



CONSERVATION OF BIODIVERSITY

The enormous value of biodiversity due to their genetic, commercial, medical, aesthetic, ecological and optional importance emphasizes the need to conserve biodiversity. Gradually we are coming to realize that wildlife is not just 'a game to be hunted', rather it is a 'gift of nature' to be nurtured and enjoyed. A number of measures are now being taken the world over to conserve biodiversity including plants and wildlife.

There are two approaches of biodiversity conservation:

- (a) *In situ* conservation (within habitat): This is achieved by protection of wild flora and fauna in nature itself. e.g. Biosphere Reserves, National Parks, Sanctuaries, Reserve Forests etc.
- (b) *Ex situ* conservation (outside habitats) This is done by establishment of gene banks, seed banks, zoos, botanical gardens, culture collections etc.

1. In Situ Conservation

At present we have 7 major Biosphere reserves, 80 National Parks, 420 wild-life sanctuaries and 120 Botanical gardens in our country covering 4% of the geographic area.

Biosphere Reserves

The Biosphere Reserves conserve some representative ecosystems as a whole for long-term *in situ* conservation. In India we have Nanda Devi (U.P.), Nokrek (Meghalaya), Manas (Assam), Sunderbans (West Bengal), Gulf of Mannar (Tamil Nadu), Nilgiri (Karnataka, Kerala, Tamil Nadu), Great Nicobars and Similipal (Orissa) biosphere Reserves. Within the Biosphere reserves we may have one or more National Parks. For example, Nilgiri Biosphere Reserve has two National Parks viz. Bandipur and Nagarhole National Park.

National Park

A National Park is an area dedicated for the conservation of wildlife along with its environment. It is also meant for enjoyment through tourism but without impairing the environment. Grazing of domestic animals, all private rights and forestry activities are prohibited within a National Park.



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Each National Park usually aims at conservation specifically of some particular species of wildlife along with others. Some major National Parks of our country are enlisted below:

Example: Gir national park, Bandipur, Dachigam, Corbet, Kaziranga etc.,

Wildlife sanctuaries

Wildlife sanctuaries are also protected areas where killing, hunting, shooting or capturing of wildlife is prohibited except under the control of highest authority. However, private ownership rights are permissible and forestry operations are also permitted to an extent that they do not affect the wildlife adversely.

Some major wildlife sanctuaries of our country are given below

- 1) Hazaribagh sanctuary
- 2) Ghana Bird Sanctuary
- 3) Sultanpur Bird Sanctuary etc.,

Gene Sanctuary

For plants, there is one gene sanctuary for Citrus (Lemon family) and one for pitcher plant (an insect eating plant) in Northeast India. For the protection and conservation of certain animals, there have been specific projects in our country e.g. Project Tiger, Gir Lion Project, Crocodile Breeding Project, Project Elephant, Snow Leopard Project etc.

Advantages of In Situ Conservation

- It is very cheap and convenient method
- The species gets adjusted to the natural disaster like drought, food, forest fires

Disadvantage of In Situ Conservation

- A large surface area of the earth is required to preserve the biodiversity ➤

Maintenance of the habits is not proper due to shortage of staff and pollution.



2. Ex Situ Conservation:

This type of conservation is mainly done for conservation of crop varieties, the wild relatives of crops and all the local varieties with the main objective of conserving the total genetic variability of the crop species for future crop improvement or afforestation programmes. In India, we have the following important gene bank/seed bank facilities:

1. **National Bureau of Plant Genetic Resources (NBPGR)** is located in New Delhi. Here agricultural and horticultural crops and their wild relatives are preserved by cryo-preservation of seeds, pollen etc. by using liquid nitrogen at a temperature as low as -196°C . Varieties of rice, pearl millet, Brassica, turnip, radish, tomato, onion, carrot, chilli, tobacco, poppy etc. have been preserved successfully in liquid nitrogen for several years without losing seed viability.
2. **National Bureau of Animal Genetic Resources (NBAGR)** located at Karnal, Haryana. It preserves the semen of domesticated bovine animals.
3. **National Facility for Plant Tissue Culture Repository (NFPTCR)** for the development of a facility of conservation of varieties of crop plants/trees by tissue culture. This facility has been created within the NBPGR.

The G-15 countries have also resolved to set up a network of gene banks to facilitate the conservation of various varieties of aromatic and medicinal plants for which India is the networking coordinator country.

Advantage of Ex-Situ Conservation

- ❖ Survival of endangered species is increasing due to special care and attention.
- ❖ In captive breeding animals are assured food, water, shelter and also security and hence longer life span.
- ❖ It is carried out in cases of endangered species, which do not have any changes of survival in the world.

Disadvantage of Ex-Situ Conservation

- ❖ It is expensive method



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- ❖ The freedom of wildlife is lost
- ❖ The animals cannot survive in natural environment.
- ❖ It can be adopted only for few selected species.