

Forests : Our Lifeline

Key points



"The word forest is derived from a Latin word foris which means "out of doors", i.e., it is a land which lies beyond those areas enclosed for agriculture or parkland and is not fenced. Such an area is generally composed of trees and other forms of life."

- ✦ About one-third of the world's land surface is covered with forests. Forests are different from one another depending upon where they are located.
- ✦ These are some of the main factors that determine the type of trees and animals that grow and thrive in a forest.

1

Climate

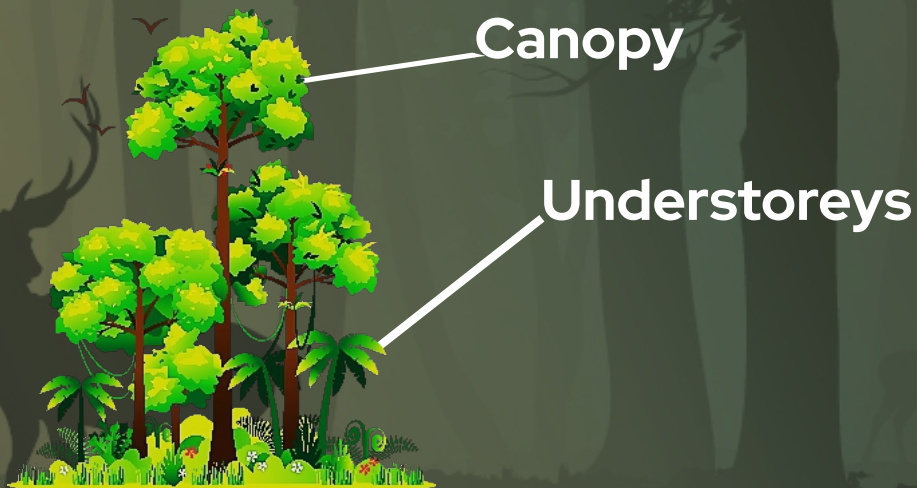
2

Topography (physical features)

3

Soil type

FOREST PROFILE



NOTE

India is said to be one of the 12 identified mega-biodiversity centers in the world. It has over 45,000 plant species and 1000 animal species.

Canopy

The cover or roof formed by the tree branches in the upper regions is called a canopy.

Crown

The branched part of a tree above the stem is known as the crown of the tree.

Understorey

Based on the height of trees, different horizontal layers are created in the forest below the canopy are known as understorey.

- Tall trees form the canopy, followed by small trees and shrubs, which form the understorey, and the herbs or ground flora which forms the lowest layer of the understorey.

NOTE

About 1/5th of geographical area of the country is covered by forests.

USES OF FOREST

Main sources of food to all living beings.



Provide home and protection to wildlife.



Forests have the property of regenerating themselves, unless we destroy or cut them for other activities.

Regulate earth's temperature and water cycle.



They prevent erosion of soil by water and wind.



They save the hill slopes from landslides.



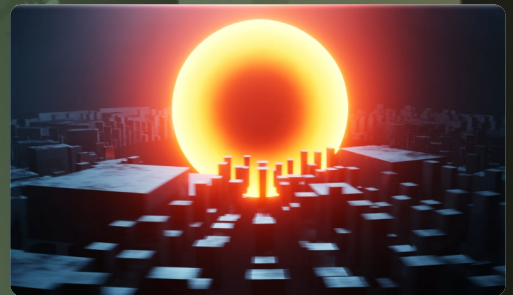
Forests also control the noise pollution.



Help in bringing good rainfall.



Help in regulating the balance of CO₂ and O₂ in the atmosphere and check global warming.



Forest reduce the intensity of floods.



They are a source of recreation and tourism.



Topography: Physical features of a place is called its topography.

USEFUL PLANTS AND PLANT PRODUCTS



Clothing



- ✧ We also get fibre from plants such as cotton, jute, linen, hemp, flax and ramie which grow in forests.

