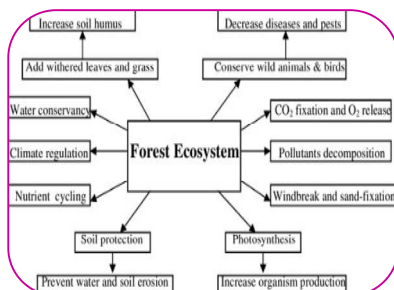




IMPORTANCE OF FOREST ECOSYSTEM



Dr. Ravindranath V. Gabadi
Associate Professor & Special Officer,
Dept of Sugar Technology ,
GU.P.G.Centre.Bidar.

ABSTRACT:

A timberland is characterized as the area of land that is covered by trees. "Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10%, or trees able to reach these thresholds in this situation," is how the Food and Agriculture Organization of the United Nations defines a forest. Land that is mostly used for agriculture or in cities is not included.

Forests are necessary for all living things to survive. Because they provide oxygen, food, shelter, fuel, and a means of livelihood for the tribal people who live in and around the forest, they are essential to our survival. Forests provide all of the basic needs of nearby human settlements and house 80% of the world's terrestrial biodiversity. Forests are the source of everything from the oxygen we breathe to the wood used in construction and as fuel. It is a self-sustaining system that is also a home for several organisms. Every forest's ecosystem contains both biotic (living) and non-biotic elements. Plants, trees, shrubs, vines, grasses, mosses, algae, fungi, insects, mammals, birds, reptiles, amphibians, and microorganisms are the biotic components.

KEYWORDS: Microorganisms, the forest ecosystem, and the survival of all living things.

INTRODUCTION:

Ecosystem of Forests: A forest ecosystem is the terrestrial system in which people, trees, insects, and other living things interact. It is the smaller classification of the ecosystem as a whole, which is the largest functional unit that includes all of Earth's features and living things. Forest ecosystems come in a wide variety of forms and are categorized based on the climate of the area, including temperature and rainfall.

Forest ecosystems are the most resilient because they are unaffected by weather, natural forces, or human activity. Numerous species of wild animals, plants, and herbs, in addition to numerous insects and microorganisms, make up the ecosystem. In clear, understandable language, this article provides comprehensive coverage of the subject. Continue reading to learn more about the various kinds of forests and the ecosystems they support.

What is an Ecosystem?

An ecosystem is a system that develops when all living things interact with one another as well as the chemical and physical components of their environment. These components are all linked to one another through the exchange of energy and materials.

Types of Ecosystem

There are two main ecosystems:

1. Terrestrial Ecosystems: Depending on temperature and annual precipitation, terrestrial ecosystems are divided into various categories. The following are a few examples of terrestrial ecosystems:

- a. Grassland Ecosystems
- b. Forest Ecosystems
- c. Desert Ecosystems
- d. Cropland Ecosystems

2. Aquatic Ecosystems: There are primarily two types of aquatic ecosystems:

- a. Freshwater / Inland Ecosystems
- b. Marine/Saltwater Ecosystems

What Is a Forest Ecosystem?

An ecosystem of forests and resources is called a forest ecosystem. Natural resources like forests are renewable. A group of plants that are structurally characterized by their trees, shrubs, herbs, climbers, and ground cover make up forests. The most important interacting components of a forest ecosystem are the soil, animals, insects, microorganisms, and birds. India's forests cover between 18 and 20 percent of the country's land area.

1. **Abiotic Components** of the forest include the soil's organic and inorganic components, temperature, rainfall, light, and other factors.
2. **Biotic Components** are portrayed by consumers, decomposers, and producers.

What Are the Types of Forest Ecosystems?

The following are some examples of forest ecosystems:

1. Tropical Evergreen Rainforest: Only a small portion of tropical forests are rainforests, where annual precipitation ranges from 80 to 400 inches. This woodland is described by profound and thick vegetation comprising of tall trees arriving at various levels.

2. Tropical Deciduous Rainforest: Broad-leaved trees and dense bushes, shrubs, and other vegetation are the primary features of tropical deciduous rainforest. Summer and winter are the two main seasons that are clearly visible there. This kind of forest can be found in a lot of places around the world. Here, a wide range of plants and animals can be found.

3. Temperate Evergreen Forest: A type of temperate evergreen forest is characterized by a sufficient number of ferns and mosses in spite of a smaller number of trees.

4. Temperate Deciduous Forest: With sufficient rainfall, temperate deciduous forest develops in the moist temperate region. Trees shed their leaves in the winter, and winter and summer are clearly defined here as well. Maple, oak, peach, and others are dominant trees.

5. Taiga/Boreal: Evergreen conifers dominate the Taiga, which is located just south of the Tundra. For nearly half of the year, the average temperature falls below freezing.

Components of Forest Ecosystem

1. Producers: By using photosynthesis, producers can make their own food. Because they transform sunlight into the chemical energy that is used to produce food, all green plants are regarded as ecosystem producers.

2. Primary Consumers: Customers rely on producers because they cannot prepare their own food. Herbivorous creatures get their food by eating the makers (plants) straightforwardly. Grasshoppers, deer, and other animals are examples of primary consumers.

3. Secondary Consumers: Primary consumers provide the food for secondary consumers.

4. Decomposers: The forest ecosystem's decomposers break down dead plants and animals and return the nutrients to the soil for producers to use. In the Amazon rainforest, ants and termites, in addition to bacteria, are significant decomposers. Earthworms and millipedes also aid in the breakdown of dead matter.

