2 FOREST AND WILDLIFE RESOURCES

CONCEPT

- Humans and living organisms form a complex web of ecological system in which we are dependent on the system for our own existence.
- Forests play a key role in the ecological system as primary producers on which all other living things depend.
- India is one of the world's richest countries in terms of its vast array of biological diversity and has nearly 8% of the total number of species in the world.
- At least 10% of India's recorded wild flora and 20% of its mammals are on the threatened list.
- Based on the International Union for Conservation of Nature and Natural Resources (IUCN) the existing plants and animal species can be classified as Normal, Endangered, Vulnerable, Rare, Endemic and Extinct species.
- The greatest damage inflicted on Indian forests was during the colonial period due to the expansion of the railways, agriculture, commercial and scientific forestry, and mining activities.
- Large-scale development projects have also contributed significantly to the loss of forests.
- The destruction of forests and wildlife is not just a biological issue but is strongly correlated with the loss of cultural diversity.
- Conservation in the background of rapid decline in wildlife population and forestry has become essential.
- Conservation preserves the ecological diversity and our life support systems — water, soil and air.
- The Indian Wildlife (Protection) Act was implemented in 1972.
- The conservation projects focus on biodiversity rather than on a few of its components.
- For the purpose of administration, forests have been classified into three types — (i) Reserved forests (ii) Protected forests (iii) Unclassed forests.
- Reserved Forests are forests which are permanently earmarked and regarded as most valuable for the conservation of forests and wildlife resources either for the production of timber or other forest produce. Grazing and cultivation is seldom permitted in a reserved forest.
- In Protected Forests, these rights are allowed subject to a few minor restrictions.
- Unclassed Forests consist of inaccessible forests or unoccupied wastes belonging to both government and private individual and communities.
- In India, forests are also home to some of the traditional communities.
- Belief of tribes that all creations of nature must be protected have led to preservation of virgin forests in pristine form called Sacred Groves (the forests of Gods and Goddesses).
- In India, sacred qualities are often ascribed to springs, mountain peaks, plants and animals which are closely protected.
- Chipko Movement in the Himalayas resisted deforestation.

- Farmers, and citizens' groups like the *Beej Bachao Andolan* in Tehri and *Navdanya* have shown that adequate levels of diversified crop production without the use of synthetic chemicals are possible and economically viable.
- In India, Joint Forest Management (JFM) programme furnishes a good example for involving local communities in the management and restoration of degraded forests.

I. SUMMATIVE ASSESSMENT

A. NCERT TEXTBOOK QUESTIONS

Questions within the Lesson

Q.1. Choose the right answer from the four alternatives given below :

(i) Which of these statements is not a valid reason for the depletion of flora and fauna?

(a) Agricultural expansion (b) Large scale development projects

(c) Grazing and fuel-wood collection (d) Rapid industrialisation and urbanisation

Ans. (c)

(ii) Which of the following conservation strategies does not directly involve community participation?

(a) Joint Forest Management (b) Beej Bachao Andolan

(c) Chipko Movement (d) Demarcation of Wildlife Sancturies.

Ans. (d)

(iii) Match the following animals with their category of existence.

Animals / Plants	**Category of existence**
a. Black buck	i. Extinct
b. Asiatic elephant	ii. Rare
c. Andaman wild pig	iii. Endangered
d. Himalayan brown bear	iv. Vulnerable
e. Pink-headed duck	v. Endemic

Ans.
a. Black buck – Endangered
b. Asiatic elephant – Vulnerable
c. Andaman wild pig – Endemic
d. Himalayan brown bear – Rare
e. Pink-headed duck – Extinct

(iv) Match the following :

a. Reserved Forests	i. other forests and wastelands belonging to both government and private individuals and communities.
b. Protected Forests	ii. forests are regarded as most valuable as far as conservation of forest and wild life resources.
c. Unclassed Forests	iii. forest land are protected from any further depletion.

Ans. a. Reserved Forests ii. forests are regarded as most valuable as far as

	conservation of forest and wild life resources.
b. Protected Forests	iii. forest land are protected from any further depletion.
c. Unclassed Forests	i. other forests and wastelands belonging to both government and private individuals and communities.

Q.2. Answer the following questions briefly.

(i) How have human activities affected the depletion of flora and fauna? Explain.

Ans. Several human activities have affected the depletion of flora and fauna and has led to decline in India's biodiversity. The main factors responsible for this damage are as follows :

(i) Habitat destruction, mainly due to overpopulation leading to expansion of agriculture, mining, industrialisation and urbanisation and consequent wiping out of large forest areas.

(ii) Hunting and poaching and illegal trade of animal skin, tusk, bones, teeth, horns, etc have lead many speices to the verge of extinction.

(iii) Environmental pollution, poisoning of water bodies due to discharge of industrial effluents, chemicals, wastes, etc. leading to animal deaths.

(iv) Forest fires often induced by shifting cultivation wiping out valuable forests and wildlife.

(v) Large scale development projects and destruction of forests.

(vi) Grazing and fuel wood collection.

(vii) Over-exploitation of forest products and depletion of flora and fauna. Other important causes of environmental destruction are unequal access, inequitable consumption of forest resources and differential sharing of responsibility for environmental well-being.

(ii) Define biodiversity.

Ans. **Biodiversity or biological diversity** means the quantity and variety of plant and animal species found in a given environment. Biodiversity is immensely rich in wildlife and cultivated species, diverse in form and function but closely integrated in a system through multiple network of interdependencies.

(iii) Describe how communities have conserved and protected forests and wildlife in India.

Ans. Indian forests are home to some of the traditional communities who are dependent on forests for their livelihood. These local communities are struggling to conserve forests along with government officials in some areas and in many areas, villagers themselves are protecting habitats and explicitly rejecting government involvement.

In Sariska Tiger Reserve, Rajasthan, villagers have fought against mining and destruction of forest by citing the Wildlife Protection Act.

The inhabitants of five villages in the Alwar district of Rajasthan have declared 1,200 hectares of forest as the Bhairodev Dakav 'Sonchuri', enforcing their own set of rules and regulations, They donot allow hunting, and are protecting the wildlife against any outside encroachments.

On account of nature worship prevalent mainly among the tribals, several virgin forests have been preserved in their pristine form as 'Sacred Groves'.

The Bishnois of Rajasthan are well known for protecting black bucks (chinkara), an

endangered species, and herds of black buck, nilgai and peacocks can be seen as an integral part of the community and nobody harms them.

The famous Chipko Movement in the Himalayas led by local communities, especially women, successfully resisted deforestation in several areas. They have also shown that community afforestation with indigenous species can be enormously successful.

Traditional conservation methods are revived through the Beej Bachao Andolan in Tehri and Navdanya.

The Joint Forest Management programme furnishes a good example for involving local communities in management and restoration of degraded Forests.

(iv) Write a note on good practices towards conserving forest and wildlife.

Ans. Conservation of forest and wildlife is necessary because it preserves the ecological diversity and preserves our life support system. The National Forest Policy outlines the following for protection, conservation and development of forests in India.

