Sangola, Jamala and Ghrudi. It is xerophytic plant.

Chemical Composition: The main active principle present in Aloe is crystalline glucoside known as barbaloin, other constituent like resin and derivates like emodin, chrysophanic acid, anthraquinones, emoclin, also it contains glucose, galactose, mannose and galacturonic acid with protein. The plant contain aloesone and aloesin.

Uses: Aloe is chiefly used as purgative, abortifacient, blood purifier, cathartic, cooling, digestive and diuretic, inflammation, painful parts of the body. It is useful in fever, cold cough, jaundice, worms and piles. Aloe is used in preparation of vegetables

3.1 Placental Mammal:

A placental mammal develops inside its mother's body until its body systems can function on their own. The name of this group comes from the placenta, an organ in pregnant female mammals that pass materials between the mother and the developing baby. Food and oxygen, carried by blood pass from the mother to the body through the placenta. Wastes pass from the body of baby to the mother, where they are eliminated by her body. Most mammals, including humans, are placental mammals.



CONCLUSION

Plants:-

Each plant is characterized by one of the three life histories; haploid (1n), diploid (2n), or the most common haploid - diploid, within each of these three types, there are also variations of the plants with haploid life cycles, most algae lack a dikaryotic phase. While most fungi have a dikaryotic phase. There are also other algae and fungi that are characterized by diploid life cycles. Lastly, plants with a haploid - diploid life history undergo an alternation of generations; either similar or dissimilar. In all of these life cycles, asexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversity. Due to variations arising separately and at different rates, the evolution of land plants did not follow a linear sequence. Before land plants, algae with haploid life cycles, but land plants later originated.

Mammals:

Mammals have about six thousand different species, or kinds of animals in their group or class. Mammals can be divided into three more groups based on how their babies develop. These three groups are manotremes, marsupials and the largest group, placental mammals.

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AECC-2: ENVIRONMENTAL STUDIES PROJECT WORK

STUDY OF COMMON PLASNTS, INSECTS, FISH, BIRDS, MAMMELS, AND BASIC PRINCIPLES OF IDENTIFICATION

INTRODUCTION

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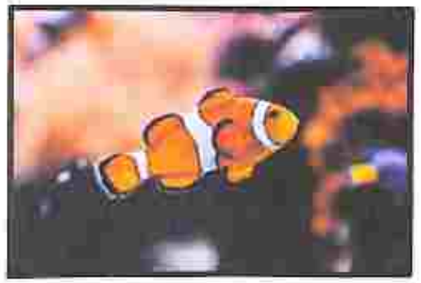

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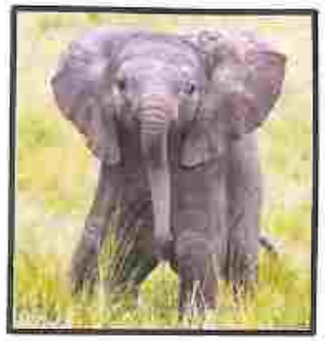

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ALOE VERA

3. Periwinkle

Scientific Name: Catharanthus roseus don

Source: The dried leaves and roots of this plant used as a drug.

Family and distribution: Apocynaceae, the plant is probably indigenous to Madagascar. It is cultivated in South Africa, West Indies, Sri Lanka, India, USA, Europe and Australia as an ornamental plant. It is also cultivated for its medical properties in the garden in India it is grown in Nilgiri, Kanyakumari and Kottayam etc. In Sangola it is distributed each and every waste plant domestic places and garden plant is observed in rural area like Wanichinchale, Medisingi, Walegon, Kadlas, Sangola and Andhalgoan.

Chemical composition: Catharanthus mainly consists of glycosides s and alkaloids. The alkaloids are present in entire plant but they are found in some proportion in leaf and root. Some important alkaloids are vinblastine; vincristine and other alkaloids present in the plant are ajmalicine, serpentine, lochnerine, tetrahydroalstonine, vindolinine and catharanthine.

Uses: It is used in hypertensive antibiotic action other dimer indole-indoline used for curing the anti-cancer activity. The alkaloid wintry stain is highly active in treatment of childhood leukemia. Vincristine proves effective in breast cancer and the leaves are used in diabetes.

PERIWINKLE

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Source: Fresh and dried fruit.

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Uses: Amla fruit which is acid, cooling refrigerant, diluretic and mild laxative. *Fresh fruit used in intestine worms, pulp of fruits used in to cure* jaundice, amenia, dysphagia and scurvy. From this fruit famous 'chavanprash' and 'triphala churn' is prepared drive fruit is used in haemorrhage (bleeding), diarrhea, dysentery, and cough. It is used as laxative, headache, and piles, liver. Seed applied in scabies and itching. Fruit juices used in hair dye and seed oil and fruit juice is used in preparation of hair oil and shampoo. Leave are used as a fodder. The fruit are also used in preparation of inks.

INDIAN GOOSEBERRY

5. Purging Casia

Scientific Name: Casia fistula linn

Source: Pod and bark of this plant used as a drug.

Family and distribution: This is an ornamental tree with yellow flowers found throughout India grow in valleys up to 1200 metre in Himalaya. In Sangola region it is found in proper sangola, spinning mill sangola and campus of Sangola College.

Chemical composition: 1-8 dihydroxyanthraquinone, tryptamines, fistu cacidin (3, 4, 7, 8, 4), pentahydroxyfilavan oxyanthraquinone, epincatechin, procyanidin B2, biflavanoids, rhenin, physion, kaempferol, chrysphanol, fistulin fistulic acid.

Uses: The sweet blackish of the seedpod is used as a mild laxative. The wood is hard and heavy is used for cabinet and inlay work. Roots are astringent, cooling purgative, febriguge and tonic. It is useful in skin *diseases, burning sensation and syphilis. Bark is laxative, anthelmintic,* emetic, febrifuge, diuretic and depurative. It is useful in boils, lepnosy, ringworms infection, colic, dyspepsia, constipation, diabetes, stranury and cardiac problems. Leaves are laxative, antiperiodic and depurative. It is useful in skin diseases, burning sensation, dry cough and bronchitis.

PURGING CASIA

INSECTS

FIVE COMMON INSECTS

1. Indian Meal Moth

A placental mammal develops inside its mother's body until its body systems can function on their own. The name of this group comes from the placenta and organ in pregnant female mammals that pass materials between the mother and the developing baby. Food and oxygen carried by blood passed from the mother to the baby through the placenta. Wastes passed from the baby to the mother where they are eliminated by her body. Most mammals including humans are placental mammals.

HUMANS

ELEPHANT

CONCLUSION

1. PLANTS

Each plant is characterized by one of the three histories haploid, diploid or the most common haploid -diploid. Within each of these three types there are also variations of the plant with haploid type cycles most algae lock a dikaryotic phase. While most fungi have dikaryotic phase. There are also other algae and fungi that are characterized by diploid lifecycles. Lastly plans with a haploid diploid life history undergo an alternation of generations either similar or dissimilar in all of these life cycles are asexual reproduction may occur but it is it is sexual reproduction that is responsible for genetic diversity. Due to diversions arising separately at different rates the evolution of land plans did not follow a linear sequence before land plants algae with haploid lifecycle but land plants later originated.

2. INSECTS

Insects play many important roles in nature they aid bacteria fungi and other organisms in the decomposition of organic matter and in soil formation. The decay of Carrion, for example brought about mainly by bacteria is accelerated by the maggots of flesh flies and blowflies. The activities of this larva which distribute and consume bacteria are followed by these of moths and beetles which breakdown hair and feathers. Insects and flowers have evolved together. Many plants depend on insects for pollination. Some insects are predators of others.

3. FISH

Fish has a closed loop circulatory system. They are an omnivorous group because they feed on plants and other small sea animals of water bodies. Fishes extract nitrogen and ammonia. Fishes reproduce highly in the open water column only. The eggs have an average diameter of 1 millimeter only.

4. BIRDS

We conclude that species spatial distribution is directly affected by global warming and subsequently climate change. In general terms it has been started by the scientific community that the distribution of species has been moving in a poleward trend. Within the realm of our study, we found no conclusive evidence to prove or disprove this statement. The evidence that we did find and sited leads as to conclusion that the distribution of

species is infant being altered by climatic change. But we were unable to determine exactly what that change was. This project focus on bird species evidence found specifically from birds shows that there is a correlation between bird population characteristics and alteration in climatic factors such as temperature and precipitation. The change in population characteristics show that some sort of shift our generally trended movement is occurring.

5. MAMMALS

Mammals have about 6000 different species or kinds of animals in their group or class. Mammals can be divided into three more groups based on how their babies develop these three groups are monotremes, marsupials and the largest group placental mammals.

REFERENCES

(1) https://teara.govt.nz/en/collections-of-plants-and-animals/page-1

2) https://theconversation.com/identification-of-animals-and-plants-is-an-essential-skill-set-55450

3)https://manoa.hawaii.edu/exploringourfluidearth/biological/mammals/what-mamma

4) https://www.britannica.com/animal/bird-animal

5) https://pixabay.com/images/search/wildlife

BIBLIOGRAPHY

Have taken helps from various Environment books like:-

(1) Dr. Bala-Sujan Kumar- Environmental Studies, Model Field and Project

Work

2) Kaushik Anubha, Kaushik C.P- New Age International Publishers.

3) Singh Savindra- Environmental Geography- Allahabad, Pravalika

Publications

ACKNOWLEDGEMENT

The success and final outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along the completion of our assignment work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them. I respect and thank DR. MAHUA DUTTA MADAM for giving us an opportunity to do this assignment work on the topic Study of common plants, insects, fish, birds, mammals and basic principles of identification and providing us all support and guidance which made us to complete the assignment on time, We are extremely grateful to her for providing such a nice support and guidance

This assignment cannot be completed without the effort from our friends. Last but not least, we would like to express our gratitude to our classmates and respondents for support and willingness for this project.

Professor's Signature

Examined
28/6

绿色环保从我做起

EWS PROJECT

绿色环保从我做起

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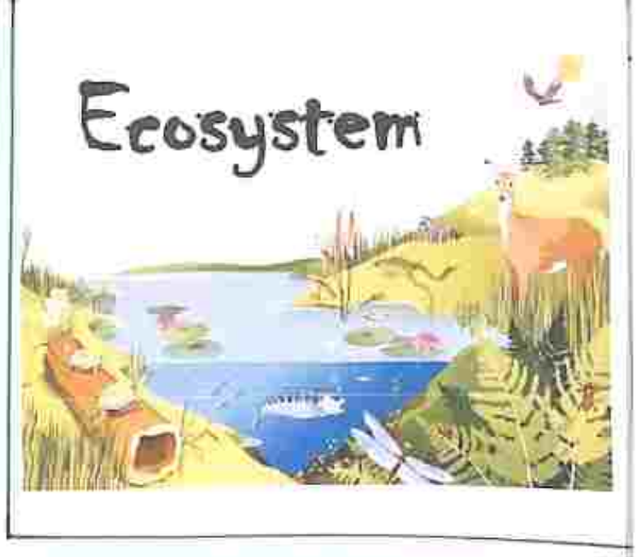
C U ROLL NO	: 213013-11-0029
C U REG NO	: 013-1211-0162-21

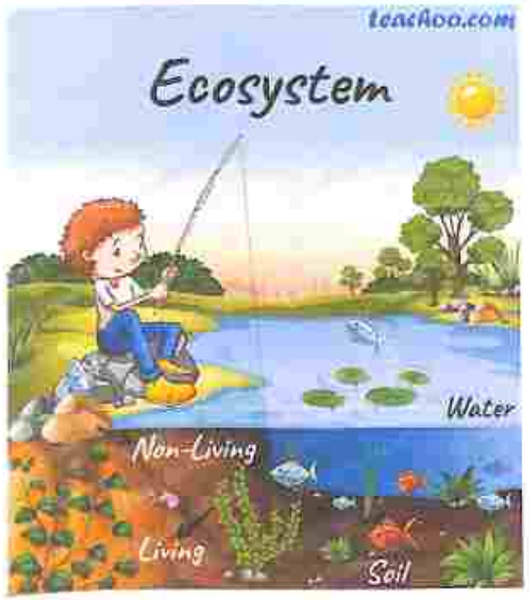
TOPIC

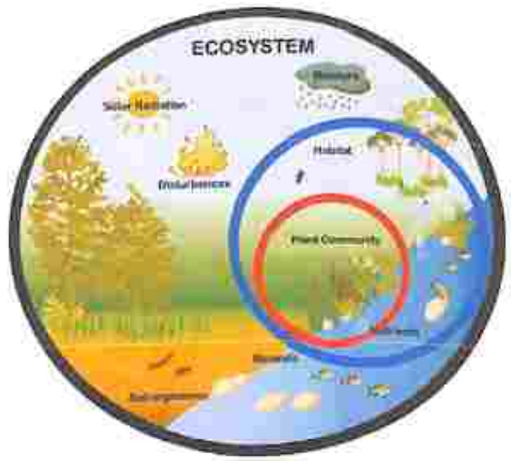
STUDY OF ECOSYSTEM-

POND, RIVER, WETLANDS, FOREST, ESTUARY AND AGRO ECOSYSTEM

TOPIC







ECOSYSTEM

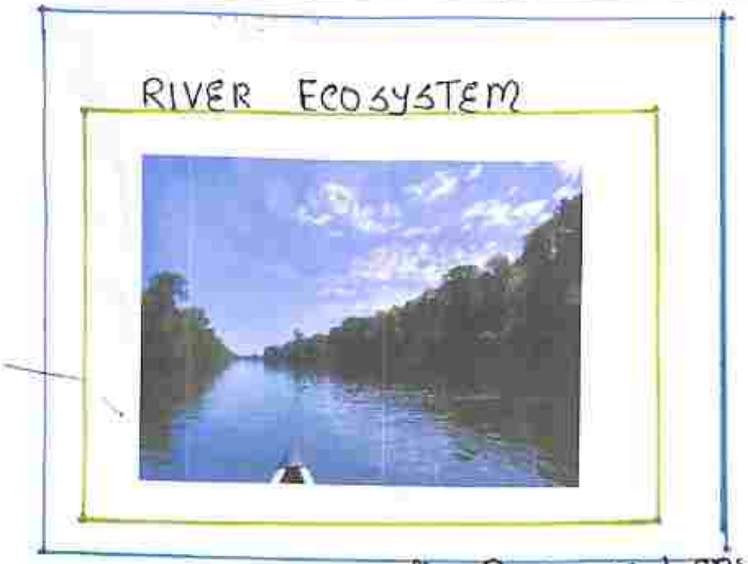
INTRODUCTION

Ecosystem ecology is the integrated study of living (biotic) and non-living (abiotic) components of ecosystems and their interactions within an ecosystem framework. This science examines how ecosystems work and relates this to their components such as chemicals, bedrock, soil, plants and animals.

