

Endangered and Endemic Species of India:

(i) Endangered Species:

A plants, animals or microorganisms that are in immediate risk of biological extinction are called endangered species or threatened species. In India, 450 plant species, 100 mammals and 150 birds are estimated to be endangered. According to the Red Data List of International Union for Conservation of Nature (IUCN), there are 132 species of plants and animals in India listed as critically endangered (as of 5 September 2019). India's biodiversity is threatened mainly due to: *Habitat destruction, Degradation and Over exploitation of resources.*



Red Frog



Sangai



Gaur



Indian lion



Indian Cobra



Bengal Tiger



Pelican



Asiatic Lions



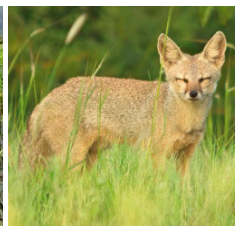
Sapria Himalayana



Indian Rhinoceros



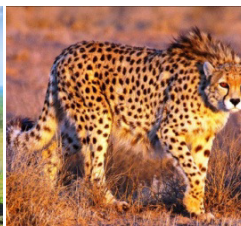
Nilgiri tahr



Bengal Fox



Indian Elephant



Asiatic Cheetah



Markhor

There are a large number of species of plants and animals that are endangered but might become extinct in the near future if not protected and their number has been reduced to a critical number. Unless it is protected and conserved, it is in immediate danger of extinction. Some of the rarest animals found in India are: *Asiatic cheetah, Asiatic Lion, Asiatic Wild Ass, Bengal Fox, Gaur, Indian Elephant, Indian Rhinoceros, Marbled Cat, Markhor*, etc.

Factors affecting Endangered Species:

- Human beings dispose wastes indiscriminately in nature thereby polluting the air, land and water. These pollutants enter the food chain and accumulate in living creatures resulting in death.
- Over-exploitation of natural resources and poaching of wild animals also leads to their extinction.
- Climate change brought about by accumulation of green houses gases in the atmosphere. Climate change threatens organisms and ecosystems and they cannot adjust to the changing environmental conditions leading to their death and extinction.

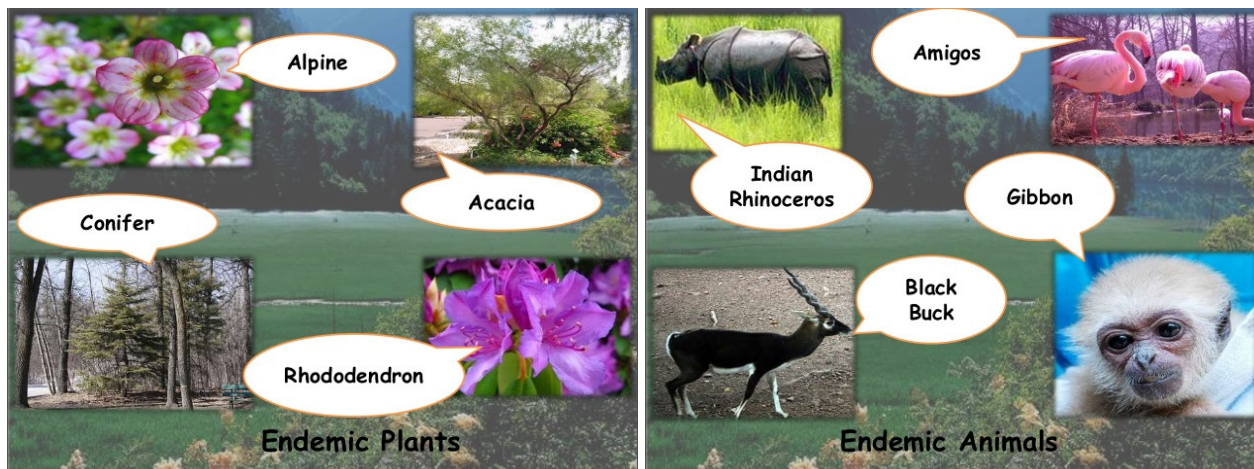
(ii) Endemic Species:

Species that are found only in a particular region are known as endemic species. Almost 60% the endemic species in India are found in Himalayas and the Western Ghats. Endemic species are mainly concentrated in: *North-East India, North-West Himalayas, Western Ghats and Andaman and Nicobar Islands.* Alpine, Acacia, Conifer, Rhododendron, Sapria Himalayana, Ovaria Lurida, Nepenthis khasiana, etc. are examples of endemic flora (plants)

species. Amigos, Indian rhinoceros, Black buck, Gibbon, Lion tailed macaque, Nilgiri langur, Brown palm civet, Nilgiri tahr, etc., are examples of endemic fauna (animals) species.

