

# OUR THREATENED WILDLIFE



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## INTRODUCTION



Wildlife includes any animal, insect, aquatic, or land vegetation that forms part of any habitat. This includes all varieties of flora and fauna, what is popularly known as biological diversity.



India is a unique subcontinent with vast variation in geographic area, topography and climate. It has a great diversity of natural ecosystems from the cold and high Himalayan ranges to the seacoasts, from the wet northeastern green forests to the dry northwestern arid deserts, different types of forests, wetlands, islands, estuaries and oceans. Every ecosystem has its own unique representation of species.



## THE WILDLIFE DIVERSITY OF INDIA

India has about 8 percent of the world's biodiversity on 2 percent of the earth's surface, making it one of the 12 mega-diversity countries in the world. Of about 1.75 million species globally identified, around 1,26,188 species have been reported so far from India. The species recorded include flowering plants (angiosperms), mammals, fish, birds, reptiles and amphibians, constituting about 17.3 percent of the total, whereas fungi and insects make up nearly 60 percent of India's bio-wealth. This diversity can be attributed to the great variety of natural ecosystems due to the varied physical and climatic features found in India.



India ranks tenth in the world both in respect of richness of flowering plants (17,500 spp.) and mammals (350 spp.) and fourth in Asia in plant diversity. India is also a centre of crop diversity, a homeland of as many as 167 species of crops and 320 species of wild crop relatives.



The country has 10 different bio geographic zones and 26 biotic provinces gifted with unique and rare species of flora and fauna.

## INDIA : A LAND OF DIVERSITY .... AND DESTRUCTION

Ecosystems	Range Native to India	Destroyed/Under Threat
Forests	200 types, scrub to rainforest	Approximate 50 percent wiped out over last century
Wetlands	8 types, seasonal flood plains to lakes	One-third drained out, 70 percent polluted
Agro-ecosystems	20 agro-ecological zones	Mass homogenisation across the plains
Coasts	Several types of beach, mangroves, coral reef systems	40 percent of mangroves wiped out; major portion of coral reefs bleached or silted

Source: Folio, The Hindu, May 20, 2001

## **Threatened animals of India by Status Category**

Critically Endangered	18
Endangered	54
Vulnerable	143
Lower Risk conservation dependent	10
Lower Risk near threatened	99
Data Deficient	31

Source: IUCN, 2000



## **Threatened plants of India by Status Category**

Extinct	7
Extinct in the Wild	2
Critically Endangered	44
Endangered	113
Vulnerable	87
Lower Risk conservation dependent	1
Lower Risk near threatened	72
Data Deficient	14

According to the Red List of Threatened Animals, 44 plant species are critically endangered, 113 endangered and 87 vulnerable.