Ecology is the branch of science that examines the relationships organisms have to each other and to their environment. Scientists who study those relationships are called ecologists.

An ecosystem consists of all the organisms and the physical environment with which they interact. Energy enters the system through photosynthesis and is incorporated into plant tissue. By feeding on plants and on one another, animals play an important role in the movement of matter and energy through the system. Ecosystems are controlled by external and internal factors. Ecosystems are dynamic entities – they are subject to periodic disturbances and are always in the process of recovering from some past disturbance. Ecosystems can be studied through a variety of approaches – theoretical studies, studies monitoring specific ecosystems over long periods of time, those that look at differences between manipulative experimentation

RIVER ECOSYSTEM



River ecosystems are flowing waters that drain the landscape and include the biotic interactions amongst plants, animals and micro-organisms, as well as abiotic physical and chemical interactions of its many parts. River ecosystems are part of larger watershed networks or catchments where smaller headwater streams drain into mid-size streams which progressively drain into mid-size streams into larger river networks. The major zones in river ecosystems are determined by the river bed's gradient or by the velocity of the current. Faster moving turbulent water typically contains greater concentrations of dissolved oxygen which supports greater biodiversity than the slow-moving water of pools. These distinctions form the basis for the division of rivers into upland and lowland rivers.

The following unifying characteristics make the ecology of running waters unique among aquatic habitats: the flow is unidirectional, there is a state of continuous physical change and there is a high degree of spatial and temporal heterogeneity at all scales, the variability between lotic systems is quite high and the biota is specialized to live with flow conditions.

RIVER

ESTUARINE

Estuarine ecosystems are among the most significant in the world, developing more organic matter each year than similar-sized locations of the forest, grassland or farming land. Protected estuary waters also home to unique communities of plants and animals that have actually adapted to life on the edge of the sea. It is the part in which the water courses mix into the ocean circulation. They are typically located in areas where the tides are large with beaches to the sides, that when they disappear display their flora.

ESTUARINE

CHARACTERISTICS OF ESTUARINE ECOSYSTEM

- Salinity

The inflow of freshwater from one side and the open sea at the other gives rise to a gradient of increasing salinity from the interior to the estuary mouth. The salinity likewise changes with the tides and the season. Brackish waters are poorer in species variety than either the sea or freshwater.

many things, such as wood, leaves, roots and bark. Trees such as they mighty Oak and the grand American Beech, are examples of producers.

CHARACTERISTICS OF FOREST ECOSYSTEM

- Forests are characterised by warm temperature and adequate rainfall, which make the generation of a number of ponds, lakes etc.
- The forest maintains climate and rainfall.
- The forest supports many wild animals and protects biodiversity.
- Forest play an important role in maintaining ecological factors such as climate, Carbon storage, nutrient cycling and rainfall

FOREST

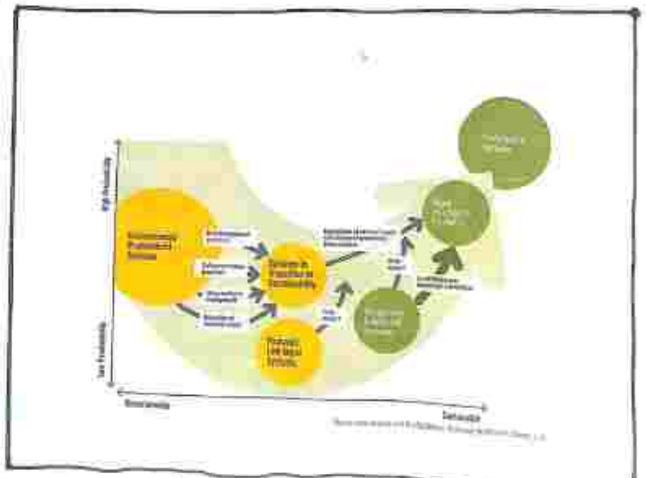
- There are various types of food products such as honey, wild meat, fruits, mushrooms, plam oil and wine, medical plants etc. obtained from forests. other than edible parts, we can obtain timber, wood biomass etc from forests. The fuel can be extracted from old trees that are buried under the soil.
- The tribal people who live in the forests treat forests as nature goddesses. The traditional beliefs and spirituality saves wild animals from hunters and cutting down of Trees by urban people.

CONCLUSION

So from here we can conclude that an ecosystem is a geographic area where plants, animals and other landscape, work together to form a bubble of life. Ecosystems contain biotic or living, parts, as well as abiotic factors, or non living parts. Biotic factors include plants, animals and other organisms. Our everyday lives and luxuries would not be possible without their services and resources.

Most biodiversity resources are consumed by humans, so it is their primary responsibility to preserve and protect biodiversity to protect the earth. The richness of the species, the ecosystem, the environment and the sustainable growth of life on earth is important.

Agroecology use restorative techniques that seek to promote soil health and biodiversity reduce the use of synthetic agrochemicals, decrease agriculture's carbon footprint and generally support healthy ecosystem functioning. In agro ecology, an ecosystem refers to the relationships and interactions between soils, climate, plants, animals, other organisms and humans in a physical space. The emphasis is on supporting the health of the entire system — including the people who work the land and the communities.



AGRO ECOSYSTEM

BIBLIOGRAPHY

To complete this project I have taken help from the following book and educational sites.

- Environmental Geography By Savindar Singh.
- EPA Website
- Gate research papers.
- Study of Ecosystem - https://www.net.publicatio2/2604654_Wetland.
- https://www.national biodiversity.org.
- https://www.national geographic.org.
- https://www.researchgate.net.

Pictures taken from

1. https://www.cao.org/forests/en
2. https://www.thefat.org/newsroom
3. https://www.fao.org/forests/en
4. https://www.fisheries.noa.gov.
5. https://www.wellards-our-future

Examined

ENVS PROJECT

STUDY OF ECOSYSTEMS-

"POND, RIVER, WETLAND, FOREST ESTUARY, AND AGRO ECOSYSTEMS."

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INTRODUCTION

An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life. Ecosystems contain biotic or living, parts, as well as abiotic factors, or non-living parts. Biotic factors include plants, animals, and other organisms. Abiotic factors include rocks, temperature, and humidity.

Every factor in an ecosystem depends on every other factor, either directly or indirectly. A change in the temperature of an ecosystem will often affect what plants will grow there, for instance. Animals that depend on plants for food and shelter will have to adapt to the changes, move to another ecosystem, or perish.

Ecosystems can be very large or very small. Tide pools, the ponds left by the ocean as the tide goes out, are complete, tiny ecosystems. Tide pools contain seaweed, a kind of algae, which uses photosynthesis to create food. Herbivores such as abalone eat the seaweed. Carnivores such as sea stars eat other animals in the tide pool, such as clams or mussels. Tide pools depend on the changing level of ocean water. Some organisms, such as seaweed, thrive in an aquatic environment, when the tide is in and the pool is full. Other organisms, such as hermit crabs, cannot live underwater and depend on the shallow pools left by low tides. In this way, the biotic parts of the ecosystem depend on abiotic factors.

The whole surface of Earth is a series of connected ecosystems. Ecosystems are often connected in a larger biome. Biomes are large sections of land, sea, or atmosphere. Forests, ponds, reefs, and tundra are all types of biomes, for example. They're organized very generally, based on the types of plants and animals that live in them.

PONDS

A **pond** is an area filled with water, either natural or artificial, that is smaller than a lake. Ponds are small bodies of freshwater with shallow and still water, marsh, and aquatic plants. Ponds can be created by a wide variety of natural processes (e.g. on floodplains as cutoff river channels, by glacial processes, by peatland formation, in coastal dune systems, by beavers), or they can simply be isolated depressions (such as a kettle hole, vernal pool, prairie pothole, or simply natural undulations in undrained land) filled by runoff, groundwater, or precipitation, or all three of these. They can be further divided into four zones: vegetation zone, open water, bottom mud and surface film .The size and depth of ponds often varies greatly with the time of year; many ponds are produced by spring flooding from rivers. Ponds may be freshwater or brackish in nature. 'Ponds' with saltwater, with a direct connection to the sea that maintains full salinity, would normally be regarded as part of the marine environment because they would not support fresh or brackish water organisms, so not really within the realm of freshwater science.

Ponds are usually by definition quite shallow waterbodies with varying abundances of aquatic plants and animals. Depth, seasonal water level variations, nutrients fluxes, amount of light reaching the ponds, the shape, the presence of visiting large mammals, the composition of any fish communities and salinity can all affect the types of plant and animal communities present. Food webs are based both on free-floating algae and upon

aquatic plants. There is usually a diverse array of aquatic life, with a few examples including algae, snails, fish, beetles, water bugs, frogs, turtles, otters and muskrats. Top predators may include large fish, herons, or alligators. Since fish are a major predator upon amphibian larvae, ponds that dry up each year, thereby killing resident fish, provide important refugia for amphibian breeding. Ponds that dry up completely each year are often known as vernal pools. Some ponds are produced by animal activity, including alligator holes and beaver ponds, and these add important diversity to landscapes.

Ponds are frequently manmade or expanded beyond their original depths and bounds by anthropogenic causes. Apart from their role as highly biodiverse, fundamentally natural, freshwater ecosystems ponds have had, and still have, many uses, including providing water for agriculture, livestock and communities, aiding in habitat restoration, serving as breeding grounds for local and migrating species, decorative components of landscape architecture, flood control basins, general urbanization, interception basins for pollutants and sources and sinks of greenhouse gases.

Classification

The technical distinction between a pond and a lake has not been universally standardized. Limnologists and freshwater biologists have proposed formal definitions for *pond*, in part to include 'bodies of water where light penetrates to the bottom of the waterbody,' 'bodies of water shallow enough for rooted water plants to grow throughout,' and 'bodies of water which lack wave action on the shoreline.' Each of these definitions are difficult to measure or verify in practice and are of limited practical use, and are mostly not now used. Accordingly, some organizations and researchers have settled on technical definitions of *pond* and *lake* that rely on size alone.

Some regions of the United States define a pond as a body of water with a surface area of less than 10 acres (4.0 ha). Minnesota, known as the "land of 10,000 lakes", is commonly said to distinguish lakes from ponds, bogs and other water features by this definition, but also says that a lake is distinguished primarily by wave action reaching the shore. Even among organizations and researchers who distinguish lakes from ponds by size alone, there is no universally recognized standard for the maximum size of a pond. The international Ramsar wetland convention sets the upper limit for pond size as 8 hectares (80,000 m²; 20 acres). Researchers for the British charity Pond Conservation (now called Freshwater Habitats Trust) have defined a *pond* to be 'a man-made or natural waterbody that is between 1 m²(0.00010 hectares; 0.00025 acres) and 20,000 m² (2.0 hectares; 4.9 acres) in area, which holds water for four months of the year or more.' Other European biologists have set the upper size limit at 5 hectares (50,000 m²; 12 acres).

In North America, even larger bodies of water have been called ponds; for example, Crystal Lake at 33 acres (130,000 m²; 13 ha), Walden Pond in Concord, Massachusetts at 61 acres (250,000 m²; 25 ha), and nearby Spot Pond at 340 acres (140 ha). There are numerous examples in other states, where bodies of water less than 10 acres (40,000 m²; 4.0 ha) are being called lakes. As the case of Crystal Lake shows, marketing purposes can sometimes be the driving factor behind the categorization.

In practice, a body of water is called a pond or a lake on an individual basis, as conventions change from place to place and over time. In origin, a pond is a variant form of the word pound, meaning a confining enclosure. In earlier times, ponds were artificial and utilitarian, as stew ponds, mill ponds and so on. The significance of this feature seems, in some cases, to have been lost when the word was carried abroad with emigrants. However, some parts of New England contain "ponds" that are actually the size of a small lake when compared to other countries. In the United States, natural pools are often called ponds.

Uses

Many ecosystems are linked by water and ponds have been found to hold a greater biodiversity of species than larger freshwater lakes or river systems. As such, ponds are habitats for many varieties of organisms including plants, amphibians, fish, reptiles, waterfowl, insects and even some mammals. Ponds are used for breeding grounds for these species but also as shelter and even drinking/feeding locations for other wildlife. Aquaculture practices lean heavily on artificial ponds in order to grow and care for many different type of fish either for human consumption, research, species conservation or recreational sport.