Factors Affecting Endemic Species:

- ✚ Habitat loss and fragmentation due to draining and filling of inland wetlands.
- ✚ Pollution also plays an important role.
- ✚ Frog eggs, tadpoles and adults are extremely sensitive to pollutants especially pesticides.
- ✚ Over-hunting.
- ✚ Populations can be adversely affected by introduction of non active predators and competitors.
- ✚ Disease producing organisms also play an important adversary in reducing populations of endemic species.



Threats to Biodiversity:

The human population requires resources to survive and grow and these resources are being removed unsustainably from the environment. The greatest proximate threats to biodiversity are *habitat loss, poaching of wildlife, man wild life conflicts, biological invasion, overharvesting, climate change* and *introduction of exotic species*.

(i) Habitat loss:

Habitat loss occurs when natural environments are transformed or modified to serve human needs. It is the most significant cause of biodiversity loss globally. Common types of habitat loss include cutting down forests for timber and opening up land for agriculture, draining wetlands to make way for new development projects, or damming rivers to make more water available for agriculture and cities. Habitat loss can also cause fragmentation, which occurs when parts of a habitat (the local environment in which an organism is usually found) become separated from one another because of changes in a landscape, such as the construction of roads. Fragmentation makes it difficult for species to move within a habitat, and poses a major challenge for species requiring large tracts of land such as the African forest elephants living in the Congo basin. Though some habitat loss is necessary to meet human needs, when natural habitats are changed or modified with little concern for biodiversity the results can be very negative.

(ii) Poaching of Wildlife:

Poaching is defined as hunting wild animals for food and entrepreneurial exploitation, including the bush meat trade for local and urban trade, trafficking (locally and cross-border) and trade in live animals and body parts. It is now usually done for sport or commercial profit, both in legal and black markets. Poaching can be a serious threat to many wild species, particularly those protected in wildlife preserves or national parks. Many animal species have been limited in range or depleted in numbers, sometimes to the point of extinction, by the depredations of market hunters and unregulated sportsmen. Animal poaching is illegal, it is cruel, it puts entire species at risk and it is increasing.



Effects of Poaching:

One of the most dangerous and lasting effects of **poaching** is the decimation of native animal populations. When a certain animal, such as the African elephant, is targeted by poachers, it can take decades for the animal's population to recover. This, in turn, affects the ecosystem to which the animal belongs. A reduction in predators like tigers, for example, may cause prey populations to grow out of hand, while a reduction in fruit-eating mammals may affect seed dispersal, altering the fauna of an ecosystem. **Poaching** does not only affect wildlife. Park rangers and game wardens are also victims of violence.

Plants are also susceptible to poaching. For example, even when forests are not completely cleared, particularly valuable trees such as rosewood or mahogany may be illegally logged from an area, eliminating both the tree species and all the animals that depend on it. Some species are illegally collected not to be killed but to be kept alive and sold as ornamental plants, and the survival of various carnivorous plants, cycads, cacti, and orchid species is threatened by collectors.

Some following species are currently at risk of going extinct because of animal poaching:

- ✚ **Pangolin**, a small scaly anteater, is our planet's most trafficked mammal. Its scales are prized in Asia so locals in Africa are tempted to steal them from the wild. Entire crime networks exist to transport pangolin (dead or alive) from the wilds to the market place in Asia.
- ✚ The horns of **Rhino**, a large herbivore, are brutally removed and smuggled.
- ✚ **Africa's lion** populations have also been affected by poaching. Since 1994, they have been reduced by 42 percent, and the species is now "vulnerable to extinction."
- ✚ Many species of **parrots** are in danger because of the pet trade.
- ✚ Many **tropical fish** collected illegally for aquaria.



