



3 NATURAL VEGETATION AND WILDLIFE RESOURCES

All life on Earth exists in the biosphere, i.e., the narrow zone of contact between the lithosphere, hydrosphere and atmosphere. The biosphere consists of all plants and animals (including microorganisms and humans). In the biosphere living beings are interrelated and interdependent on each other for survival. They interact with each other and also with the non-living physical environment in which they exist. This life supporting system of an area where plants and animals interact is known as an ecosystem.

Climate is another name for the influence of the physical environment on plants and animals. Climate has a major role in the variety of plants and animals found in a region. It also affects the behaviour of animals, their adaptation, availability of food, their migration and hibernation. The factors that account for the differences in vegetation from one region to another are temperature and precipitation (rain, snow).

Natural Vegetation



Brahma kamal (a Medicinal Herb)

Vegetation is a cluster of plant species growing together in a certain region. The species germinate, grow and exist together depending on climatic elements like temperature and moisture. Vegetation is a valuable resource for us. It produces oxygen we breathe, gives us fruits, nuts, timber, latex, oil, gum, turpentine oil, medicinal plants and paper. It protects soils so essential for growing crops, acts as shelter belts and helps in storage of underground water. It also gives shelter to animals.

Wildlife



A Blue Kingfisher

Wildlife ranges from the single-celled amoeba to large elephants and giraffes. It includes animals, birds, insects as well as the aquatic animals. There is a close relationship between wildlife and vegetation in a region. Natural vegetation of a place is a suitable habitat (surroundings) for a particular wildlife. The habitat provides safe space for normal growth, movement, food and water, breeding and raising the young ones. Though animals move from place to place, each species can thrive to a limited range of climatic conditions. Their physical build, colour, eating

habits, etc. are adapted to their environment. Thus, each forest type is identified by the associated particular species of wildlife.

Milk, wool, etc. are provided by the wildlife. Insects like bees provide honey and help in pollination of flowers. Insects also act as decomposers in the ecosystem. The birds feed on insects and act as decomposers as well. Vulture is a scavenger (feeding on dead livestock). It is a vital cleanser of the environment. Thus, within the habitat, plants and animals, big or small, live together, interact with each other and are interdependent. They all are integral to maintaining balance in the ecosystem. If the relative number of species is not disturbed there is a **balance** in the environment.

Distribution of Natural Vegetation

On the basis of availability of moisture and temperature we can classify the vegetation of the world broadly into forests, grasslands, scrubs and tundra. Availability of moisture is controlled by temperature. Temperature controls the evaporation plus **transpiration rate**, i.e., the amount of water loss from plants in relation to precipitation. Temperature also influences the variation of species within an area.

In areas of **heavy rainfall**, huge trees may thrive to form forests. As the rainfall decreases the size and density of vegetation decreases. In areas of **moderate rainfall** grasses predominate forming the grasslands of the world. Roots of grasses have the ability to adapt to a dry summer and revive in the rain. If the land is snow covered they lie dormant. They sprout back to life once the temperature warms up.

In the areas of **heavy rainfall** dense growth of huge trees is seen. As rainfall decreases stunted trees grow further apart from each other. In dry areas very few small trees grow very scattered. In **dry areas** of low rainfall, thorny shrubs and scrubs grow. Deep roots help them to get water and thorny and waxy surfaced leaves reduce loss of moisture by transpiration. Tundra vegetation of cold polar regions comprises of very small plants, mosses and lichens.

Climate varies with latitude and altitude. We can see the changes in climate and correspondingly in vegetation as we travel from the equator to the poles or from the base of a high mountain to its top.

Broadly, forests are of two types – evergreen and deciduous depending on when they shed their leaves. **Evergreen** forests do not shed their leaves simultaneously in any season of the year. Deciduous forests shed their leaves in a particular season to prevent loss of moisture through transpiration. Each of these forests are further classified as tropical or temperate based on their location in different latitudes. Students are advised to revise the chapter on latitudes from class sixth Geography and forests from class VIIIth.

