

NATURAL VEGETATION & WILD LIFE

INTRODUCTION

Our country India is one of the twelve mega bio-diversity countries of the world. With about 47,000 plant species India occupies tenth place in the world and fourth in Asia in plant diversity. There are about 15,000 flowering plants in India which account for 6 per cent in the world's total number of flowering plants. The country has many non-flowering plants such as ferns, algae and fungi. India also has 89,000 species of animals as well as a rich variety of fish in its fresh and marine waters.

Natural Vegetation: Natural vegetation refers to a plant community which has grown naturally without human aid and has been left undisturbed by humans for a long time. This is termed as a virgin vegetation. Thus, cultivated crops and fruits, orchards form part of vegetation but not natural vegetation. The term flora is used to denote plants of a particular region or period. Similarly, the species of animals are referred to as fauna. This huge diversity in flora and fauna kingdom is due to the following factors.

RELIEF

1. **Land:** Land affects the natural vegetation directly and indirectly. Do you expect the same type of vegetation in mountainous, plateau and plain areas or in dry and wet regions? The nature of land influences the type of vegetation. The fertile level is generally devoted to agriculture. The undulating and rough terrains are areas where grassland and woodlands develop and give shelter to a variety of wild life.
2. **Soil:** The soils also vary over space. Different types of soils provide basis for different types of vegetation. The sandy soils of the desert support cactus and thorny bushes while wet, marshy, deltaic soils support mangroves and deltaic vegetation. The hill slopes with some depth of soil have conical trees.

CLIMATE

1. **Temperature:** The character and extent of vegetation are mainly determined by temperature along with humidity in the air, precipitation and soil. On the slopes of the Himalayas and the hills of the Peninsula above the height of 915 metres, the fall in the temperature affects the types of vegetation and its growth, and changes it from tropical to subtropical temperate and alpine vegetation.
2. **Photoperiod (Sunlight):** The variation in duration of sunlight at different places is due to differences in latitude, altitude, season and duration of the day. Due to longer duration of sunlight, trees grow faster in summer.
3. **Precipitation:** In India almost the entire rainfall is brought in by the advancing southwest monsoon (June to September) and retreating northeast monsoons. Areas of heavy rainfall have more dense vegetation as compared to other areas of less rainfall.
4. **Importance of forests for Human life:** Forests are renewable resources and play a major role in enhancing the quality of environment. They modify local climate, control soil erosion, regulate stream flow, support a variety of industries, provide livelihood for many communities and offer panoramic or scenic view for recreation. It controls wind force and temperature and causes rainfall. It provides humus to the soil and shelter to the wildlife.

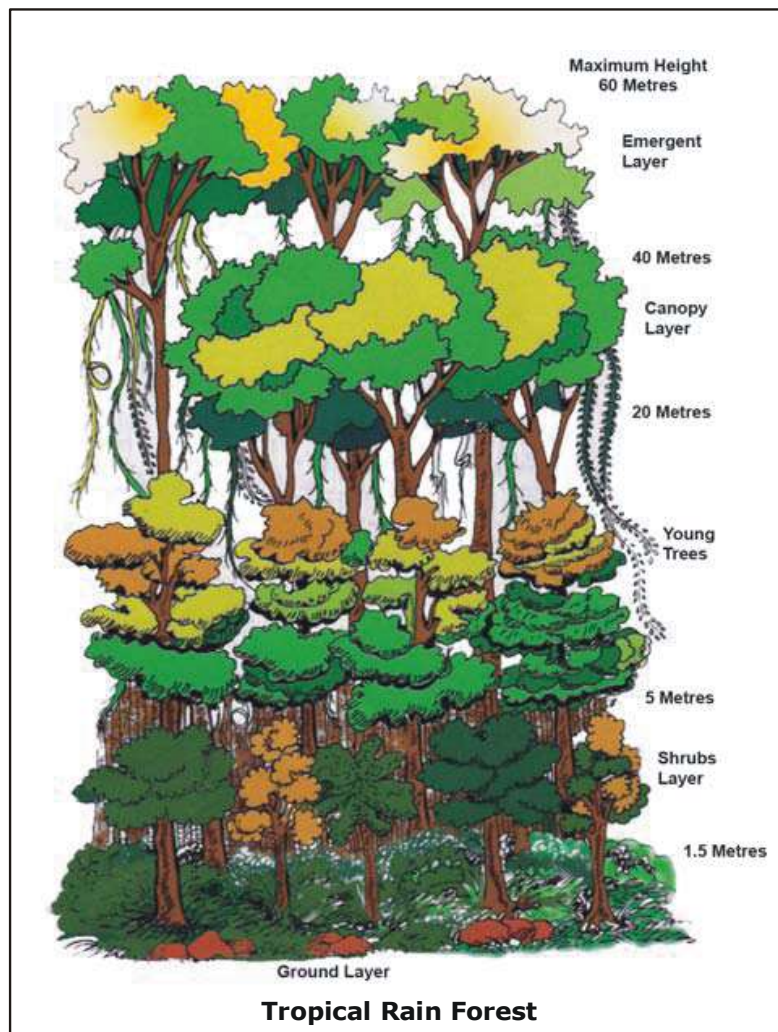
ECOSYSTEM AND BIOME

Ecosystem: It is an integrated unit consisting of the community of living organisms and the physical environment in a particular area. Plants occur in distinct groups of communities in areas having similar