Medicine

- ✧ Most of the medicines are obtained from plants.
- ✧ Penicillin - *Fungus Penicillium*
- ✧ Quinine Bark of *Cinchona* (cure for malaria)



Timber or Wood [Furniture, housing, ship, etc.]

- ❖ Trees such as sal, mahogany, teak and rosewood. We also get firewood from trees.



Rubber

- ❖ For tyres, shoes, mattresses, etc.

- ❖ Wood pulp of bamboos and eucalyptus.



Resins, Bamboo, Cane

- ❖ Forests are also a source of resins (used to make varnish and paint); latex (used to make rubber).
- ❖ Bamboo (useful as fodder and serves as an important raw material for the manufacture of paper and pulp, basket and other small-scale industries).
- ❖ Cane (used to make walking sticks, furniture, baskets, picture frames, screens and mats).



Fuel



Ornamental and landscape purposes

- ▶ A number of plants are grown in gardens and other places for aesthetic beauty.



Other uses



- ▶ Prevent soil erosion by wind or water.
- ▶ Enrich soil fertility.
- ▶ Several herbs, shrubs and trees (sal, teak, semal, shisham, neem, palash, fig, khair, amla, bamboo, kachnar) are found in the forest. The trees were also covered with different types of creepers and climbers.

Oils

- ▶ There are the sources of several kinds of essential oils extracted from grasses such as lemon grass, vanilla, kewra and khus.
- ▶ Sandalwood, eucalyptus and pine also give us oil, which can be extracted from the wood of these trees.



INTERDEPENDENCE OF PLANTS AND ANIMALS

- Living organisms are all interconnected and form a biotic community or biota.

1

Autotrophic nutrition

Plants prepare their own food and are called producers.

2

Consumers

Animals cannot produce their own food and have to consume plants or other animals to live and grow. Hence, they are called consumers.

Herbivores : Animals which eat only plants.

Carnivorous : Animals eat only other animals.

Omnivorous : Animals eat both plants and animals.

NOTE

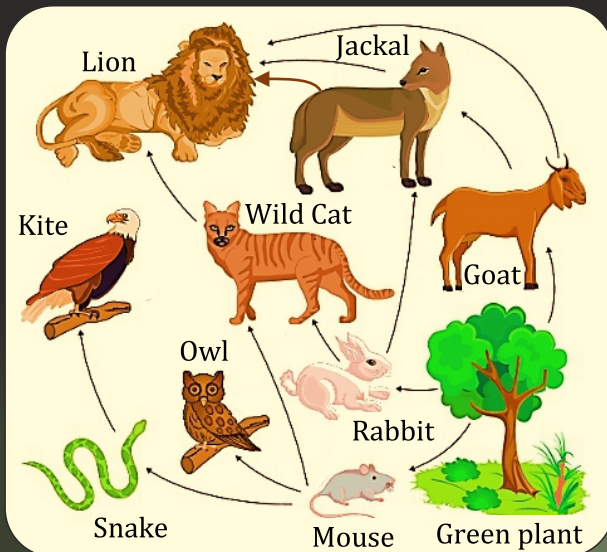
Food Chain: Simple representation of energy flow in nature is called food chain.

FOOD CHAIN AND FOOD WEB



- All animals depend on plants for food, directly or indirectly.
- It is like a chain that exists in nature. Such a chain is called a food chain.
- Green plants are called the producers as they can produce their own food.
- Animals are called consumers since they cannot produce their own food and depend on plants and other animals for food.
- When animals die, their bodies breakdown (with the help of decomposers such as bacteria and fungi) and become a part of the soil. This makes the soil fertile helping in the growth of plants.

Food web : Interconnected food chains depicting the complex representation of energy flow in nature is called food web.