To meet the demands of the fast growing population of the world, large areas of forests have been cleared to grow crops, getting timber, etc. There is an urgent need to conserve this valuable resource.



Grassland and forest

Conservation of Natural Vegetation and Wildlife

Forests are the natural habitats for the plants and animals. Plants give shelter to the animals and together they maintain the ecosystem. There is a **balance in the environment** if the **relative number of species** is not disturbed. Forests are great natural resources. Human interferences and changes of climate are causing the destruction of natural vegetation and wildlife living in the forests. Many species have become endangered and some are on the verge of extinction. Deforestation, constructional activities, soil erosion, forest fires, Tsunami and landslides are some of the human made and natural factors, which together accelerate the process of extinction of this natural wealth. The animals are being poached for collection and illegal trade of hides, skins, nails, teeth, horns and feathers. The affected species of animals are tiger, lion, elephant, rhinoceros, deer, black buck, crocodile, snow leopard, ostrich, peacock etc. Increasing incidents of poaching has led to a sharp decline in the number of these particular species. It is a matter of great concern for the whole humankind for its survival. Increasing awareness and watch both are needed to stop this practice and conserve the natural vegetation and wildlife.

The National Environment Awareness campaign is organized every year under different themes to create awareness to save our forests and wildlife as well to keep our environment clean. Environmental awareness is the first step in conservation. National parks, wildlife sanctuaries and biosphere reserves are made to protect our natural vegetation and wildlife. Conservation of creeks, lakes and wetland is necessary to save the precious resource from depletion. Hunting is strictly prohibited in all types of area. Cultivation, grazing and collection of forest products is permitted in a sanctuary but not in a **national park**. National parks and wildlife sanctuaries are multipurpose protected areas to preserve the genetic diversity in representative ecosystems for present and future generations. The major objectives of **biosphere reserves** are : (i) to conserve diversity of plants and animals (ii) to promote research on ecology and (iii) to provide facilities for education, awareness and training (in the outer zone). Biosphere reserves are series of protected areas linked through a global network intended to demonstrate the relationship between conservation and development.



Loss of rainforest in Great Nicobar after Tsunami



Black buck also needs protection

Awareness programmes like Vanamahotsava and social forestry should be encouraged at the regional and community level. The idea of Vanamahotsava was conceived in 1950. Since then it is celebrated every year. On this day children in school and people in general plant trees at public places. It should be celebrated in its true spirit, i.e., **One child, one tree: plant and protect**.

Forest Fire in California

California is a part of the most developed and most civilised country aware to the conservation of natural vegetation of wildlife. A kid for fun

lighted the matches and started the massive US fire in California few years ago that destroyed the vegetation and wildlife of the forest along with 2100 houses and left 14 people dead. The kid could have learnt about the precaution in his school books and class. But he did not follow it. This is called lack of individual awareness.

Forest fire may be caused

1. purposely by local inhabitants,
2. carelessly by people due to heat generated in the litter,
3. naturally by lightning, friction of dry bamboo trees together, etc.

Forest fire may be prevented by

1. educating nearby and visiting people,
2. detecting the fires promptly by setting up well coordinated network of observation points and communication along with efficient ground patrolling.

The forest cover can be increased by planting trees on degraded land — (i) mixed plantation on waste and community land, (ii) afforestation of the degraded forest lands. (iii) finding substitutes for forest products such as fuel and wood, i.e., rural fuel plantation outside the conventional forest areas. This is called '**Social forestry**' and '**farm forestry**'.

In India, killing of lions, tigers, deer, great Indian bustards and peacocks have been banned by law. The Wildlife Protection Act, 1972 and the Forest Conservation Act, 1980 are already in existence. CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. It aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. About 5000 species of animals and 28,000 species of plants are protected. It includes bears, dolphins, corals, orchids, cacti and aloes. Many countries have passed laws that such trade as well as killing of certain birds and animals are illegal.

Individual schemes like Project Tiger, Project Rhino, National Natural Resource Management System and many other measures for the benefit of forests and wildlife are also in operation or being undertaken from time to time by the Government of India.