In agriculture practices, treatment ponds can be created to reduce nutrient runoff from reaching local streams or groundwater storages. Pollutants that enter ponds can often be mitigated by natural sedimentation and other biological and chemical activities within the water. As such, waste stabilization ponds are becoming popular low-cost methods for general wastewater treatment. They may also provide irrigation reservoirs for struggling farms during times of drought.

Some ponds are the life blood of many small villages in arid countries such as those in sub-Saharan Africa where bathing, sanitation, fishing, socialization, and rituals are held. In the Indian subcontinent, Hindu temple monks care for sacred ponds used for religious practices and bathing pilgrims alike. In Europe during medieval times, it was typical for many monastery and castles (small, partly self-sufficient communities) to have fish ponds. These are still common in Europe and in East Asia (notably Japan), where koi may be kept or raised.

RIVER

A **river** is a natural flowing watercourse, usually freshwater, flowing towards an ocean, sea, lake or another river. In some cases, a river flows into the ground and becomes dry at the end of its course without reaching another body of water. Small rivers can be referred to using names such as stream, creek, brook, rivulet, and rill. There are no official definitions for the generic term river as applied to geographic features although in some countries or communities a stream is defined by its size. Many names for small rivers are specific to geographic location; examples are "run" in some parts of the United States, "burn" in Scotland and northeast England, and "beck" in northern England. Sometimes a river is defined as being larger than a creek but not always: the language is vague

Rivers are part of the hydrological cycle. Water generally collects in a river from precipitation through a drainage basin from surface runoff and other sources such as groundwater recharge, springs, and the release of stored water in natural ice and snowpacks (e.g., from glaciers).

Rivers and streams are often considered major features within a landscape; however, they actually only cover around 0.1% of the land on Earth. They are made more obvious and significant to humans since many human cities and civilizations are built around the freshwater supplied by rivers and streams.] Most of the major cities of the world are situated on the banks of rivers, as they are, or were, used as a source of water, for obtaining food, for transport, as borders, as a defensive measure, as a source of hydropower to drive machinery, for bathing, and as a means of disposing of waste. In the preindustrial era larger rivers were a major obstruction to the movement of people, goods, and armies across them. Towns often developed at the few locations they could be crossed. Many major cities such as London are located at the lowest point at which a river could be bridged

Pomology is the scientific study of rivers, while limnology is the study of inland waters in general.

Topography

Source and drainage basin

A river begins at a source (or more often several sources) which is usually a watershed, drains all the streams in its drainage basin, follows a path called a rivercourse (or just *course*) and ends at either at a mouth or mouths which could be a confluence, river delta, etc. The water in a river is usually confined to a channel, made up of a stream bed between banks. In larger rivers there is often also a wider floodplain shaped by flood-waters over-topping the channel. Floodplains may be very wide in relation to the size of the river channel. This distinction between river channel and floodplain can be blurred, especially in urban areas where the floodplain of a river channel can become greatly developed by housing and industry.
The term upriver (or upstream) refers to the direction towards the source of the river, i.e. against the direction of flow. Likewise, the term downriver (or downstream) describes the direction towards the mouth of the river, in which the current flows. The term left bank refers to the left bank in the direction of flow, right bank to the right.

River channel

Rivers can flow down mountains, through valleys (depressions) or along plains, and can create canyons or gorges. The river channel typically contains a single stream of water, but some rivers flow as several interconnecting streams of water, producing a braided river.[5] Extensive braided rivers are now found in only a few regions worldwide, such as the South Island of New Zealand. They also occur on peneplains and some of the larger river deltas. Anastamosing rivers are similar to braided rivers and are quite rare. They have multiple sinuous channel - 1 carrying large volumes of sediment. There are rare cases of river bifurcation in which a river divides and the resultant flows ending in different seas. An example is the bifurcation of Nerodime River in Kosovo.
A river flowing in its channel is a source of energy that acts on the river channel to change its shape and form. In 1757, the German hydrologist Albert Brahms empirically observed that the submerged weight of objects that may be carried away by a river is proportional to the sixth power of the river flow speed. This formulation is also sometimes called Airy's law Thus, if the speed of flow is doubled, the flow would dislodge objects with 64 times as much submerged weight. In mountainous torrential zones, this can be seen as erosion channels through hard rocks and the creation of sands and gravels from the destruction of larger rocks. A river valley that was created from a U-shaped glaciated valley, can often easily be identified by the V-shaped channel that it has carved. In the middle reaches where a river flows over flatter land, meanders may form through erosion of the river banks and deposition on the inside of bends. Sometimes the river will cut off a loop, shortening the channel and forming an oxbow lake or billabong. Rivers that carry large amounts of sediment may develop conspicuous deltas at their mouths. Rivers whose mouths are in saline tidal waters may form estuaries.
Throughout the course of the river, the total volume of water transported downstream will often be a combination of the free water flow together with a substantial volume flowing through sub-surface rocks and gravels that underlie the river and its floodplain (called the hyporheic zone). For many rivers in large valleys, this unseen component of flow may greatly exceed the visible flow.

Uses of rivers

Construction material

The coarse sediments, gravel, and sand, generated and moved by rivers are extensively used in construction. In parts of the world this can generate extensive new lake habitats as gravel pits re-fill with water. In other circumstances it can destabilise the river bed and the course of the river and cause severe damage to spawning fish populations which rely on stable gravel formations for egg laying. In upland rivers, rapids with whitewater or even waterfalls occur. Rapids are often used for recreation, such as whitewater kayaking.

Energy production

ACKNOWLEDGEMENT

It is an honour for us to get this opportunity to do this project and talk about our ecosystem.

It has been a very fruitful task for us as because we could research more about ecosystem and our environmental aspects.

I would like to express my special thanks and gratitude to our respected Principal madam & our Professor madam who has given us this opportunity and has helped us with required facilities .

BIBLIOGRAPHY

Environmental Geography by Savindra Singh

- https://www.nationalgeographic.org/encyclopedia/ecosystem/print/#:~:text=Powered%20by-,An%20ecosystem%20is%20a%20geographic%20area%20where%20plants%2C%20animals%2C%20and,%2C%20animals%2C%20and%20other%20organisms.
- https://en.m.wikipedia.org/wiki/Pond
- https://en.m.wikipedia.org/wiki/River
- https://en.m.wikipedia.org/wiki/Wetland
- https://en.m.wikipedia.org/wiki/Forest
- https://en.m.wikipedia.org/wiki/Estuary
- https://en.m.wikipedia.org/wiki/Agroecosystem

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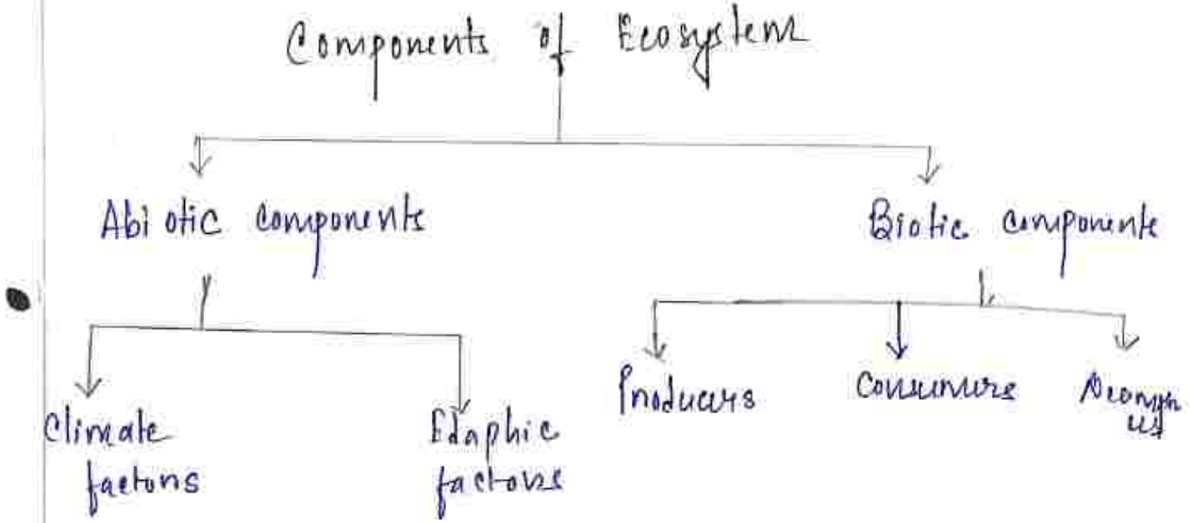
THE STUDY OF ECOSYSTEM

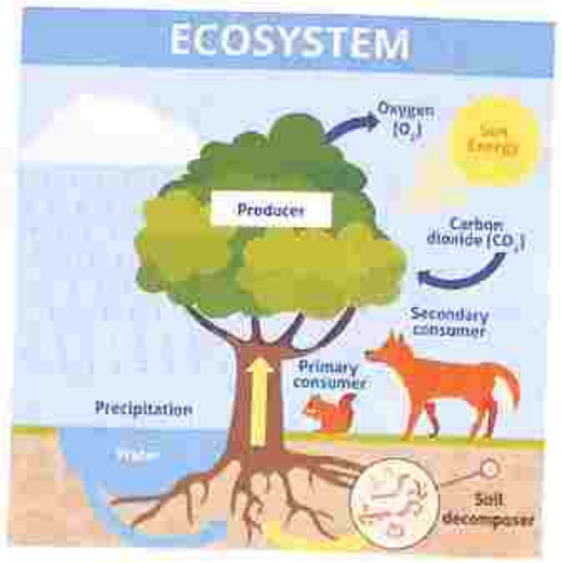
An 'ecosystem' is a region with a specific and recognizable landscape from such a forest, grassland, desert, wetland or coastal area.

The nature of this ecosystem is based on its geographical features such as hills, mountains plains, rivers, lakes, coastal areas or islands. It is also controlled by climatic conditions such as the amount of sunlight, the temperature and the rainfall in the region. The living part of the ecosystem is referred to as its biotic component.

Ecosystems are divided into terrestrial or land based ecosystems, and aquatic ecosystems in water. These form the two major habitat conditions for the Earth's living organism.

The living community of plants and animals in any area together with the non-living components of the environment such as soil, air, water constitute the ecosystem.





1) Abiotic components → The abiotic components include the non living or components of Physical environment. Abiotic Components are mainly of two types →

i) Climate factors → Includes rainfall, temperature, light, wind, humidity etc.

(ii) Edaphic factors → It includes soil, PH, topography, minerals, oxygen, CO_2 etc.

2) Biotic Components → The living organisms include plants, animals and micro organisms in an ecosystem, forms biotic components. Biotic components are further classified into 3 main groups.

i) Producers / Autotrophs → Autotrophs are self feeders, they prepare their own food and also known as producers.

ii) Consumers / Heterotrophs → Heterotrophs are organisms that feed on autotrophs, they are also called consumers.

iii) Decomposers or reducers → These are organisms that live on the refuse and dead organic matters in ecosystem.

POND ECOSYSTEM

Ponds get their energy from the sun. As with other ecosystems, plants are the primary Producers. The chlorophyll in aquatic plants captures energy from the sun to convert carbon dioxide and water to organic compounds and oxygen through the process of photosynthesis. Nitrogen and phosphorus are important nutrients for plants. The addition of these substances may increase primary productivity.

Producers

- Phytoplankton, literally "Wandering plants," are microscopic algae that float in the open water and give it a green appearance. They carry out photosynthesis using carbondioxide that is dissolved in the water and release oxygen that is used by the bacteria and animals in the pond.
- Submerged plants grow completely under water.
- floating plants include plants that float on the surface and plants that are rooted on the bottom of the pond but have leaves and/or steams that float.
- Some plants grow in wet soil at the edge of the pond.

Consumers -

- Zooplankton are microscopic animals that eat Phytoplankton or smaller zooplankton. Some are single-celled animals, tiny crustaceans, or tiny immature stages of larger animals.
- Invertebrates - include all animals without backbone Some of them are only found in clean water.
- Vertebrates are animals with backbone. In a pond these might include fish, frogs and turtles etc.

Decomposers:-

Animal waste and dead and decaying plants and animals from detritus on the bottom of the pond. Decomposers also known as detritivores are bacteria and other organisms that break down detritus into material that can be used by primary producers, thus returning the detritus to the ecosystem.

ACKNOWLEDGEMENT

It is an honour for us to get this opportunity to do this project and while doing this we gained abt. Knowledge about ecosystem.

I would like to thanks and gratitude to our respected principal madam — Dr Dun Professor madam who has given us this opportunity and has helped us with required facilities.

BIBLIOGRAPHY

To complete this project I have taken the help from the following books and educational sites.

(a) Environmental Geography By Savindra singh.

(b) Gate research papers

(c) Educational Resources on the NIAA.

And the websites →

(a) https://www.researchgate.net/publications/260436891_wetland_ecosystem_services.

Pictures taken from:

1) https://www.fao.org/forests/en.

2) https://www.thegef.org/newsroom/news/wetlands-sun-future.

