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Forest and Wildlife Resources (Class 10 Geography)

1. Introduction: What are Forest and Wildlife Resources?

- **Forests as a Resource:** Forests are vast, renewable natural resources that are crucial for ecological balance and human survival. They provide timber, fuel, fodder, medicinal plants, and are habitats for a multitude of species. They also play a vital role in regulating climate, preventing soil erosion, and maintaining water cycles.
- **Wildlife as a Resource:** Wildlife refers to all non-domesticated plants, animals, and other organisms. It is an integral part of forest ecosystems and contributes to biodiversity, ecological balance, and provides aesthetic, cultural, and scientific value.

2. Biodiversity or Biological Diversity

- **Definition:** Biodiversity refers to the variety of life forms found in a particular region, including plants, animals, fungi, and microorganisms. It encompasses genetic diversity (variety within species), species diversity (variety of species), and ecosystem diversity (variety of ecosystems).
- **India as a Mega-Diverse Nation:** India is one of the world's richest countries in terms of its vast array of biological diversity. It has:
    - Nearly 8% of the total number of species in the world (estimated to be 1.6 million).
    - A large variety of forests and wildlife.
- **Importance of Biodiversity:**

- **Ecological Stability:** Diverse ecosystems are more stable and resilient to environmental changes.
- **Economic Benefits:** Provides food, medicine, fuel, and raw materials for industries.
- **Ecosystem Services:** Pollination, climate regulation, water purification, soil fertility.
- **Cultural and Aesthetic Value:** Recreation, tourism, and spiritual significance.

3. Classification of Species (Based on IUCN - International Union for Conservation of Nature)

The IUCN has classified species into different categories based on their conservation status:

- **Normal Species:** Species whose population levels are considered to be normal for their survival, e.g., cattle, sal, pine, rodents.
- **Endangered Species:** Species that are in danger of extinction. The survival of such species is difficult if the negative factors that have led to a decline in their population continue to operate. Examples: Blackbuck, crocodile, Indian wild ass, Indian rhino, lion-tailed macaque, sangai (brow-antlered deer in Manipur).
- **Vulnerable Species:** Species whose population has declined to levels from where it is likely to move into the endangered category in the near future if the negative factors continue to operate. Examples: Blue sheep, Asiatic elephant, Gangetic dolphin.
- **Rare Species:** Species with a small population that may move into the endangered or vulnerable category if the negative factors affecting them continue to operate. Examples: Himalayan brown bear, wild Asiatic buffalo, desert fox, hornbill.

- **Endemic Species:** Species that are only found in some particular areas, usually isolated by natural or geographical barriers. Examples: Andaman teal, Nicobar pigeon, Andaman wild pig, mithun in Arunachal Pradesh.
- **Extinct Species:** Species that are not found after searches of known or likely areas where they may occur. A species may be extinct from a local area, region, country, continent, or the entire earth. Examples: Asiatic cheetah, pink-headed duck.

4. Depletion of Flora and Fauna: Causes and Consequences

India's rich biodiversity is under threat due to various factors, primarily human-induced.

Causes of Depletion:

- **Habitat Loss and Fragmentation:**
    - **Deforestation:** Clearing forests for agriculture (a major cause during the colonial period and even after independence), river valley projects (e.g., Narmada Sagar Project in Madhya Pradesh which submerged vast forest areas), mining activities (e.g., Buxa Tiger Reserve in West Bengal threatened by dolomite mining), infrastructure development (roads, railways, industries, urbanization).
    - **Shifting Cultivation (Jhumming):** Practiced in tribal belts, especially in northeastern and central India, leading to deforestation and land degradation.
- **Over-exploitation of Resources:**
    - **Overgrazing:** By livestock, degrading forests and grasslands.
    - **Fuelwood Collection:** Excessive collection for domestic needs.
    - **Poaching and Hunting:** Illegal killing of animals for commercial purposes (hides, skins, tusks, horns) and sport.
- **Environmental Pollution:**

    - **Air and Water Pollution:** Affecting the health of plants and animals.
    - **Use of Pesticides and Chemicals:** Accumulating in the food chain and harming wildlife.
- **Forest Fires:** Often caused by human negligence, destroying vast tracts of forests and wildlife.
- **Unequal Access and Consumption:** Inequitable consumption of resources and differential sharing of responsibility for environmental well-being. The rich often consume more, leading to greater environmental damage, while the poor bear a disproportionate burden of environmental degradation.
- **Colonial Policies:** During British rule, forests were extensively exploited for timber, railway expansion, and commercial plantations, leading to a significant decline in forest cover.

Consequences of Depletion:

- **Loss of Biodiversity:** Extinction of species and reduction in genetic diversity.
- **Ecological Imbalance:** Disruption of food chains, nutrient cycles, and other ecological processes.
- **Soil Erosion and Desertification:** Loss of forest cover leads to increased soil erosion and land degradation.
- **Climate Change:** Deforestation contributes to global warming by reducing carbon sequestration.
- **Impact on Human Livelihoods:** Many communities, especially tribal groups, depend directly on forests and wildlife for their survival. Their depletion affects these communities severely.
- **Increased Human-Wildlife Conflict:** As habitats shrink, wild animals often venture into human settlements in search of food, leading to conflict.

