Biodiversity Decline in Protected Areas

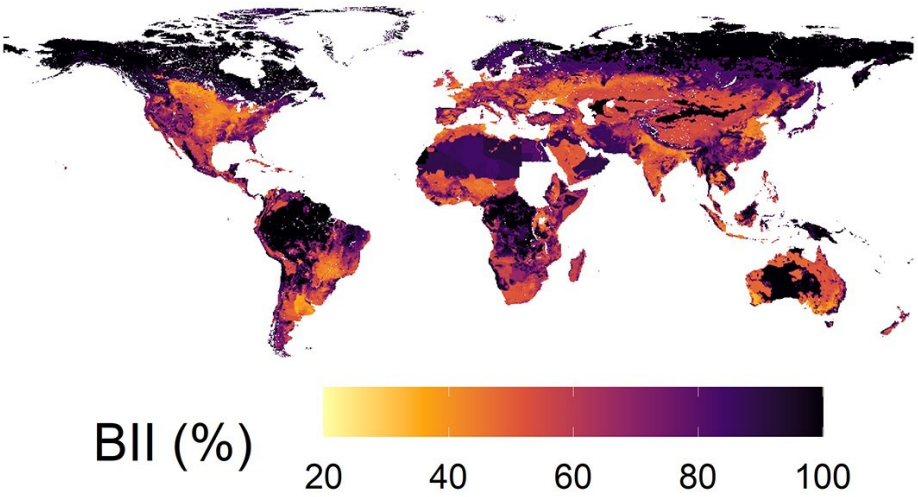
Why in News?

Biodiversity is declining more quickly inside key protected areas than outside them, according to a new study by the Natural History Museum (NHM), London.

How much has the biodiversity declined across the globe?

- **Biodiversity** – It is the 'diversity' of life on Earth at all levels, from genes to ecosystems and it includes diversity within species, between species and of ecosystems.
- **Global Biodiversity** - Of 8-20 million species of organisms in Earth, only about 2 million eukaryotes have been recognized and named so far.
- **Biodiversity Intactness Index (BII)** - It estimates how much of a region's natural biodiversity is still left on average.
- **Global Biodiversity Decline** - The index has decreased by 1.88 % points globally between 2000 and 2020.
- **Biodiversity decline in Critical Biodiversity Areas (CBAs)**
  - Unprotected areas within CBAs - 1.9 %
  - Protected areas within CBA - 2.1 %

Critical Biodiversity Areas (CBAs) are Ecosystems and areas such as wetlands that are crucial for biodiversity and 22% of which is protected.



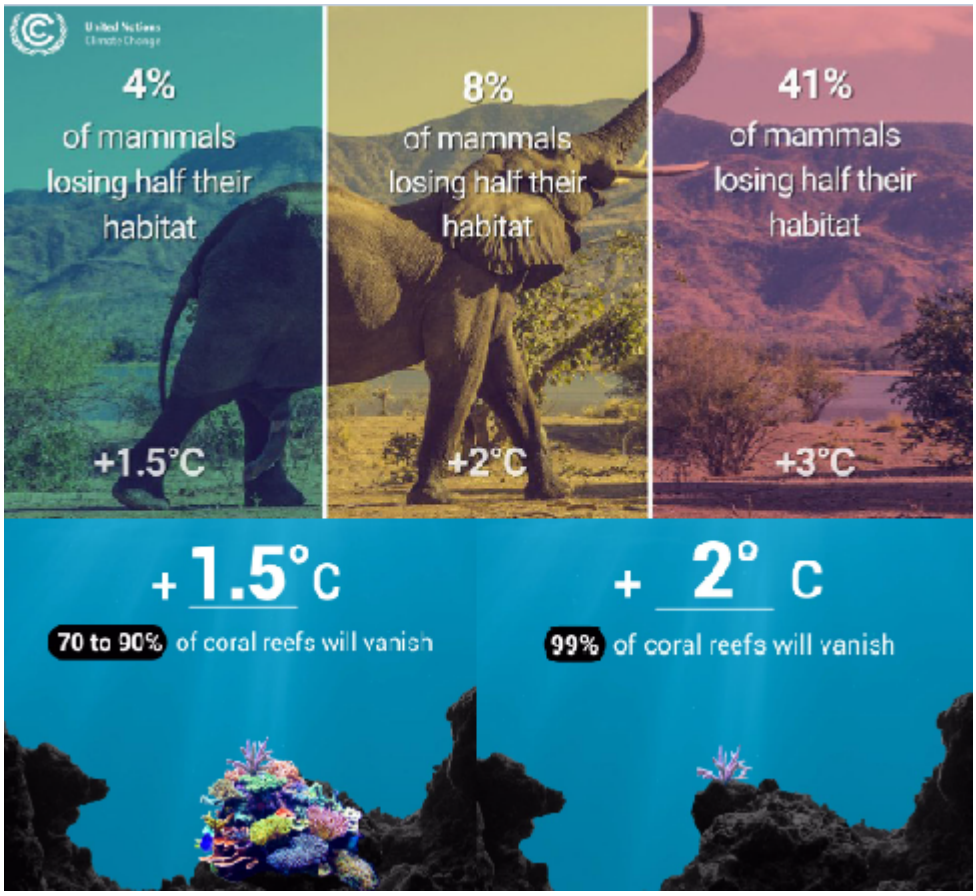
What are the reasons for the biodiversity decline in protected areas?

