

AN INTERNATIONAL CONFERENCE ON Humanities, Science & Research

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Biodiversity Conservation in India

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Abstract

The variety of all species on Earth is known as biodiversity, or biological diversity. It is made up of the various types of plants, animals, and microorganisms, their genes, and the freshwater, marine, and terrestrial ecosystems to which they belong. As biodiversity provides the basic building blocks for the numerous goods and services that a healthy environment delivers, biodiversity is both intrinsically valuable and necessary for human continued existence. With 7.7% of the world's genetic resources, India ranks 12th in the world for mega diversity; yet, over the past few decades, its biodiversity has rapidly declined. In spite of measures taken to mitigate risks and stresses, India's biodiversity continues to diminish.

Introduction:

Thomas Lovejoy and Robert E. Jenkins coined the phrase "biological diversity" in 1980. It's possible that W. G. Rosen first used the term biodiversity in 1985. In 1986, the National Research Council held a symposium in Washington under the theme "biodiversity." Around that time, biodiversity started to gain attention as more people became aware of the extinction crisis. Following the 1992 Rio de Janeiro (Brazil) United Nations Conference on the Environment and Development (UNCED), the term "biodiversity" became widely known. It provided a fresh interpretation of biodiversity.

Biodiversity meaning:

"Bio" and "diversity" refer to life and variety respectively. It is among the most priceless gems. "Biodiversity is the variability found in living things from all sources, such as terrestrial, marine, and other aquatic ecosystems as well as the ecological complexes that support them. It encompasses diversity found in species as well as between species and within ecosystems." Each and every person, plant, and animal add to the earth's diversity, beauty, and functionality. The complexity of biodiversity is frequently attributed to the variety and variability of genes, animals, and ecosystems.

India: Megadiverse country:

There are thought to be between 5 and 50 million different species of living things on Earth. Only 1.7 million of them have been found thus far, though. These comprise 12,32,490 species of invertebrates, including 61,917 species of vertebrates and protochordata, and 4,27,205 species of green plants, fungus, bacteria, and viruses. India is among the world's twelve most varied nations. The nation is divided into two main regions, the Palearctic and the Indo-Malayan, as well as three biomes: warm deserts and semi-deserts, tropical humid forests, and tropical dry/deciduous forests. There are ten biogeographic regions in India. Trans-Himalayan, Himalayan, Indian Desert, Semi-Arid, Western Ghats, Deccan Peninsula, Gangetic plains, North-East India, Coasts and Islands, and this diversity creates rich biodiversity in the country. The wide variety in physical features and climatic conditions have resulted in a diversity of ecological habitats like forests, grasslands, wetlands, coastal and marine ecosystems and desert ecosystems, which harbour and sustain the immense biodiversity. India is fourth in Asia and tenth in the globe for plant diversity according to data that is currently available. India is ranked tenth in the world for the number of mammalian species and eleventh for the number of indigenous species of higher vertebrates. In terms of the variety of species used in agriculture and animal husbandry, it is ranked sixth in the world. The two global hotspots for Indian mountain biodiversity are the Western Ghats and the Himalaya. When it comes to rich species endemism, these two exhibit distinctive and abundant biodiversity. In flora, the country can boast of 45,944 species, which accounts for 10.75% of the known world plants. Of the 18,000 species of flowering plants (angiosperms) 36% are endemic and located in 26 endemic centres. Our country is very rich in faunal wealth too. The country has nearly 89,317 animal species, about 75 percent of which are insects, 4,952 vertebrates including protochordata and about

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84,365 are invertebrates, including. In animals, the rate of endemism in reptiles is 33%, in amphibians 41%, in mammals 9%, and birds 4%.

Biodiversity Conservation:

In this regard, the growing global commitment to sustainable development served as the impetus for the 1992 signing of the Convention on Biological Diversity (CBD). It is a significant advancement toward the preservation of biological diversity, the sustainable use of its constituent parts, and the just and equal distribution of the advantages associated with the utilization of genetic resources. One of the first countries to sign the UN CBD was India. The following were the legal measures in place to preserve biodiversity before CBD.

1. Forest act 1972
2. Wildlife protection act 1972
3. Projects tiger 1973
4. Environmental protection act 1986
5. Forest act 2005



In situ conservation:

With in situ conservation, more species can grow simultaneously and thrive in their natural environments, where they have been growing for a long time, just by eliminating conditions that are harmful to their existence. The sole drawback of in situ conservation is that it necessitates greater acreage and reduces available room for containing the rapidly growing human population. A portion of the following could be designated for in situ conservation:

- Biosphere Reserve
- National Park
- Wildlife Sanctuary
- tiger reserve

WPA 1972:

The Wildlife Protection Act of 1972 gives State Governments in India the authority to designate a region as a National Park or Sanctuary. This is carried out in order to preserve, enhance, and develop wildlife and its surroundings. The Act covers the declaration of sanctuaries in Sections 18 to 34 and 38, National Parks in Sections 35 and 38, and closed areas in Section 37. A total of 1,61,221.57 km² (4.90% of the total geographic area) are covered by the 102 national parks, 512 wildlife sanctuaries, 47 conservation reserves, and 4 community reserves that comprise the nation.

