

NATURAL VEGETATION & WILD ANIMALS

Natural vegetation refers to those trees and plants which grow totally in keeping with their surrounding natural environment. Human beings have no role in their growth and development. As such different crops, orchards, etc. will be called vegetation but they cannot be termed as natural vegetation because agricultural crops, orchards etc. are planted and nourished by human beings.

The vegetation is divided in to two categories on the basis of their origin – endemic or indigenous species and exotic species. Local vegetation are called indigenous and vegetation which comes from outside is called exotic.

In our country about 47,000 of different plant species are found. As such, India occupies tenth place in the World and fourth in Asia as far as plant bio-diversity is concerned. India has 15,000 varieties of flowering plants which account for six percent of the world's total flowering plants. In this country there are many non flowering plants such as Fern, Algae and Fungi, etc. In India about 89,000 species of animals and different types of fresh and marine water fishes are found.

Large areas covered with big trees and bushes are termed as Forest. Forests have occupied very significant place in India since ancient times. Dandkaranaya, Virindavan, Nandanvan, Kananvan, etc. Have remained famous forests since ancient times. They have also been meditation place for Rishis – Munis and here many important religious incidents of Indian history took place. In Indian culture, tradition of worshipping trees has remained in practice. The forests are considered to be the source of all comforts in Vedas. In many religious epics trees are considered to be at par with son.

In the beginning years of the century the rapid growth of the population, the increasing demand of cultivable land for agriculture, increase in demand for fuel, necessity of excess of land for urbanization and industrialization, floods, forest fire etc. caused excess damage to the forest. Very little forest is now left in the plain areas because of very dense population there.

This huge diversity in flora and fauna is found in India due to following factors –

(1) Land Features: Land features greatly affect the types of vegetation. Same type of vegetation is not found in Mountains, Plateau and Plain areas. The surfaces of the Mountains are uneven, high and inaccessible. That is why the vegetation that grows here is different.

The Plateaus are comparatively less high but its surface is not completely even like plains and so the types of vegetation found here are different.

As the surfaces of plains are even, therefore, it is highly conducive for human settlement. Here the human settlement is maximum. People have cut trees and cleaned areas for agriculture and for their settlements, and so there is dearth of natural vegetation in plain areas.

(2) Soil: The different types of soils also affect the natural vegetation. In the sandy soil of Rajasthan we find unique type of thorny bushes whereas in the Ganga delta region where the land is marshy unique types of tree Sundari, in the higher Mountainous region tree forests are found. In the areas where the soil is full stones conical forest are found. That is why they are called Sunderban.

(4) CLIMATE

(I) Temperature: Climate is a very important factor that affects the diversity of the vegetation. Himalayan Mountain is a very good example of this. With the increase in height in the Himalayan Mountains the temperature decreases and with that the type of vegetation also changes. Where the temperature is very low

Vegetation Zone	Mean annual average Temp (in degree C)	Mean Temperature in January (in degree C)	Remarks
Tropical	Above 24°C	Above 18° C	No Frost
Sub - Tropical	17°C to 24° C	10° C to 18° C	Frost is rare
Temperate	7° C to 17° C	-1° C to (-10°) C	Some frost some snow
Alpine	Below 7° C	-	-

- (ii) **Sunlight:** The sunlight is an important factor affecting the diversity of vegetation. The factors like, duration of sunlight, its inclination and altitude from the sea level directly affect vegetation. Due to longer duration of sunlight, trees grow faster in summer.
- (iii) **Precipitation:** The amount of rainfall provides moisture to the vegetation. We know it very well, how important moisture is for the growth of the vegetation. There is change in vegetation as the amount of rainfall decreases or increases. For example in Eastern most states where the rainfall is very high, the vegetation is dense and evergreen trees are found. On the other hand on the eastern slope of western Ghat mountains which lie in rain shadow area, the density of vegetation, its types and its height, all are affected. Similarly, in the Ganga plains as we move from East to West, the amount of rainfall and its duration lessens. Its effect can be seen on the denseness of the vegetation, height of the trees and its types.

Children, have you ever thought why the forests are so important to us? They have number of uses for human beings. They determine the quality of environment, for example - they stabilize the amount of carbon dioxide, attract the rainfall, control soil erosion, increase the fertility of the soil through the manure of the leaves etc. Apart from these they make us available number of forest produce like – precious wood, fire wood, animal fodder, honey, Katha, medicinal herbs, etc. Also the forest provides shelter for the different wild life.