(i) Maintenance of environmental stability through preservation and restoration of ecological balance.

(ii) Substantial increase in forest tree cover through massive afforestation and social forestry programmes.

(iii) Steps to meet the requirements of wood fuel in form of firewood and leaf litter, fodder and minor forest products by increasing productivity of forests.

(iv) Encouragement of efficient utilisation of forest produce and optimum substitution of wood.

(v) Steps to create massive people's movement with involvement of women to achieve the conservation of our national heritage and minimise the pressure on existing forests.

For conservation of wildlife the following steps have been undertaken in India :

(i) Development of 88 national parks, 490 wildlife sanctuaries and 13 biosphere reserves.

(ii) Implementation of Wildlife Protection Act.

(iii) Protection of remaining population of endangered species by banning hunting, giving legal protection to their habitats and restricting trade in wildlife.

(iv) Project Tiger, Project Rhino, Project Elephant, etc, for protection of threatened species in their natural habitats, 27 tiger reserves have been set up under Project Tiger.

(v) Four coral reefs have been identified for conservatin and management. Many wetlands in the country are linked with river system.

OTHER IMPORTANT QUESTIONS (AS PER CCE PATERNS

B. MULTIPLE CHOICE QUESTIONS (1 MARK)

Q.1. Which of the following plays a key role in the ecological system?

(a) Rocks (b) Roads

(c) Forests (d) None of the above

Ans. (c)

Q.2. Which one among the following are not a part of the complex web of ecological system?

(a) Plants (b) Animals (c) Computers (d) Humans

Ans. (c)

Q.3. Biodiversity is very important for which of the following creatures?

(a) Plants (b) Earthworms (c) Humans (d) Aliens

Ans. (c)

Q.4. What percentage of the total number of species discovered in the world are found in India?

(a) Three percent (b) Eight percent (c) Fifteen percent (d) Thirty percent

Ans. (b)

Q.5. Of the estimated 47,000 plant species found in India, about 15,000 flowering species belong to which category?

(a) Endangered species (b) Extinct species

(c) Endemic species (d) Vulnerable species

Ans. (c)

Q.6. What percentage of India's wild flora and mammals are on the threatened list?

(a) 10 percent of recorded wild flora and 20 percent of mammals

(b) 20 percent of recorded wild flora and 10 percent of mammals

(c) 10 percent of cultivated species of flora and 20 percent animals

(d) None of the above.

Ans. (a)

Q.7. Which of the following birds do not fall in the category of 'critical' species?

(a) Pink-headed duck (b) Peacock

(c) Mountain quail (d) Forest-spotted owl

Ans. (b)

Q.8. Which of the following is a species of grass categorised as a 'critical' species among the threatened list of flora and fauna?

(a) Madhuca insigins (b) Tamarindus indica

(c) Hubbardia heptaneuron (d) Mangifera indica

Ans. (c)

Q.9. Determination of the different categories of existing plant and animal species are based on which of the following agencies?

(a) The State Forest Department

(b) International Union for Conservation of Nature and Natural Resources (IUCN).

(c) Forest Survey of India

(d) Earth Summit

Ans. (b)

Q.10. The black buck belongs to which of the following categories of fauna?

(a) Extinct species (b) Rare species

(c) Endemic species (d) Endangered species

Ans. (d)

Q.11. The Gangetic dolphin belongs to which of the following categories of fauna?

(a) Endangered species (b) Vulnerable species
(c) Rare species (d) Extinct species

Ans. (b)

Q.12. Which of the following species of animals is a rare species?

(a) Wild Asiatic buffalo (b) Gangetic dolphin
(c) Indian rhino (d) Black buck

Ans. (a)

Q.13. Which of the following species was declared extinct in India long back in 1952?

(a) Leopard (b) Gangetic dolphin (c) Black buck (d) Asiatic cheetah

Ans. (d)

Q.14. Which one of the following is not a major product directly obtained from the forests?

(a) Firewood (b) Timber wood and barks
(c) Medicines (d) Fodder

Ans. (c)

Q.15. Which of the following types of agriculture has led to wide scale deforestation and degradation of forests in north-eastern and central India?

(a) Plantations (b) Intensive Subsistence Farming
(c) Shifting Cultivation (d) Commercial Agriculture

Ans. (c)

Q.16. What is the Himalayan Yew?

(a) A type of deer (b) A medicinal plant
(c) A species of bird (d) A food crop grown in the Himalayas

Ans. (b)

Q.17. Cleaning of forests is still continuing in Madhya Pradesh mainly due to which of the following reasons?

(a) Dolomite mining (b) Commercial plantations
(c) Industrialisaiton and urbanisation (d) Narmada Sagar (River Valley) Project

Ans. (d)

Q.18. In which of the following years was the Indian Wildlife (Protection) Act implemented?

(a) 1962 (b) 1972 (c) 1992 (d) 1999

Ans. (b)

Q.19. In which of the following years was the 'Project Tiger' launched? [2011 (T-1)]

(a) 1951 (b) 1973 (c) 1993 (d) 2009

Ans. (b)

Q.20. Which of the following species was included for the first time in list of protected species in 1991?

(a) Insects (b) Fishes (c) Plants (d) Reptiles

Ans. (c)

Q.21. Who among the following is in charge of management of forests and wildlife resources of India?

(a) World Wildlife Foundation (b) Geological Survey of India
(c) Forest Department (d) Non-government organisations

Ans. (c)

Q.22. Which of the following states has the largest area under permanent forests?

(a) Jammu and Kashmir (b) Madhya Pradesh
(c) Uttarakhand (d) Maharashtra

Ans. (b)

Q.23. In which of the following states, a very high percentage of its forests is managed by local communities?

(a) Jammu and Kashmir (b) Arunachal Pradesh
(c) Andhra Pradesh (d) Himachal Pradesh

Ans. (b)

Q.24. In which of the following tiger reserves have the local communities fought for conservation of the forests?