climatic conditions. The nature of the plants in an area, to a large extent, determines the animal life in that area.

Biome: A very large ecosystems on land having distinct types of vegetation and animals life is called a biome. Biomes include both flora and fauna but it is mainly the plant formations which are used as the basis of their grouping. On the basis of the order of availability of soil, water and heat of the world is divided into live principle biomes:

- (i) Forest (ii) Savanna (iii) Grassland (iv) Desert (v) Tundra



TYPES OF VEGETATION

The following major types of vegetation may be identified in our country.

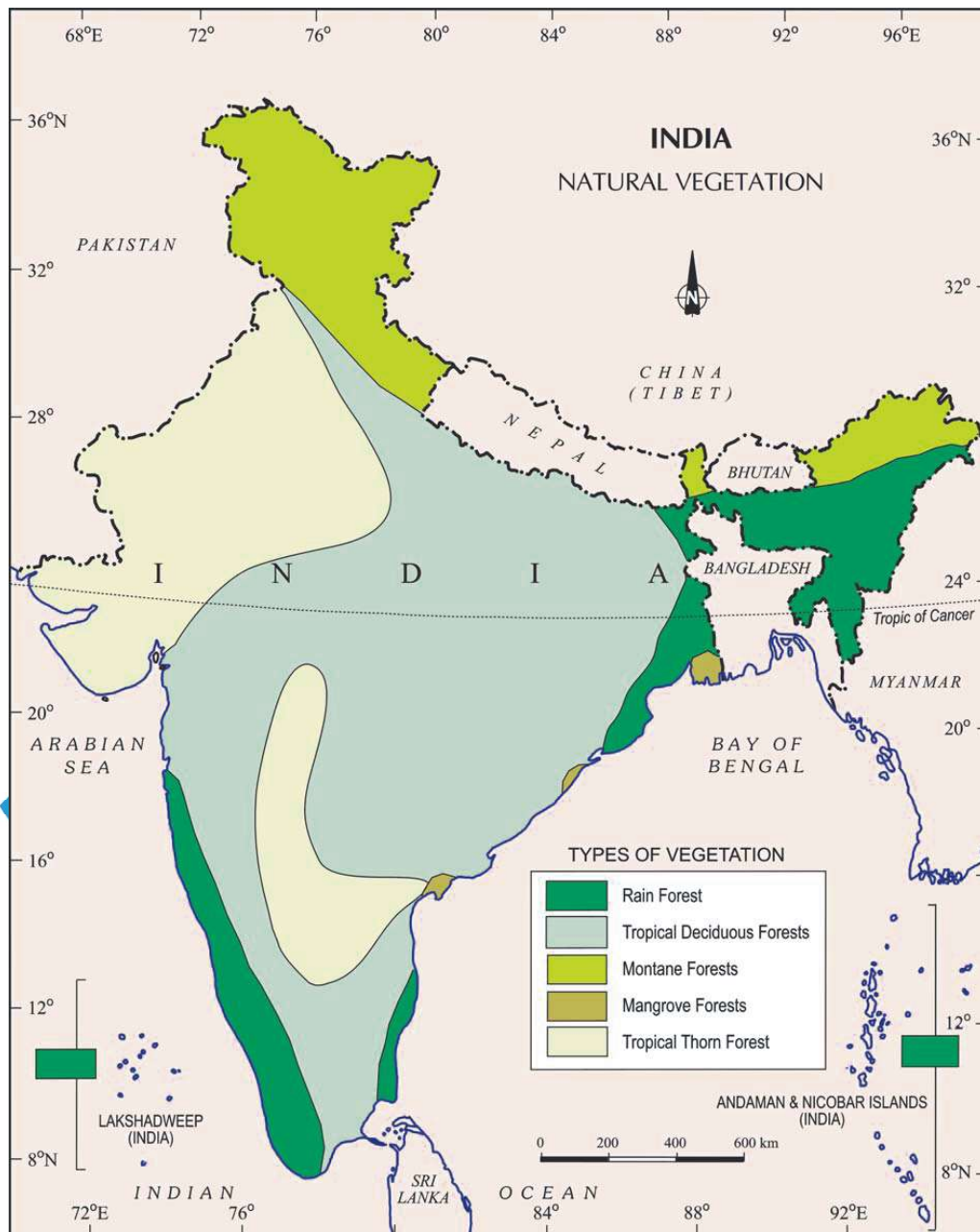
- (i) Tropical Rain Forests
- (ii) Tropical Deciduous Forests
- (iii) Tropical Thorn Forests and Scrubs
- (iv) Montane Forests
- (v) Mangrove Forests