Source: IUCN, 2000



## **BIODIVERSITY HOTSPOTS**

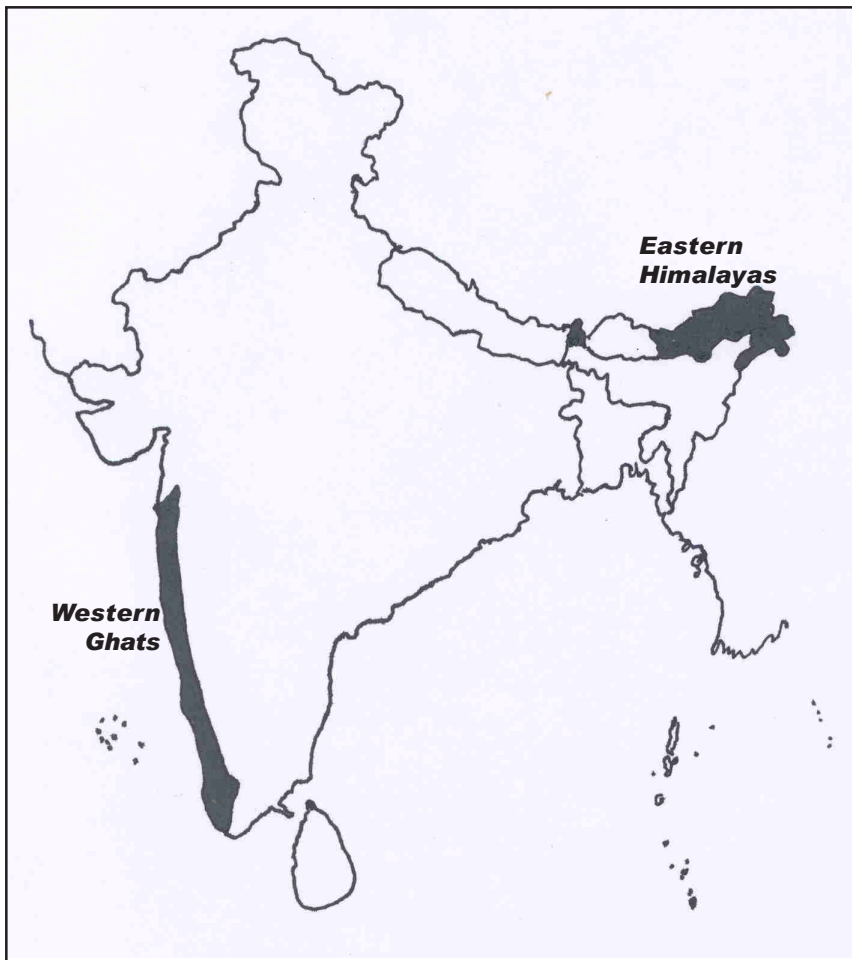
### **Definitions**

There are certain terms that we must know to understand the status of and problems faced by wildlife.

- **Endemic:** When a species is found only in a particular geographical region because of its isolation, soil and climatic conditions it is said to be endemic.
- **Extinct:** Permanent disappearance of a species in the wild after repeated searches of known or likely areas where they may occur.
- **Endangered:** A species in danger of becoming extinct.
- **Threatened:** A species that will become endangered if its present condition in the wild deteriorates.
- **Rare:** A species that is not yet threatened with extinction, but is in need of close monitoring.
- **Vulnerable:** A species experiencing a decline in the number of its population.
- **Schedule I animal:** An animal specified in Schedule I of the Wildlife (Protection) Act, 1972 which is endangered or threatened or rare.
- **IUCN:** International Union for Conservation of Nature and Natural Resources.

The Eastern Himalayas and the Western Ghats are 2 of the 18 recognized hotspots of the world. Hotspots generally refer to the areas rich in general diversity, high degree of endemism and higher incidence of endangered and threatened species of flora and fauna.





### ■ **Eastern Himalayas**

The Eastern Himalayas are recognized as the 'Cradle of Speciation' due to their rich diversity of primitive flowering plants. 63 percent of the genera of the Indian land mammals, more than 60 percent of Indian birds, two endemic genera of lizards, 35 endemic reptilian species, including two turtle and 68 amphibian species of which 20 are endemic, are found in this region.

### ■ **Western Ghats**

The Western Ghats run for approximately 1,500 km. along the west coast of India. They cover only 5 percent of India's land surface, but the region

has 490 arborescent taxa, of which as many as 308 are endemic. 245 species of orchids belonging to 75 genera are found here, of which 112 species in 10 genera and about 1,500 dicotyledonous plants are endemic to this region.

As many as 315 species of vertebrates belonging to 22 genera are endemic, including 12 species of mammals, 13 species of birds, 89 species of reptiles, 87 species of amphibians and 104 species of fish.

The rich faunal and floral diversity in these regions are listed as threatened. Nearly 235 species of endemic flowering plants are considered endangered.

The Lion tailed macaque, Nilgiri Langur, Nilgiri tahr, flying squirrel and Malabar gray hornbill of this region are recognized as rare fauna.

## **THREATS TO INDIAN WILDLIFE**

Today, India's biodiversity is in jeopardy. Due to various reasons, many wild species are disappearing rapidly. An incalculable number of species are already gone forever, and a large percentage of the rest are threatened with extinction. In almost all cases, the threats to wildlife can be traced to human activities. Today, with the population explosion, more and more land is being cleared for agriculture, habitation and other developmental projects.