(a) Manas Tiger Reserve (b) Periyar Tiger Reserve
(c) Simlipal Bio Reserve (d) Sariska Tiger Reserve

Ans. (d)

PREVIOUS YEARS' QUESTIONS

Q.1. Species that are found in some particular areas, usually isolated by natural or geographical barriers, are known as : [2010 (T-1)]

(a) Vulnerable (b) Endemic
(c) Extinct (d) Endangered

Ans. (b)

Q.2. Forests and wastelands belonging to both private individuals and government are known as : [2010, 2011 (T-1)]

(a) Sacred groves (b) Reserved forest
(c) Protected forests (d) Unclassed forests

Ans. (d)

Q.3. Which of the following is not one of the reasons for depletion of forests? [2010, 2011 (T-1)]

(a) Mining (b) Multi-purpose river valley projects
(c) Grazing (d) Creation of shelter belts

Ans. (d)

Q.4. What was the aim of Chipko Movement? [2010, 2011 (T-1)]

(a) Human rights (b) Political rights
(c) Agriculture expansion (d) Forest conservation

Ans. (d)

Q.5. Which of the following is an extinct species? [2010, 2011 (T-1)]

(a) Blue sheep (b) Asiatic cheetah (c) Black buck (d) Asiatic elephant

Ans. (b)

Q.6. Which one of the following belongs to vulnerable species? [2010, 2011 (T-1)]

(a) Black buck (b) Crocodile (c) Indian rhino (d) Blue sheep

Ans. (d)

Q.7. Which of the following types of species are known as the extinct species? [2010, 2011 (T-1)]

(a) Species whose population levels are normal
(b) Whose population has declined
(c) Species with small population
(d) Species which are not found

Ans. (d)

Q.8. Which one of the following states has the largest area under permanent forests? [2010 (T-1)]

(a) Bihar (b) Kerala (c) Madhya Pradesh (d) Uttar Pradesh

Ans. (c)

Q.9. Periyar Tiger Reserve is situated in which state of India? [2010 (T-1)]

(a) Jammu & Kashmir (b) Kerala
(c) Tamil Nadu (d) Madhya Pradesh

Ans. (b)

Q.10. How many species of flora are found in India? [2010 (T-1)]

(a) 81000 (b) 47000 (c) 15000 (d) 41000

Ans. (b)

Q.11. Sariska wildlife sanctuary is located in which state? [2010 (T-1)]

(a) Rajasthan (b) Uttar Pradesh (c) Gujarat (d) West Bengal

Ans. (a)

Q.12. In which of the following states is Bandhavgarh National Park located? [2010 (T-1)]

(a) Gujarat (b) Assam (c) Madhya Pradesh (d) Kerala

Ans. (c)

Q.13. Which one of the following movements is not associated with the protection of trees? [2010 (T-1)]

(a) Chipko Movement (b) Navdanya Andolan
(c) Project Tiger (d) Beej Bachao Andolan

Ans. (c)

Q.14. Sunderban National Park is located in which state? [2010, 2011 (T-1)]

(a) Assam (b) West Bengal (c) Tripura (d) Gujarat

Ans. (b)

Q.15. Which species of fauna are found in an area separated by natural or geographical barriers? [2010 (T-1)]

(a) Rare (b) Extinct (c) Vulnerable (d) Endemic

Ans. (d)

Q.16. India has nearly ..... percent of total number of species in the world [2010 (T-1)]

(a) 5 (b) 10 (c) 8 (d) 2

Ans. (c)

Q.17. When was Asiatic Cheetah declared extinct in India? [2010, 2011 (T-1)]

(a) in 1958 (b) in 1989 (c) in 1922 (d) in 1952

Ans. (d)

Q.18. The Buxa Tiger Reserve is situated in which of the following states? [2010 (T-1)]

(a) Madhaya Pradesh (b) West Bengal

(c) Gujarat (d) Orissa

Ans. (b)

Q.19. Which one of the following is the example of rare species? [2010, 2011 (T-1)]

(a) Black Buck (b) Blue Sheep (c) Hornbill (d) Mithun

Ans. (c)

Q.20. Which community in India is famous for protecting the black buck? [2010, 2011 (T-1)]

(a) Dogras (b) Santhals

(c) Bishnois (d) All of the above

Ans. (c)

Q.21. Which one of the following is not considered a sacred tree in India? [2011 (T-1)]

(a) Peepal (b) Neem (c) Banyan (d) Mango

Ans. (b)

Q.22. Which one of the following is the example of endemic species? [2011 (T-1)]

(a) Asiatic elephant (b) Gangetic dolphin

(c) Mithun (d) Asiatic Cheetah

Ans. (c)

Q.23. Name the state in which Corbett national park is located. [2011 (T-1)]

(a) Uttarakhand (b) West Bengal (c) Assam (d) Madhya Pradesh

Ans. (a)

Q.24. Which of the following two factors are majorly responsible for depletion of forest resources? [2011 (T-1)]

(a) Mining of fuel-wood collection (b) Mining and grazing

(c) Flood and Grazing (d) Grazing and fuel-wood collection

Ans. (d)

C. SHORT ANSWER TYPE QUESTIONS (3 MARKS)

Q.1. Define (i) ecosystem or ecological system (ii) flora and fauna.

Ans. (i) **Ecosystem or Ecological system :** The complex interactions, interrelationships and interdependencies between living organisms form an ecosystem or ecological system. No living organism, plant, animal, micro-organism or human can live in complete isolation. They all depend upon their immediate physical surrounding or habitat for their survival. In the process, they interact with other living organisms and are interdependent on each other. These interrelationships create an ecosystem.

(ii) **Flora and Fauna :** The plant life of a region is termed as flora and the animal life is termed as fauna. Example, Mangifera indica or mango tree is a natural flora, and tiger, the national animal of India is example of fauna.

Q.2. Write a short note on India's biodiversity. What are main factors responsible for India's biodiversity ?

Ans. India is one of the world's richest countries in terms of its vast array of biological diversity. India has nearly 8 percent of the total number of species in the world which is estimated to be 1.6 million. A large number of species are yet to be discovered. Over 81,000 species of fauna (animals) and 47,000 species of flora (plants) are found in India.

A variety of topographical or physical features and differenes in climatic conditions found in India have provided a wide variety of habitats and influenced the survival of different species of plants and animals in different parts of India. Vast biodiversity with plants and animals unique to different areas is a consequence of the variety of physical and climatic conditions prevailing in India.

Q.3. Distinguish between extinct species and endangered species. Give examples.

Ans. Extinct species are those species which 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 of such species are the Asiatic cheetah, pink-headed duck.

Endangered species are those species which 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. The examples of such species are black buck, crocodile, Indian rhino, Indian wild ass, lion tailed Macaque, sangai, etc. Special measures are taken to protect endangered species, for example, hunting of such animal is banned under Wildlife Protection Act.

Q.4. Differentiate between endemic species and rare species. Give examples.

Ans. Endemic species are found in some particular areas, usually isolated by natural or geographical barriers, for example islands. The examples of birds and animals belonging to such species are the Andaman teal, Andaman wild pig, Nicobar pigeon and mithun in Arunachal Pradesh.

Uncommon species which are seldom found are called rare species.

These species are small in number and are found scattered in some distant areas because their number have depleted due to negative factors. The small population of rare species may soon fall in the category of endangered or vulnerable species if the negative factors are not controlled. The examples of rare species are the Himalayan brown bear, wild Asiatic buffalo, desert fox, hornbill, etc.

Q.5. Why is the Himalayan Yew in trouble?

OR

What is Himalayan 'Yew'? Why is it under great threat? (2010)

Ans. The Himalayan Yew is a medicinal plant found in various parts of Himachal Pradesh and Arunachal Pradesh in the Himalayan region. A chemical compound called 'taxol' is extracted from its bark, needles, twigs and roots. This has been successfully used to treat some types of cancers. The species is, therefore, over-utilised for manufacturing cancer fighting drug. The drug is now the biggest selling anti-cancer drug in the world. The species of Himalayan Yew is, therefore, under great threat due to over-exploitation on account of its medicinal value.