PROJECT WORK

Celebrate Van Mahotsav in your locality and village in rainy season and plant trees useful to mankind like Arjun, Kachnaar, Neem, Kadamb etc. and teach people living there how to protect them from animals.

ECOSYSTEM

The distribution of plant and animals, to some extent, is affected by physical condition and climate. Forests provide shelter to particular vegetation and particular animal life. When the vegetation of a particular place is altered, it also affects the animals living there, their number and type also change. The plants and animals of any place are interrelated to their physical environment and are also related to each other. Thus, these three combine each other to form an ecosystem. Human beings are also an integral part of this ecosystem. When human beings cut forests for their benefit, they bring change in the ecosystem and degrade the quality of physical environment. Because of the many varieties of plants, medicinal herbs and animals have reached the verge of extinction.

Find out, how the Human life is threatened by the extinction of different plant and animals?

A very large ecosystem on the Earth having distinct types of vegetation and animal life is called **Biome** like Monsoon biome, Desert biome, Equatorial biome etc. In all these biomes a particular type of vegetation and a particular type of animal kingdom are interrelated to each other. They are found in an extended area of the earth.

TYPES OF VEGETATION

In our country diversity in temperature, rainfall and land surface is found, therefore, here diversity in vegetation is also found –

- (1) Tropical Evergreen Forests
- (2) Tropical Deciduous Forests
- (3) Tropical Thorn Forest and scrubs
- (4) Montane Forests
- (5) Mangrove or Deltaic Forests

Tropical Evergreen Forest:

These Forests are found in heavy rainfall areas of Western Ghats, Andaman Nicobar Islands and upper areas of Assam. Here, rainfall is roughly above 200 cm and dry season is for very short period. In this area there is very rich growth of trees due to very heavy rainfall and high temperature. The height of the trees is generally 60 meters or more and they grow in the form of dense Forest. Because of these trees the sun rays fail to reach the surface. In the quest to gain sun light the trees become denser and higher. Here different types of creepers are found embracing the trees and surface is covered with shrubs. In this type of forests, it is very difficult to travel from one place to another. The trees don't shed their leaves together at a time rather they shed their leaves in small amounts all the time and so the trees look full of leaves all the time. Thus, these forests are called Ever Green Forests.

In these forests trees of very precious wood are found such as – Rosewood, Cinchona, Ebony, Bamboo etc.

As the trees are dense and high in this forest, we find here animals jumping from one tree to another – Langoor, Monkeys and their other species.

