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Department of Employment and Training

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Topic : Biodiversity Hot Spots in India

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BIODIVERSITY HOTSPOTS IN INDIA

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Hotspots are areas characterized with high concentration of endemic species experiencing unusual rapid rate of habitat modification loss. Norman Myers defined hot spots as “regions that harbour a great diversity of endemic species and at the same time, have been significantly impacted and altered by human activities.”

A hotspot is a region that supports at least 1500 endemic vascular plant species (0.5% of the global total) has lost more than 70% of its original vegetation.

To qualify as a hotspot, a region must meet two strict criteria:

- a. **Species endemism**- It must contain atleast 1500 species of vascular plants (>0.5% of the world's total) as endemics and
- b. **Degree of threat**- It has to have lost atleast 70% of its original habitat.

Factor responsible for forming hotspots:

1. Endemic plant
2. Endemic vertebrate
3. Endemic plant / area ratio
4. Endemic vertebrate / area ratio
5. Remaining primary vegetation as % of original context.

There are 35 biodiversity hotspots in the world. India is home to four biodiversity hotspots (as per ENVIS). They are

- a. Western Ghats
- b. Himalaya (the entire Indian Himalayan region)
- c. Indo-Burma: includes entire North-eastern India, except Assam and Andaman group of Islands (and Myanmar, Thailand, Vietnam, Laos, Cambodia and Southern China)

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d. Sundaland: includes Nicobar group of Islands (and Indonesia, Malaysia, Singapore, Brunei, Philippines)

1. The Western Ghats and Sri Lanka:

1. Western Ghats also known as the Sahyadri hills encompasses the mountain forests in the southwestern part of India and highlands of southwestern Sri Lanka.
2. The wide variation of rainfall patterns in the western Ghats coupled with the regions complex geography produce great variety of vegetation types. These regions have a moist deciduous forest and rainforest. The region shows high species diversity as well as high levels of endemism.
3. Nearly 77% of the amphibians and 62% of the reptile species found here are found nowhere else.
4. Sri Lanka, which lies to the south of India, is also a country rich in species diversity also dominated rainforests to tropical montane cloud forests.
5. It has been connected with India through several past glaciation events by a land bridge of almost 140km wide. The important population include Asian elephant, Nilgiri tahr, Indian Tigers, Lion Tailed Macaque, Giant Squirrel etc.

2. The Eastern Himalayas:

The Eastern Himalayas is the region encompassing Bhutan, North Eastern India, and southern, central, and eastern Nepal. The region is geologically young and shows high altitudinal variation.

1. The Eastern Himalayan hotspot has nearly 163 globally threatened species including the One-horned Rhinoceros, the Wild Asian Water buffalo and in all 45 Mammals, 50 Birds, 17 Reptiles, 12 Amphibians, 3 Invertebrate and 36 Plant species.
2. Mammals like the Golden langur, The Himalayan Tahr, The Pygmy Hog, Langurs, Asiatic Wild Dogs, Sloth Bears, Gaurs, Muntjac, Sambar, Snow Leopard, Black Bear, Blue Sheep, Takin, The Gangetic Dolphin, Wild Water Buffalo, Swamp Deer call the Himalayan ranged their home.

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3. The only endemic genus in the hotspot is the Namdapha flying squirrel which is critically endangered and is described only from a single specimen from Namdapha National Park.
 4. There are an estimated 10,000 species of plants in the Himalayas of which one third are endemic and found nowhere else in the world. Many plants species are found even in the highest reaches of the Himalayan mountains. For example, a plant species *Ermania Himalayensis* was found at an altitude of 6300 m in north western Himalayas.
 5. A few threatened endemic bird species such as the Himalayan Quail Western Tragopan are found here along with some of Asia's largest and most endangered birds such as the Himalayan vulture and white bellied heron.

3. Indo-Burma Region:

1. It is spread out from Eastern Bangladesh to Malaysia and includes North-Eastern India south of Brahmaputra river, Myanmar, the southern part of China's Yunnan province, Lao People's Democratic Republic, Cambodia, Vietnam and Thailand.
2. The Indo-Burma region is spread over 2 million sq. km of tropical Asia. Since this hotspot is spread over such a large area and across several major landforms, there is a wide diversity of climate and habitat patterns in this region.
3. Much of this region is still a wilderness but has been deteriorating rapidly in the past few decades. In recent time six species of large mammals have been discovered large antlered Muntjac, Annamite Muntjac, Grey Shankled Douc, etc.
4. This region is home to several primate species such as Monkeys, Langurs And Gibbons with populations numbering only in the hundreds. Many of the species, especially some freshwater turtle species, are endemic.
5. Almost 1300 bird species exhausts in this region including the threatened White Earned Night Heron, The Grey Crowned Crocias, and Orange Necked Partridge.
6. It is estimated that there are about 13,500 plants species in this hotspot with over half of them endemic. Ginger is example for native to this region.



4.Sundaland:

1. Sundaland is a region in South-East Asia that covers the western part of the Indo-Malayan archipelago. It includes Thailand, Malaysia, Singapore, Brunei and Indonesia.
2. India is represented by the Nicobar Islands. The United Nations declared the islands a World Biosphere Reserve in 2013.
3. The islands have a rich terrestrial and marine ecosystem that includes Mangroves, Coral reefs and Seagrass beds.
4. The marine biodiversity includes several species such as Whales, Dolphins, Dugong, Turtles, Crocodiles, Fishes, Prawns, Lobsters, Corals and Seashells.

Question:

1. What are hotspots and explain the hotspots presents in India?