Q.6. What steps have been adopted under the Indian Wildlife Act to protect the endangered species of animals?

Ans. Under the Indian Wildlife (Protection) Act, implemented in 1972 several programmes were adopted to protect the remaining population of certain endangered species. The steps taken in this regard included : (i) banning hunting and poaching, (ii) giving legal protection to the habitats of the endangered species and (iii) restricting trade in wildlife Subsequently, central and many state, governments estabished national parks and wildlife sanctuaries.

The central government has undertaken several projects for protecting specific animals that are gravely threatened like the tiger, the one-horned rhinoceros, the Asiatic lion, the Kashmir stag or hangul and three types of crocodile.

Q.7. Large-scale development projects and mining have contributed significantly to the loss of forests. Give reasons to support this statement.

Ans. Large scale development projects and mining have contributed significantly to the loss of forests.

Since 1951, over 5000 sq. km. of forests have been cleared for river valley projects. Clearing of forest is still continuing with projects like the Narmada Sagar Project in Madhya Pradesh, which would inundate 40,000 hectares of forest.

Mining for the purpose of industrial development is another major factor behind deforestation. The Buxa Tiger Reserve in West Bengal is seriously threatened by the ongoing dolomite mining. It has disturbed the natural habitat of many species and blocked the migration route of several others, including the great Indian elephant.

PREVIOUS YEARS' QUESTIONS

Q.1. Write any three measures to conserve ecosystem? [2010 (T-1)]

Ans. Three measures to conserve ecosystem are the following :

(i) Forest should be reserved and more and trees should be planted across the region especially in those areas where deforestation takes place.

(ii) Wildlife must be protected by enacting laws and creating awareness among people.

(iii) Starting various projects to save endangered species of plants and wildlife.

Q.2. Explain any three methods of forest conservation adopted by the government after independence. [2010, 2011 (T-1)]

OR

Mention any three measures take by the governments for protection of wild-life.

Ans. Government has adopted the following methods to conserve forests after independance—

(i) The government has classified the forest into three types—Reserved forest, Protected forests and Unclassed forests, making it clear which activity can be carried out in which type of forest.

(ii) To give protection to wildlife, as they fully depend on forests – various acts have been enacted like the Indian wildlife (Protection Act) 1972. Subsequently central and many state governments established national parks and wildlife sanctuaries.

(iii) Government has started various programmes like Van Mahotsava to highlight the importance of forests among people of the country.

Q.3. How many types of forest are classified in India ? Explain it. [2010 (T-1)]

OR

Write briefly about different categories of forests in India classified by government department. [2011 (T-I)]

Ans. Forests are classified under the following categories :-

(i) **Reserved Forests :-** More than half of the total forests are declared as Reserved forests. They are maintained for the production of timber and other forest produce and for protective reasons.

(ii) **Protected Forests :-** Almost one-third of the total forest area is Protected forests. This forest land is protected from any further depletion.

(iii) **Unclassed Forests :-** These are other forests and wastelands belonging to both government and private individuals and communities.

Q.4. Give three reasons why we need to save the biodiversity of our planet? [2010, 2011 (T-1)]

Ans. We must conserve or save biodiversity of our planet because :—

(i) If forests are not saved, whole wildlife will be under threat; they form an important part of food cycle which will be disturbed.

(ii) Biological loss is directly correlated with the loss of cultural diversity. Such loss marginalised and impoverished many tribal and forest people.

(iii) Women are most affected by loss of biodiversity as in many societies they collect food and fuel, fodder, water etc,.

Q.5. What has been the contribution of the Indian Wildlife (Protection) Act in protecting habitats in India. Explain. [2010, 2011 (T-1)]

Ans. The Indian Wildlife (Protection) Act was implemented in 1972, with various provisions for protecting habitats. An all-India list of protected species was also published. The thrust of the programme was towards protecting the remaining population of certain endangered species by bauring hunting, giving legal protection to their habitats, and restricting trade in wildlife. Subsequently cental and many state governments established national parks and wildlife sanctuaries. The central government also announced several projects for protecting specific animals, which were gravely threatened, including tiger, one-harved rhinceerous, the hangul and three types of crocodiles. Many other wild animals have been given full or partial legal protection against hunting and trade throughout India.

Q.6. Write any three effective practices towards conserving forests and wildlife. [2010 (T-1)]

OR

Describe the methods of forest conservation. [2011 (T-1)]

Ans. (i) Through setting up of National Parks and Wildlife **Sanctuaries** in this way special regions can be declared legally the homes of wild animals. In those areas no hunting or cutting of forest can take place.

(ii) **By Launching Specific Projects** like Project Tiger etc. In this way important species whose life is in danger can be protected

(iii) **Bringing together Communities with government Projects** this is the most effective way to conserve forest and wildlife. Chipko movement, Beej Bachao movement and Bishnoi's love for black buck are some examples.

Q.7. Write a brief note on 'Project Tiger'. [2010, 2011 (T-1)]

Ans. Project Tiger was launched in 1973. Imitally it was successful , as the tiger population went upto 4,002 in 1985 and 4,334 in 1989. But in 1993, the population of tiger had dropped to 3600. There are 27 tiger reserves in Inida covering an area of 37,761 sq km. Tiger conservation is also a means of preserving biotypes of sizeable magnitaude. Corbett National Park, Sunderbans National Park, Bandhavgarh National Park, Sariska wildlife sanctuary, Manas Tiger Reserve and Periyar Tiger Reserve are some of the tiger reserves of India.

Q.8. Why is conservation of forest and wildlife necessary? In what way has conservation projects changed in the recent years? [2010 (T-1)]

Ans. Conservation of forest and wildlife is important because for sustainable development it is necessary to protect forest and wildlife.

Conservation preserves the ecological diversity and our life support system like water, air and soils. It also preserves the genetic diversity of plants and animals and ensures better growth of species and breeding.

The conservation projects are now focussing on biodiversity rather than on a few of its components. There is now more intensive search for different conservation measures, even insects are beginning to find a place in conservation policy.

Q.9. With the help of three examples show how communities have carried out conservation of flora and fauna in India. [2010, 2011 (T-1)]

Ans.
- In Sariska, tiger reserve, people have fought against mining by citing the wildlife Protection Act. People themselves protect forest.
- In Alwar district of Rajasthan, people of five villages have declared 1200 hectares of forest as the Bhairodevi Dakav Sanctuary declaring their own set of rules which do not allow hunting etc.
- In the Himalaya region of Uttarakhand, the famous "Chipko movement" has prevented forest deforestation.

Q.10. How is biological loss of forest and wildlife correlated with loss of cultural diversity? [2010 (T-1)]

Ans. Biological loss of forest and wildlife is strongly correlated with the loss of cultural diversity as it has increasingly marginalised and impoverished many indigenous and other forest dependent communities who directly depend on various components of forest and wildlife for food, drink, medicine, culture, spiritualism etc.

