

Biodiversity Hotspot:

- A biodiversity hotspot is an area with unusual concentration of species, many of which are endemic.
- It is marked by serious threat to its biodiversity by humans.
- The concept was given in 1988 by Norman Myers.

Qualification:

- To qualify as a hotspot, a region must meet two strict criteria:
- Endemism: it must contain at least 1,500 species of vascular plants (> 0.5 percent of the world's total) as endemics, and
- Loss of Habitat: it has to have lost at least 70 percent of its original habitat.
- Accordingly, 34 biodiversity hotspots have been so far identified. Collectively, the Biodiversity hotspots support 60% of world's plant and animal species with a high share of endemics and cover around 2.5% of Earth's land surface.

List of Biodiversity Hotspots:

- North and Central America: California Floristic Province, Madrean pine-oak woodlands, Mesoamerica
- The Caribbean: Caribbean Islands
- South America: Atlantic Forest, Cerrado, Chilean Winter Rainfall-Valdivian Forests, Tumbes-Chocó-Magdalena, Tropical Andes
- Europe: Mediterranean Basin

- Africa: Cape Floristic Region, Coastal Forests of Eastern Africa, Eastern Afromontane, Guinean Forests of West Africa; Horn of Africa; Madagascar and the Indian Ocean Islands; Maputaland-Pondoland-Albany; Succulent Karoo.

- South Asia: Eastern Himalaya, Nepal; Indo-Burma, India and Myanmar; Western Ghats, India; Sri Lanka
- South East Asia and Asia-Pacific: East Melanesian Islands; New Caledonia; New Zealand; Philippines; Polynesia-Micronesia; Southwest Australia; Sundaland; Wallacea;
- East Asia: Japan; Mountains of Southwest China
- West Asia: Caucasus; Irano-Anatolian
- Central Asia: Mountains of Central Asia;

What Biodiversity Hotspots don't do?

- The Biodiversity Hotspots are often criticized on the following arguments;
- Do not adequately represent other forms of species richness (e.g. total species richness or threatened species richness).
- Do not protect ecosystem services
- Do not consider phylogenetic diversity.
- Do not adequately represent tax other than vascular plants (e.g. vertebrates, or fungi).
- Do not protect smaller scale richness hotspots.
- Do not make allowances for changing land use patterns. Hotspots represent regions that have experienced considerable habitat loss, but this does not mean they are experiencing ongoing habitat loss.
- On the other hand, regions that are relatively intact (e.g. the Instamojo Basin) have experienced relatively little land loss, but are currently losing habitat at tremendous rates.

Biodiversity Hotspots in India:

- India shares its territories into three biodiversity hotspots viz. Eastern Himalaya, Western Ghats and Indo-Burma.
- Biodiversity Hotspots also work as funding regions for Conservation International for its Critical Ecosystem Partnership Fund (CEPF).
- Eastern Himalaya and Western Ghats are mostly located within India's territory.
- In the Indo-Burma Biodiversity hotspot, India shares only a small part in north East India.
- While Bangladesh and Malaysia only extend marginally into the Indo-Burma hotspot.

- For this purpose, officially, the Indo-Burma Hotspot is defined as all non-marine parts of Cambodia, Lao PDR, Myanmar, Thailand, Vietnam plus some parts of southern China.
- The Northeastern India is included in a separate CEPF funding region (Eastern Himalayas Biodiversity Hotspot),
- This is the reason that India has only two biodiversity hotspots viz. Eastern Himalayas and Western Ghats.
- “India has only 2.4% of the world land area & 40% of fresh water, yet accounts for 7.3% of recorded species making it 3rd most mega diverse country (after Brazil & Costa Rica) with highest concentration of species in Agasthyamalai Hills in western Ghats”.

Biodiversity Hotspots in India

Biodiversity is the way, so don't let nature go astray

Biodiversity is the collection of flora and fauna of a place. Biodiversity Hotspot is a region which is a prime location for the existence of rich biodiversity but also faces the threat of destruction. It is a place which needs our immediate and constant attention to survive and thrive in the future as well.

This idea of identifying hotspots was put forth by Norman Myers in 1988. By now, a total of 35 biodiversity hotspots have been identified out of which most of them lie in tropical forests. Almost 2.3% of the land surface of Earth is represented by these hotspots. These also comprise of around 50% of the world's most common plant species and 42% of terrestrial vertebrates prevalent. Sadly, these biodiversity hotspots have been losing 86% of their habitats some of which are still on the verge of extinction due to serious threats posed by climate change and human intervention.

To be called a hotspot, a region has to be able to fulfil at least two criteria including:

1. It should comprise of at least 1500 species of vascular plants i.e. more than 0.5% of the world's total plants.
2. It should have lost greater than or equal to 70% of its original habitat.

India has always been on the list of the richest countries in the world for its biodiversity which can easily be seen in the demography of its land. Though biodiversity and demographic diversity are two completely different topics, the human population has been

dependant on biodiversity since forever in numerous ways. Also, as a result of exponential growth in human population, their survival pressure too has increased tremendously on the biodiversity.

Rich Biodiversity of India

As it has been already mentioned, India is a country rich in biological diversity. It is situated in the Indomalaya ecozone and comprises of 2 out of the 35 biodiversity hotspots in the world. The third one, that is, Indo Burma lies partially in North-East India.

