

## Biodiversity

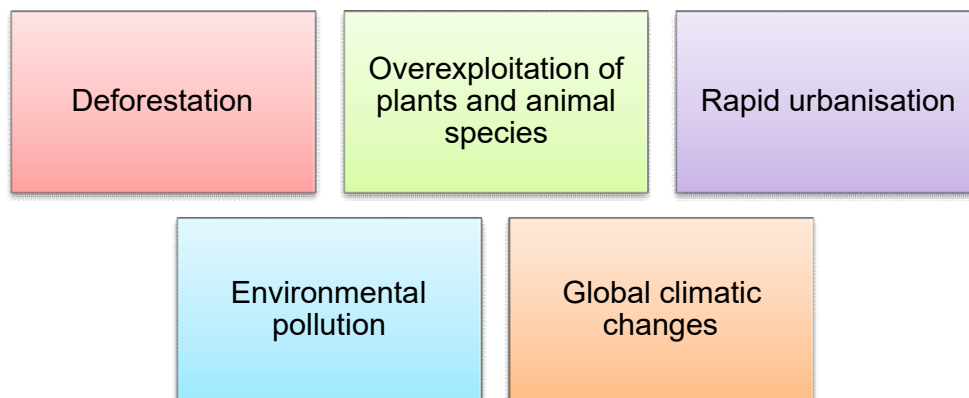
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- The variety in living organisms existing on the Earth is called **biodiversity**.
- The term biodiversity was coined by Walter G. Rosen in 1896.
- Biodiversity is important for the survival of all living beings.
- It is very important to conserve the vast biodiversity which exists on this planet because it helps us in many ways such as pollination, nutrient cycling and regulation of atmosphere and climate.

### Causes for decline in Biodiversity

- Increasing human population
- Overexploitation of plant and animal species
- Deforestation
- Environmental pollution
- Global warming

### Threats to Biodiversity



## Deforestation

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- Deforestation is cutting down of trees or destroying forests to use the land for some other purpose.

### Causes of Deforestation

- For urban and construction purposes
- To obtain fuel



- To grow crops
- To create grazing land
- Forest fires
- Droughts
- Volcanic eruptions

## Consequences of Deforestation Soil Erosion

- Alteration of local and global climate
- Frequent flooding
- Shortage of wood and other forest products
- Affects water cycle
- Extinction of wild plants and animals

## Conservation of Biodiversity

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## Conservation of Forests

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- Forests are cleared for agriculture, forestry, housing and other developmental activities such as construction of roads and building of hydro-electric plants.
- Protection of forest cover is the need of the hour.

A **species** is an organism of a particular kind whose members can interbreed among themselves to produce fertile young ones. Members of a species have common characteristics. All human beings belong to the same species *Homo sapiens*.



## Ways to Protect Forests

### Reforestation

- Reforestation is restocking of destroyed forests by planting new trees.
- It takes place on land where trees are recently removed either due to harvesting or due to a natural disaster such as a fire, flood or volcanic eruption.
- Reforestation can occur naturally or through human efforts.
- If a deforested area is left undisturbed, then it can re-establish and mature itself naturally. However, planting of trees can reduce the length of time required for a forest to mature.

## Conservation of Wildlife

- Preservation of forests and wildlife is a big challenge placed before us.
- Many wild species are either extinct or endangered.
- It is therefore essential to conserve the rich wildlife and prevent its extinction.

### Overexploitation of Plant and Animal Species

- Numerous forests, fisheries and wildlife resources are overexploited because of their economic value.
- Overexploitation leads to a reduction in the number of certain species of plants and animals while others become rare or endangered and sometimes even extinct.

SPECIES	DESCRIPTION
<b>Rare species</b>	<ul style="list-style-type: none"><li>• Rare species exist in relatively low numbers but are not necessarily in immediate danger of extinction.</li><li>• Examples: Black and white ruffed lemur, <i>Aloe polyphylla</i></li></ul>
<b>Endangered species</b>	<ul style="list-style-type: none"><li>• An endangered species is one in which the population of organisms is at the risk of extinction.</li><li>• Examples: The Indian rhinoceros, the Great Indian bustard, Pink Butterfly Orchid</li></ul>
<b>Vulnerable species</b>	<ul style="list-style-type: none"><li>• Species which exist in low numbers and may become endangered due to destruction of their habitat, overexploitation or due to some other environmental factor are called vulnerable species.</li><li>• Examples: The Asian elephant, <b>Rafflesia</b></li></ul>