Poor women are affected more than men. In many societies, women bear the major responsibilities of collection of fuel, folder, etc. but as the resources are depleting fast, women have to walk longer to get water or fuel which is directly affecting their lifestyle.

Q.11. Explain any three reasons why forest resources are depleting after independence in India. **[2010 (T-1)]**

OR

Write any three factors which are responsible for large scale deforestation in India. **[2011 (T-1)]**

Ans. After independance, agricultural expansion has been one of the major causes of depletion of forest resources, according to Forest Survey of India, 26, 200 sq km of forest area was converted into agriculture land all over India between 1951 and 1980.

Substantial parts of tribal belt in northeastern and central India, have been deforested or degraded by shifting cultivation.

Large scale development projects have also contributed significantly to the loss of forests. River valley projects have also led to clearing and destruction of forests on a large scale. Mining is also an important factor behind deforestation.

Q.12. Explain any two famous movements for the protection of forests. **[2010, 2011 (T-1)]**

Ans. (i) The famous Chipko movement in the Himalayas has successfully resisted deforestation in several areas of Uttarakhand. Formers and citizen's groups like the **Beej Bachao Audolan** in Tehri and **Navdanya** have shown that large scale production of crops is possible without the use of syntahetic chemicals.

(ii) Joint Forest Management (JFM) programme has been in formal existance since 1988 when orissa passed the first resolution for joint forest management. JFM depends on the formation of local institutions that undertake protection activities mostly on degraded forest land managed by the forest department.

Q.13. Explain any three adverse effects of the destruction of forests and wildlife?[2010 (T-1)]

Ans. Three adverse effects of the destruction of forests and wildlife :—

(i) Destruction of forests and wildlife leads to disturbances in ecological balance of the environment.

(ii) It also affects the cultural loss of communities and their displacement.

(iii) It also disturbs foodchain, ecosystem and development of the society.

Q.14. Explain the importance of biodiversity for human beings **[2010, 2011 (T-1)]**

Ans. Biodiversity is very important for us because we are fully dependent on it. For example, the plants, animals and micro-organisms recreate the quality of the air we breathe, the water we drink and the soil that produces our food, without which we can not survive.

Forests are also very essential for us. They play a key rule in the ecological system as these are also the primary producers on which all other living beings depend.

Q.15. Highlight any three differences between endangered species and extinct species. **[2010, 2011 (T-2)]**

Ans.

Endangered species	Extinct species
(i) These are species which are in danger of extinction.	(i) Those species which are not found after searches in areas where they were found are called extinct species.

(ii) If present condition remains, their survival is extremely difficult.	(ii) These species are finished, so they cannot be revived.
(iii) Example – Black buck, Indian wild ass, lion-tailed macaque, etc.	(iii) Example – Asiatic cheetah, Pink-head duck etc.

Q.16. Which three human activities are responsible for the depletion of flora and fauna? Explain. [2011 (T-1)]

Ans. (i) Large scale development projects like river valley projects have submerged large tracts of forest. For instance, Narmada Sagar project in M.P. would inundate 40,000 hectares of forest.

(ii) Mining is another important factor for depletion of flora and fauna.

(iii) Major factors behind depletion of flora and fauna are grazing and fuel-wood collection.

Q.17. What is bio-diversity? Why is bio-diversity important for human life? [2011 (T-1)]

Ans. Biodiversity is immensely rich in wildlife and cultivated species diverse in form and function but closely integrated in a system through multiple network of interdependencies. We share this planet with all plants, birds, animals and insects. The entire habitat that we live in has immense biodiversity. Human beings along with all living organisms form a complex web of ecological system on which all are interdependent for their existence. Without bio-diversity human life cannot exist.

Q.18. How does afforestation help in maintaining ecological balance? Explain any three points to support your answer. [2011 (T-1)]

Ans. We human along with all living organisms form a complex web of ecological system in which we are only a part and very much dependent on this system for our own existence. For example, the plants, animals and micro-organism re-create the quality of the air we breathe, the water we drink and the soil that produces our food, without which we cannot survive. Forests play a key role in the ecological system as these are also the primary producers on which all other living beings depend.

D. LONG ANSWER TYPE QUESTIONS (4 MARKS)

Q.1. Mention the negative factors which since pre-independence to present period have contributed significantly to the fearful depletion of flora and fauna in India.

Ans. The negative factors which since pre-independence to present period have contributed significantly to the fearful depletion of flora and fauna in India can be outlined as follows :

(i) The expansion of railways, agriculture, commercial and scientific forestry and mining activities during the colonial period have inflicted greatest damage on Indian forests.

(ii) 'Enrichment plantation' promoting a few favoured species and eliminating other species, e.g. teak monoculture in South India and chir pine plantation in Himalayan region, have damaged the natural forests.

(iii) Even after independence, agricultural expansion to meet the food requirement of a huge and growing population continues to be one of the major causes for depletion of forests.

(iv) Shifting cultivation or jhumming in the tribal belts especially in the north east and central India have led to deforestation or degradation of forests.

(v) Large scale development projects like the river valley projects have contributed significantly to the loss of valuable forests.
(vi) Mining causes deforestation and disturbs the natural habitats of many animals and block the migration route of several other species.
(vii) Grazing and fuelwood collection lead to depletion of forests resoures according to many environmentalists. However, a substantial part of the fuel and fodder demand is met by lopping rather than felling of entire trees; thus they do not cause total deforestation.
(viii) Habitat destruction and over-exploitation.
(ix) Hunting and poaching.
(x) Environmental pollution and water poisoning.
(xi) Forest fires.

Q.2. The destruction of forests and wildlife is not just a biological issue. The biological loss is strongly correlated with the loss of cultural diversity. Elucidate.

Ans. The destruction of forests and wildlife is not just a biological issue. The biological loss is strongly correlated with the loss of cultural diversity. Many indigenous and other forest dependent communities have been increasingly marginalised and impoverished by such losses as they directly depend on various components of the forest and wildlife for food, drink, medicine, culture, sprituality, etc.

In many societies women bear the major responsibility of collection of fuel, fodder, water and other basic subsistence needs. Depletion of these resources increases drudgery of women affecting their health as well as leading to negligence of home and family due to longer hours required to acquire the resources. This often has serious social implications.

The indirect impact of degradation are severe drought or deforestation induced floods or dust storms due to soil erosion, etc. These hit the poor the hardest. Poverty in these cases is a direct outcome of environmental destruction. The indigenous culture of these forest dependent communities are severely affected as a result.

Q.3. Why was the Project Tiger launched? What are its objectives? What are its effects upon conservation of wildlife?

Ans. Tiger is one of the key wildlife species in the faunal web. In 1973, government authorities realised that the tiger population had dwindled to 1827 from an estimated 55,000 at the turn of the century. The major threat to tiger population include poaching for trade, shrinking habitat, depletion of prey based species, growing human population and deforestation. Among these poaching for trade of skins and bones is the primary reason behind dwindling of tiger population to such an extent, that it is on the verge of extinction.

