



Mains Practice Question

Q. What are the main threats to biodiversity in India? How can the concept of biodiversity hotspots help in conserving the rich and diverse flora and fauna of the country? (250 words)

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Approach

- Start your answer with a brief introduction of Biodiversity.
- Explain several threats which biodiversity in India is facing.
- Explain how biodiversity hotspots can help in conserving flora and fauna.
- Conclude accordingly.

Introduction:

Biodiversity is the variety and variability of life forms at all levels of biological organization, such as genes, species and ecosystems. Biodiversity is essential for maintaining the ecological balance, providing ecosystem services, supporting livelihoods and enhancing human well-being. India is one of the megadiverse countries in the world, with about 8% of the global biodiversity.

Body:

Biodiversity in India is facing several threats, such as:

- **Habitat loss and fragmentation** due to deforestation, urbanization, mining, agriculture, infrastructure development, etc., which reduce the area and quality of natural habitats and create barriers for wildlife movement and gene flow.
- **Overexploitation and unsustainable use of biological resources**, such as hunting, poaching, logging, fishing, grazing, etc., which deplete the population and genetic diversity of species and affect their survival and reproduction.
- **Invasive alien species**, such as lantana, parthenium, water hyacinth, etc., which compete with native species for resources, alter the habitat structure and function, and introduce diseases and parasites.
- **Pollution and climate change**, which degrade the environmental quality and affect the physiological and behavioural responses of species to changing temperature, precipitation, sea level, etc.

Biodiversity hotspots can help in conserving the rich and diverse flora and fauna:

- **Species Richness and Endemism:**
 - Biodiversity hotspots are characterized by a high concentration of species, including many endemic species found nowhere else in the world.
 - These areas often harbor a diverse array of plants, animals, and microorganisms, making them important reservoirs of genetic diversity. By conserving hotspots, we protect these unique and irreplaceable species.
- **Habitat Preservation:**
 - Biodiversity hotspots encompass a variety of ecosystems, including forests, grasslands,

wetlands, and coastal areas.

- These habitats provide essential resources and ecosystem services necessary for the survival of countless plant and animal species. Conserving hotspots ensures the preservation of intact habitats, mitigating habitat loss and fragmentation that can lead to species decline or extinction.

- **Threatened Species Protection:**

- Biodiversity hotspots are often home to a significant number of endangered and critically endangered species.
- By focusing conservation efforts on these hotspots, we can target specific species that are at the greatest risk of extinction.
- Implementing protective measures such as habitat restoration, anti-poaching initiatives, and captive breeding programs can help safeguard these vulnerable species.

- **Ecosystem Resilience:**

- Hotspots are not only important for individual species but also for the overall health and resilience of ecosystems.
- The interconnectedness of species within hotspots creates complex ecological relationships and contributes to ecosystem stability.
- By conserving hotspots, we help maintain the ecological balance and functioning of these systems, benefiting both flora and fauna.

Conclusion

Thus, by recognizing and protecting these biodiversity hotspots, India can conserve its rich and diverse flora and fauna and contribute to global biodiversity conservation.

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