HOT-SPOTS OF BIODIVESITY

Areas which exhibit high species richness as well as high species endemism are termed as hot spots of biodiversity. The terms were introduced by Myers (1988). There are 25 such hot spots of biodiversity on a global level out of which two are present in India, namely the Eastern Himalayas and Western Ghats. Two of these hotspots lie in India extending into neighboring countries namely, Indo-Burma region (covering Eastern Himalayas) and Western Ghats- Sri Lanka region. The Indian hot spots are not only rich in floral wealth and endemic species of plants but also reptiles, amphibians, swallow tailed butterflies and some mammal.

These hotspots covering less than 2% of the world's land area are found to have about 50% of the terrestrial biodiversity. According to Myers et al. (2000) an area is designated as a hotspot when it contains at least 0.5% of the terrestrial biodiversity.

About 40% of terrestrial plants and 25% of vertebrate species are endemic and found in these hotspots. After the tropical rain forests, the second highest numbers of endemic plant species are found in the Mediterranean (Mittermeier). Broadly this hotspot is in western Amazon. Madagascar, North and East Borneo, North Eastern Australia, West Africa and Brazilian Atlantic forest. These are the areas of high diversity, endemism and area also threatened by human activities. More than 1 million peoples are live in these areas.

Reason for rich biodiversity in the tropics

The followings are the reasons for the rich biodiversity in the tropics.

1. The tropics have a more stable climate.
2. Warm temperatures and high humidity in the tropical areas provide favorable conditions.
3. No single species can dominate and thus there is an opportunity for many species to coexist.
4. Among plants, rate of out-crossing appear to be higher in tropics.

Eastern Himalayas

Geographically this area comprises Nepal, Bhutan and neighboring states of Northern India. There are 35,000 plant species found in the Himalayas, of which 30% are endemic.

The Eastern Himalayas are also rich in wild plants of economic value.

Examples: Rice, banana, citrus, ginger, chili and sugarcane.

The taxol yielding plant is also sparsely distributed in the region.

(a) 63% mammals are from Eastern Himalayas, and

(b) 60% of the Indian Birds are from North East.

(c) Huge wealth of fungi, insects, mammals, birds have been found in this region.

Western Ghats

The area comprises Maharashtra, Karnataka, Tamilnadu and Kerala. Nearly 1500 endemic, dicotyledonous plant species are found from Western Ghats. 62% amphibians and 50% lizards are endemic in Western Ghats.

It is reported that only 6.8% of the original forests are existing today while the rest has been deforested or degraded.

Some common plants: Ternstroemia Japonica, Rhododendron and Hypericum.

Some common animals: Blue bird, lizard, hawk.

THREATS TO BIODIVERSITY

Any disturbance in a natural ecosystem tends to reduce its biodiversity. The waste generated due to increase in human population and industrialization, spoils the environment and leads to more diversity in biological species. Any change in the system leads to a major imbalance and threatens the normal ecological cycle.

CAUSES FOR LOSS OF BIODIVERSITY (OR) VARIOUS THREATS TO INDIAN BIODIVERSITY 1. Habitat Loss

The loss of populations of interbreeding organisms is caused by habitat loss. Habitat loss threatened a wide range of animals and plants.

Factors Influencing Habitat Loss

1. **Deforestation:** The loss of habitat is mainly caused by deforestation activities. Forests and grasslands have been cleared for conversion into agricultural lands, or settlement areas or developmental project. The forest and grasslands are the natural homes of thousands of species, which disintegrate due to loss of their natural habitat.

2. **Destruction of wetlands:** The wetlands, estuaries and mangroves are destroyed due to draining, filling and pollution, which cause huge biodiversity loss.

3. **Habitat fragmentation**: Sometimes the habitat is divided into small and scattered patches. This phenomenon is known as habitat fragmentation. Due to this many wild animals and songbirds area vanishing.

4. **Raw material**: For the production of hybrid seeds, the wild plants are used as raw materials. As a result, many plant species become extinct.

5. **Production of drugs**: Many pharmaceutical companies collect wild plant for the production of drugs. Therefore several medicinal plant species are on the verge of extinction.

6. **Illegal trade**: Illegal trade on wild life also reduces the bio-diversity and leads to habitat loss.