Since India and Nepal provide habitat to about two-thirds of the surviving tiger population in the world, these two countries became prime targets for poaching of tiger and illegal trading. Thus, the central government announced the Project Tiger with the objective of protecting this species which was gravely threatened.

'Project Tiger' one of the well-publicised wildlife campaign in the world, was launched in India in 1973.

The objectives of Project Tiger are as follows :

(i) Banning hunting and poaching of tiger.
(ii) Restricting trade of tiger skin, bones. etc.
(iii) Giving legal protection to their habitats by creating tiger reserves, e.g., Corbett National Park in Uttarakhand and Sunderbans in West Bengal. There are 27 tiger reserves in India covering an area of 37,761 sq. km.

(iv) To increase the tiger population through natural breeding within the reserves.

(v) To conduct periodic censuses of tiger population.

Initially the Project Tiger showed success as the tiger population rose to 4002 in 1985 and 4334 in 1989. But in 1993, the population of the tiger had dropped to 3600. Presently, their number has further dwindled at an alarming figure.

Tiger conservatin has been viewed not only as an effort to save an endangered species, but with equal importance as a means of preserving biotypes of sizeable magnitude.

Q.4. Discuss the role of local communities in the conservation of forests with the help of examples.

Ans. Indian forests are home to some of the traditional communities who are dependent on forests for their livelihood. These local communities are struggling to conserve forests along with government officials in some areas and in many areas, villagers themselves are protecting the habitats and explicitly rejecting government involvement.

In Sariska Tiger Reserve, Rajasthan, villagers have fought against mining and destruction of forest by citing the Wildlife Protection Act.

The inhabitants of five villages in the Alwar district of Rajasthan have declared 1,200 hectares of forest area the Bhairodev Dakav 'Sonchuri', enforcing their own set of rules and regulations. They donot allow hunting, and are protecting the wildlife against any outside encroachments.

On account of nature worship prevalent mainly among the tribals, several virgin forests hve been preserved in their pristine form as 'Sacred Groves'.

The Bishnois of Rajasthan are well known for protecting black bucks (chinkara) an endangered species, and herds of black buck, nilgai and peacocks can be seen as an integral part of the community and nobody harms them.

The famous Chipko Movement in the Himalayas led by local communities, especially women, successfully resisted deforestation in several areas. They have also shown that community afforestation with indigenous species can be enarmously successful.

Traditional conservation methods are revived through the Beej Bachao Andolan in Tehri and Navdanya.

The Joint Forest Management programme furnishes a good, example for involving local communities in management and restoration of degraded forests.

Q.5. What are 'sacred groves'? Give examples of some species of flora which are worshipped by the tribals. How has the 'sacredness' ascribed to plants and animals helped in protecting them?

Ans. Nature worship is an age-old tribal belief based on the premise that all creations of nature, i.e., plants, animals, all living things and the surrounding abiotic environment, are sacred and should be protected. On account of nature worship several virgin forests have been preserved in their pristine form and are called 'Sacred Groves' or forests of Gods and Goddesses. These patches of forests or parts of large forests have been left untouched by local communities and any interference with them is banned. These sacred groves have a wealth of diverse and rare species.

Certain tribal societies revere a particular species of flora which they have preserved from time immemorial.

The Mundas and the Santhals of Chhotanagpur region worship Mahua (Bassia Latifolia) and Kadamba (Anthocaphalus cadamba) trees.

The tribals of Orissa and Bihar worship tamarind (Tamarindus indica) and mango (Mangifera indica) trees during weddings.

On account of the 'sacredness' ascribed to them, certain plants and animals have been protected. Peepal and banyan trees and tulsi plants are considered sacred by many of us. These trees themselves or their leaves are part of worship during pujas and rituals. These trees are revered and protected.

Troops of macaques and langur are found around many temples. They are fed daily and treated as a part of temple devotees.

In and around Bishnoi village of Rajasthan herds of black buck (chinkara), nilgai and peacocks can be seen as an integral part of the community. The Bishnois consider these animals as sacred and protect them.

Q.6. Write a short note on Joint Forest Management. What have been the effect of Beej Bachao Andolan towards conservation of forests?

Ans. In India, Joint Forest Management Programme furnishes a good example for involving local communities in the management and restoration of degraded forests. Under the Joint Forest Management Programme the local communities form local (village) institutions that undertake protection activity, mostly on degraded forest land managed by the forest department. In return, members of these local communities are entitled to intermediary benefits like non-timber forest products like fruits, nuts, leaf, litter, honey, lac, etc, and share in the timber harvested by 'successful protection.'

The Joint Forest Management programme has been in formal existence since 1988 when the state of Orissa passed the first resolution for Joint Forest Management.

Ecological farming involves attempts to revive traditional conservation methods for developing new methods of farming that will not degrade the land. The Beej Bachao Andolan in Tehri and Navdanya are movements towards ecological farming. Farmers and citizen's groups leading the Beej Bachao Andolan and Navdanya have shown that adequate levels of diversified crop production without use of synthetic chemicals is possible and economically viable.

Q.7. Write a note on the programmes accepted for conserving forest and wildlife in India.

Ans. Conservation of forest and wildlife is necessary because it preserves the ecological diversity and preserves our life support system. The National Forest Policy outlines the following for protection, conservation and development of forests in India.

(i) Maintenance of environmental stability through preservation and restoration of ecological balance.
(ii) Substantial increase in forest tree cover through massive afforestation and social forestry programmes.
(iii) Steps to meet the requirements of good fuel in form of firewood and leaves, litter, fodder and minor forest products by increasing productivity of forests.
(iv) Encouragement of efficient utilisation of forest produce and optimum substitution of wood.
(v) Steps to create massive people's movement with involvement of woment to achieve the conservation of our national heritage and minimise the pressure on existing forests.

For conservation of wildlife the following steps have been undertaken in India :

(i) Development of 88 national parks, 490 wildlife sanctuaries and 13 biosphere reserves.
(ii) Implementation of Wildlife Protection Act.
(iii) Protection of remaining population of endangered species by banning hunting, giving legal protection to their habitats and restricting trade in wildlife.
(iv) Project Tiger, Project Rhino, Project Elephant etc for protection of threatened species in their natural habitats. 27 tiger reserves have been set up under Project Tiger.
(v) Four coral reefs have been identified for conservation and management. Many wetlands in the country are linked with river system.

E. MAP WORK (4 MARKS)

Q.1. On an outline map of India, mark and label the following :

(a) The state with 75 percent of its area under permanent forests.

(b) A state with large area under reserved forests.

(c) A state with large percentage of forest area as protected forests.

(d) A state with very high percentage of its forests as unclassed forests.

