

## Revision Notes for Class 10 Social Science

### Geography Chapter 2 - Forest and Wildlife Resources

Biodiversity is extremely diverse on Earth and works interdependently. It is a system of closely-knit networks that sustains the ecosystem.

India has the world's largest biodiversity thriving on its land and 10 per cent of the recorded wild flora and 20 per cent of its mammals are on the threatened list.

According to the list generated by the International Union for Conservation of Nature and Natural Resources (IUCN), the species can be classified as follows–

**1. Normal species:** They have population levels normal for survival. Examples: pine, rodents, etc.

**2. Endangered Species:** They are in danger of extinction and will eventually decline if the present conditions continue.

Example: crocodile, rhino, lion tale macaque etc.

**3. Vulnerable species:** These species are vulnerable to fall into the endangered category in the near future.

Example: Asiatic elephant, dolphin, blue sheep etc.

**4. Rare species:** They have a small population that can move to an endangered or vulnerable category in the near future if the present conditions for their survival sustain themselves.

Example: Asiatic buffalo, hornbill etc.

**5. Endemic species:** These species are only found in a limited geographical area.

Example: Andaman teal, Nicobar pigeon, Andaman wild pig, Mithun in Arunachal Pradesh.

**6. Extinct species:** These species are not found in the areas they were likely to be found.

Example: Asiatic cheetah, pink head duck.

### **Causes of environmental degradation**

- Between 1951 and 1980, according to the Forest Survey of India, over 26,200 sq. km. of forest area was converted into agricultural land all over India and substantial parts of the tribal belts, especially in northeastern and central India were deforested to practice shifting cultivation (jhum), a type of ‘slash and burn’ agriculture.
- Around 5,000 sq km of forest lands have been cleared to progress river valley projects, since 1951. For example: About 40,000 hectares of forests were cleared for the Narmada Sagar Project in Madhya Pradesh.
- Mining also causes large-scale deforestation.
- The Buxa Tiger Reserve in West Bengal is threatened by the ongoing dolomite mining.
- There are various factors like poaching, over-exploitation, pollution, hunting, forest fire etc. that contribute to declining in the vast biodiversity India harbours.
- Overpopulation in third-world countries is a prime cause of environmental degradation.

### **Conservation of Forest and Wildlife in India**

- Conservation is vital since it will help us to protect our environment and protect our ecosystem which in turn helps to preserve the genetic diversity that the ecosystem has.

- The Indian Wildlife (Protection) Act was implemented in 1972, which made various provisions for protecting habitats.
- The central government also announced several projects for protecting specific animals, which were gravely threatened, including the tiger, the one-horned rhinoceros, the Kashmir stag or hangul, three types of crocodiles – freshwater crocodile, saltwater crocodiles and the Gharial are some of animals.
- The government has also provided partial or full legal protection to animals such as Indian elephants, black buck, snow leopards etc. to protect them from extinction.

### **Project Tiger**

- The tiger population in 1973 declined to 1,827 from the estimated 55,000 and hence forced the authorities to take serious action towards the same.
- Tigers face major threats and are on the verge of extinction because of the shrinkage of their habitat due to the growing human population, poaching, depletion of prey base species etc.
- The trade of tiger skins and the use of their bones in traditional medicines, especially in Asian countries has left the tiger population on the verge of extinction.
- “Project Tiger” was launched in 1973 and was not only an effort to save tigers but also to preserve the biotypes.
- Corbett National Park in Uttarakhand, Sunderbans National Park in West Bengal, Bandhavgarh National Park in Madhya Pradesh, Sariska Wildlife Sanctuary in Rajasthan, Manas Tiger Reserve in Assam and Periyar Tiger Reserve in Kerala are some of the tiger reserves of India.
- Wildlife Act of 1980 and 1986 added several hundred butterflies, moths, beetles, and one dragonfly to the list of protected species.

## Types and Distribution of Forest and Wildlife Resources

The forests are classified as follows:

**(i) Reserved Forests:** These are the most vital for the conservation of forest and wildlife and about half of the total forest land has been placed under this category.

**(ii) Protected Forests:** The Forest Department had declared one-third of the total forest area as protected forest which saves it from further depletion.

**(iii) Unclassed Forests:** Both private individuals, government and communities own these lands. They mostly include forests and wasteland.

## Community and Conservation

- In Sariska Tiger Reserve, Rajasthan, villagers have fought against mining by citing the Wildlife Protection Act.
- In five villages located in the Alwar district of Rajasthan, the inhabitants have declared 1200 hectares of forest as the Bhairodev Dakav 'Sonchuri'. They don't allow hunting in these regions and hence protect the wildlife from an outside harm.
- Sacred groves do not have religious sentiments attached but also saves a wealth of rare species. These beliefs have preserved several virgin forests in pristine form called Sacred Groves (the forests of God and Goddesses).
- Mahua is worshipped by the the Mundas and the Santhal of Chota Nagpur region while tamarind and mango are worshipped by the tribes of Odisha and Bihar during weddings. In Indian Hindu society, peepal trees is considered sacred.
- Blackbuck, peacocks and nilgai are seen as an integral part of the Bishnoi villages in Rajasthan and aren't harmed or killed.
- The Chipko moment has successful helped in saving the flora but has also brought people together to save the environment.

- Beej Bachao Andolan in Tehri and Navdanya has promoted people to stop using synthetic chemicals as sufficient crop harvest can be produced even without the use of chemical fertilizers.
- Joint forest management (JFM) programme involves local people and communities to restore forests. It was first started in Odisha in 1988.