<b>Threatened species</b>	<ul style="list-style-type: none"><li>• Threatened species are any species which are vulnerable to endangerment in the near future.</li><li>• Examples: Giant Panda, Monarch butterfly</li></ul>
<b>Endemic species</b>	<ul style="list-style-type: none"><li>• Plant and animal species which are found only in a particular region and nowhere else in the world are called endemic species.</li><li>• Examples: Nilgiri leaf monkeys found in the Nilgiri Hills of the Western Ghats; Asiatic lions of Gir National Park, Gujarat; Bengal tiger found in Sundarbans National Park, West Bengal</li></ul>
<b>Extinct species</b>	<ul style="list-style-type: none"><li>• A species is considered extinct when no member of the species is still alive.</li><li>• Examples: Dodo, Woolly Mammoth</li></ul>

## Ways to Conserve Wildlife

### Conserving a habitat

- Conservation of habitat refers to taking care of the habitat of wild animals so that they feel safe and secure.

### Creating a habitat

- Protection of endangered species by creating protected areas such as national parks, sanctuaries and biosphere reserves.

### Protection by law

- The Indian Government has implemented strict laws to protect wildlife.
- According to the Wildlife Protection Act 1972, poaching or killing of animals is punishable by law.



### Organisations involved in wildlife conservation

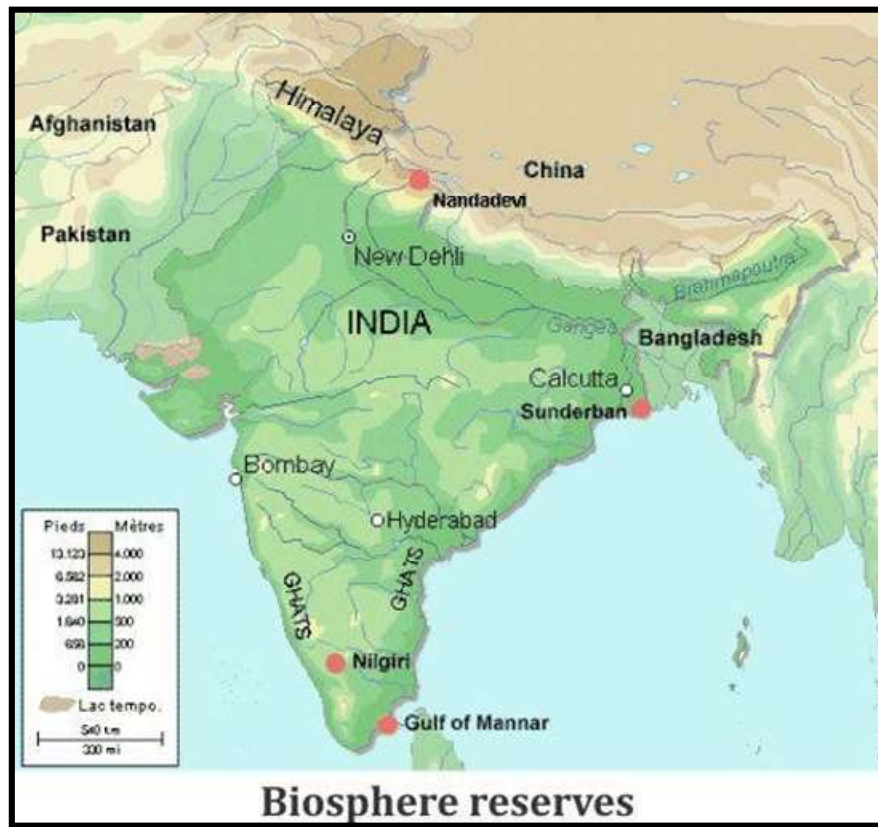
- The International Union for Conservation of Nature (IUCN) provides information about endangered plant and animal species.
- In India, the Indian Board for Wildlife plays an important role in monitoring the endangered species.
- The World Wide Fund for Nature (WWF) also plays an active role in the conservation of natural resources.

## Biosphere Reserves

- Biosphere reserves or biodiversity zones are large areas of protected land for the conservation of wildlife, plant and animal resources and the traditional life of tribal people living in the area.
- **Role of biosphere reserves:**
  - Help in conservation of wildlife of the area
  - Help to maintain the biodiversity of the area
  - Preserve the natural ecological conditions in the area
  - Help to maintain the lifestyle of the tribal people living in the area
  - Prevent the commercial exploitation of the area
  - Provide opportunities for scientific research, environmental education and tourism
- **Biosphere reserves in India:**

Biosphere Reserve	State
Great Nicobar Biosphere Reserve	Andaman and Nicobar
Kaziranga Biosphere Reserve	Assam
Kanha Biosphere Reserve	Madhya Pradesh
Sunderbans Biosphere Reserve	West Bengal
Pachmarhi Biosphere Reserve	Madhya Pradesh





## Flora and Fauna

- Plants naturally occurring in a particular area constitute the **flora**.
- Teak, Jamun, Fern, Mango and Arjun constitute the flora of Pachmarhi Biosphere Reserve.
- Animals naturally occurring in a particular area constitute its **fauna**.
- Cheetah, Wolf, Leopard, Chinkara, Blue bull, barking deer and Wild dog constitute the fauna of Pachmarhi Biosphere Reserve.