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18/6

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ENVS PROJECT

1816

TOPIC - ECOSYSTEM

TITLE PAGE

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4	RIVER
5	WETLANDS
6	FOREST
7	ESTUARY
8	AGRO-ECOSYSTEM

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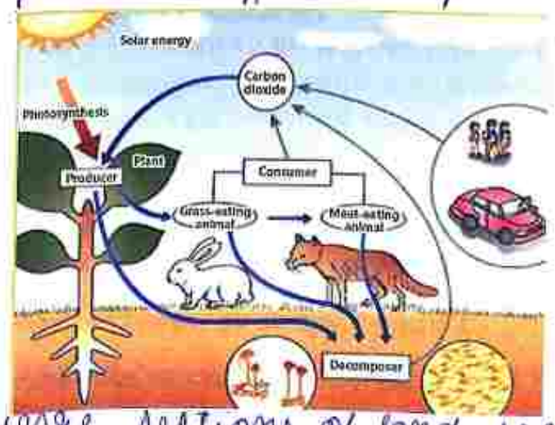
I would like to express my special thanks and gratitude to our respected Principal madam & our professor madam who has given me this opportunity and has helped me with required facilities.

INTRODUCTION TO ECOSYSTEM

An ecosystem is a geographic area where plants, animals and other organisms, as well as weather and landscape, work together to form a cubicle of life. Ecosystems contain biotic or living plants as well as abiotic and non-living parts. Biotic factors include plants, animals and other organisms. Abiotic factors include rocks, temperature and humidity.

Every factor in an ecosystem depends on every other factor, either directly or indirectly. A change in the temperature of an ecosystem will often affect what plants will grow there, for instance. Animals that depends on plants for food and shelter will have to adapt to the changes, move to another ecosystem or perish.

Ecosystem can be very large or very small. Tide pools, the ponds left by the ocean as the tide goes out, are complete, tiny ecosystems. Tide pools contain seaweed, a kind of algae, which use photosynthesis to create food. Herbivores such as abalone eat the seaweed. Carnivores such a sea stars eat other animals in the tide pool, such as clams or mussels. Tide pools depend on the changing level of ocean water. Some organisms, such as seaweed, thrive in an aquatic environment, when the tide is in and pool is full. Others organisms, such as hermit crabs, cannot live underwater and depend on the shallow pools left by low tides. In this way, the biotic parts of the ecosystem depend on abiotic factors.

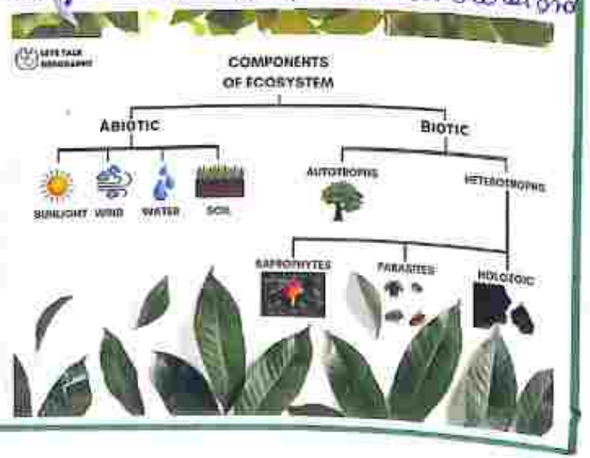


The whole surface of Earth is a series of connected ecosystem. Ecosystems are often connected in a large biome. Biomes are large sections of land, sea, or atmosphere. Forests, ponds, reefs and Tundra are all types of biomes

THE STUDY OF ECOSYSTEM

The study of ecosystem is called ecosystem ecology is the integrated study of living and non-living components of ecosystems and their interactions within an ecosystem framework. This science examines how ecosystems work and relates this to their components such as chemicals, bedrock, soil, plants and animals.

Ecology examines physical and biological structure and examines how these ecosystem characteristics interact with each other. Ultimately this help us understand how to maintain high quality water and economically viable commodity production. These includes primary productivity.



Ecosystem ecology is philosophically and historically rooted in terrestrial ecology. The ecosystem concept has evolved rapidly during the last 100 years with important ideas developed by Frederic Clements, a botanist who argued for specific definitions of ecosystems and that physiological processes were responsible for their development and persistence.

Although most of Clement's ecosystem definitions have been greatly revised, initially by Henry Gleason and Arthur Tansley, and later by contemporary ecologists, the idea that physiological processes are fundamental to ecosystem structure and function remains central to ecology.

IMPORTANCE

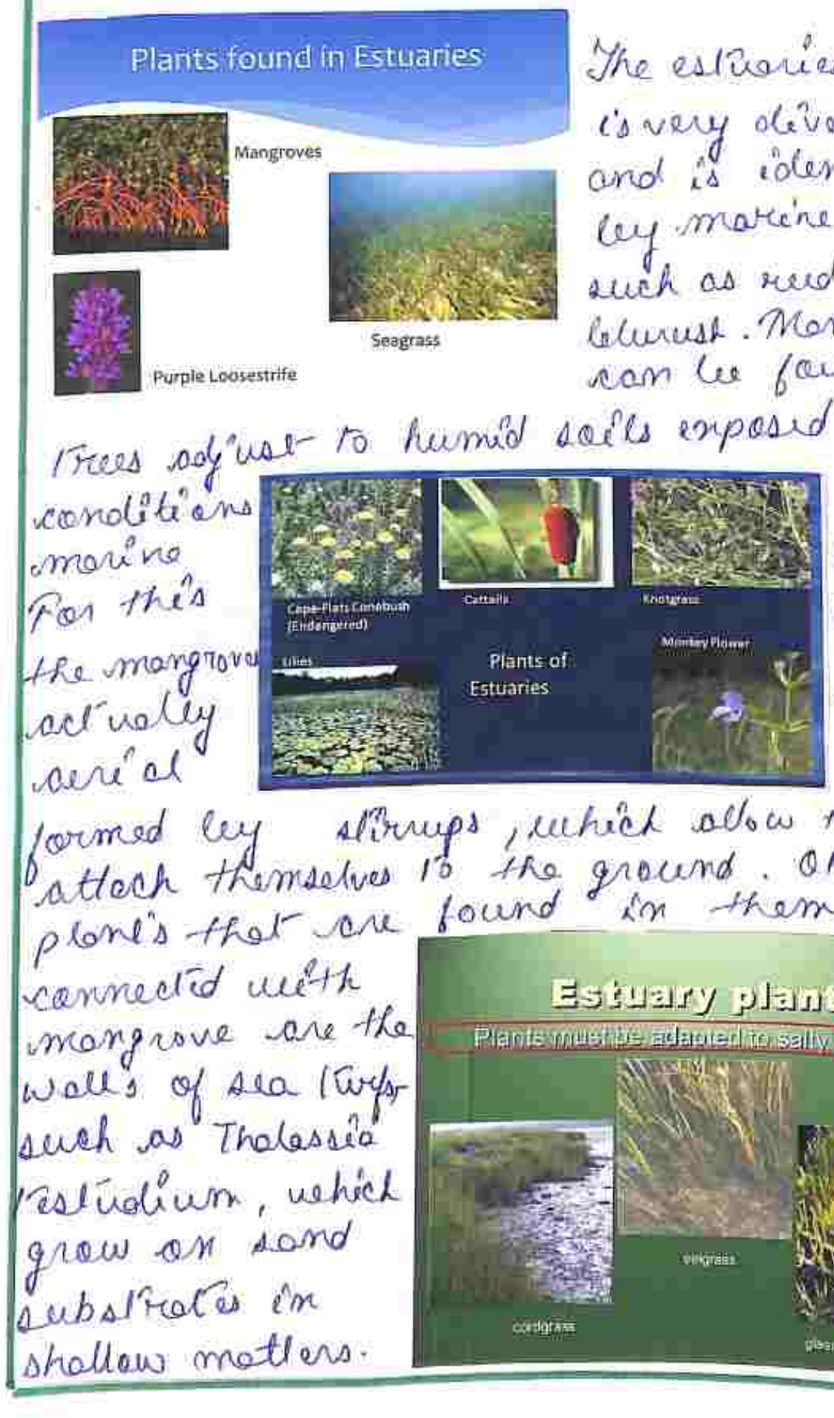
Ecosystem ecology plays an important role in understanding and adapting to the most pressing current environmental problems. Restoration ecology and ecosystem management are closely associated with ecosystem ecology. Restoration highly degraded resources depends on integration of functional mechanisms of ecosystems. Without these functions intact, economic value of ecosystems is greatly reduced and potentially dangerous conditions may develop in the field. Ecosystem ecology provides the basic science needed to avoid degradation and to restore ecosystem processes that provide for basic human needs.

POND ECOSYSTEM

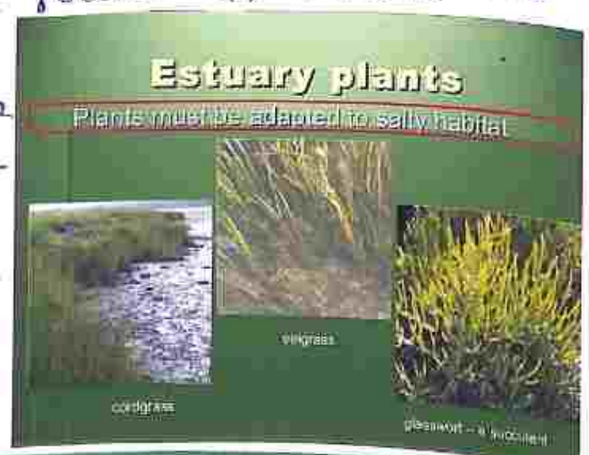
A pond is a small area of still, fresh water. It is different from a river or a stream because it doesn't have moving water and it differs from a lake because it has a small area and is no more than around 1·8 m deep. Ponds are frequently man-made or expanded beyond their original depths and bounds by anthrogenic causes. Apart from their roles as highly biodiverse, fundamentally natural, freshwater ecosystems ponds have had, and still have, many uses, including providing water for agriculture, livestock and communities, aiding in habitat restoration, serving as breeding grounds for local and migrating species, decorative components of landscape, architecture, flood control basins, general urbanization, interception basins for pollutants and sources and sinks of greenhouse gases.

Ponds are usually by definition quite

PLANT LIFE OF ESTUARINE ECOSYSTEM-



The estuaries flora's is very diverse and is identified by marine greenery such as reed and bulrush. Mangroves can be found, where trees adjust to humid soils exposed to saline conditions and flooding marine. For this function the mangrove have developed actually aerial roots formed by strups, which allow them to attach themselves to the ground. Other plant's that are found in them and connected with mangrove are the walls of sea ferns such as Thalassia testudium, which grow on sand substrates in shallow waters.

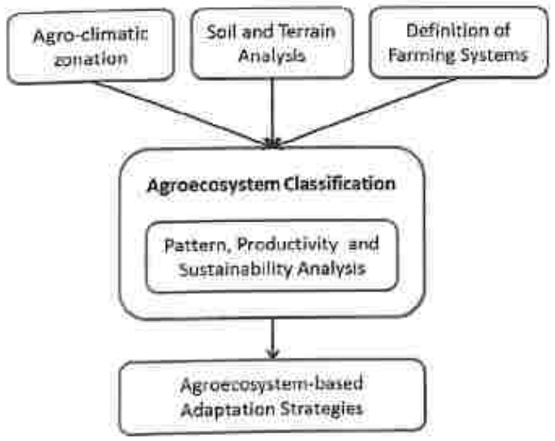


AGROECOSYSTEM

Agroecosystems are described by the interacting feature of environmental and ecological characteristics of a farm and the surrounding area. Agroecosystems are complex and challenging to manage. The agroecology frame work that can help improve the sustainable management of agriculture and natural resources through the agro ecosystem concept. The "agroecosystem" concept Extension program is a set of trainings aimed at country agriculture and natural resources agents and their stakeholders to increase the visibility of and engagement with agroecosystems. Participants should aspire to develop management strategies that improve environmental and economic outcome

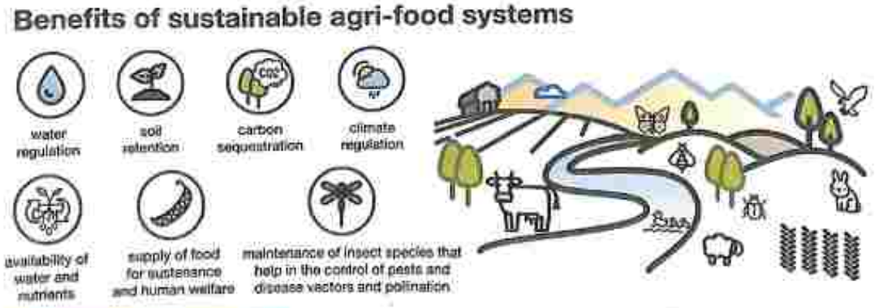
of cropping systems from environmental understanding of ecological characteristics of an agro ecosystem.

HISTORY OF AGROLOGY: ORIGIN AND EVOLUTION



The term agroecology first appeared in 1928 under the pen of American agronomist Basil Bensin. His understanding of agroecology then referred exclusively to the application of methods of ecology to the processes of agronomic research.

This idea grew progressively during the 1960s, 1970s, and 1980s. By then, the



nation of agro-ecosystem started to transform into the idea of an ecosystem modified by human activity of exploitation purposes.

In the year 1990 and till 2000, agro-ecology become much global. Agro-eco-systems are now used to understand and define the entire system of production, distribution, and consumption of food resources, in all its components such as agricultural, agronomic, economic, environmental and social.