- Habitat destruction is the main cause for wildlife extinction in India. The rapid deterioration of the environment due to human interference is aiding the disappearance of wildlife from

the biosphere. According to IUCN, habitat loss and degradation have affected about 89 percent of all threatened birds, 83 percent of mammals and 91 percent of all threatened plants globally. Habitat loss is due to deforestation for extended cultivation, construction of dams, mining operations and road laying. When the natural habitat of animals is destroyed, it leads to a decline in their primary food supply and breeding and nesting grounds. Hence their numbers get drastically reduced. In the case of plants, if their natural habitat is destroyed and the species that controls the pests that attack them are lost, then their survival is at risk.



- With the advent of agriculture man began to grow large quantities of selected crops in his own chosen place, after clearing away the existing natural ecosystem. Out of thousands of edible plants on earth, we have come to depend on only a few. About 90% of the plant food that we eat comes from only twenty species and more than half comes from just three grains, viz., rice, wheat and corn. Selective cultivation has paved the way for the disappearance of wild and rare species. As a result we have lost much of the faunal diversity that depended on those species. Large scale use of pesticides and fertilizers has polluted the land and river ecosystems.
- Pollution by heavy metals, persistent biocides, organic wastes, removal of sand from riverbeds and agricultural run off have spoilt the river ecosystem. The marine ecosystem is affected by hot water from nuclear and thermal power plants, toxic effluents from coastal areas, oil spills, blasting and dredging, collection of undersized fishes and other organisms, exploitation of ornamental seashells and pearl oysters by domestic shell craft industry, export of sea fans and seaweeds, etc.



- Poaching of animals for their skin, fur, tusk, horns and meat for medicinal purposes are a major threat to birds, mammals, plants and reptiles. Superstitious beliefs are the cause for the slaughter of certain species. The meat or body parts of these animals are believed to cure particular ailments.

- Introduction of exotic species are a significant threat affecting 350 (30% of all threatened) bird and 361 (15% of all threatened) plant species. Sometimes cultivated for economic reasons, like the silver oak and eucalyptus, they tend to completely overrun the land,

preventing the growth of natural species. The *sholas*, the natural vegetation of the Nilgiris, have thus dwindled. Since they play an important role in absorbing moisture and maintaining the water table, the Nilgiris are today facing acute water shortage.

- Contradictory laws and policies of the Government and ineffective implementation of laws have also affected the wildlife.

## **Forests**

The tropical forests are home to the largest number of animals and plants. It is estimated that, since Independence, the country has lost about 4,696 million hectares of forest land for non-forest purposes such as cultivation, river valley projects, establishment of industries and townships, illegal encroachments and laying of roads.



Natural and manmade forest fires also devastate vast tracts of forests and adversely affect regeneration of new species.

## **Wetlands**



The mangroves swamps that are the natural vegetation of the wetlands are located in the alluvial deltas of Ganga, Mahanadi, Godavari, Krishna and Kaveri rivers and on the Andaman and Nicobar group of Islands. They occupy 6,700 sq. km., making up about 7% of the world's mangroves. Their elevated root systems are host to 105 species of fish, 20 kinds of shellfish, 229 crustacean species and 117 species of migratory and residential birds that reside in the canopy. The Sunderban mangroves are also the home of the Royal Bengal tiger.

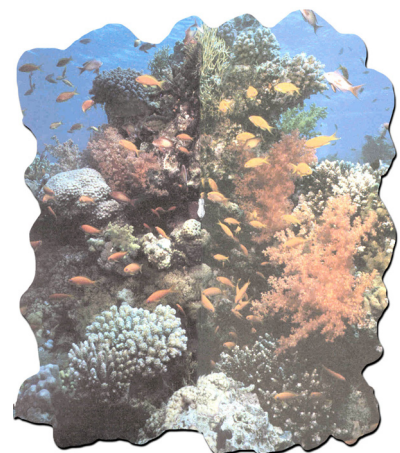
Growing along the coastline, mangroves are a natural wind belt and prevent erosion of the coast, control sealevel rise, provide long-term community stability and act as barrier against the direct force of storms and tsunamis.