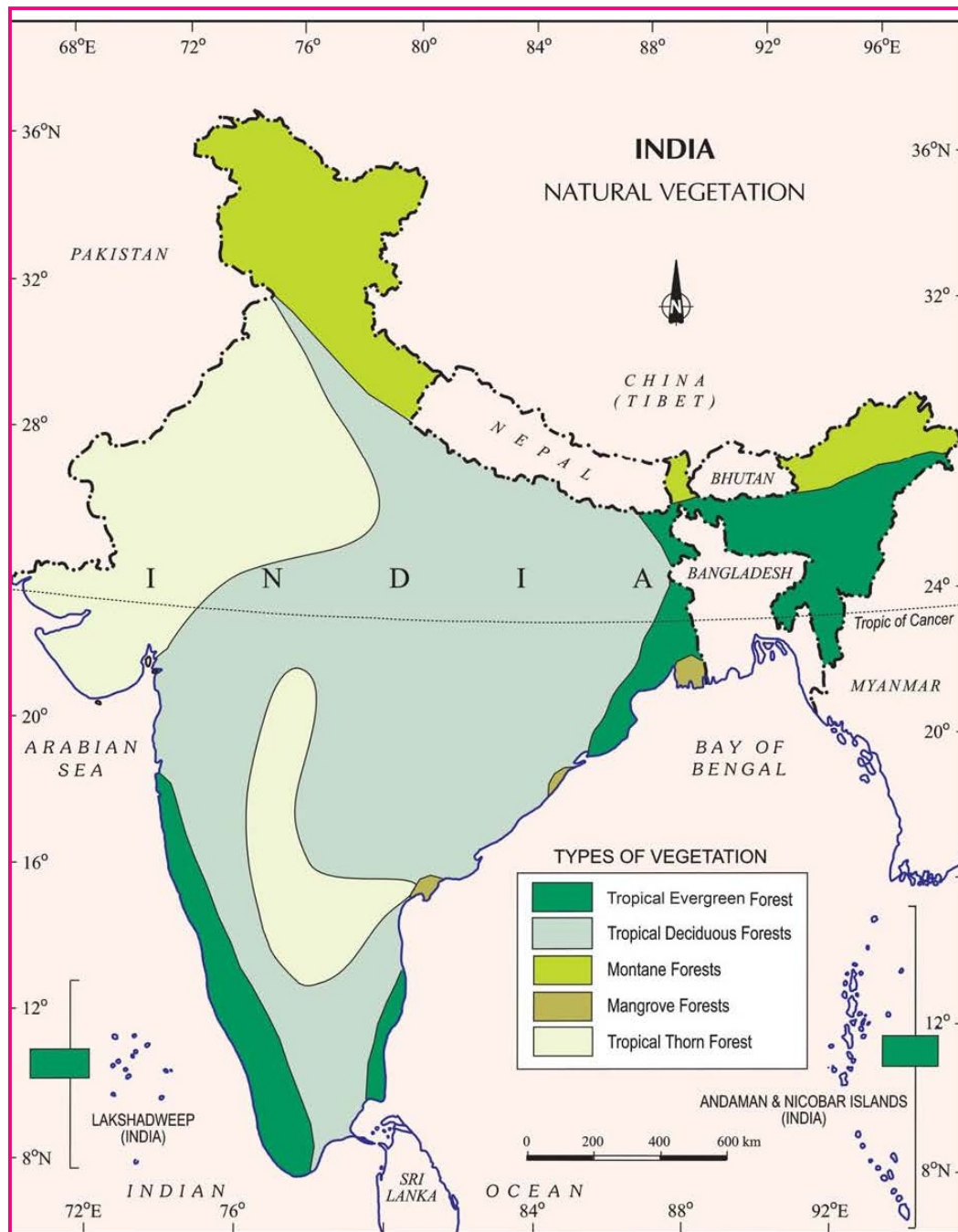


Fig. 5.1 : Natural Vegetation

The Elephants and one horned Rhinoceros that are found in the marshy areas of Assam are the animals of these forests. Apart from these, here different types of birds, reptiles and insects are found.

Tropical Deciduous Forests:

These forests are most widespread and cover maximum forested area of India. Here the rainfall is between 50 - 200 cm. Trees of this type of forest shed their leaves for $1\frac{1}{2}$ – 2 months. Thus, the trees remain without leaves for longer time and therefore they are called deciduous forests.

PROJECT WORK

Make an Index of all those trees of your locality which shed their leaves together and look stark naked. Also identify those trees which shed their leaves slowly and so look green all the year round.

On the basis of availability of moisture, these forests are divided into moist and dry deciduous forest. The moist deciduous forest is found where the rainfall is between 100 – 200 cm . These forests are distributed in Eastern part of the country, North – Eastern states, Himalayan foot hills, Jharkhand, Odisha, Chhattisgarh, Eastern slope of Western Ghats, etc. Teak and Sandalwood are the most dominant species of this forest. Other species like Bamboo, Sal, Shisam, Khair, Kusum, Arjun and Mulberry trees are also found here.

The dry deciduous forests are found in those areas where the rainfall is between 50 - 100 cm. These forests are found in inner parts of peninsular Plateau and Uttar Pradesh. Here the density of trees is very less. In this region large scale cutting of trees and clearing of grass lands have taken place for agriculture and other purposes. Neem, Peepal, Teak and Sal trees are usually found here. In deciduous forests unique animals are found among which important ones are Lion, Tiger, Boars, Deer and Elephants. A varied variety of

Birds, Lizards, Snakes, Tortoises, etc. are found. In this region Peacock is found in large number.

Tropical Thorn Forest and scrubs:

Thorny forest and bushes are found where the rainfall is less than 50cm. This type of vegetation is found in the north – western part of the country which includes Gujarat, Rajasthan, semi - arid region of Haryana, south – western region of Uttar Pradesh, north – western region of Madhya Pradesh, etc. Palm, Euphorbia, Acacias and Cactus are the main plant species. The demand of water is most important for such vegetation types. Thus, the trees have long roots and penetrate deep into the soil to get moisture. For the maximum conservation of water, the trees have thick stems or their leaves are thick, hairy or succulent to conserve water. This is a unique example of adjustment of vegetation with physical environment. In these forests, generally, animals like - Rats, Rabbits, Fox, Wolf, wild Ass and Camels - are found.

