

# Class 10 Geography: Forest and Wildlife Resources

## Chapter Overview

This chapter focuses on the importance of forests and wildlife as valuable resources, their conservation, and sustainable management practices in India and globally.

## 1. Introduction to Forest and Wildlife Resources

### What are Forest Resources?

- **Definition:** Forests are complex ecosystems consisting of trees, shrubs, herbs, and various wildlife species living in interdependence
- **Components:** Flora (plants) and Fauna (animals) together form the biological diversity or biodiversity of an area

### Importance of Forests and Wildlife

- **Ecological Balance:** Maintain natural equilibrium in ecosystems
- **Economic Value:** Provide timber, fuel, medicine, food products
- **Environmental Services:** Carbon sequestration, oxygen production, soil conservation
- **Cultural Significance:** Sacred groves, traditional knowledge systems

## 2. Classification of Forest Resources

### Based on Ownership

#### 1. Reserved Forests

- Most valuable from conservation perspective
- Cover 53.4% of total forest area
- Strictly protected by government
- Timber cutting and grazing prohibited

#### 2. Protected Forests

- Cover 29.4% of total forest area
- Some restrictions on cutting trees and grazing
- Buffer zones around reserved forests

#### 3. Unclassed Forests

- Cover 17.2% of total forest area
- Owned by government and private individuals
- Least restricted category

## Based on Forest Cover

1. **Very Dense Forests:** Crown density >70%
2. **Moderately Dense Forests:** Crown density 40-70%
3. **Open Forests:** Crown density 10-40%

## 3. Distribution of Forests in India

### Forest Coverage Statistics

- **Total Forest Cover:** Approximately 21.05% of India's geographical area
- **Target:** National Forest Policy aims for 33% forest cover
- **Variation by States:**
  - Highest: Mizoram (85%)
  - Lowest: Haryana (3.6%)

### Regional Distribution

- **Northeastern States:** Highest forest cover percentage
- **Central India:** Dense forest belt (Madhya Pradesh, Chhattisgarh)
- **Western Ghats:** Rich biodiversity hotspot
- **Himalayan Region:** Temperate and alpine forests

## 4. Types of Forests in India

### Tropical Forests

#### 1. Tropical Evergreen Forests

- Location: Western Ghats, Northeastern states
- Characteristics: Dense, multilayered canopy
- Species: Rosewood, Mahogany, Ebony

#### 2. Tropical Deciduous Forests

- Location: Central and peninsular India
- Characteristics: Shed leaves in dry season
- Species: Teak, Sal, Sandalwood

#### 3. Tropical Thorn Forests

- Location: Northwestern India, Deccan Plateau
- Characteristics: Adapted to arid conditions
- Species: Acacias, Euphorbias

## Temperate Forests

### 1. Temperate Evergreen Forests

- Location: Higher altitudes in Western Ghats, Himalayas
- Species: Pine, Deodar, Cedar

### 2. Temperate Deciduous Forests

- Location: Himalayan foothills
- Species: Oak, Chestnut, Maple

## Mountain Forests

### 1. Alpine Forests

- Location: Higher Himalayas above 3000m
- Characteristics: Adapted to cold climate
- Species: Silver Fir, Birch, Rhododendron

## 5. Wildlife Resources in India

### Biodiversity Statistics

- **Flora:** Over 47,000 plant species
- **Fauna:** Over 89,000 animal species
- **Endemic Species:** High percentage of species found only in India

### Important Wildlife Species

1. **Mammals:** Tiger, Lion, Elephant, Rhinoceros, Leopard
2. **Birds:** Peacock, Hornbill, Flamingo, Migratory species
3. **Reptiles:** King Cobra, Python, Gharial, Sea turtles
4. **Amphibians:** Frogs, toads adapted to various habitats

### Threatened Species

- **Critically Endangered:** Gharial, Great Indian Bustard
- **Endangered:** Tiger, Asian Elephant, Snow Leopard
- **Vulnerable:** Gangetic Dolphin, Wild Buffalo

## 6. Deforestation and Its Causes

### Major Causes of Deforestation

#### 1. Agricultural Expansion

- Shifting cultivation (jhum)

- Expansion of crop lands
- Livestock grazing

## 2. Industrial Development

- Mining operations
- Construction of dams and roads
- Industrial establishments

## 3. Urbanization

- Expansion of cities and towns
- Infrastructure development
- Housing projects

## 4. Commercial Logging

- Timber extraction
- Paper and pulp industries
- Furniture manufacturing

# Consequences of Deforestation

## 1. Environmental Impact

- Loss of biodiversity
- Climate change acceleration
- Soil erosion and degradation
- Disruption of water cycle

## 2. Economic Impact

- Loss of forest products
- Reduced income for forest-dependent communities
- Increased natural disasters

## 3. Social Impact

- Displacement of tribal communities
- Loss of traditional knowledge
- Conflicts over resources

# 7. Conservation of Forest and Wildlife

## Need for Conservation

- **Maintain Ecological Balance:** Preserve ecosystem services
- **Preserve Biodiversity:** Protect gene pool for future generations

- **Sustainable Development:** Balance economic needs with conservation
- **Climate Regulation:** Forests as carbon sinks

## Conservation Strategies

### In-Situ Conservation (On-site)

#### 1. National Parks

- Total: 104 national parks in India
- Examples: Jim Corbett, Kaziranga, Sundarbans
- Features: Core areas with strict protection

#### 2. Wildlife Sanctuaries

- Total: 551 wildlife sanctuaries
- Examples: Bharatpur Bird Sanctuary, Periyar
- Features: Limited human activities allowed