1. Tropical Rain Forests:

- (i) These forests are restricted to heavy rainfall areas of the Western Ghats and the island groups of Lakshadweep, Andaman and Nicobar, upper parts of Assam and Tamil Nadu coast.

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- (ii) They are at their best in areas having more than 200 cm of rainfall with a short dry season. The trees reach great heights up to 60 metres or even above.
- (iii) Since the region is warm and wet throughout the year, it has a luxuriant vegetation of all kinds – trees, shrubs, and creepers giving it a multilayered structure. There is no definite time for trees to shed their leaves. As such, these forests appear green all the year round.
- (iv) Some of the commercially important trees of this forest are ebony, mahogany, rosewood, rubber and cinchona.
- (v) Common animals found in these forests are elephants, monkey, lemur and deer. The one horned rhinoceros are found in the jungles of Assam and West Bengal. Besides these animals plenty of birds, bats, sloth, scorpions and snails are also found in these jungles.



- 2. Tropical Deciduous Forests:** These are the most widespread forests of India. They are also called the monsoon forests and spread over the region receiving rainfall between 200cm and 70cm. Trees of this forest-type shed their leaves for about six to eight weeks in dry summer. On the basis of the availability of water, these forests are further divided into:

Moist deciduous:

- (i) These forests are found in the areas of 100cm to 200cm of rainfall.
- (ii) Due to longer dry season, the trees shed their leaves during the dry season.
- (iii) Shisham, Bamboos, Sandalwood, Khair, Kusum, Arjun, Mulberry and sal are the common trees found in these forests.
- (iv) These forests cover a vast area of the country. Northeastern states, along the foot hills of the Himalayas, Jharkhand, West Orissa and Chhattisgarh and on the Eastern slopes of the Western Ghats.

Dry deciduous:

- (i) These are found in areas having rainfall between 70 cm to 100 cm.
- (ii) These are found in the raining part of the peninsular plateau and the plains of Bihar and U.P.
- (iii) These are open stretches in which Teak, Sal, Peepal, Neem grow.
- (iv) Most of these forests have been cleared for cultivation.
- (v) In these forests, the common animals found are lion, tiger, pig, deer and elephant. A huge variety of birds, lizards, snakes, and tortoises are also found here.

- 3. The Thorn forests and Shrubs:** In regions with less than 70 cm of rainfall, the natural vegetation consists of thorny trees and bushes. This type of vegetation is found in the north-western part of the country including semi-arid areas of Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Haryana.

Acacias, palms, euphorbias and cacti are the main plant species.

Trees are scattered and have long roots penetrating deep into the soil in order to get moisture. The stems are succulent to conserve water. Leaves are mostly thick and small to minimize evaporation. These forests give way to thorn forests and scrubs in arid areas.

The common animals are rats, mice, rabbits, fox, wolf, tiger, lion, wild ass, horses and camels.

- 4. Montane Forests:** In mountainous areas, the decrease in temperature with increasing altitude leads to the corresponding change in natural vegetation.

- (i) The wet temperature type of forests are found between a height of 1000 and 2000 meters. Evergreen broad-leaf trees such as oaks and chestnuts predominate.
- (ii) Between 1500 and 3000 meters, temperate forests containing coniferous trees like pine, deodar, silver fir, spruce and cedar, are found. These forests cover mostly the southern slopes of the Himalayas, places having high altitude in southern and north-east India. At higher elevations, temperate grasslands are common.
- (iii) At high altitudes generally more than 3600 meters above sea-level, temperate forests and grasslands give way to the Alpine vegetation. Silver fir, junipers, pines and birches are the common trees of these forests.
- (iv) Above Alpine vegetation Alpine grasslands are found. These are used extensively for grazing by nomadic tribes like the Gujjars and the Bakarwals. At higher altitudes, mosses and lichens form a part of tundra vegetation.
- (v) The common animals found in these forests are Kashmir stag, spotted deer, wild sheep, jack rabbit, Tibetan antelope, yak, snow leopard, squirrels, Shaggy horn wild ibex, bear and rare red panda, sheep and goats with thick hair.

5. **Mangrove forests:** The mangrove tidal forests are found in the areas of coasts influenced by tides. Mud and silt get accumulated on such coasts.