Montane Forests:

In the plains there is difference in temperature due to latitude. Similarly, in mountainous regions increasing altitude affect the temperature. So, the type of vegetation changes with the change of latitude in plain areas, similarly, in the Mountainous region type of vegetation changes with increasing altitude.

In the lower parts of Himalayas Tropical evergreen forests and Tropical deciduous forests are found. The wet temperate type of forest is found between a height of 1000 – 2000 meters, in which broad – leaf trees like Oak, Larel and Chestnut dominate. Between a height of 1500 – 3000 meters coniferous trees like – Pine, Deodar, Silver fir, Spruce etc. are found. At more high altitudes (around 3600 meters) Alpine vegetation is found among which Silver fir, junior pines are important between Snow line and Forest line lie the grass and flower lands. Valley of flowers in the Garhwal Himalayas is an

example of this type of vegetation.

As Snow - line is approached the height of the trees lessens and due to swift wind the shape of the trees becomes wavy, and eventually their number becomes nil. After this, Alpine Grassland is found. These are used for grazing by Gujjars and the Bakarwals tribes. When the temperature becomes very low in winters then they climb down to lower valleys. In these forests, generally, Kashmir stag, spotted deer, Rabbits, wild Sheep, Tibetan Antelope, Yak, Snow Leopard, Squirrels, Bear, Goats and Sheep etc. are found.

Children! Do you know that the activity of migration for grazing of their animals with the change of temperature, during summer season towards more higher reaches and in winter climbing down to valley is called 'Transhumance'.

MANGROVE FORESTS

This is a unique type of vegetation which is found in the Deltaic and marshy regions of coastal areas. Here, Marsh which is formed by the Mud and silt brought by saline water of sea and fresh water of rivers give birth to a unique type of ecosystem in which Sundari trees are found in abundance. The roots of these trees rise above water. It seems as if the claws of the birds are submerged in the water. This vegetation is found in the Deltaic regions of Ganga, Brahmaputra, Mahanadi, Godavari, Krishna, Kaveri etc. and in the internal coastal areas of Andaman and Nicobar Islands.

Royal Bengal Tiger is the most famous animal found in Sunderbans. Other than this Crocodiles, Gharials, Turtles, Snakes etc. are also found in large numbers.

MEDICINAL PLANTS

India, since ancient times, is known for its spices and herbs. In the ancient Medical system of India, In Ayurveda, different medicinal Herbs are included. Through domestic prescription also these Medicinal herbs are used to cure common diseases in Indian culture. In Ayurveda, some 2000 plants have been

described and at least 500 are in regular use. The World Conservation Union's Red list has named 352 medicinal plants of which 52 plants are threatened and 49 endangered.

Identify medicinal plants of your area. Make a list of them and write their uses. To do this work, take the help of elderly persons also.

WILD LIFE

Like vegetation, India is also rich in its wild life. Here 89,000 of animal species are found. The country has more than 1200 species of Birds. This is 13 percent of the total wild life species. Here 2500 species of fish is also found which is, about 12 percent of the world's total. In India World's 5 – 8 percent of mammals, amphibians and reptiles are found.

The Elephant is most significant amongst mammals. They are found in hot wet forests of India. One – horned Rhinoceroses is another important animal, which lives in the marshy areas of Assam. In the Rann of Kutch and Thar desert, wild Asses and Camels are found respectively. Indian Bison, Nilgai (Blue Bull), Gazel and Deer of different species etc. are some other animals found in Indian forests. Here several species of monkeys are also found.

Do you know that Wildlife Protection Act, was implemented in 1972 in India.

India is the only country in the World where Lion and Tiger both are found. Gir forest of Gujarat is the natural habitat of the Indian lion. The habitat of Indian Tiger is in the forest region of Sunderbans of West Bengal, Madhya Pradesh, Jharkhand and the Himalayan region. In the freezing region of Ladakh Yak is found which is shaggy horned, weight carrying Ox like animal. In the rivers, lakes and coastal areas Turtles, Crocodiles and Gharials are

found. On the Digha coast in Kharagpur of West Bengal world famous large Crocodiles are found. India has several species of birds. Peacocks, Parrots, Maina, Cranes, Ducks, Pigeons, etc. inhabit the forest and wetlands of the country.