In India, there are approximate-

- 350 mammals which make up 7.6% of world species
- 1224 birds which make up 2.6% of the world species
- 197 amphibians which make up 4.4% of the world species
- 408 reptiles which make up 6.2% of the world species
- 2546 fishes which make up 11.7% of the world species
- 15000 flowering plants which make up 6% of the world species

Source

History

India originally belonged to Gondwana from where many Indian species (descendants of taxa) originated. Due to the collision of Peninsular India with the Laurasian landmass, there was a mass exchange of species which took place. However, what caused most turmoil was the eruption of volcanoes and climate change 20 million years ago which led to the extinction of many Indian forms. After this, mammals were seen entering India through from Asia through the Himalayas as a result of which out of the Indian species, there were 12.6% mammals and 4.5% birds which were endemic and 45.8% reptiles as well as 55.8% amphibians.

Four Biodiversity Hotspots in India

Some of these biodiversity hotspots are present in India which includes:

1. The Western Ghats

These hills are present along the western edge of peninsular India. Since they are situated near the ocean, they are likely to receive a good amount of rainfall. Most of the deciduous, as well as rainforests, are present in this region. Around 77% of the amphibians and 62% of the reptiles found here cannot be spotted elsewhere in the world. [Sri Lanka](#) in South India is a country which is rich in species too. It is connected to India through a land bridge which has a width of nearly 140 km.

There are more than 6000 vascular plants here which belong to more than 2500 genus. 3000 plants out of these are endemic. Most of the spices found in the world such as black pepper and cardamom all are believed to have originated in the Western Ghats. Most of the species are however present in the Agasthyamalai Hills situated in extreme South. The region is also home to around 450 species of birds, 140 mammals, 260 reptiles and 175

amphibians. Such diversity is quite beautiful as well as rare but now lies on the verge of extinction. The vegetation in this region was originally spread over 190,000 square kilometres but has reduced to 43,000 square kilometres today. Only 1.5% of the original forest is still prevalent in Sri Lanka.

Source

2. The Himalayas

This region comprises of [Bhutan](#), Northeast India, and Southern, Central and Eastern [Nepal](#). These Himalayan Mountains are the highest in the world and abode to some of the highest peaks of the world including Mount Everest and K2. Some of the major rivers in the world originate from the Himalayas. The Himalayas comprise of more than 100 mountains beyond 7200 meters.

There are almost 163 endangered species in this region including one-horned rhinoceros, wild Asian water buffalo and as many as 45 mammals, 50 birds, 12 amphibians, 17 reptiles, 3 invertebrate and 36 plant species. One such endangered species found here is the relict dragonfly whose only other species is found in [Japan](#). Himalayan Newt is also present in this region. Coming to the fauna, there are 10,000 species of plants in the Himalayas a third of which are endemic and cannot be located anywhere else in the world. Some of the threatened ones include Cheer pheasant, Western Tragopan, Himalayan quail, Himalayan vulture, White-bellied heron and the like. Mammals too can be spotted here with over 300 species such as Asiatic wild dogs, sloth bears, snow leopard, black bear, blue sheep and wild water buffalo. Namadapha flying squirrel is, however, a mammal which is almost on the verge of extinction and therefore needs immediate attention.

Source

3. Indo-Burma Region

This region consists of numerous countries including North-Eastern India (to the south of the Brahmaputra River), Myanmar, and China's Yunnan provinces southern part, Lao People's Democratic Republic, [Vietnam](#), [Cambodia](#), and [Thailand](#). It is spread over a distance of 2 million square kilometres.

Although this region is quite rich in its biodiversity, it has been worsening over the past few decades. Six species of mammals have been discovered in this region recently including large-antlered muntjac, Annamite Muntjac, gray-shanked douc, leaf deer, saola and Annamite striped rabbit. Other species such as monkeys, langurs, and gibbons too can be found here with a population as less as a hundred. Freshwater turtle species found in the region are however endemic. 1300 species of birds too can be spotted here including the white-eared night-heron, Gray-crowned crocias, and orange necked Partridge most of which are endangered. Almost 13,500 plant species can be spotted in the region half of which are endemic and cannot be found in any other place in the world.

Source

4. Sundaland

This region lies in South-East Asia and includes Thailand, [Singapore](#), [Indonesia](#), Brunei, and [Malaysia](#). The Nicobar Islands represent India. These islands were declared as the world biosphere reserve in 2013 by the United Nations. These islands have a rich terrestrial as well as marine ecosystem including mangroves, seagrass beds, and coral reefs. Species such as dolphins, whales, turtles, crocodiles, fishes, prawns, lobsters and seashells comprise the marine biodiversity. In case the marine resources are over-used, it can pose a serious threat to biodiversity.

Source

Major Reasons for Loss of Biodiversity in Hotspots

These include:

1. Destruction of habitats
2. Pollution and environmental degradation
3. Poachings
4. Climate Change

It is high time to step up and start taking measures to protect our natural biodiversity before time actually runs out.

"Going green is the PURRfect idea. Stop the pollution or the future will be unBEARable."

Ecotourism

A way forward to stop the loss of Biodiversity Hotspots can be Ecotourism. Ecotourism involves visiting fragile, pristine, and relatively untouched natural areas, with the intention to support conservation efforts. One observes the flora and fauna in their natural environment and cause as little impact as possible. It is often done on a small scale and is a great alternative to the mainstream commercial tourism.