Rhino horns



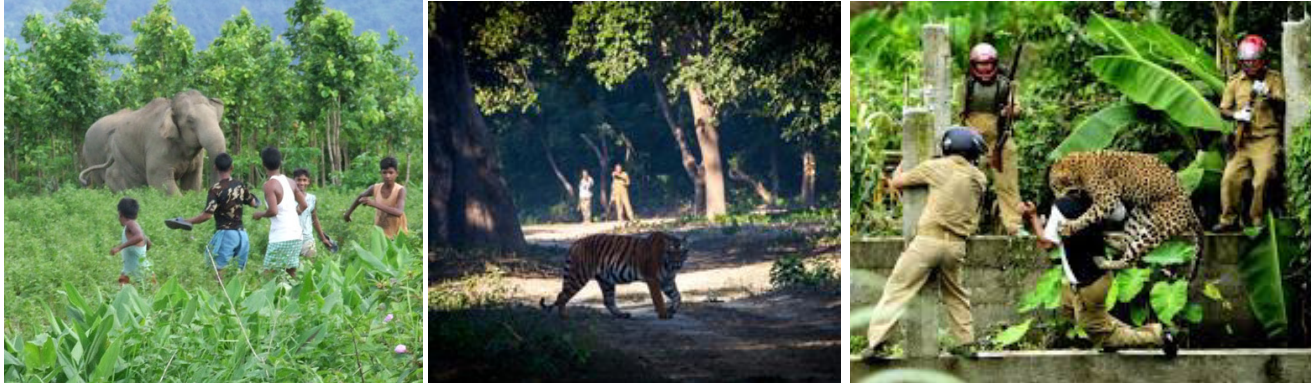
Pangolin



Coral reef fish (Tropical fish)

(iii) Man-Wildlife Conflict:

Growing **human** population, deforestation and loss of habitat are few major reasons behind **man-wildlife conflict**. Natural **wildlife** territory overlaps with the human existence and various forms of **man-wildlife conflict** occur with various negative results. **Conflict between people and animals is one of the main threats to the continued survival of many species in different parts of the world and is also a significant threat to local human populations. If solutions to conflicts are not adequate, local support for conservation also declines.**



Man-wildlife conflict

(iv) Biological Invasions:

When an animal, plant or microbe moves into a new area, it can affect the resident species in several different ways. New species can parasitize or predate upon residents, hybridize with them, compete with them for food, bring unfamiliar diseases, modify habitats, or disrupt important interactions. One famous and striking example of an invasive species is the brown tree snake in Guam. Native to Australia, the snake was accidentally transported to Guam in ship cargo following World War II. Because Guam had basically no predators to keep the snake population in check, it rapidly multiplied and caused the extirpation of most of the resident bird species. *Extirpation* means extinction within a region: the species survives elsewhere, but not in that region.

(v) Overharvesting:

Overharvesting is a serious threat to many species, but particularly to aquatic species. Human population growth has increased the need for protein foods that are not being met from agriculture. There are many species that are threatened by the bush meat trade. The populations of some species have declined in response to harvesting, indicating that the harvest is not sustainable at those levels. The pet trade on some terrestrial species such as turtles, amphibians, birds, plants, etc, is also a concern about the threats to biodiversity. Harvesting of pangolins for their scales and meat and as curiosities, has led to a drastic decline in population size for this fascinating creature.

(vi) Climate Change:

Carbon dioxide released from burning fossil fuels and biomass, deforestation and agricultural practices contributes to greenhouse gases, which prevent heat from escaping the surface of earth. With the increase in temperature expected from increasing greenhouse gases, there will be higher levels of air pollution. It causes greater variability in weather patterns and changes in the distribution of vegetation in the landscape. Some species will not be able to adapt to these changes in the environment and will become extinct.

(vii) Introductions of Exotic Species:

Exotic species are typically introduced into ecosystems without their co-evolved predators and parasites, which enables an alien invader to out-compete native species with similar ecological requirements. In British Columbia, plants such as Knapweed, introduced to arid grasslands, and Purple Loosestrife, introduced to marsh and riparian areas, are rapidly becoming dominant plant species in their respective ecosystems. The interactions between native species are altered or destroyed by these exotic species and can result in the loss of native biodiversity.