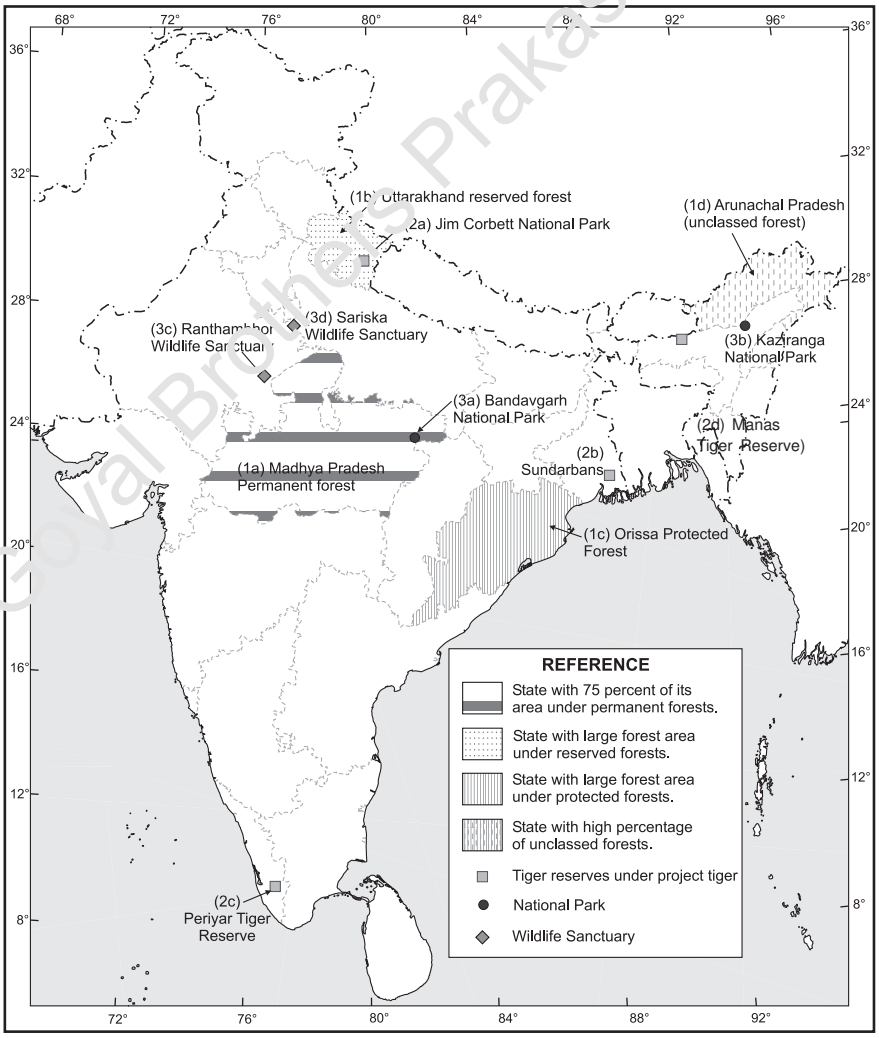
Q.2. On an outline map of India mark and label the following tiger reserves which are under Project Tiger.

(a) Corbett National Park (b) Sunderbans National Park (c) Periyar Tiger Reserve

(d) Manas Tiger Reserve.

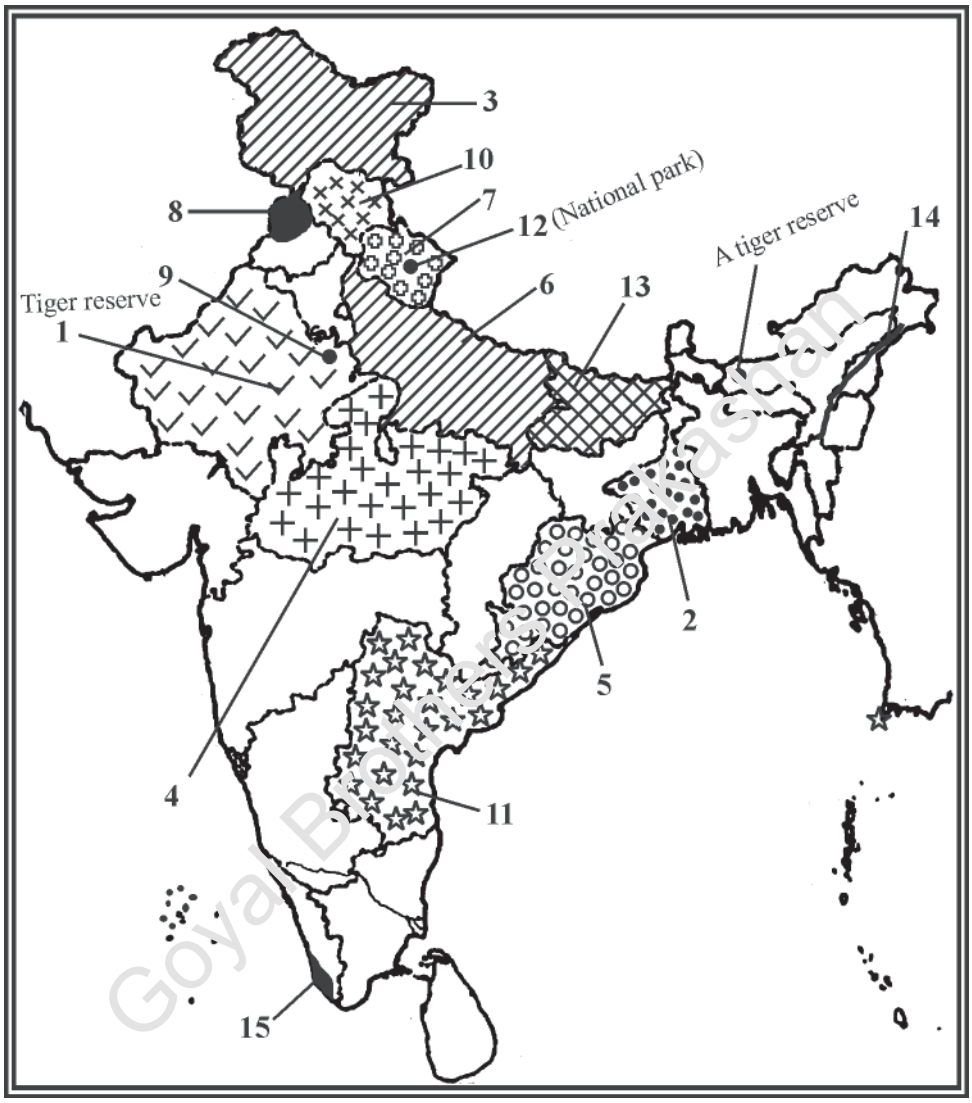
Q.3. Locate and label the following National Parks and Wildlife Sanctuaries on the outline map of India.