Dense mangroves are the common varieties with roots of the plants submerged under water.

The deltas of the Ganga, the Mahanadi, the Krishana, the Godavari and the Kaveri are covered by such vegetation. In the Ganga- Brahmaputra delta, sundari trees are found, which provide durable hard timber. Palm, coconut, keora, agar, also grow in some parts of the delta.

Royal Bengal Tiger is the famous animal in these forests. Turtles, crocodiles, gharials and snakes are also found in these forests.

Need to Know?

MEDICINAL PLANTS

India is known for its herbs and spices from ancient times. Some 2,000 plants have been described in Ayurveda and atleast 500 are in regular use. The World Conservation Union's Red list has named 352 medicinal plants of which 52 are critically threatened and 49 endangered. The commonly used plants in India are:

Sarpagandha	: Used to treat blood pressure; it is found only in India.
Jamun	: The juice from ripe fruit is used to prepare vinegar which is carminative and diuretic, and has digestive properties. The powder of the seed is used for controlling diabetes.
Arjun	: The fresh juice of leaves is a cure for Earache. It is also used to regulate blood pressure.
Babool	: Leaves are used as a cure for eye sores. Its gum is used as a tonic.
Neem	: Has high antibiotic and antibacterial properties.
Tulsi Plant	: Is used to cure cough and cold.
Kachnar	: Is used to cure asthma and ulcers. The buds and roots are good for digestive problems.

WILDLIFE

India is also rich in its fauna. It has more than 89,000 of animal species. The country has more than 1200 species of birds. They constitute 13% of the world's total. There are 2500 species of fish, which account for nearly 12% of the world's stock. It also shares between 5 and 8 per cent of the world's amphibians, reptiles and mammals.

Elephants are the most majestic animals among the mammals. They are found in the hot wet forests of Assam, Karnataka and Kerala.

One-horned rhinoceroses are the other animals, which live in swampy and marshy lands of Assam and West Bengal.

Arid areas of the Rann of Kachchh and the Thar Desert are the habitat for wild ass and camels respectively.

Indian bison, nilgai (blue bull), chousingha (four horned antelope), gazel and Indian bison, nilgai (blue bull), chousingha (four horned antelope), gazel and different species of deer are some other animals found in India. It also has several species of monkeys.

India is the only country in the world that has both tigers and lions. The natural habitat of the Indian lion is the Gir forest in Gujarat. Tigers are found in the forests of Madhya Pradesh, the Sundarbans of West Bengal and the Himalayan region. Leopards too are members of the cat family.

Ladakh's freezing high altitudes are a home to yak, the shaggy horned wild ox weighing around one tonne, the Tibetan antelope, the bharal (blue sheep), wild sheep, and the kiang (Tibetan wild ass). Furthermore, the ibex, bear, snow-leopard and very rare red panda are found in certain pockets.

In the rivers, lakes and coastal areas, turtles, crocodiles and gharials are found. The latter is the only representative of a variety of crocodile, found in the world today.

1. **Bird Life:** Bird life in India is colourful. Peacocks, peasanets, ducks, parakeets, cranes and pigeons are some of the birds inhabiting the forests and wetlands of the country.
2. **Conservation Measures:** Over the years, their habitat has been disturbed by human activities and as a result, their numbers have dwindled significantly. There are certain species that are at the brink of extinction.

Some of the important reasons for the declining wildlife are as follows:

- (i) Industrial and technological advancement brought about a rapid increase in the exploitation of forest resources.
- (ii) More and more lands were cleared for agriculture, human settlement, roads, mining, reservoirs, etc.
- (iii) Pressure on forests mounted due to lopping for fodder and fuel wood and removal of small timber by the local people.
- (iv) Grazing by domestic cattle caused an adverse effect on wildlife and its habitat.
- (v) Hunting was taken up as a sport by the elite and hundreds of wild animals were killed in a single hunt. Now commercial poaching is rampant.
- (vi) Incidence of forest fire.

3. **Wildlife Conservation in India:**

- (i) Fourteen biosphere reserves have been set up in the country to protect flora and fauna. Four out of these, the Sunderbans in the West Bengal, Nanda Devi in Uttarakhand, the Gulf of Mannar in Tamil Nadu and the Nilgiris (Kerala, Karnataka and Tamil Nadu) have been included in the world network of Biosphere reserves.
- (ii) Financial and technical assistance is provided to many Botanical Gardens by the government since 1992.
- (iii) Project Tiger, Project Rhino, Project Great Indian Bustard and many other eco-developmental projects have been introduced.
- (iv) 89 National Parks, 492 Wildlife sanctuaries and Zoological gardens are set up to take care of Natural heritage.

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