- **Lack of Ecosystem Approach** - Many of the protected areas are not designed to safeguard the whole ecosystem but only certain species.

- **Ecosystem Degradation** - Habitat loss affects species abundance, genetic diversity, species richness, species distribution.

  53 % of land in India is under conversion for urban, industrial, and agricultural purposes.

- **Inadequate Conservation Measures** - Merely designating more areas as protected "will not automatically result in better outcomes for biodiversity.
- **Mining** – Proximity of oil, natural gas, and other hydrocarbons exploration and mining areas to protected areas.
- **Pollution** - Pollution from nearby industrial activities can degrade habitats and harm wildlife within protected areas.
- **Insufficient Enforcement** - Lack of stringent enforcement of protection laws allows illegal activities like poaching and logging to continue.
- **Climate Crisis** - More frequent and intense droughts and wildfires have severely impacted the protected areas.



What are the significances of protected areas for biodiversity?

- **Habitat Preservation** - They safeguard critical habitats, ensuring the survival of various species by protecting the environments they depend on.
- **Biodiversity Hotspots** - Many protected areas are biodiversity hotspots, rich in unique species that might not be found elsewhere.
- **Genetic Diversity** - Protected areas maintain genetic diversity by preserving a wide

range of species and their genetic variations, which is essential for the resilience of ecosystems.

- **Species Preservation** - By maintaining natural habitats, protected areas help preserve endangered and threatened species, allowing them to recover and increase their populations.
- **Research and Monitoring** - They provide opportunities for scientific research and monitoring, helping us understand ecological processes and develop effective conservation strategies.
- **Climate Change Mitigation** - By preserving forests and other ecosystems, protected areas help mitigate climate change driven biodiversity loss.

What lies ahead?

- Conduct region-specific analysis to determine the specific reasons for landscape deterioration within protected areas.
- Focus on 30×30 commitment made by countries at Biodiversity COP15 to put at least 30% of the world's lands and oceans under conservation by 2030.
- Promote ecosystem level conservation activities along with species conservation efforts.
- Strict enforcement of guidelines regulating mining activities in Protected areas as well as Eco Sensitive Zones.

Prohibition of mining activities in National Parks and Wildlife Sanctuaries ("Protected Areas") shall also extend to an Eco sensitive area up to one kilometre ("km") from the boundary of the Protected Area.

Quick Facts

- **India's Biodiversity** - India has tremendously rich in species and ecosystem diversity in .
  - **Number of Biogeographic zones** - 10
  - **Number of Fauna Species** - Over 1,03,258
    - Endemic Fauna - 28,948 (28% of the total fauna)
  - **Number of Flora Species** - 55,048.
    - Endemic Plants – 12,095
- **India's Protected Areas** – There are 106 National Parks and 572 Wildlife Sanctuaries, which constitute 1.36% and 3.86% of the total area, respectively.
- Gujarat boasts the largest expanse of protected areas, spanning 17,098 km^2, equivalent to 8.72% of its state area.
- In terms of the proportion of total state area, Sikkim, Chandigarh, Ladakh, and Goa lead, with over 20% of their territories designated as protected areas.
- **Increase in Protected Areas** - There has been around 72% increase in the number and around 16% increase in area for the Total Protected Area during the period

2000 to 2023.

India's Floral Species Diversity and Endemism – 2021

Major Groups	Number of Species	No. of Endemic Species	No. of Threatened Species
Flowering Plants			
Gymnosperms	82	12	12
Angiosperms	21,984	4,556	416
Non-flowering Plants			
Bryophytes	2,800	640	7
Pteridophytes	1,314	74	2
Others			
Virus & Bacteria	1,269	26	
Algae	9,008	1,965	
Fungi	15,602	c. 4240	1
Lichens	2,989	c. 582	
Total	**55,048**	**12,095**	

Source: Botanical Survey of India, Kolkata.

India's Faunal Species Diversity and Endemism – 2021

Major Groups	Number of Species	No. of Endemic Species	No. of Threatened Species
Protozoans	3,557	645	
Invertebrates	92,741	27,125	135
Chordates, Cephalochordates and Urochordates	6,960	1,178	540
Of which			
Fishes	3,496	500	228
Amphibia	443	296	75
Reptilia	706	255	54
Birds	1,346	81	89
Mammals	432	46	94
Total	**1,03,258**	**28,948**	**675**

Source: Zoological Survey of India, Kolkata, 2022.

References

[Indian Express | Biodiversity Intactness Index]



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