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Eraina

18/6

TOPIC- STUDY OF ECOSYSTEM

NAME- SHUVRALIMA MUKHERJEE

SEMESTER- 2

AECC- ENVS PROJECT

ROLL NUMBER- 21/BSCH/0169

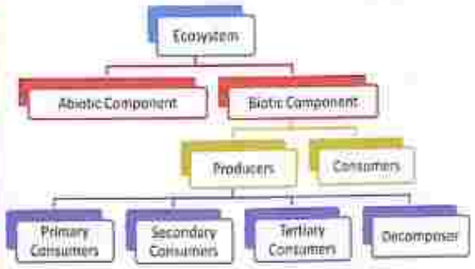
C.U. ROLL NUMBER: 213013-11-0049

C.U. REGISTRATION NUMBER: 013-1211-0186-21

18/6

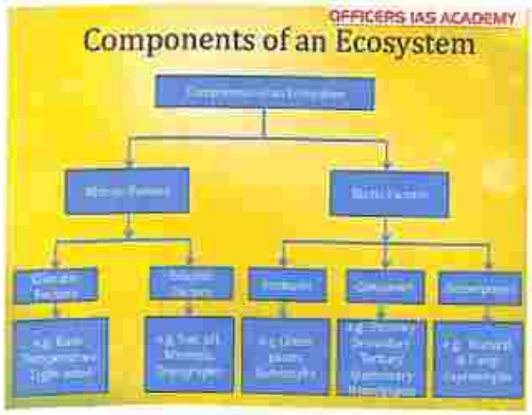
INTRODUCTION: STUDY OF ECOSYSTEM

An 'Ecosystem' is a region with a specific and recognizable landscape form such as forest, grassland, desert, wetland or coastal area. The nature of the ecosystem is based on its geographical features such as hills, mountains, plains, rivers, lakes, coastal areas or islands. It is also controlled by climatic conditions such as the amount of sunlight, the temperature and the rainfall in the region. The geographical, climatic and soil characteristics form its non-living (abiotic) component. These features create conditions that support a community of plants and animals that evolution has produced to live in these specific conditions. The living part of the ecosystem is referred to as its biotic component.



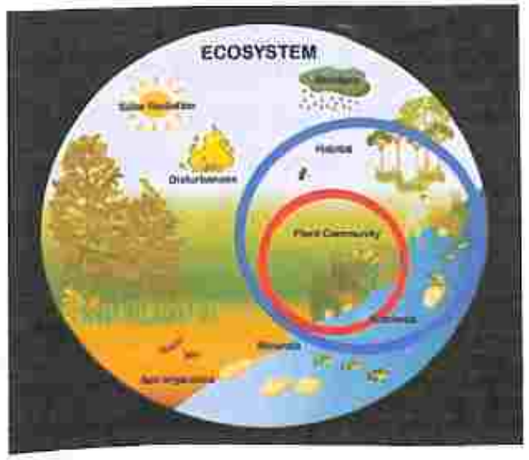
Ecosystems are divided into terrestrial or land based ecosystems, and aquatic ecosystems in water. These form the two major habitat conditions for the Earth's living organisms. All the living organisms in an area live in communities of plants and animals. They interact with their nonliving environment, and with each other at different points in time for a large number of reasons. Life can exist only in a small proportion of the earth's land, water and its atmosphere. At a global level the thin skin of the earth on the land, the sea and the air, forms the biosphere.

At a sub-global level, this is divided into bio geographical realms, geographical realms, eg. Eurasia is called the palaearctic realm; South and South-East Asia (of which India forms a major part)is the Oriental realm; North America is the Nearctic realm; South America forms the Neotropical realm; Africa the Ethiopian realm; and Australia the Australian realm. At a national or state level, this forms biogeographic regions. graphic regions. There are several distinctive geographical regions in India- the Himalayas, the Gangetic Plains, the Highlands of Central India, the Western and Eastern Ghats, the semi-arid desert in the West, the Deccan Plateau, the Coastal Belts, and the Andaman and Nicobar Islands. These geographically distinctive areas have plants and animals that have been adapted to live in each of these regions.



At an even more local level, each area has several structurally and functionally identifiable eco systems systems such as different types of forests, grasslands, river catchments, mangrove swamps in deltas, seashores, islands, etc. to give only a few examples. Here too each of these forms a habitat for specific plants and animals. Ecosystems have been formed on land and in the sea by evolution that has created species to live together in a specific region. Thus ecosystems have both nonliving and living components that are typical to an area giving it its own special characteristics that are easily observed.

Definition:



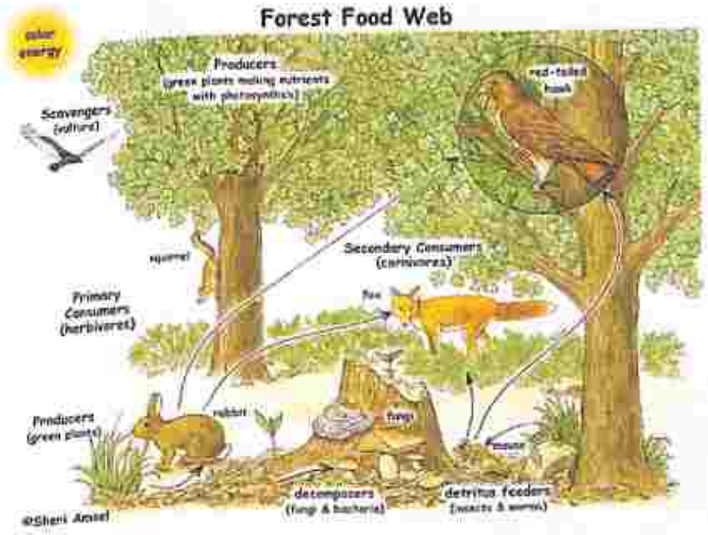
The living community of plants and animals in any area together with the nonliving components of the environment such as soil, air and water, constitute the ecosystem. Some ecosystems are fairly robust and are less affected by a certain level of human disturbance. Others are highly fragile and are quickly destroyed by human activities. Mountain ecosystems are extremely fragile as degradation of forest cover leads to severe erosion of soil and changes in river courses. Island ecosystems are easily affected by any form of human activity which can lead to the rapid extinction of several of their unique species of plants and animals. Evergreen forests and coral reefs are also examples of species rich fragile ecosystems which must be protected against a variety of human activities that lead to their degradation. River and wetland ecosystems can be seriously affected by pollution and changes in surrounding land use.

Forest Ecosystem | Components of Forest Ecosystem

An ecosystem refers to a functional unit of nature in which living organisms interact among themselves as well as with the surrounding physical environment. Ecologists look at the entire biosphere as a global ecosystem. Besides, the forest ecosystem is a part of the terrestrial ecosystem. It, however, may vary largely in size i.e. from a small pond to a sea or a large forest. Usually, these are self-sustaining. We can divide the ecosystems into two broad categories, namely, terrestrial ecosystems and aquatic ecosystems. The terrestrial ecosystem includes desert, grassland and forest ecosystems, whereas pond, lake, wetland and river ecosystems are parts of the aquatic ecosystem.

What is the Forest Ecosystem?

A forest ecosystem is a functional unit or a system which comprises soil, trees, insects, animals, birds, and man as its interacting units. A forest is a large and complex ecosystem and hence has greater species diversity. Also, it is much more stable and resistant to the detrimental changes as compared to the small ecosystems such as wetlands and grasslands. A forest ecosystem, similar to any other ecosystem, also comprises abiotic and biotic components. Abiotic components refer to inorganic materials like air, water, and soil. Biotic components include producers, consumers, and decomposers. These components interact with each other in an ecosystem and thus, this interaction among them makes it self-sustainable.



Structural Features of the Forest Ecosystem:

The two main structural features of a forest ecosystem are:

1. Species composition: It refers to the identification and enumeration of the plant and animal species of a forest ecosystem.

2. Stratification: It refers to the vertical distribution of different species which occupy different levels in the forest ecosystem. Every organism occupies a place in an ecosystem on the basis of source of nutrition. For example, in a forest ecosystem, trees occupy the top level, shrubs occupy the second and the herbs and grasses occupy the bottom level.

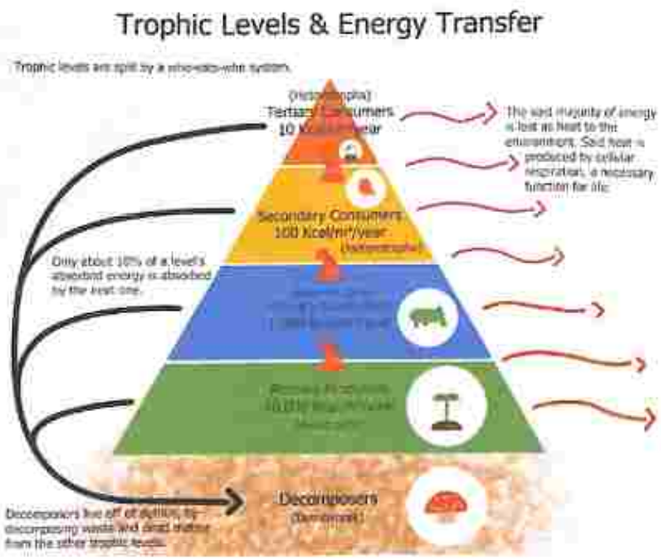
Components of a Forest Ecosystem:

The components of a forest ecosystem are as follows:

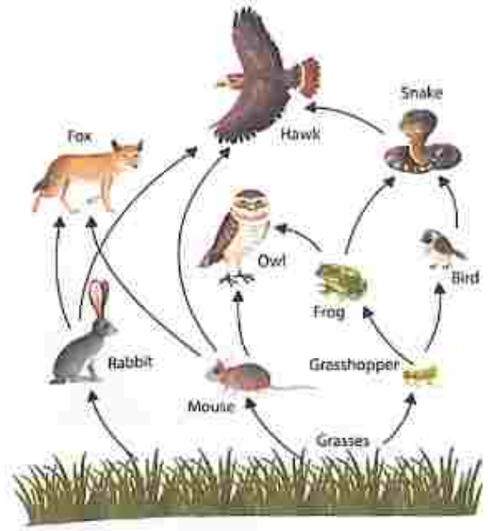
1.Productivity The basic requirement for any ecosystem to function and sustain is the constant input of solar energy. Plants are also the producers in a forest ecosystem.There are two types of productivity in a forest ecosystem, primary and secondary. Primary productivity means the rate of capture of solar energy or biomass production per unit area over a period of time by the plants during photosynthesis. It is further divided into Gross Primary Productivity (GPP) and Net Primary Productivity (NPP). GPP of an ecosystem is the rate of capture of solar energy or the total production of biomass. However, plants also use a significant amount of GPP in respiration. Thus, NPP is the amount of biomass left after the utilization by plants or the producers. We can hence say that NPP is the amount which is available for the consumption to herbivores and decomposers. Secondary productivity means the rate of absorption of food energy by the consumers.

2. Decomposition Decomposition is an extremely oxygen-requiring process. In the process of decomposition, decomposers convert the complex organic compounds of detritus into inorganic substances such as carbon dioxide,water and nutrients.

Detritus is the remains of the dead plant such as leaves, bark, flowers and also the dead remains of the animals including their faecal matter. The steps involved in the process of decomposition are fragmentation, leaching, catabolism, humification and mineralization. In the process of fragmentation, detritivores break down the detritus into smaller particles. In the process of leaching, water-soluble inorganic nutrients descend down into the soil and settle as unavailable salts. Under the process of catabolism, bacterial and fungal enzymes reduce detritus into simpler inorganic substances. Humification and mineralization processes take place during the decomposition of soil and not detritus. The process of humification leads to the accumulation of humus which undergoes decomposition at a very slow rate. In the process of mineralization, the humus gets further degraded by microbes and inorganic nutrients are released.



3. Energy flow Energy flows in a single direction. Firstly, plants capture solar energy and then, transfer the food to decomposers. Organisms of different trophic levels are connected to each other for food or energy relationship and thus form a food chain.



The Energy Pyramid is always upright because energy flows from one trophic level to the next trophic level and in this process, some energy is always lost as heat at each step.

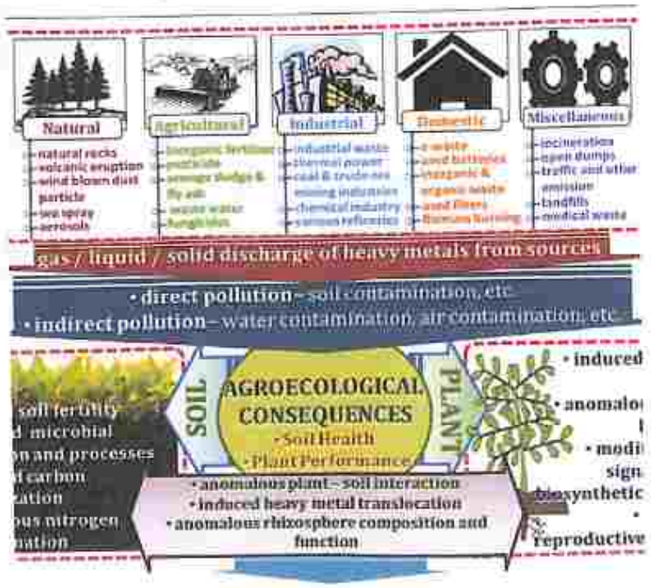
4. Nutrient Cycling Nutrient cycling refers to the storage and movement of nutrient elements through the various components of the ecosystem. There are two types of Nutrient cycling, gaseous and sedimentary. For Gaseous cycle (i.e. nitrogen, carbon), atmosphere or hydrosphere is the reservoir whereas for the sedimentary cycle (i.e. phosphorus) Earth's crust is the reservoir.

overall considered major cross-ecosystem drivers of degradation including agroecosystems . Generally, the EU climate goes in the direction of having higher temperatures, longer warm periods, and milder winters.