The wetlands and hence the mangroves are being ruined by siltation due to soil erosion, agricultural run off, aquaculture, fuelwood extraction, diversion of fresh water for irrigation and indiscriminate construction and tourism. This sounds a death knell for hundreds of species dependent on the wetlands.

## **Coral reefs**

Corals are living organisms which, in a community, are called coral reefs. Coral reefs are the largest, oldest, most diverse and most beautiful communities of plants and animals. They have become seriously damaged or at risk. The coral reef cover in Indian waters is roughly estimated as 19,000 sq.km. and has an impressive diversity of about 200 coral species belonging to 71 genera. The richest is that of the Andaman and Nicobar Islands which alone harbours 179 species.

Coral reefs protect the coastline from erosion and provide a home for a vast variety of plants and animals. Approximately 25% of all marine life, i.e. about 1 million species, are associated with coral reefs.





Habitat destruction is the main threat faced by coral reefs. Lying close to the shore they are subjected to sewage, industrial effluents and hot water from cooling systems. Corals are also under threat as they are used as a raw material in cement factories, exploited as antipatharians and used to make jewellery and commercially exploited for aquarium fish.

## **STATUS OF INDIAN WILDLIFE**



India ranks second in terms of the number of threatened mammals, and sixth in terms of countries with the most threatened birds (IUCN, 2000).

Two important species have become extinct in India in the 20<sup>th</sup> century. The pink-headed duck was last seen in the wild in 1935 and the cheetah in 1949. This bird was largely restricted to the tall *terai* grasslands. The conversion of the grasslands to agricultural fields may have been one

of the major reasons for the disappearance of this ground nesting species.

The cheetah was an inhabitant of open savannah forests and grasslands. Again, the loss of its habitats made sightings of the cheetah unusual even in the 19<sup>th</sup> century, till it disappeared totally from 20<sup>th</sup> century India.

### **Under threat**

#### ■ **Hornbill**



India is home to nine species of hornbills and the northeastern region has the highest diversity of hornbill species in the country, with five hornbill species found there. Three of them are endemic to this region. They are the Wreathed hornbill, Brown hornbill, Rufous-necked hornbill. The other two species, the great Indian hornbill and the Oriental pied hornbill also occur in other parts of India. Except the Oriental pied hornbill, all the others are listed under Schedule I of the Wildlife (Protection) Act, 1972. The Rufous-necked hornbill is listed as 'rare' in the IUCN Red Data Book (1990). Hunting and habitat clearance have threatened the bird. Being a key seed disperser, the survival of the hornbill is necessary for forest survival and restoration.

#### ■ **Pariah kite and White-backed vulture**

Kites and vultures are the commonest birds of prey found near human habitations. They feed on garbage and dead animals and help mankind in keeping his surrounding clean and healthy. By feeding on highly decomposed carcasses they prevent the outbreak of infectious diseases. The excreta of vultures contain guanine, which is a good fertilizer. These are now under threat because of destruction of nesting trees and bio-magnification of pesticides. According to IUCN, Pariah



kites and white-backed vulture are recognized as 'rare' species.

Numbers of vulture have fallen by 90 percent and their disappearance is causing great difficulties for both the Parsi community, who rely on them to dispose of their corpses and village Hindus, who depend on them to consume the carcasses of dead cattle.

### ■ **The Lesser Florican**

The Lesser Florican which is on the verge of extinction, arrives in the grasslands of Western Madhya Pradesh and Saurashtra in Gujarat with the first showers of the monsoon. The whole breeding cycle is so closely interlinked with the availability of suitable grasslands and the onset of the monsoons that the entire survival system of the species has become fragile.

### ■ **Hoolock Gibbon - the only ape of India**

Hoolock Gibbon is found in the rainforests of Arunachal Pradesh, Assam and parts of Nagaland. Their loud whooping early in the morning is heard over a considerable distance and is one of the most evocative sounds of the jungle. But the gibbon, like many other apes throughout the world, is also facing a stiff challenge to its survival, due to pressure for land and timber.