5. Conservation of Forest and Wildlife in India

Conservation is essential to preserve our ecological diversity and life support systems (water, air, soil). It also preserves the genetic diversity of plants and animals for better growth of species and breeding.

Why Conserve?

- Preserves ecological diversity.
- Maintains our life support systems (water, air, soil).
- Preserves genetic diversity of plants and animals.
- Supports agriculture (e.g., traditional crop varieties).
- Supports fisheries (maintaining aquatic biodiversity).

Steps Taken for Conservation:

- **Legal Framework:**
    - **The Indian Wildlife (Protection) Act, 1972:**
        - Provided a legal framework for the protection of wild animals and plants.
        - Established a list of protected species.
        - Banned hunting of endangered species.
        - Restricted trade in wildlife articles.
        - Provided for the establishment of national parks, wildlife sanctuaries, and biosphere reserves.
    - Subsequent amendments have made punishments more stringent.
- **Protected Areas Network:**
    - **National Parks:** Areas set aside to protect the natural environment and wildlife, where activities like forestry, grazing, or cultivation are not permitted.

    - **Wildlife Sanctuaries:** Areas where animal habitats and their surroundings are protected from any sort of disturbance. Certain human activities may be allowed.
    - **Biosphere Reserves:** Large, protected areas that aim to conserve biodiversity, promote sustainable development, and support research and education. They often include national parks and wildlife sanctuaries within their boundaries.
- **Specific Projects for Threatened Species:**
    - **Project Tiger (launched in 1973):** Aims to protect and increase the tiger population. It has been a significant success, though challenges remain. Key tiger reserves include Corbett National Park (Uttarakhand), Sunderbans National Park (West Bengal), Bandhavgarh National Park (Madhya Pradesh).
    - Projects for other threatened species like the one-horned rhinoceros, Asiatic lion, Hangul (Kashmir stag), and crocodiles (freshwater, saltwater, gharial).
- **Forest Policy:**
    - Emphasis on sustainable forest management.
    - Afforestation and reforestation programs.
- **Involvement of Central and State Governments:** Various central and state government departments are involved in wildlife protection and forest conservation.

6. Types and Distribution of Forests in India

Based on administrative and management objectives, forests in India are classified as:

- **Reserved Forests:**
    - More than half of the total forest land has been declared reserved forests.

    - Considered the most valuable as far as the conservation of forest and wildlife resources are concerned.
    - Rights to activities like hunting and grazing are generally banned unless specific orders are issued.
    - Jammu and Kashmir, Andhra Pradesh, Uttarakhand, Kerala, Tamil Nadu, West Bengal, and Maharashtra have large percentages of reserved forests.
- **Protected Forests:**
    - Almost one-third of the total forest area is protected forest, as declared by the Forest Department.
    - This forest land is protected from any further depletion.
    - Local people have rights to grazing and fuel wood collection, but commercial exploitation is restricted.
    - Bihar, Haryana, Punjab, Himachal Pradesh, Odisha, and Rajasthan have a bulk of their forests under protected forests.
- **Unclassed Forests:**
    - These are other forests and wastelands belonging to both government and private individuals and communities.
    - They are not well-defined and are often degraded.
    - All northeastern states and parts of Gujarat have a very high percentage of their forests as unclassed forests, managed by local communities.

7. Community and Conservation

Conservation strategies are often more successful when local communities are involved.

- **Traditional Dependence:** Many local communities, especially tribal populations, have a traditional dependence on forests and wildlife for their

livelihood and cultural practices. They often possess valuable traditional knowledge about sustainable resource use.

- **Sacred Groves:** In many cultures, tracts of forests were set aside and left untouched, often dedicated to local deities. These "sacred groves" (known by different names in different parts of India like 'devarakadus', 'devbhoomi', 'deo-ban') have helped preserve many rare and threatened species.
- **Community Participation in Protection:**
    - **Sariska Tiger Reserve (Rajasthan):** Villagers fought against mining by citing the Wildlife Protection Act.
    - **Alwar District (Rajasthan):** Inhabitants of five villages declared 1,200 hectares of forest as the 'Bhairodev Dakav Sonchuri', declaring their own set of rules and regulations which do not allow hunting and are protecting the wildlife against any outside encroachments.
    - **Chipko Movement (Himalayas):** A grassroots movement where villagers, especially women, hugged trees to prevent them from being felled by contractors. It successfully resisted deforestation in several areas and highlighted the importance of community participation in forest conservation.
    - **Beej Bachao Andolan (Tehri) and Navdanya:** Movements that have shown that adequate levels of diversified crop production without the use of synthetic chemicals are possible and economically viable. They promote traditional agricultural practices and the conservation of indigenous seeds.
- **Joint Forest Management (JFM):**
    - A program launched in India in the 1980s that involves local communities and the forest department working together to manage and protect degraded forest lands.

- In return for their participation in protection and management, local communities get benefits like a share in the timber harvested and rights to collect non-timber forest products.
- Odisha was the first state to pass a resolution for JFM in 1988.

Conclusion

Forest and wildlife resources are vital for ecological balance and human well-being. Their rapid depletion due to human activities is a serious concern. Effective conservation requires a multi-pronged approach involving strong legal frameworks, dedicated protected areas, species-specific projects, and most importantly, the active involvement and empowerment of local communities. Sustainable management and equitable sharing of these resources are key to ensuring their availability for future generations.