Depositions of pollutants (nitrogen and sulfur) causing acidification and eutrophication on agroecosystems have decreased both in the short term and since 2000 (long-term trend). High deposition levels can in fact impact grassland structure and function, in particular by inducing changes in plant species composition, eutrophication and soil acidification (Henry and Aherne, 2014). The improvement is significant, 47% decrease per decade for the acidification component, 20% decrease for the eutrophication component.

Convergence of evidence:

According to the results, 22% of the agroecosystems area shows improvement in at least three indicators, most of these are concentrated in the Northern part of the EU. Conversely, 27% of the agroecosystems area shows degradation in at least three indicators, mostly concentrated in the Southern part of the EU. In 28% of agroecosystems, five indicators show no change.



While pressures on agroecosystems have largely remained unchanged or even increased throughout the 2010-2020 decade, two thirds of condition indicators show either stable or declining trends.

The European Court of Auditors (ECA) in its 2020 assessment on the contribution made by the CAP to maintaining and enhancing biodiversity (ECA, 2020), found that the CAP has so far been insufficient to counteract declining biodiversity on farmland. The ECA recommendations to the European Commission are to:

1. improve coordination and design for the post-2020 EU biodiversity strategy – to this end also tracking expenditure more accurately;

2. enhance the contribution of direct payments to farmland biodiversity;

3. increase the contribution of rural development to farmland biodiversity;

4. develop reliable indicators to assess the impact of the CAP on farmland biodiversity.

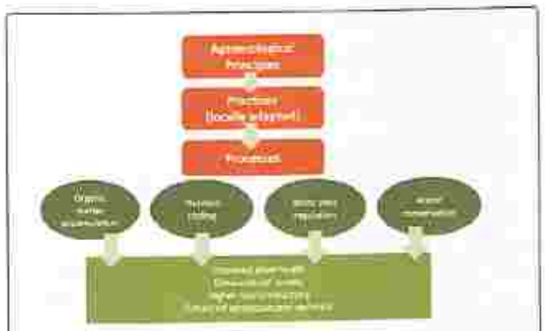


Figure 2: Agroecological principles for the conversion of farming systems.

Conclusion:

The assessment presented in this report is based on trends calculated on the basis of available data, and therefore may overlook factors that would describe in a more complete way the dynamics of agroecosystem conditions. Nevertheless, many relevant variables are considered and the main conclusion is that the degradation trend of agroecosystems was not halted in the 2010-2020 decade. Such a trend departs from a condition of agroecosystems that had already been suffering long-term degradation and important biodiversity losses, while pressure levels are to a large degree unchanged or increasing. These are the same pressures that contributed in the past decades to biodiversity loss, which is still ongoing, as clearly shown by available biodiversity indicators. Therefore, when increasing pressures from a changing climate are added to the picture, there is no evidence that reversal of biodiversity trends and improvement of ecosystem condition will take place, if appropriate actions are not taken.

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ACKNOWLEDGEMENT:

It is an honor for us to get this opportunity to do this project and talk about our ecosystem.

I would like to express my special thanks and gratitude to our respected Principal madam & our Professor ma'am who has given us this opportunity and has helped us with required facilities.

Examined
18/6

Name: SNEHANJALI DUTTA

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TOPIC:

STUDY OF COMMON PLANTS, INSECTS, FISH, BIRD, MAMMALS

AND BASIC PRINCIPLES OF IDENTIFICATION

18/6

Plants

Plants are critical to other life on earth because they form the basis of all food webs. Most plants are Autotrophic, creating their own food using water, Carbon-die-oxide (CO_2) and light through a process called PHOTOSYNTHESIS. Some of the earliest fossils found have been aged at 3.8 billion years. These fossil deposits show evidence of photosynthesis, so plants or the plants like structure ancestors of plants, have lived on this planet longer that most of other groups of organisms. At one time, anything was green and wasn't an animal was considered to be a planet. Now, plants are divided into several kingdoms: Protista, Fungi, and Plantae. Most aquatic plants occur in the kingdoms Protista, and Plantae.

❖ PETUNIA HYBRIDA

▲ Classification: -

Kingdom: *Plantae*

Division: *Tracheophyta (vascular plante)*

Class: *Magnoliopsida (flowering plants)*

Genus: *Petunia; Juss.*

▲ Points of Identification: -

a. Taproot and Branched
b. Stem green, hairy herbaceous, and branched
c. Leaves simple, exstipulate, reticulate venation
d. Flowers pentamerous, regular, bisexual
e. It is a cultivated, annual ornamental plant. The plant is a herb, attaining a height of 2-3 feet.

❖ PINUS

♠ Classification: -

Kingdom: - *Plantae*

Division: - *Tracheophyta (vascular plants)*

Class: - *Gymnospermae (simple leaf, seeds naked, cones present, xylem lacks vessels)*

Genus: - *Pinus Sp.*

♠ Points of Identification: -

a. It is an evergreen, perennial and woody plant.
b. Main plant body is sporophyte which is differentiated into root, stem and needle like leaves.
c. The stem is cylindrical, erect, covered with bark and branching is monopodial.
d. It produces different kind of spores.
e. Microsporophyll's Bear microsporangia which produce Microspores i.e., pollen grains. Pollen grains are light and winged. These are dispcred by the wind.

PLANTS

❖ AGARICUS (MUSHROOM)

♠ Classification: -

Kingdom: *Fungi (non-green, heterotrophic organisms passes hyphae)*

Division: *Eumycota (mycelium and fungal cellulose present)*

Class: *Basidiomycetes (bear basidiospores on basidium)*

Genus: *Agaricus sps.*

♠ Points of Identification: -

1.It is a fleshy, saprophytic fungus which grows on damp logs of wood, trunks of trees and on decaying organic matter.

2. the fungal body consists of two parts:

- **Somatic**:Vegetativemycelium under the ground
- **Reproductive**: Fruitification or fruiting 2body above the ground.

3.Primary mycelium produced from basidiospore in septate, haploid, short lived and monokaryotic.

4. Secondary mycelium is dikaryotic, and long-lived. A mass of hyphae is interwoven to form a rhizomorph.

5.Mushroom's main body & umbrella-shaped called FruitificationOrFruiting body which is an aerial, called Basidia carp.

Insects

Insects are generally considered the most successful group of living organisms on earth. Insects are Panamtacan nexapod invertebrates of the class insecta. They are the largest group within the anthoped phyllum Insets have a chitinous exoskeleton, a three-part body, three pairs of jointed legs, compand eyes and ore pair of antennae. Insects are adaptal creatures that live in almost every habitat on earth while some insects do live in water but 97% of insect habitat one on land.

♣ MOSQUITO

There are about 170 different kinds of mosquitoes in North America alone. These pests are part of the same family as houseflies and fruit flies, because they all have two clear, veined wings. Best known as a summer pest, Mosquitoes can develop from egg to adult in 10 to 14 days.

- ✓ Size: *¼" to 3/8"*
- ✓ Shape: *Narrow, oval*
- ✓ Colour: *Pale brown with whitish stripes across abdomen.*
- ✓ Legs: *6*
- ✓ Wings: *Yes*
- ✓ Antenna: *Yes*
- ✓ Common Name: *Mosquito*
- ✓ Kingdom: *Animalia*
- ✓ Phylum: *Arthropoda*
- ✓ Class: *Insecta*

- ✓ Order: *Diptera*
- ✓ Family: *Culicidae*
- ✓ Species: *Varies*

♠ Diet:

We usually say, "I have been bitten by a mosquito", but this is not completely true. Mosquitoes do not bite. Female mosquitoes feed on plant nectar and blood. They need the protein to reproduce. To get to the blood, they pierce our skin with their "proboscis" and suck our blood. Male mosquitoes feed exclusively on plant nectars. Mosquitoes are busiest at night and will fly up to 14 miles for a blood meal. They hunt for food by detecting body heat and Carbon Dioxide, the gas we breathe out.

♠ Habitat:

Mosquitoes breed in soft, moist soil or stagnant water sources such as storm drains, old tires, children's wading pools and birdbaths.

♠ Impact:

Mosquitoes spread diseases such as West Nile Virus, malaria and dengue fever.

♣ BUTTERFLY

BUTTERFLIES A large group of insects belonging to the Lepidoptera which means Scaly wings. They are characterised by their large often colourful wings and their photobiont, which They use to such flows.

- ✓ Kingdom: *Animalia*
- ✓ Phylum: *Arthropoda*
- ✓ Order: *Lepidoptera.*

INSECTS

- ✓ Class: *Insecta*
- ✓ Scientific name: *Rhopalocera*
- ✓ Life span: *15-29 days*
- ✓ Size: *1/8 inch to 12 inches*
- ✓ Colour: *White, red, green, etc (can be of any colour).*
- ✓ Family: *Pieridae, Riodiaidae, etc.*

♠ Structure: -

Like other insects' butterflies have 6 legs and three main body parts head, thorax and abdomen. They also have two antennae and an exoskeleton.

♠ Habitat: -

Butterflies lives in A diverse habitat including walt marshes, mangroves, sand dunes, lowland forest, grasslands and mountain zones.

♠ Primary Diet: -

Butterflies mostly eat nectar and water. Each butterfly species prefers a specific plant but they will feed wherever food is available.

♠ Special Characteristics: -

- ➢ Camouflage –
  A productive coloming that enables butterflies to blend In with its environment thus hiding from its predators.

♣ GRASSHOPPER

Grasshopper is a plant eating insects with long hind legs which they use for producing a chirping sound frequently found in grassy places and low vegetation.

- ✓ Kingdom: *Animalia*
- ✓ Class: *Insecta.*
- ✓ Order: *Orthoptera*
- ✓ Family: *Acrididae.*
- ✓ Scientific name: *Caelitela*
- ✓ Colour: *Green*
- ✓ Size: *1 to 7 cm in length*
- ✓ Other physical feature: *Ectothermic*

♠ Habitat: -

Most grasshoppers prefer dry open habitats with lots of grass and small plants. They are generally found in temperate, tropical and terrestrial barriers.

♠ Primary Diet: -

Grasshoppers are primarily herbivores. They mostly eat leaves, flowers, stems, etc.

♠ Special Characteristics: -

Grasshoppers use their chirping ability to give them a boost into the air but most are pretty strong files and make good use of their wings to escape predators.

FISH

Fish (plural: fish or fishes) are an aquatic group of vertebrates which live in water and respire (get oxygen) with gills. They do not have limbs, like arms or legs, and they do have digits (fingers & toes). This is a definition which does not quite work: some amphibia also live in water and have external gills, but they are not fish. Fish used to be a class of vertebrates. Now the term covers five classes of aquatic vertebrates:

- **Jawless fish**
- **Armoured fish**
- **Cartilaginous fish**
- **Ray-finned fish**
- **Lobe-finned fish**

There are more fish than tetrapods (land vertebrates): there are over 33,000 described species of fish.[4] Fish are usually covered with scales. They have two sets of paired fins and several unpaired fins. Most fish are cold-blooded (poikilotherm). A fish takes in the oxygen from the water using gills. There are many different kinds of fish. They live in fresh water in lakes and rivers, and in salt water in the ocean. Some fish are less than one centimetre long. The largest fish is the whale shark, which can be almost 15 meters long and weigh 15 tons. Most fish live in the water. A group of fish called the lungfish have developed lungs because they live in rivers and pools which dry up in certain parts of the year. They burrow into mud and aestivate until the water returns.

'Fish' is a paraphyletic term in cladistics because it lacks a monophyletic group of descendants. It does not include the land vertebrates or tetrapod's, which descended from fish.

Koi (and goldfish) have been kept in decorative ponds for centuries in China and Japan.

The wicked shape of this shark makes it an efficient swimmer. It is fast over short distances.

PLANTS

Each plant is characterized by one of the three life histories: haploid (1n), diploid (2n), or the most common haploid-diploid. Within each of these three types, there are also variations. Of the plants with haploid life cycles, most algae lack a dikaryotic phase, while most fungi have a dikaryotic phase. There are also other algae and fungi that are characterized by diploid life cycles. Lastly, plants with a haploid-diploid life history undergo an alternation of generations, either similar or dissimilar. In all of these life cycles, asexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversity. Due to variations arising separately and at different rates, the evolution of land plants did not follow a linear sequence. Before land plants, algae with mostly haploid life cycles existed, but land plants later originated from a haploid-diploid ancestor.

INSECTS

Insects play many important roles in nature. They aid bacteria, fungi, and other organisms in the decomposition of organic matter and in soil formation. The decay of carrion, for example, brought about mainly by bacteria, is accelerated by the maggots of flesh flies and blowflies. The activities of these larvae, which distribute and consume bacteria, are followed by those of moths and beetles, which break down hair and feathers. Insects and flowers have evolved together. Many plants depend on insects for pollination. Some insects are predators of others.

Fish

Fish are a vital part of our ecosystem. Fish play an important role in nutrient cycles because they store a large proportion of ecosystem nutrients in their tissues, transport nutrients farther than other aquatic animals and excrete nutrients in dissolved forms that are readily available to primary producers. Although the influence of fish communities on food web structures, nutrient recycling, and productivity is well documented, little is known about the effects on the ecosystem of a reduction in the fish species richness. It is therefore of significant importance to evaluate the potential impacts of ongoing decreases in fish diversity.