### ■ **Tiger**



The tiger's domain ranges over most of the Indian subcontinent. The tiger is at home in a variety of environmental situation from the high altitude, cold, coniferous Himalayan forests to the steaming mangroves of Sundarbans delta, swampy reedlands of the *terai*, the lush wet evergreen forests of northeast and the south and the scrub-thorn arid forests of Rajasthan.

The tiger is the best indicator species of an ecosystem. It is the ultimate consumer in the complex food web in many of the forest ecosystems of India. Among the terminal carnivorous animals of an ecosystem, the tiger stands at the head. Conservation of tiger in its natural environment can be achieved only by total conservation of the wilderness based on an ecosystem approach. That is the reason why it is stated that the status of tiger in India is the index of success, as a whole, in the conservation of wildlife.

### ■ **Asian or Indian Elephant**

The distribution of wild elephants in India is limited to South, Central, North and North-East India. Elephants are indicators of ecological health. Wherever elephants live, they provide a good habitat for the associated species such as sambar, spotted deer, the barking deer and so on, which in turn keep the predators like tiger or leopard happy. Elephants are mainly hunted for their tusks. This has made the species endangered.







## ■ Asiatic Lion

Even the lion has become a rare animal in India. Lions are restricted to Gir forest. The major hazard for the lion, as for the other species threatened with extinction in India, is habitat loss.

## **VALUE OF WILDLIFE**

### ***Ecosystem services***

Ecosystem services are in a sense the variety of benefits derived from different types of ecosystems as a result of interaction between biotic and abiotic components.

The ecosystem comprises of each and every component within it, ranging from the smallest microbe to the largest tree, soil, nutrients, air and water. In a healthy ecosystem, all these components are intact and exist in perfect harmony – what we call ecological balance.

Ecological services include numerous invisible but essential services such as

- soil formation and control of soil salinity
- nutrient generation through decomposition and waste disposal
- productivity
- absorption of carbon dioxide and balance of atmospheric gases
- stabilization of climate and mitigation of climate change
- maintenance of water table
- enhancement of water and air quality
- flood and drought control
- and many more.

**Conserving the ecosystem is to conserve each and every component in it and conserving a species requires the conservation of its habitat or the ecosystem it is used to.**

### ***Livelihood support***

About 70 % of the Indian population depend on land-based occupations depending on forests, wetlands and marine habitats. Around 10,000 species of plants and a few hundred animal species are involved in this direct relationship between biodiversity and livelihood.

### ***Health and food security value***

According to scientists, the largest use by communities of ecosystem resources is for maintaining health security of human, livestock and plants. Around 8000 species plants and a few hundred species of animals provide for this.

### **Economic value**

The economic value of ecosystem services and components of bio diversity amounts to Rs. 1650 billion, which is around 1.8 times more than the world's GNP. This includes the value of biodiversity in agriculture, livestock, fisheries, medicinal value of marine resources, value of micro organisms in pharmacenters, value of wild medicinal plants, import and export of bio resources and eco tourism. The pharmaceutical industry alone depends to a great extent wild resources, estimated at around 12000 lakh rupees a year, and around 660 wild species are involved in all India trade.

### **Ethical value**

Human beings constitute only one of the millions of species that inhabit the earth. Each species is unique and was created as a consequence of evolutionary processes without human intervention. Therefore every species has a natural right to exist.

### **Scientific value**

Nature is a major source of inspiration and subject of scientific thought. Modern sciences study physical, chemical and biological aspects of biodiversity. The indigenous sciences such as Krishi-shastra, Ayurveda, Vriksh-Ayurveda and so on provide examples of the scientific values of wildlife.

### **Cultural value**

In Indian languages, the two key words, which point to the central relationship between nature and culture, are the words 'Pra-kriti' and 'Sams-kriti'. Whereas nature (Prakriti) is seen as an unmodified (Pra) life process (Kriti), culture (Samskriti) is described as the modified (Samskar) nature (Kriti). A great diversity of plants and animals have been used for religious and cultural purposes.