Project Tiger



India was the home of more than 40,000 tigers, just a century ago. It has about few thousands in 28 Tiger Reserves. In 1970, a ban on tiger hunting was imposed. Meanwhile, the first ever all India tiger census conducted in 1972 revealed the existence of only 1872 tigers. Afterwards the Project Tiger was launched in 1973-74 to save and breed tigers. The population of tigers in all the 28 reserves in 2003 was 1576. The reason is clear. Demand of tiger body parts in the global market and degradation of tiger habitat causing severe man-animal conflict are the reason that poaching of tiger is going on. Tiger reserves are part of national parks or separate regions.



Key Words

- » Vegetation : a cluster of plant species growing together in a certain environment.
- » Wildlife : animals, birds, insects, aquatic animals.
- » Species : a set of organisms (plants or animals) that resemble one another in appearance and behaviour and are capable of mating and reproducing naturally.
- » Endangered Species : plant and animal species under threat of extinction.
- » Extinction : species which existed before but does not exist now.
- » Ecosystem : the life supporting system of an area where plants and animals interact.

SUMMARY

- ▶ The biosphere consists of all plants and animals (including microorganisms and humans).
- ▶ Vegetation produces oxygen we breathe, gives us fruits, nuts, timber, latex, oil, gum, medicinal plants and pulp for paper. It protects soil, acts as shelter belts and helps in storage of underground water.
- ▶ Wildlife ranges from the single-celled amoeba to large elephants and giraffes.
- ▶ Each forest type is identified by the associated particular species of wildlife.
- ▶ On the basis of availability of moisture and temperature we can classify the vegetation of the world broadly into forests, grasslands, scrubs and tundra.
- ▶ Plants give shelter to the animals and together they maintain the ecosystem.
- ▶ Deforestation, constructional activities, soil erosion, forest fires, tsunami and landslides are some of the human made and natural factors that cause the destruction of natural vegetation.
- ▶ Animals are being poached for collection and illegal trade of hides, skins, nails, teeth, horns and feathers.
- ▶ National parks, wildlife sanctuaries and biosphere reserves are made to protect our natural vegetation and wildlife.
- ▶ Awareness programmes like Vana mahotsava and social forestry should be encouraged at the regional and community level.

Exercise Time

A. Tick (✓) the only correct choice amongst the following :

- Planting new trees is called
 - deforestation
 - afforestation
 - biomass
 - ecosystem
- A species which existed before but does not exist now, is called
 - extinct
 - endangered
 - new
 - old
- The following type of vegetation grows in the areas of heavy rainfall
 - tundra
 - thorny bushes
 - grasslands
 - forests
- All plants and animals together are called
 - lithosphere
 - biosphere
 - hydrosphere
 - atmosphere

B. Fill in the blanks :

- The size and density of vegetation decreases with a decrease in the amount of _____.
- _____ is allowed in a sanctuary but not in a national park.
- _____ trees shed their leaves in the dry season.
- There is a close _____ between wildlife and vegetation in a region.
- There is a balance in the environment if the _____ number of species is not disturbed.

C. Write true (T) or False (F) against the following statements in given brackets :

- Insects like bees help in pollination of flowers.
- Grasslands are found in the areas of heavy rainfall.
- Climate varies with latitude and altitude.
- The forest cover can be increased by planting trees on degraded land.
- In India there is no ban on the poaching of any animal.

D. Answer these question briefly :

- How are forests useful to us ?
- What is meant by natural vegetation and wildlife ?
- Classify the natural vegetation on the basis of climate.
- How can we conserve forests ?
- What are the features of the shrubs and scrubs ?

E. Answer these questions in detail :

- Give an account of India's natural vegetation.
- Describe all the methods for the conservation of natural vegetation and wildlife.

PROJECT WORK

- Collect leaves of various shapes from different trees. Ask the gardener their names. Press and dry the leaves between old newspapers. Stick them in your scrapbook and label them.
- Paint a picture showing wildlife in dense forests.