BIRDS

Birds' spatial distributions are directly affected by global warming and subsequently climate change. In general terms it has been stated by the scientific community that the distribution of species has been moving in a poleward trend. Within the realm of our study we found no conclusive evidence to prove or disprove this statement. The evidence that we did find and cited leads us to the conclusion that the distribution of species is in fact being altered by climatic change, but we were unable to determine exactly what that change was. This project focused on bird species (as we found they were ideal indicators of species shifts due to the fact that their patterns of movement are already larger and more immediate than other organisms. This and the fact that bird movements and migrations are well documented are the reason we chose to focus our study on birds). Evidence found specifically from birds shows that there is a correlation between bird population characteristics and alterations in climatic factors such as temperature and precipitation. The change in population characteristics shows that some sort of shift or generally trended movement is occurring.

Mammals

Mammals play a vital role in maintaining the atmosphere on the Earth. Through their reproduction pattern and gestation period they come to be together in controlling the pressure of eco-system in the Earth as a whole. So, it can't be considered as a common or light problem and should be taken a serious matter to have speculations in a group to come to the state to protect the endangered species. It's not that if the species from one place are extinct, it'll effect to that particular place only, but it can bring problem in the eco-system of the whole planet. It can lead to unequal distribution of the species. So, when any one country is if suffering from such endangered problems the developed countries should take an action towards that and should launch some social programs and some rewarding state so that people can get encouraged to preserve the environment and the whole Earth. It is confirmed that if this method can't be stopped it will lead to the extinction of all the species on the Earth, so we shouldn't hesitate to try our best to save their life.

ACKNOWLEDGEMENT

The success and final outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along the completion of our assignment work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them. I respect and thank DR. MAHUA DUTTAMADAM *for giving us an opportunity to do this assignment work on the topic Study of common plants, insects, fish, birds, mammals and basic principles of identification and providing us all support and guidance which made us to complete the assignment on time, we are extremely grateful to her for providing such a nice support and guidance.*

This assignment cannot be completed without the effort from our friends. Last but not least, we would like to express our gratitude to our classmates and respondents for support and willingness for this project.

PROFESSOR'S SIGNATURE

REFERENCES

Have taken helps from various Environment books like:

I. Dr. Bala-Sujan Kumar- Environmental Studies, Model Field and Project Work.

II. Kaushik Anubha, Kaushik C.P. New Age International Publishers.

III. Singh Savindra- Environmental Geography- Allahabad, Pravalika.

BIBLIOGRAPHY

- https://en.m.wikipedia.org/wiki/Bird
- https://en.m.wikipedia.org/wiki/Fish
- https://en.m.wikipedia.org/wiki/Insect
- https://en.m.wikipedia.org/wiki/Mammal
- https://en.m.wikipedia.org/wiki/Plant

Examined
18/6

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TOPIC NAME – STUDY OF COMMON PLANTS, BIRDS, MAMMALS ,FISH,INSECT AND BASIC PRINCIPLES OF IDENTIFICATION

SUBJECT - ENVS

100, 96

CONTENTS.

INTRODUCTION

BIRDS

Birds are ready visitors that visit frequently from place to place even from continent to continent. Birds are said to be organization of Aves - class warm - blooded vertebrates characterized by wings, hard shelled egg-laying, toothless baked jaws, an increased metabolic ratio, a heart with four chambers and a powerful yet light skeleton. The birds scientific name is Aves. A good number of birds visit different sites due to change of environment particularly for their food and reproduction. They come there for a temporary period to hatch eggs & carry a good number of offsprings during their back journey.

FISH

Fish or fishes are an aquatic group of vertebrates which live in water and require (get) oxygen with gills. They do not have limbs, like arms or legs and they do have digits (fingers and toes). This is a definition which does not quite work: some amphibia also live in water and have external gills, but they are not fish. Fish are usually covered with scales. Most fish are cold blooded. A fish takes in the oxygen from the water using gills. They live in fresh water in lakes and rivers, and in salt water in the ocean. Most fish live in the the water. A group of fish called the lungfish have developed lungs because they live in rivers and pools which dry up in certain parts of the year. They burrow into mud and estivate till the water returns.

INSECTS

Insects are generally considered the most successful group of living organisms on earth. Insects are pancrustacean hexapod invertebrates of the class insecta They are the largest group within the anthroped

phylum. Insects have a chitinous exoskeleton, a three part body, three pairs of jointed legs, compand eyes and a pair of antennae. Insects are adaptable creatures that live in almost every habitat on earth while some insects do live in water but 97% of insect habitat are on land.

MAMMALS.

Mammals are a group of vertebrates constituting the Class Mamalia characterized by the presence of mamarry glands which in females produce milk for feeding (nursing) their young, neocortex (a reign of brain) fur or hair and three middle ear bones. These characteristics distinguish them from reptiles (including birds) from which they diverged in carboniferous over 300 million years ago. Around 6,400 extant species of mamals have been discribed. Most mamals are intelligent with some posseing large brains, self awareness and tool use.

PLANTS.

Plants are critical to other life on Earth because they form the basis of all food webs. Most plants are autotrophic, creating their own food using water, CO_2, light and chlorophyll through a process called Photosynthesis. Some of the earliest fossils founds have been aged at 3.4 billion years. These fossils deposits show evidence of photosynthesis. No plants, or the plant like ancestors of plants, have lived on this planet longer than most of other groups of organisms. At one time, anything was green and wasn't an animal was considered to be a plant. Now, Plants are divided into several kingdoms: Protista, Fungi and Plantae. Most aquatic plants occur in the kingdoms Plantae and Protista.

BIRDS

OBSERVATION

SPARROW

Scientific name - Passeridae.
Bengali name - Chorai.
Common English name - Sparrow.

Characteristics: Sparrows have beautiful voices and their chirping and singing can be heard all over. Other unique characteristics are their smooth round heads and rounded wings. Males have reddish feathers on their backs and females are brown and striped.

Distribution: It is native to Eurasia and North Africa and was introduced to South Africa, North Africa and South America, Australia, New Zeland, Middle East, India and Central Asia, where its population thrived under a variety of environment and climatic conditions.

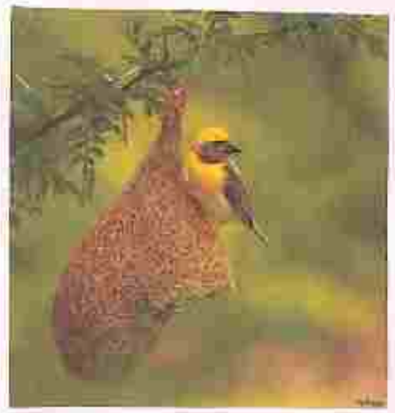
SPARROW

BAYA WEAVER

Scientific Name - Ploceus philippines
Bengali Name - Babui Pakhi.
Common English Name - Baya Weaver.

Characteristics: A widespread weaver that is know for its nest - a long hanging nest with a bulbous chamber and a narrow tubular entrance. They have yellow forehead and crown, a dark throat that contrasts with yellow underparts.

Distribution: The baya weaver is a weaver bird found across the Indian subcontinent and southeast Asia. Flocks of these birds are found in grassland areas.



BAYA WEAVER.

COMMON MYNA.

Scientific name - Acridotheres Tristis
Bengali name - Shalik.
Common English name - Common Myna.

Characteristics: The common myna is readily identified by the brown body, black hooded head and the bcone yellow patch behind the eye. The bill and legs are bright yellow. There is a white patch on the underside is white. The sexes are similar and birds are usually seen in pairs.

Distribution: It is found from southeastern Kazakhstan, Turkmenistan and eastern Iran to southern china, Indonasia, the malay Peninsula and India. It has also been introduced to Hawaii and Northern America.

COMMON MYNA

FISH

TYPES OF FISH.

'FISH' is not a formal taxonomic grouping in systematic zoology. Amphibians, reptiles, birds and mamals all descended from Lobe-finned fish. But due we of the term 'fish' is so convinient that we go on using it.

Fish are the oldest vertebrate group. The term includes a huge range of types from the middle Ordivican, about 490 million years ago to the present day. There are the main groups:

- Agnatha - The Jawless fish.
- Pteraspids - The head shields
- Anapids - Gills opened as holes.
- Cephalaspids - Early Jawless fish
- Lampreys - Living ectoparasites.
- Osteostraci - Bony-armored jawless fish.
- Gnathastomata - The jawed fish. Includes all types commonly called fish.
- Placoderms - heavily armored fish.
- Chondrichthys - cartilaginous fish: sharks, rays & skates.
- Acanthodii - extinct spiny shark.
- Osticbthyes - bony fish.
- Floodostei - The gars and bow fish.
- Teleostei - The most successful group, Triassic to present day.
- Dipnoi - The lungfish, eight genera survive

Certain animals that have the words fish in their name are not really fish:-

Crayfish are crustacans, and Jellyfish are cnidarians. Some animals look like fish, but they are not. Whales and dolphins are mammals for example.

BODY SHAPE.

The shape of the body of a fish is important to its swimming. This is because streamlined body shapes makes the water drag less. There are some common fish shapes :-

The picture of a shark shows, its shape is called fusiform, and it is an avoid shape where both ends of the fish are pointy. This is just the best shape for going through water quickly. Fishes with fusiform shapes can chase prey and escape predeators quickly. Many live in the open ocen and swim constantly, like marlins, swordfish, and tuna. Ichthyosaurs, porpoise, dolphins, killer whales all have similar shapes. This is an example of convergent evolution.

EEL-LIKE -

The long, ribbon-like shape of an eel's body shows another shape. This enables them to hide in cracks, springing out quickly to captive prey, then returning quickly to their hiding spot.

FLATFISH -

Flatfish live on the bottom of the ocean or lake. Most are camoflage: they can change colours to match the ocean floor. During their early lives their eyes move to the upper side of their flat body.

Reef fish also have flat bodies and their body is often highly coloured. Flat bodies can slip in and out among the corals, sponges and rock avoiding predators.

EEL FISH

FLAT FISH.

FISH AS FOOD.

Some people eat many different kind of fish. These include carp, cod, herring, perch, sardines, mackerel, tuna, eels. A person who buys and sells fish for eating is called a fishmonger. People catch fish with small nets from the side of the water or from small boats or with big nets from big boats. People also catch fish with fishing poles and fish hooks with baits this process is called angling.

FISH AS PET.

Selective breeding of carp made them into the domesticated Koi in Japan, and Goldfish in China. This breeding began over 2000 years ago. The chinese brought their gold fish indoors during the Song Dynasty. They kept them in large ceramic vessels. That we now do in glass fish tank.

FRESHWATER FISH.

41% of all fish live in freshwater. There are also many important fish which breed in rivers and spend the rest of their life in the sea.

Examples are: Salmon, Trout, the sea lamprey and three spined stickle back. Some other fish are born in salt water, but live most of their adult live in fresh water for example the eels. Species like these change their physiology to cope with the amount of salt in the water.

INSECTS.

OBSERVATION

BUTTERFLY.

Butterflies are large group of insects belonging to the order Lepidoptera which means scaly wing. They are characterized by their large often colourful wings and their proboscis which they use to suck flower nectar.

Kingdom - Animalia.
Phylum - Arthropoda.
Order - Lepidoptera.
Class - Insecta.
Scientific name - Rhopalocera
Lifespan - 15-29 days.
Size - 1/8 inch to 12 inch
Colour - white, red, green, etc. (can be of any colour).
Family - Pieridae, Riodinidae, etc.

STRUCTURE -

Like other insects butterflies have 6 legs and three main bodyparts head, thorax and abdomen. They also have two antennae and an exoskeleton.

HABITAT -

Butterflies live in a diverse habitat including salt marshes, mangroves, sandunes, lowland forest, grasslands and mountain zones.

PRIMARY DIET -

Butterflies mostly eat nectar and water. Each butterfly species prefer a specific plant but they will feed whatever food is available.

SPECIAL CHARACTARISTICS -

Camouflage - A protective colouring that enables butterflies to blend in with its environment thus hiding from its predator.

GRASSHOPPER

Grasshopper is a plant eating insects with long hind legs which they use for producing a chirping sound frequently found in grassy places and low vegetation.

Kingdom - Animalia.
Order - Orthoptera.
Class - Insecta.
Family - Acrididae.
Scientific name - Caelifera.
Colour - Green.
Size - 1 to 7 cm in length.
Other physical features - Ecto-thermic

HABITAT -

Most grasshoppers prefer dry open habitats with lots of grass and small plants. They are generally found in temperate, tropical and terrestial barriers.

PRIMARY DIET -

Grasshoppers are primarily herbivores. They mostly eat leaves, flowers, stems, etc.

SPECIAL CHARACTARISTICS

Grasshoppers use their chirping ability to give them a boost into the air but most are pretty strong fliers and make good good use of their wings to escape predators.

AGARICUS (MUSHROOM)

Classification:

Kingdom: Fungi (non-green, heterotrophic organisms, passes hyphae).

Division: Eumycota (mycelium and fungal cellulose present).

Class: Basidomycetes (bear basidiospores on basidium).

Genus: Agaricus sps.

POINTS OF IDENTIFICATION

- It is a fleshy, saprophytic fungus which grows on damp logs of wood, trunks of trees and on decaying organic matter.
- The fungal body consists of two parts:
  i) Somatic = Vegetative mycellium under the ground.
  ii) Reproductive - fruitification or fruiting body above the ground.
- Primary mycelium produced from basidiospore is septate, haploid, short lived and monokyotic.
- Secondary mycelium is dikaryotic and long-lived. A mass of hypae is interwoven to form a rhizomorph
- Mushroom's main body is umbrella shaped called fruitification or fruiting body which is an ariel, erect called Basidiocarp.

PINUS

Classification:

Kingdom: Plantae.