### **Aesthetic value**

Wildlife has an aesthetic value that is experienced by human beings when they are in natural surroundings. The aesthetic function of nature has a value reflected in the creation of millions of small home gardens, community gardens and botanical gardens, zoos, aquariums and so on.

## **STRATEGIES TO PRESERVE WILDLIFE**

### **Traditional methods**



Sacred groves are small patches of forest that represent an ancient Indian conservation tradition, protected by local people out of reverence and respect, fear and sentiment. They are the home of the local flora and fauna. Tree felling and hunting of animals are strictly prohibited here. Leaves, fruits or roots may be removed only for medical purpose.

The sacred grove is associated with taboos and beliefs to preserve the natural resources. In India, sacred groves are found all over the country along the Western Ghats and the west coast and in several parts of Kerala, Karnataka, Tamilnadu, Maharashtra, Madhya Pradesh, Rajasthan, Orissa and Himachal Pradesh.

### **Modern methods**

**In-situ methods of conservation** means the conservation of animals and plants in their own natural habitats by the establishment of botanical gardens, zoological parks, gene banks, wildlife sanctuaries and traditional conservation areas.



**Project Tiger:** It is estimated that India had about 40,000 tigers in 1900. The number had declined to 1,800 in 1972. The Project Tiger programme was launched in 1973 in order to ensure the maintenance of available population of tigers in India and increased the numbers.

At present, there are about 3,800 tigers found in India in 27 Tiger Reserves.

**Project Elephant:** The project was launched in 1991-92 to assist States having free ranging population of wild elephants and to ensure long-term survival of identified population of elephants in their natural habitats.

**Project Rhino:** It was launched in 1987 in Kaziranga Wildlife Sanctuary in Assam to save the Lesser One-horned Rhinoceros from extinction. It covers an area of 430 sq.km. which is the natural home of the dwindling Rhino.

**Project Crocodile:** The Crocodile Breeding Project initially started in Orissa was then extended to several other States in 1975. The major objective of the project is to protect the three endangered species of crocodiles, *Gavialis gangeticus*, *Crocodylus palustris* and *Crocodylus porosus*.

**Ex-situ methods of conservation** means conservation of animals and plants outside the areas where they naturally occur by the creation and preservation of biosphere reserves, national parks and wildlife sanctuaries.

## **LEGISLATION FOR PROTECTING ENDANGERED SPECIES**

Considering the importance of flora and fauna, there are major national and international efforts to protect and conserve the rich biodiversity and endangered species of wildlife and flora.

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973, is a significant step in this direction. The convention recognized that wild fauna and flora in their many beautiful and varied forms are irreplaceable parts of the natural systems of the earth, which must be protected by all means.
- The United Nations Convention on Biological Diversity 1992 is another milestone.
- The Wildlife (Protection) Act, 1972, is our national initiative to protect wildlife. The Act



provides for establishment of a Wildlife Board and setting up of Wildlife Sanctuaries and National Parks. The Act also makes hunting of wild animals a punishable offence.

- The Biological Diversity Bill, 2000, which is in the offing, also inter alia, strives to protect and conserve the biodiversity and endangered species in India.

## ***THE ROLE OF THE INDIVIDUAL***

Most people do not realize that individuals can make an enormous difference to conservation efforts. Obeying the laws already in existence are a good way to start. By developing strong personal ethics, we can avoid the use of articles made of animal products like fur, skins, horns, nails, hair, shell, ivory, scents like musk and civet, etc. The most important task is to spread awareness of conservation and conservation efforts. Be aware of the various groups and organizations involved in the conservation of wildlife. Support their efforts and if possible, volunteer your services to their cause.



**Ecological balance is essential to all life on earth.**

**The balance of nature is severely upset  
when a species becomes extinct or its population declines,  
as it severely disturbs the food chain and food web.**

**To sustain the ecological balance,  
save wildlife and its ecosystem.**