### Importance of Forests

- **Ecological Balance:**
  - Forests are crucial for maintaining ecological balance. They provide habitat for a diverse range of plant and animal species, regulate the climate by absorbing carbon dioxide, and prevent soil erosion through root systems that stabilise the soil.
- **Economic Benefits:**
  - Forests offer numerous economic benefits including the provision of timber, fuelwood, and non-timber products such as fruits, nuts, and medicinal plants. They also support industries like paper, furniture, and pharmaceuticals, contributing significantly to the economy.
- **Environmental Services:**
  - Forests contribute to carbon sequestration, which helps mitigate the effects of climate change by absorbing greenhouse gases. They also maintain the water cycle, enhance groundwater recharge, and improve air quality by filtering pollutants.

## Types of Forests in India

- **Tropical Rainforests:**
  - **Location:** Western Ghats, northeastern India, and parts of Andaman and Nicobar Islands.
  - **Characteristics:** Dense vegetation, high biodiversity, evergreen trees that do not shed leaves seasonally. Examples include mahogany, ebony, and a variety of ferns and orchids.
- **Temperate Forests:**
  - **Location:** Himalayan region and northern India.
  - **Characteristics:** Experience seasonal variations with cold winters and warm summers. Include a mix of deciduous trees (e.g., oak, maple) and coniferous trees (e.g., pine, fir).
- **Deciduous Forests:**
  - **Location:** Central and southern India.
  - **Characteristics:** Trees shed leaves during the dry season to conserve water. Common species include teak, sal, and bamboo. These forests support wildlife such as the Indian bison and sambar deer.
- **Montane Forests:**
  - **Location:** Higher altitudes of the Himalayas.
  - **Characteristics:** Flora adapted to cooler temperatures and high rainfall. Includes alpine vegetation and coniferous trees like spruce. Fauna includes the snow leopard and Himalayan blue sheep.

## Flora and Fauna

- **Flora:**

- **Tropical Rainforests:** Diverse species including mahogany, ebony, and a wide range of tropical plants and trees with high biodiversity.
- **Temperate Forests:** Deciduous trees like oak and maple, and coniferous trees such as pine and fir. Seasonal changes influence the types of flora.
- **Deciduous Forests:** Includes trees like teak and sal, which shed leaves in the dry season, and various species of bamboo.
- **Montane Forests:** Alpine plants, coniferous trees, and shrubs adapted to high altitudes.

- **Fauna:**

- **Tropical Rainforests:** Bengal tigers, Indian elephants, and various bird species such as the great hornbill.
- **Temperate Forests:** Himalayan tahr, red foxes, and pheasants.
- **Deciduous Forests:** Indian bison, sambar deer, and various reptiles and birds.
- **Montane Forests:** Snow leopards, Himalayan blue sheep, and mountain birds adapted to cold environments.

## Wildlife Resources

- **Significance of Wildlife:**

- Wildlife is crucial for maintaining ecological balance. Animals contribute to the pollination of plants, the dispersal of seeds, and control of pest populations. They play a role in the health of ecosystems and contribute to biodiversity.

- **Major Wildlife Species:**

- India is known for its diverse wildlife including Bengal tigers, Asiatic lions, and Indian rhinoceroses. The country also hosts numerous bird species such as the Indian peafowl and the lesser adjutant stork. Protected areas like national parks and wildlife sanctuaries are essential for conserving these species.

## Conservation Efforts

- **Protected Areas:**

- India has established numerous national parks, wildlife sanctuaries, and biosphere reserves to protect its forest and wildlife resources. Examples include Jim Corbett National Park, known for its tiger population, and Kaziranga National Park, famous for its one-horned rhinoceroses.

- **Afforestation and Reforestation:**

- Efforts to plant trees and restore deforested areas are crucial for increasing forest cover and improving ecological health. These initiatives help to replenish degraded forests and support biodiversity.

- **Wildlife Protection Laws:**

- The Wildlife Protection Act of 1972 provides legal protection to wildlife and regulates hunting and trade in endangered species. This act is a key tool in conserving wildlife and their habitats.

- **Community Involvement:**

- Local communities are actively involved in conservation efforts through practices like community forestry, which manages and protects forest resources. Eco-development programs also support sustainable use of resources and involve local stakeholders in conservation activities.



## Challenges in Forest and Wildlife Conservation

- **Deforestation:**
  - The clearing of forests for agriculture, logging, and urban expansion leads to habitat loss, decreased biodiversity, and increased greenhouse gas emissions. Addressing deforestation requires sustainable land management and forest conservation practices.
- **Wildlife Poaching:**
  - Illegal hunting and trade of wildlife pose a significant threat to endangered species. Poaching disrupts ecosystems and can lead to the extinction of vulnerable species.
- **Habitat Degradation:**
  - Pollution, climate change, and human activities contribute to habitat degradation. This affects forest health and wildlife survival by reducing the quality and availability of habitats.
- **Human-Wildlife Conflicts:**
  - Conflicts occur when wildlife encroaches on human settlements, resulting in damage to crops, property, and livestock. Effective management strategies are needed to mitigate these conflicts and promote coexistence.

## Measures for Effective Management

- **Sustainable Practices:**
  - Adopting sustainable forestry practices, such as selective logging and agroforestry, helps to reduce environmental impact and maintain forest health. Promoting eco-friendly products and responsible resource use supports conservation efforts.

- **Education and Awareness:**

- Raising awareness about the importance of forests and wildlife encourages public support for conservation initiatives. Educational programs and campaigns can help foster a conservation-minded society.

- **Research and Monitoring:**

- Ongoing research and monitoring of forest ecosystems and wildlife populations are essential for understanding their needs and implementing effective management strategies. Data collected from research helps in making informed decisions for conservation.

- **Policy and Legislation:**

- Strengthening policies and enforcement of conservation laws ensures the protection of forests and wildlife. Collaboration between government agencies, non-governmental organizations, and local communities is vital for successful conservation.