5. Nutrient Cycle: The cycle of nutrients is cyclical. Nutrients are necessary for ecosystems to function properly. The elements nitrogen, oxygen, carbon, and hydrogen make up about 95% of the mass of living things. Other elements, ranging from 15 to 20, are also required in small quantities. These are recycled repeatedly among the ecosystem's living and non-living components.

6. Energy Flow: In a forest ecosystem, the grasshopper consumes the grass, which gets its nutrition from the sun, soil, and water. The grasshopper then consumes frogs, snakes, and vultures in order (different trophic levels). Nutrients are transferred from one stage of a food chain to the next during this process of eating and being eaten. Energy flow refers to the movement of energy along a food chain. The total amount of energy at each trophic level of a food chain is represented by the energy pyramid. Energy never moves in either direction.

Characteristics of Forest Ecosystem

1. Forests have warm temperatures and a lot of rain, which makes a lot of ponds, lakes, and other water bodies.
2. Climate and rainfall are maintained by the forest.
3. The forest preserves biodiversity and provides habitat for many wild animals.
4. Tree growth is aided by the soil's abundance of nutrients and organic matter.

Functions of Forest Ecosystem

1. Goods Obtained from Forests: Honey, wild meat, fruits, mushrooms, palm oil, wine, and medicinal plants all come from forests, as do a variety of other products. We can get timber, wood biomass, cork, and other items in addition to edible parts from the woods. Old trees that are buried beneath the soil can be used to extract the fuel.

2. Ecological Functions: Climate, carbon storage, nutrient cycling, and rainfall are all maintained by forests in significant ways.

3. Culture and Social Benefits: Forests are revered as nature goddesses by the tribal people who live in the forests. Traditional spirituality and beliefs protect wild animals from hunters and urban tree-cutting activities. For recreation, a few modern people visit forests.

Forests Provide Economic Benefits

Humans can take advantage of a lot from forests. A tree's leaves, branches, stem, bark, fruits, seeds, and root all serve a purpose. Wood, timber, raw materials, vegetables, and fruits from forests are valuable to the economy. Furniture and construction both make use of the timber. Additionally, the production of paper requires wood. Numerous products are made from the rubber that is extracted from trees. Even green waste has an impact on the economy.

Every year, millions of trees are cut down to meet the growing demands of humans. In the best interest of the millions of living things that rely on forests, we need to take proactive steps to protect them and increase their green cover.

As a result, there are two kinds of economic benefits that forests provide: direct benefits and indirect benefits. For instance, India's contribution to the nation's income from forests is gradually increasing. In the years 1970-71, India's forest wealth contributed approximately 0.86 percent to the country's gross domestic product. It gradually increased to 1.8% in 1990-91. Forest resources account for all direct benefits and contribute approximately 2.9% to the nation's overall net domestic product. Additionally, the country's forests support approximately 179 million cattle, 58 million buffalo, and 120 million other livestock. There are said to be 500 different kinds of animals in the forest.

Due to the presence of forests, approximately 15 lakh people are employed full-time as woodcutters, sawyers, craftsmen, and other related forest industries. Additionally, they serve as homes for the country's submerged class; For instance, there are approximately 38 million tribal people who have settled in various forests. 10,000 is regarded as an ecological and financial component of the forest ecosystem. There are approximately 5,000 different species of wood, of which 450 are especially valuable to the commercial market because they can be used to extract acetic acid, methyl alcohol, acetone, some oils, and valuable drugs like chloroform and sulphonamide. Around 85,696 M3 of the country's total volume of timber—one of the most economically viable types of wood—is non-coniferous, with only 7% of it being coniferous.

The forest's ability to raise atmospheric relative humidity, resulting in an increase in precipitation, is one of the indirect economic benefits. Practical taking care of posterity water supply and decrease in rough floods are managed by the woods and furthermore makes the floor of the water in the stream nonstop.

This forest also channels the land by preventing erosion and climate access, which ultimately serves as a valuable and more tangible service that generates revenue than the country's military does. The tunnel in the soil is suitable as a source of food for the plants because a variety of worms, insects, and other small organisms feed on the people and the tunnel. Because of their canopies, forests also serve as a natural barrier against aerial attacks.

CONCLUSION :

The dense land covered in a variety of plants and trees is called a forest. There are three primary classifications of forests: tropical rain forests, deciduous coniferous forests, and The ecosystem of forests is divided according to sufficient temperature and rainfall. Many animals live in the forest ecosystem, which provides everything a person needs, including wood, timber, medicinal plants, and so on. The oxygen and temperature levels in the atmosphere are maintained by the forest.

The ecosystem of the forest aids in preventing climate change. Through their roots, plants take in water from the soil. They let out too much into the air, which makes it rain more likely. Soil fertility is preserved and soil erosion is prevented in forest ecosystems.

REFERENCES :

- Führer, Erwin (2000-06-15). "Forest functions, ecosystem stability and management". *Forest Ecology and Management*. 132 (1): 29–38.
- Robert W. Christopherson. 1996
- "Save the Plankton, Breathe Freely". 28 February 2012.
- "Forest Ecology and Management". *Climate Transform*. 2021-03-09. Retrieved 2021-03-15.