## Wildlife Sanctuary

- A **wildlife sanctuary** is an area where animals are protected from any kind of disturbance such as hunting, predation and competition.
- It is a protected area created by the government. The government lays down rules, methods and policies to protect and conserve the animals.
- Wildlife sanctuaries are mainly established to protect endangered species. They may also be established for preserving biodiversity.
- Threatened wild animals such as black buck, white eyed buck, golden cats, marsh crocodiles, python



and rhinoceros are protected in the wildlife sanctuaries of India.

- There are around 441 wildlife sanctuaries in India.

SANCTUARY	STATE
Sanjay Gandhi Wildlife Sanctuary	Maharashtra
Mudumalai Wildlife Sanctuary	Tamil Nadu
Nagarjunsagar Wildlife Sanctuary	Andhra Pradesh
Bharatpur Bird Sanctuary	Rajasthan
Sultanpur Lake Sanctuary	Haryana
Dandeli Wildlife Sanctuary	Karnataka
Thattekad Bird Sanctuary	Kerala
Satkosia Basipalli Wildlife Sanctuary	West Bengal
Lockchao Wildlife Sanctuary	Manipur
Bori Wildlife Sanctuary	Madhya Pradesh

## Differences between Wildlife Sanctuary and Zoo

WILDLIFE SANCTUARY	ZOO
1. The wild animals and birds live in their natural habitat in the forest.	1. The wild animals and birds live in artificial habitats such as cages and enclosures.
2. It contains wild animals and birds found locally.	2. It contains wild animals and birds brought from different parts of the country and from other countries.
3. It is not open to public freely. They can only visit when accompanied by a forest guard.	3. It is open to public for a fixed time every day.
4. Wild animals and birds are very comfortable in the natural environment of a wildlife sanctuary.	4. Wild animals and birds are not comfortable in the artificial environment of a zoo.

## National Parks

- National parks comprise a large area of land owned by the government which is restricted from development and is protected for its landscape, flora, fauna and ecosystem on the whole.
- Some national parks are home to a particular animal species. Examples: Gir National Park in Gujarat for Asiatic lions, Kaziranga National Park for rhinoceros, Kanha National Park for tigers etc.
- There are almost 96 national parks in India.



NATIONAL PARK	STATE
Corbett National Park	Uttarakhand
Kanha National Park	Madhya Pradesh
Ranthambore National Park	Rajasthan
Gir National Park	Gujarat
Kaziranga National Park	Assam
Sunderbans National Park	West Bengal
Bandipur National Park	Karnataka
Dachigam National Park	Jammu and Kashmir
Sariska National Park	Rajasthan
Satpura National Park	Madhya Pradesh

## Advantages of National Parks

Preserve wildlife as well as the important environmental heritage of a nation.

Provide evidence of a prehistoric human life in the jungles.

Provide human recreation and enjoyment.

Protect whole sets of ecosystems.

### Project Tiger

Project Tiger was launched by the Indian Government in 1973.

The main motive of this project was to protect tigers by providing them a safe place to flourish. Hence, special tiger reserves such as the Satpura Tiger Reserve and the Sariska Tiger Reserve were constructed throughout the country.





## Red Data Book

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- Red data book keeps a record of all the endangered animals and plants.
- Different red data books are maintained for plants, animals and other species.

## Migration

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- The movement of animals in large numbers from one place to another to overcome unfavourable conditions is called **migration**.
- Migratory birds migrate due to changes in climatic conditions.
- Due to extreme cold, their natural habitat becomes unsuitable for the incubation of eggs and hence, they migrate to a location of suitable climate.
- Siberian cranes migrate to Bharatpur in Rajasthan because the environmental conditions there are more favourable as compared to Siberia, the place where they actually come from.

## Recycling of Paper

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- Paper recycling is the process of remaking new paper products from waste paper.
- Besides recycling, used sheets of paper can be used to make useful things such as paper bags, writing paper, greeting cards and wrapping paper.
- Recycling of paper helps to conserve energy as it uses 25% less energy than the energy used in making paper from trees.