#### 3. Biosphere Reserves

- Total: 18 biosphere reserves
- Examples: Nilgiri, Nanda Devi, Gulf of Mannar
- Features: Core, buffer, and transition zones

#### 4. Sacred Groves

- Traditional conservation by communities
- Examples: Devrai in Maharashtra, Kavus in Kerala
- Importance: Preserve rare species and cultural heritage

### Ex-Situ Conservation (Off-site)

1. **Zoological Parks:** Breeding programs for endangered species
2. **Botanical Gardens:** Conservation of plant species
3. **Seed Banks:** Preserve genetic material
4. **Tissue Culture:** Modern conservation techniques

## Government Initiatives

#### 1. Wildlife Protection Act, 1972

- Comprehensive legislation for wildlife conservation
- Schedules for different levels of protection
- Penalties for wildlife crimes

#### 2. Forest Conservation Act, 1980

- Restricts diversion of forest land
- Prior approval required for non-forest activities
- Compensatory afforestation mandatory

### 3. **Project Tiger (1973)**

- Conservation of tigers and their habitat
- 50+ tiger reserves established
- Significant increase in tiger population

### 4. **Project Elephant (1992)**

- Conservation of elephants and habitats
- Elephant corridors and reserves
- Human-elephant conflict mitigation

## 8. **Community Participation in Conservation**

### **Traditional Conservation Practices**

1. **Sacred Groves:** Community-protected forest patches
2. **Totemic Beliefs:** Certain species considered sacred
3. **Seasonal Restrictions:** Traditional calendars for resource use
4. **Community Forest Management:** Local governance systems

### **Modern Community Initiatives**

#### 1. **Joint Forest Management (JFM)**

- Collaboration between communities and forest departments
- Benefit sharing arrangements
- Sustainable harvesting practices

#### 2. **Van Panchayats**

- Village-level forest management
- Democratic decision making
- Successful in Uttarakhand

#### 3. **Eco-development Programs**

- Alternative livelihood generation
- Reducing pressure on forests
- Sustainable tourism initiatives

## Success Stories

1. **Chipko Movement:** Forest conservation in Uttarakhand
2. **Bishnoi Community:** Wildlife protection in Rajasthan
3. **Self-Help Groups:** Sustainable forest product collection

## 9. International Cooperation

### Global Initiatives

1. **CITES:** Convention on International Trade in Endangered Species
2. **CBD:** Convention on Biological Diversity
3. **UNFCCC:** Framework Convention on Climate Change
4. **Ramsar Convention:** Wetland conservation

### India's International Commitments

1. **Paris Agreement:** Climate change mitigation
2. **Aichi Biodiversity Targets:** Conservation goals
3. **REDD+:** Reducing emissions from deforestation
4. **Global Tiger Initiative:** Tiger conservation cooperation

## 10. Challenges and Solutions

### Major Challenges

1. **Population Pressure:** Increasing demand for resources
2. **Poverty:** Dependence on forest resources for livelihood
3. **Climate Change:** Altering forest ecosystems
4. **Illegal Activities:** Poaching, logging, encroachment
5. **Lack of Awareness:** Insufficient understanding of conservation importance

### Sustainable Solutions

1. **Afforestation and Reforestation**
  - Planting native species
  - Restoration of degraded lands
  - Urban forestry initiatives
2. **Sustainable Forest Management**
  - Scientific harvesting practices
  - Certification schemes (FSC)

- Value addition to forest products

### 3. **Alternative Livelihoods**

- Eco-tourism development
- Non-timber forest products
- Skill development programs

### 4. **Technology Integration**

- Satellite monitoring
- GPS tracking of wildlife
- Digital forest surveys

### 5. **Education and Awareness**

- Environmental education in schools
- Community awareness programs
- Media campaigns

## **Key Terms and Definitions**

- **Biodiversity:** Variety of life forms in an ecosystem
- **Endemic Species:** Species found naturally in only one geographic region
- **Keystone Species:** Species crucial for ecosystem stability
- **Habitat Fragmentation:** Breaking up of habitats into smaller pieces
- **Ecological Succession:** Natural process of ecosystem development
- **Conservation:** Protection and sustainable use of natural resources
- **Preservation:** Strict protection without human interference
- **Sustainable Development:** Meeting present needs without compromising future generations

## **Important Facts and Figures**

- India has 2.4% of world's land area but 8% of global biodiversity
- Forest cover increased by 5,188 sq km between 2017-2019
- India has 103 national parks and 535+ wildlife sanctuaries
- Tiger population increased from 1,411 (2006) to 2,967 (2019)
- Mangrove cover is 4,992 sq km (0.15% of total geographical area)
- India is one of the 17 mega-diverse countries in the world



# Questions for Practice

## Short Answer Questions

1. Define biodiversity and explain its importance.
2. Distinguish between reserved and protected forests.
3. What are the main causes of deforestation in India?
4. Explain the concept of sacred groves.

## Long Answer Questions

1. Discuss the various conservation strategies adopted for forest and wildlife conservation in India.
2. Analyze the role of community participation in forest and wildlife conservation.
3. Evaluate the impact of deforestation on the environment and suggest measures to control it.
4. Describe the distribution pattern of forests in India with suitable examples.

## Conclusion

Forest and wildlife resources are invaluable natural assets that require immediate and sustained conservation efforts. The integration of traditional knowledge with modern conservation techniques, community participation, and strong policy implementation are essential for maintaining India's rich biodiversity for future generations. Sustainable management practices must balance economic development with environmental protection to ensure long-term conservation success.