7. **Developmental activities**: Construction of massive dams in the forest areas, discharge industrial effluents which kill the birds and other aquatic organisms.

2. Poaching (Over Harvesting) Of Wildlife

Poaching means killing of animals (or) commercial hunting. It leads to loss of animal biodiversity.

1. Subsistence poaching: Killing animals to provide enough food for their survival is called subsistence poaching.

2. Commercial poaching: Hunting and killing animals to sell their products is called commercial poaching.

Factors Influencing Poaching

1. Human population: Increased human population in our country has led to pressure on forest resources, which ultimately causes degradation of wildlife habitats.

2. Commercial activities: Though international ban on trading the products of endangered species, smuggling of wildlife products continues. Since the trading of such wildlife products is highly profit, poaching makes the poachers to just hunt this prohibited wildlife and smuggle it to other countries.

Wild life products: Furs, horns, tasks, live specimens, herbal products.

Wealth of wildlife: The developing nations in Asia, Latin America and Africa have richest source of biodiversity.

Importers of wild life: The rich countries in Europe and North America, Japan, Taiwan, Hong Kong are the major importer of wildlife products (or) wildlife itself.

1. **Male gorilla:** In Rwanda and Zaire, it is hunted for tits body parts, head and hands.
2. **Blue morph butterfly**: In Brazil, it is poached for making attractive trays and other objects.
3. **Blubber:** It is used to prepare lamp oils and lubricating oils.
4. **Baleen**: It is used to prepare combs and other similar articles.
5. **Elephant feet**: It is used to make Ash trays.
6. **Elephant**: It is killed for ivory.
7. **Bengal tigers**: Its fur sell is more than $1,00,000 in the foreign market.

Remedy Measures

1. Illegal hunting and trade of animals and animal products should be stopped immediately.

2. We should not purchase furcoat, purse or bag or items made of crocodile skin or python skin.

3. Bio-diversity laws should be strengthened.

3. Man – wildlife conflicts

Man – wildlife conflicts arise, when wildlife starts causing immense damage and danger to the man. Under such condition it is very difficult for the forest department to compromise the affected villagers and to gain the villagers support for wildlife conservation.

Examples for man – wildlife conflicts

1. In sambalpur, Orissa, 195 humans were killed in the last 5 years by elephants. In retaliation, the villagers have killed 98 elephants and badly injured 30 elephants.
2. In the border of Kote – Chamarajanagar, Mysore, several elephants were killed because of the massive damage done by the elephants to the farmer's cotton and sugarcane crops.
3. Very recently, two men were killed by leopards in Poway, Mumbai.

4. A total of 14 persons were killed during 19 attacks by the leopards in Sanjay Gandhi National Park, Mumbai.

Factors influencing (or causes) man – animal conflicts

1. Shrinking of forest cover compels wildlife to move outside the forest and attack the fields and humans.
2. Human encroachment into the forest area induced a conflict between man and the wildlife.
3. Injured animals have a tendency to attack man. Usually the female wildlife attacks the human if she feels that her newborn cubs are in danger.
4. Earlier, forest departments used to cultivate sugarcane paddy, coconut trees, in the sanctuaries. When the favorite food of elephants (i.e., bamboo leaves) were not available, they feed them to the elephants. But, now due to lack of such practices the wild animals move out of the forest for searching food.
5. Often the villagers put electric wiring around their crop fields. The elephants get injured, suffer in pain and start violence.
6. The cash compensation paid by the government for the damage caused by the wild animals, is not enough. Therefore the agonized farmers get revengeful and kill the wild animals. Examples A farmer, in Mysore, gets compensation of Rs. 400/- per quintal, but the market price is Rs. 2400/- per quintal.
7. Garbage near human settlements or food crops near forest areas attracts wild animals.

Remedial Measures (Or) Conservation Of Biodiversity

1. Adequate crop and cattle compensation schemes must be started.
2. Solar powered fencing must be provided along with electric current proof trenches to prevent the animals from entering into the fields.
3. Cropping pattern should be changed near the forest borders.
4. Adequate food and water should be made available for the wild animals within forest zones.
5. The development and constructional work in and around forest region must be stopped.