(a) Bandhavgarh National Park (b) Kaziranga National Park (c) Ranthambhor Wildlife Sanctuary (d) Sariska Wildlife Sanctuary



PREVIOUS YEARS' QUESTIONS

Q.1. For Identification only. (Type of Forest) **[2010, 2011 (T-1)]**

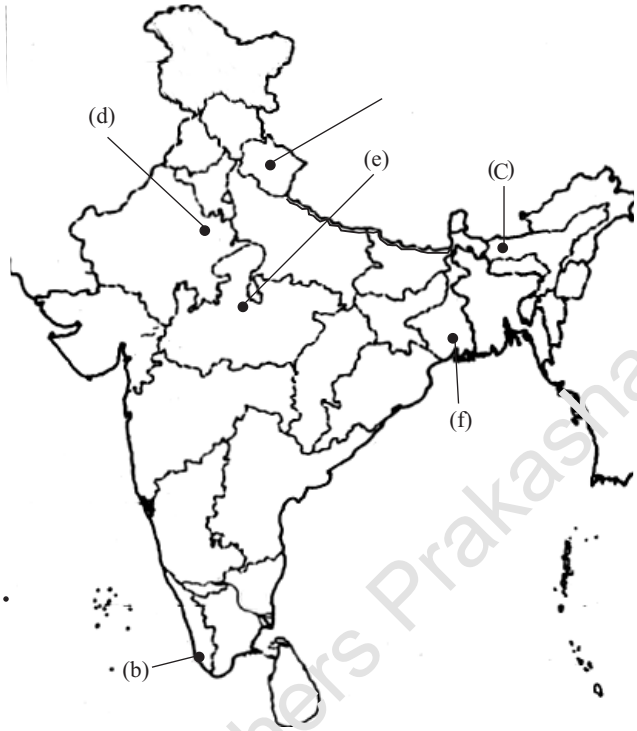


Ans.

(1) Manas tiger reserve
(2) Reserved forests
(3) Reserved forest
(4) Permanent forests
(5) Protected forest
(6) Protected forests
(7) Reserved forest
(8) Protected forest
(9) Sariska tiger reserve
(10) Protected forests
(11) Reserved forests
(12) Corbett National Park
(13) Protected forests
(14) Unclassed forests
(15) Reserved forest

2. For locating and labelling. **[2010, 2011 (T-1)]**

(a) Corbettt National Park (b) Periyar Tiger Reserve (c) Manas Tiger Reserve
(d) Sariska Wildlife Sancturary (e) Bandhavgarh (f) Sunderban National Park



II. FORMATIVE ASSESSMENT

A. PROJECT WORK

Q.1. Collect pictures of animal species that are endangered.
Collect newspaper cuttings reporting on endangered species, threats to them, their declining numbers. Prepare a collage with the collected materials, pictures and photographs. Display it on the class board in turns. With teacher's permission you can display it on the corridor boards of the floor in which your classroom is located.

Q.2. Find out which plants and animals are considered sacred in your community. Find out why they are worshipped. Discuss, how have this helped in conservation of flora and fauna. Bring pictures of these species of flora and fauna. You can also bring samples of fruits, leaves, etc. Fix them in chart and display in the class.

B. ASSIGNMENTS

Q.1. Data Placement.

With reference to flora and fauna of India write the correct data figures for the following.

79, 1500, 15,000, 47,000, 89,000, 44, 3, 15, 8, 1.6 million

(a) Species of flora. (b) Species of fauna (c) Percentage of total species of the world
(d) Estimated number of total species of the world. (e) Number of endangered species

of mammals. (f) Number of endangered species of birds. (g) Number of endangered species of reptiles. (h) Number of endangered species of amphibians. (i) Number of endangered plant species. (j) Number of endemic plant species.

Ans. (a) 47,000 (b) 89,000 (c) 8 per cent (d) 1.6 million (e) 79 (f) 44 (g) 15 (h) 3 (i) 1500 (j) 1,5000

Q.2. Make a list of five major products and five minor products of forests that are useful to man.

Major Products	Minor Products
(a)	
(b)	
(c)	
(d)	
(e)	

C. ACTIVITIES

Q.1. Animal hunt.

Given below are a list of animals species. Classify them according to category of existence : Kashmir stag or hangul, Indian wild ass, Sangai, Asiatic elephant, Himalayan brown bear, black buck, blue sheep, Indian rhino, Nicobar pigeon, pink-head duck, Asiatic bufffalo, Gangetic dolphin, lion-tailed macaque, desert fox, Andaman teal, Asiatic cheetah, crocodile, cattle, hornbill, mithun, Andaman wild pig, rodents.

Category of existence	Animal species
Normal species	
Endangered species	
Vulnerable species	
Rare species	
Endemic species	
Extinct species	

Q.2. Label the following five medicinal herbs with the help of the photographs and their uses.

(1)

Use : Antibiotic for wounds

(2)

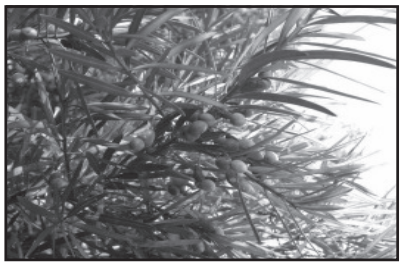
Use : Fresh juice cure for earache

(3)

Use : Cure for cough and cold

(4)

Use : Threatened medicinal climber



(5)

Use : Treatment of cancer

Ans. (1) Neem (2) Arjun (3) Tulsi (4) Embelica ribes (5) Himalayan yew

D. QUIZZES

Q.1. Word Jumble.

(a) OFRLA _____ (term denoting plants of a particular region)

(b) RMONGAVE _____ (a type of natural forests in deltaic region).

(c) GAPHIONC _____ (killing of animals for tusk, horn, skin etc for illegal trade).

(d) HISTFIGN NITOVIATULC _____ (a type of agriculture that has greatly destructed forests).

(e) LXATO _____ (a chemical compound extracted from the Himalayan yew, used as anti-cancer drug).

Ans. (a) FLORA (b) MANGROVE (c) POACHING
(d) SHIFTING CULTIVATION (e) TAXOL

Q.2. Word Grid :

In the word grid given below, the names of at least five plant species and five animal species found in India are given. Can you find them?

X	Y	Z	S	P	Q	S	R	A	L
T	A	M	A	H	U	A	M	O	B
E	G	K	N	A	N	L	I	O	N
A	H	M	G	R	I	A	T	A	S
K	A	L	A	O	F	L	H	L	A
A	R	H	I	N	O	F	U	K	E
L	E	O	P	A	R	D	N	L	U
K	A	D	A	M	B	A	C	K	U
G	L	O	Y	E	W	D	L	I	N
O	T	A	M	A	R	I	N	D	T

Ans.

Plant Species	**Animal Species**
Mahua	Lion
Kadamba	Leopard
Tamarind	Sangai
Teak	Mithun
Sal	Rhino

E. GROUP DISCUSSION

Hold a class discussion on steps taken by the Government to protect the flora and fauna of the country.

Ask the students to suggest steps to protect the plants and animals individually.

The students can bring newspaper cuttings and pictures from Magazines to highlight need to protect flora and fauna and some measures taken in this regard. Stress importance on endangered species.

F. EXCURSION

Take the students on a day's trip to the Zoological Garden and Botanical Garden of your city.