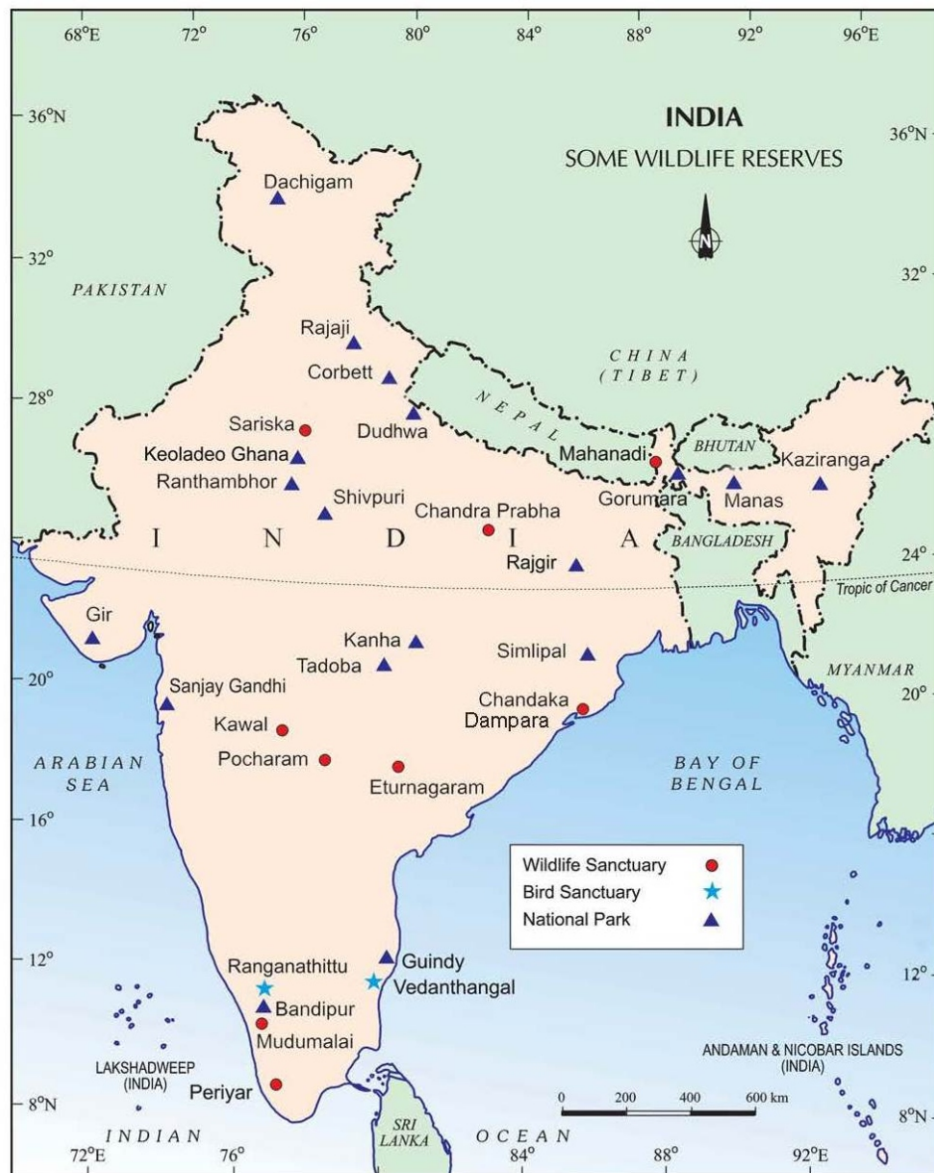


Fig. 5.1 : Wild Life Reserves

MIGRATORY BIRDS

Few wetlands of India are famous for migratory birds. Siberian Cranes come to India in large numbers during winter season. Rann of Kutch in Gujarat, Bird sanctuary of Bharatpur situated in Rajasthan and areas on the banks of river Ganga near Kanwar lake in Begusarai are some of their favorite places.

Mokama Tal area in Patna is also the home and play ground for several species of birds.