- The Wild Life (Protection) Act, of 1972 provides a legal framework for the protection of various species of wild animals and plants, management of their habitats, regulation, and control of trade in wild animals, plants, and products made from them
- The act also lists schedules of plants and animals that are afforded varying degrees of protection and monitoring by the government.
- India's entry to the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) was made easier by the Wildlife Act.

Project tiger:

- Project Tiger was launched by the Central government on April 1 1973 in a bid to promote conservation of the tiger.
- First launched at the Jim Corbett National Park.

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- Centrally Sponsored Scheme of the Ministry of Environment, Forests and Climate Change providing central assistance to the tiger States for tiger conservation in designated tiger reserves.
- Focuses on the conservation of big cats and ensures the preservation of their natural habitat as tigers are at the top of the food chain.

Biosphere reserve

- Biosphere Reserve (BR) is an international designation by United Nations Educational, Scientific and Cultural Organization (UNESCO) for representative parts of natural and cultural landscapes extending over large areas of terrestrial or coastal/marine ecosystems or a combination of both.
- Biosphere Reserves tries to balance economic and social development and maintenance of associated cultural values along with the preservation of nature.
- Biosphere Reserves are thus special environments for both people and nature and are living examples of how human beings and nature can co-exist while respecting each other's needs.

Wildlife Sanctuary

- Sanctuary is an area that is of adequate ecological, faunal, floral, geomorphological, natural, or zoological significance. The Sanctuary is declared for the purpose of protecting, propagating, or developing wildlife or its environment. Certain rights of people living inside the Sanctuary could be permitted.
- Wildlife (Protection) Act, 1972 provided for the declaration of certain areas by the State government as wildlife sanctuaries if the area was thought to be of adequate ecological, geomorphological, and natural significance.
- As of December 2021, 564 wildlife sanctuaries were established in the country which is 3.73 % of the geographical area of the country.

Project Elephants:

This was launched in 1992 with the aim at ensuring long term survival of identified viable populations of elephant population. There have been drawn lines to restore the lost and degraded habitats of elephant including creation of corridors for their migration, mitigation of man-elephant conflict and establishment of data base on the migration and population dynamics of elephants. It also aims at improving quality of life of people living around elephant habitats through sustainable development. The project is being implemented in 13 states and 30 Elephant reserves have been established.

Project Cheetah:

Cheetahs in India went extinct long back in 1952 due to too much reckless hunting activities. They are back in the news as the decade-long plan to reintroduce the big cat in India sees some activities yet again. After the plan hit another roadblock in December 2021 due to the CoVID19 pandemic and subsequent travel restrictions in Namibia, the concerned officials had to return to India. Recently, The Indian government has established an 11-member high-level steering committee. The step is taken in the wake of the death of cheetah cubs born to a translocated Namibian cheetah at the Kuno National Park in Madhya Pradesh in March 2023.

Ex situ conservation-

It entails raising endangered animals and rare plants outside of their natural habitats, as well as preserving plant and animal species in arboretums, zoological gardens, and botanical gardens. It also involves storing them as seeds in gene banks or in other suitable forms using tissue culture techniques. There are several methods for creating tissue cultures. As a result, carefully considered priorities must be chosen when choosing which species to use for captive breeding programs in zoos. Establishing minimum target population goals to ensure the preservation of captive genetic variety for at least the next 100 years, as well as compiling animal husbandry programs for distribution to all breeding facilities, are some of the stages involved in ex situ

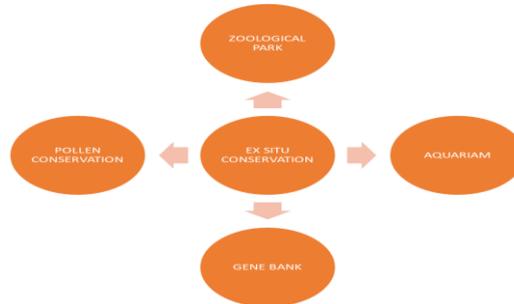
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conservation of animal species. Put into action a comprehensive plan that advances the goals of sustaining healthy captive populations worldwide.



Conclusion:

The time frame over which the impacts are evaluated and the environmental context will play a major role in the realized effects. While the proportional contributions of diversity and composition are still unknown, it is now evident that biodiversity is crucial for both managed and natural ecosystems. Therefore, in order to keep diversity at its current levels, legislators must be knowledgeable about basic science. The world's ecosystems might never recover if the existing patterns of resource management and human growth continue. It seems likely that we will lose many species that are significant to us.

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