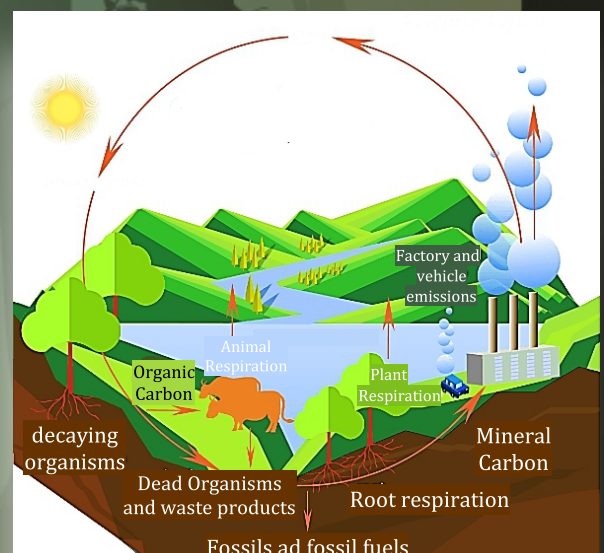
- ❖ Several food chains that exist in nature are interconnected.
- ❖ There also exists a more complex representation of energy flow in nature.

Scavengers and decomposers

- ❖ Animals that eat dead animals are called scavengers.
- ❖ Dead plants and animals, fallen leaves, left-over food material rot after some days. This process of rotting is called decomposition.
- ❖ Certain living organisms like bacteria and fungi help in this process. Such organisms are called decomposers.
- ❖ Decomposers break down the organic matter of dead organisms into simple nutrients in the soil. This matter is called humus.

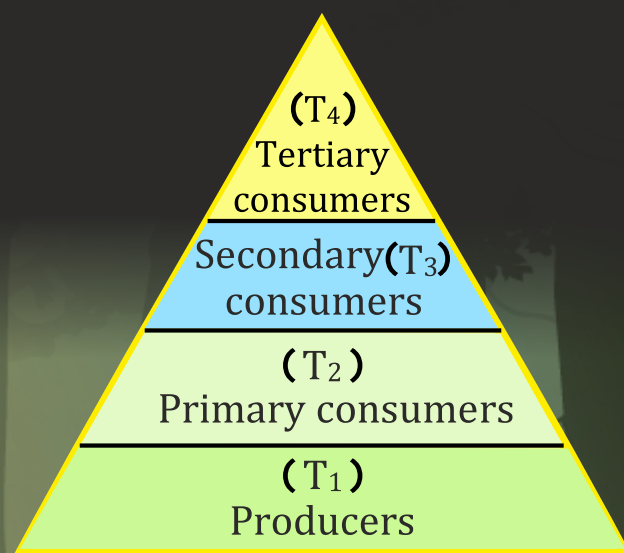
Balance in nature

- ❖ For a living thing to survive, it must exist in a certain proportion and allow other living things to exist.
- ❖ Living things cannot afford to exist without any check.



NOTE

The distinct sequential steps in the food chain where transfer of energy occurs are referred to as different trophic levels.



NOTE

Butterflies, bees, wasps, and humming birds are important pollinators.

Dependence of animals on plants

Animals depend upon plants in various ways:

For Food

For Oxygen

For Shelter

Dependence of plants on animals

For
Carbon dioxide

For
Pollination

For
Seed dispersal

Deforestation: Large-scale falling of trees is called deforestation.

If forests disappear

- ❖ If forests get destroyed, global climate and local weather may change drastically. This will result in the loss of many species of animals and plants, and biological diversity.
- ❖ Large amounts of greenhouse gases, such as carbon dioxide, are released into the atmosphere due to deforestation.
- ❖ Natural resources such as timber, medicinal plants, fruits and nuts are depleted due to deforestation.
- ❖ Deforestation can cause severe flooding, soil erosion, landslide, etc. affecting our day-to-day life. Our forests need to be protected from further depletion.

Conservation of forests

- ❖ Prevention of further depletion of forests is called conservation of forests. Few measures that could be followed to conserve our forests are given below:-

Afforestation

Afforestation means planting of trees in a land that was previously infertile. It is a method to create a new forest. On the other hand, **reforestation** is replanting trees in an area where a forest was once destroyed or damaged. It is a method to enhance forest degradation and improve the quality of the forest. However, their perspective is common.

Planned cultivation

Prevent illegal logging

Prevent overgrazing

Protection from forest fires