We have selected our crops in reference to bio – diverse environment. Similarly, we have selected Medicinal plants from the naturally available store of medicinal herbs. The animals were selected from large stock provided by nature as milch animals. We get support from the animals in the form of food, transport, agriculture, etc. Many insects support us in the pollination of crops and flowers and kill harmful insects and so they exert biological control on them. Every species contributes in the successful working of the ecosystem. Hence, their conservation is very essential. We all know that due to excessive exploitation of the nature several plants and animals are endangered and imbalance in the ecosystem has been created. About 1300 species of plants are endangered and 20 species are extinct. Several wild animal species are endangered and some are on the verge of extinction.

PROJECT WORK

Collect information about endangered species of wild animals and plants from Newspaper, Magazines and other sources.

The main cause of imbalance in the ecosystem is the pressure of growing population, reckless cutting of forest for agriculture and habitat, Pollution due to chemical and industrial waste and acid deposits, excess of hunting by greedy businessmen for their business etc.

To protect the flora and fauna of the country, the government has taken several steps:-

- (i) Fourteen Biosphere reserves (Sancturies) have been established. Four out of them are included in the world network of Biosphere reserves. They are – (i) Sunderbans (West Bengal) (ii) Nanda Devi (Uttarakhand) (iii) Gulf of Mannar (Tamil Nadu) (iv) Nilgiris (Kerala, Karnataka and Tamil Nadu).

FOURTEEN BIO – RESERVES (SANCTURIES)

- | | |
|--------------------|------------------------------|
| (1) Sunderbans | (8) Simlipal |
| (2) Gulf of Mannar | (9) Dihang - Dibang |
| (3) The Nilgiris | (10) Dibru Saikhoba |
| (4) Nanda Devi | (11) Agasthyamalai |
| (5) Nokrek | (12) Kanchenjunga |
| (6) Great Nicobar | (13) Pachmari |
| (7) Manas | (14) Achanakmar – Amarkantak |

- (ii) From 1992 planning was made by the government to provide financial and technical support to Botanical gardens.
- (iii) Many plans such as - Lion Sanctuary, Rhino Sanctuary, Bison Sanctuary, Crocodile Sanctuary etc. were made and are being implemented.
- (iv) 89 National Parks, 149 Wild life sanctuaries and many Zoological gardens were established to protect and conserve the flora and fauna of the country.

EXERCISE QUESTIONS

Objective questions

- (1) When was the Wildlife Protection Act implemented in India?
(a) 1982 (b) 1972
(c) 1992 (d) 1985
- (2) Where is the Bharatpur Bird sanctuary situated?
(a) Assam (b) Gujarat
(c) Rajasthan (d) Patna
- (3) How many types of Plant species are found in India?
(a) 9000 (b) 90000
(c) 95000 (d) 85000

Fill In The blanks –

- (1) In India, because the temperature is sufficient everywhere, therefore amount of determines the type of vegetation here.
- (2) An ecosystem of unique type of species of plant or animal on the surface is called.....
- (3) Human beings are an.....part of ecosystem.
- (4) Ghariyal is a species of Crocodile found in only Country of the World.
- (5) The total number of biosphere reserve (Sanctuary) in the country is.....out of which are included in the Biosphere reserves of the world.

Give Reasons-

- (1) On the Southern slopes of Himalayas the vegetation is denser In comparison to Northern slopes.
- (2) In the Tropical rain forest the surface is covered with creepers.
- (3) India is rich in Bio – diversity.
- (4) In the Scrub and thorny forests the leaves of the plants are shaggy, waxy, fleshy and small.

Short Answer Questions-

- (1) Where is Simlipal Biosphere reserve situated?
- (2) In what type of vegetation region is Bihar situated?
- (3) In which vegetation region is Elephant found?
- (4) Name some endangered flora and fauna found in India.
- (5) Name the animal to protect which in Bihar a project is being run in Valmiki Nagar?

Long Answer Questions-

- (1) What is ecosystem?
- (2) What are the factors that affect the distribution of flora and fauna in India?
- (3) Why are Plant life and animal life important for our existence?

Map Skills

On the outline map of India label the following –

- (1) Vegetation regions of India
- (2) Fourteen Biosphere reserves

PROJECT WORK-

- (1) Search the name of any ten professions which receive raw material from forest and wild animals.
- (2) Make sure that you plant at least one tree on the occasion of birthday of your family members.
- (3) Plant in your school campus, plants with medicinal value fruit (Jamun), Vegetable (Sahjan, Bora) Flower (Desi Gulab, Sadabahar) etc. and nourish them.
- (4) Plant trees in your Mohalla and village in suitable season along with