Division: Gymnospermae

Genus: Pinus

POINTS OF IDENTIFICATION:

- It is an evergreen, perennial and woody plant
- Main plant body is sporophyte which is differentiated into root, stem and needle like leaves.
- The stem is cylindrical, erect, covered with bark and branching is monopodial
- It produces different kind of spores.
- Microsporophylls bear microsporgia which produce microspores i.e. pollen grains. Pollen grains are light and winged. These are dispersed by the winds.

PINUS

CONCLUSION

BIRDS

Bird's spatial distributions are directly effected by Global warming and subsequently climate change. In general terms it has been stated by the scientific community that the distribution of species have been moving in a poleward trend. within the realm of our study we found no conclusion evidence to prove or disprove this statement. The evidence that we did find and cited led us to the conclusion that the distribution of species is infact being altered by climatic change by we were unable to determine exactly what change it was. This project focused on bird species and how they could be identified. Evidence found specifically from bird shows that their is a correlation between bird population characteristics and alterations in climatic factors such as temperature and precipitation. The change in population characteristics shows that some sort of shift is occuring.

FISH

Fish are vital part of our ecosystem. Fish play an important role in nutrient cycles because they store a large proportion of ecosystem nutrients in their tissues, transport nutrients farther than other aquatic animals and excrete nutrients in dissolved forms that are readily available to primary producers. Although the influence of fish communities on food web structures, nutrient recycling and productivity is well documented little is known about the effects on ecosystem of a reduction in the fish species richness. It is therefore of significant importance to evaluate the potential impacts of ongoing decreases in fish diversity.

INSECT

Insects play many important roles in nature. They aid bacteria, fungi and other organisms in the decomposition of organic matter and in soil formation. They decay of carrion, for example brought about mainly by bacteria is accelerated by the maggots of flesh flies and blow flies. The activities of these larvae, which distribute and consume bacteria are followed by those of moths and beetles, which break down hairs and feathers. Insects and flowers have evolved together. Many plants depends on insects of pollination. Some insects are predators of others.

MAMMALS

Mammals play a vital role in maintaining the atmosphere on the Earth. Though their reproduction pattern and gestation period they come to be together in controlling the pressure of eco-system in the Earthas as a whole. So it cant be considered as a common or slight problem and should be taken a serious matter. to have speculation in a group to come to the state to protect the endanged species. Endangerment of animals can cause unequal distribution of the species. So when any country is suffering from such problems the developed countries should launch some social programs and some responding state so that people can get encouraged to preserve the environment and the Earth.

PLANTS

Each plant is characterized by one of the three life histories: haploid(1n), diploid (2n), or the most common haploid - diploid. Within each of these three types, there are also variations. There are also other algae and fungi that are characterized by diploid life cycles. In all of these cycles, asexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversity.

BIBLIOGRAPHY

All the contents for this project has been collected from the following sources:

i) Dr. Balasujan Kumar - Environmental Studies, Model Field and Project Work.

ii) Kaushik Anubha, Kaushik CP. New Age International Publisher.

iii) Singh Savindra - Environmental Geography Allahbad. Paravalika

iv) Wekipedia.

ACKNOWLEDGEMENT

The sucess and final outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along the completion of our assignment work. Whatever we have done is only due to such guidance and we would not forget to thank them. I respect and thank Dr. Mahua Dutta maam for giving us an opportunity to do this assignment work on the topic Study of common plants, birds, insects, fish and mammals and basic principles of identification and providing us all support and guidance which made us to complete the assignment on time.

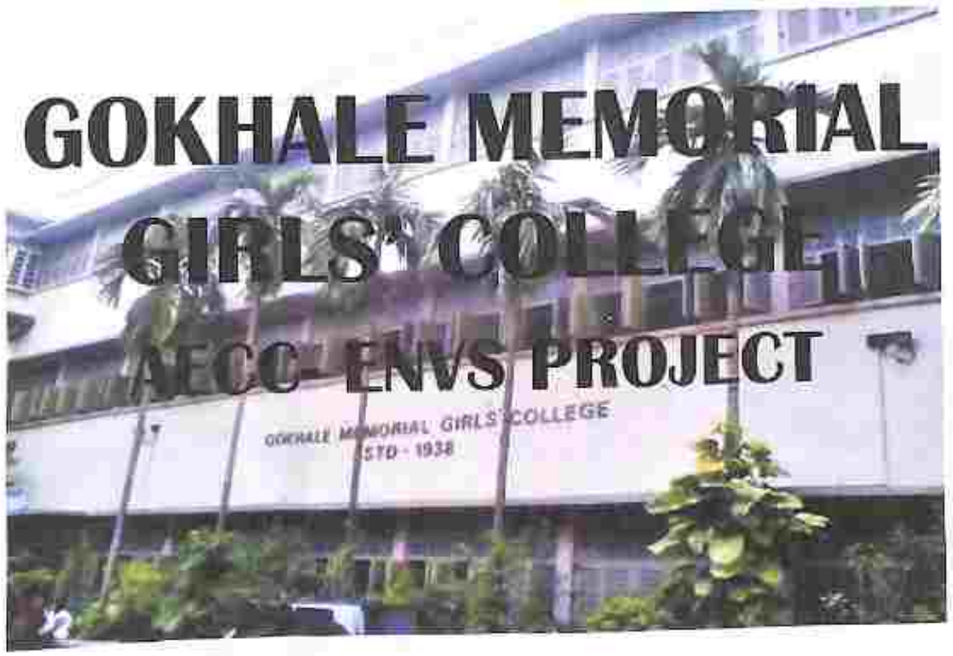
This assignment wouldn't be completed without the effort from our friends. Last but not least we would like to express our gratitude to our classmates and respondents for support and willingness for this project.

Aishani Das.

Examined
18/6

GOKHALE MEMORIAL GIRLS' COLLEGE

AECC- ENVS PROJECT



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18/6

INTRODUCTION

PLANTS

Plants are critical to other life on this planet because they form the basis of all food webs. Most plants are autotrophic creating their own food using water. Carbon dioxide and light through a process called photosynthesis. Some of the earliest fossils found have been aged evidence at 38 billion years. There fossil deposits show of photosynthesis. So plants on the plant. Like ancestors of plants have lived on this planet longer than most other groups of organisms. At one time, anything that was green and that wasn't an animal was considered to be a plant. Now, what was Once Considered "Plants" are divided into several kingdoms: Protista. Fungi, and Plantae? Most aquatic plants occur in the Kingdoms Plantae and Protista.

INSECTS

Insects, are a class in the phylum Antho - poda. They are have small terrestrial invertebrates which a hand exoskeleton. Insects are the largest group of animal on earth by far: about 926.400 different Species have been described. They more than half of all known living species. They may be over 90%of animal species on Earth Neo Species of insects are continually being found Estimates of the total number of species range from a million to 30 million. Insects have six legs, and most have wings. Insects were the first animals capable of flight. As they develop from eggs, insects undergo metamorphosis. Insects live all over the planet; almost all are terrestrial (live and land). Few insects live in the oceans on in very cold places, as Antarctica. The most species live in tropical areas.

FISH

Fish is a member of the paraphytelle group of organisms. This consists of gill-hearing aquatic ema niates animals with limbe and digits. Most of the fishes are hagfish, cartilaginous, bony fish

and lampreys. Fishes are eclothemic, which means cold-blooded. Fish are abundant in most of the bodies of water. Fisheries are an important resource for human worldwide, especially food because it consists of a lot of as minerals, vitamins, and proteins as it stays in water bodies. These are served as staligious Symbols.

BIRDS

Birds are ready visitors that visit frequently from place to place even from continent to continent. A good number of birds visit different sites. Due to change of environment particularity for their food and reproduction. As the site is not homogenous for their easy life period so they need movement from one place to other. A good example is Birds of migratory kind. In our West Bengal, Storks and Siberian Cranes, even in Lake Chilka of Odisha a large number of pelicans and Flamingos are vivid examples of that kind. They come to thrive there for a temporary period to hatch eggs and carry a good number of off springs during their back journey.

MAMMALS

Earth has a large variety of animals living on it. Scientists classify animals in to groups common characteristics. Mammals are a common group of animals (vertebrates) that have backbones and hair or fur. They are warm blooded (endothermic), and they have four-chambered hearts. They also feed their young with milk from the mother's body. The young of most mammals are born alive.

AREA OF STUDY

The area is whole Kolkata, South 24 Parganas district of West Bengal in India.

METHOD OF STUDY

Making this project we use internet to collect information about birds, insects and plants.

OBSERVATION

wings. Best known as a summer pest, Mosquitoes can develop from egg to adult in 10 to 14days.

Size: 1/4" to 3/8"

Shape: Narrows, Oval.

Color: Pale brown with whitish Stripes across abdomen.

Legs: 6

Wings: yes

Antenna: yes

Common Name: Mosquito

Kingdom: Animalia

Phylum: Anthropoda

Class: Insecta

Order: Diptera

Family: Culicide

Species: Varies

- DIET: we usually say "I have been bitten by mosquito", but this is not completely true. Mosquitoes do not bites. Female mosquitoes feed on plant nectar and blood. They need the protein to reproduce. To get to the blood, they pierce our skin with their "proboscis" and suck dis blood. Made mosquitoes feed exclusively on plant nectars. Mosquitoes are busiest at night and will fly up to 14 miles for a blood meal. They hunt for food by detecting body heat and Carbon Dioxide the gas we breathe out.
- HABITAT: Mosquitoes breed in soft, moist soil or stagnant water sources such as storm drains, old tires, Children's wading pools and birdbaths.

- IMPACT: Mosquitoes spread diseases such as west Nile virus, malaria and dengue fever.

FISH

FIVE COMMON FISH

1. Siamose Fighting Fish

Scientific Name: The scientific name of Siamese fighting fish is known as betta splendens.

Family is History: This fish is classified under the classification of betta. It is an aquarium fish. It belongs to a family of the Gourami family. Other names of this fish are pla-kad and trey krem. They can mingle with other fish. The body length of the fish is seven centimeters and It appears in colours of red, green, opaque, albino, orange, yellow and blue, etc.

Lifespan: The lifespan of this fish is about 2 years only. water temperature must be around 23 degrees - 27 degrees.

3. Gold fish

Scientific Name : The scientific name of gold fish is Carassius auratus. It is classified under the higher classification of cara-ssius. It is mostly found in Utah Lake.

Family & History: It is an aquarium fish.

4. Indian Ring-Necked Parrot

Common English Name: Indian ring-necked parrot

Bengal Name : Tiya.

Scientific Name: Psittacula krameri manillensis.

Distribution: Indian Sub Continent. All parts of plain.

Characters: very punctual about them.

Vegetation Spectrum: Micheliachampaca, Senacaasoka, Terminaliaanfuna, Ficus benga lensis, F. Religiosa, Disoxylum sp, Bonassusflabelliferete.

5. Rock dove

English Name: Rock dove (Female and Make)

Bengali Name : Payra

Scientific Name: Columba livia.

Distribution: Indian Sub-Continent. All parts of plain.

Characters: Can be used as pets.

Vegetation Spectrum: In rice field and in fallow land. Plants with Seeds of Chrozophoraplicata, Crotonbonplandianum, Brassica nigra, Lathyrus Saliva, *Triticumaestivum*, Secale etc. are common for the birds like r

2. Marsupial

Marsupial mammals give birth to babies. That are not completely developed. The babies are that are very tiny. The babies then crawl up the fur on the mother's Belly into a pouch on the outside of the mother's abdomen. The babies drink milk from the mother and continue to develop inside the pouch. Koalas, Kangaroos, Wallabies, and opossums are some of the better known marsupials. Today marsupials better-known found mostly ma in Australia, New Guinea and South America. The Only marsupial in North America is the opossum. Opossums may give birth to as one only many twenty as babies at one time. However, the mother has thirteen nipples in her pouch. The first thir

CONCLUSION

PLANTS

Each plant is characterized by three life histories; haploid (1N), diploid (2n). or the most common haploid-diploid within each of these three types, there are also variations of the plants with haploid life cycles, most algae Lock a dikonyotic phase. While most fungi have dikcanyotic phase. There are also other algaes and fungi that are characterized by diploid life Cycles. Lastly, plants with a haploid- diploid life history undengo an alternation of generations, either similar or dissimilar. In all of these life cycles, asexual reproduction may occur, but it is sexual reproduction that is responsible for genetic diversity. Due to variations arising separately and at different rates, the evolution of land plants, did not fellow a linear sequence. Before land plants, alga with haploid life cycles, but land plants later originated.

INSECTS

Insect play a very important role in nature. They aid bacteria, fungi and other organisms in the decomposition roles in decomposition of organic matter and in soil formation. The decay of carrion for example, brought about mainly by bacteria accelerated by the moggots of flesh files and Blow filer. The activities of these larvae, which distribute and Consume bacteria, are followed by those of moths and beetles, which break down hair and feathers. Insects and flowers have evolved together. Many plants depend on insects for pollination. Some insects are predators of others.

FISH

Fish has a closed-loop circulatory system. They are Omnivorous group because feed on plants and other small sea animals of Water bodies. Fishes excrete nitrogenous and ammonia. Fishes reproduce highly in the open water column only. The eggs have an average diameter of one millimetre only.

BIRDS

We conclude that species spatial distribution directly affected by global warming and subsequent Climate change. In general terms it has been started by the scientific community that the distribution of species have been moving in a pole

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REFERENCES

Have taken helps from various Environment books like:-

(1) Dr. Bala-Sujan Kumar- Environmental Studies, Model Field and Project Work

2) Kaushik Anubha, Kaushik C.P- New Age International Publishers.

3) Singh Savindra- Environmental Geography- Allahabad, Pravalika Publications.

Examined
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