

Building Bridges for India's Wildlife

***Prelims:** Current events of national and international importance | Environment*

Why in News?

Habitat fragmentation resulting from roads, railway lines, and other linear infrastructure poses significant threats to wildlife populations in India.

Species Threaten by Habitat Fragmentation



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1 Hoolock Gibbon



India's only ape other than humans.



Found in Northeast India, mainly south of the Brahmaputra River.



Western and eastern hoolock gibbon populations have reportedly declined significantly due to habitat fragmentation.



Arboreal; uses long arms to swing between tree branches.



Requires a continuous forest canopy for movement.



The Hoollongapar Gibbon Sanctuary in Assam supports a small, isolated population of western hoolock gibbons.

2 Lion-tailed Macaque



Endemic to the Western Ghats of India.



A threatened, arboreal primate.



Habitat fragmentation occurs around Valparai, Tamil Nadu, due to tea and coffee plantations and roads separating rainforest patches.

3 Indian Giant Squirrel



Scientific name: *Ratufa indica*.



Arboreal rodent found in forested regions of India.



Vulnerable to roadkill and canopy fragmentation.



Rope bridges can help it cross roads safely.

4 Slow Loris



A nocturnal, arboreal primate found in South and Southeast Asia.



Habitat loss and fragmentation threaten its survival.

5 Three-toed Sloth



Arboreal mammal native to Central and South America.

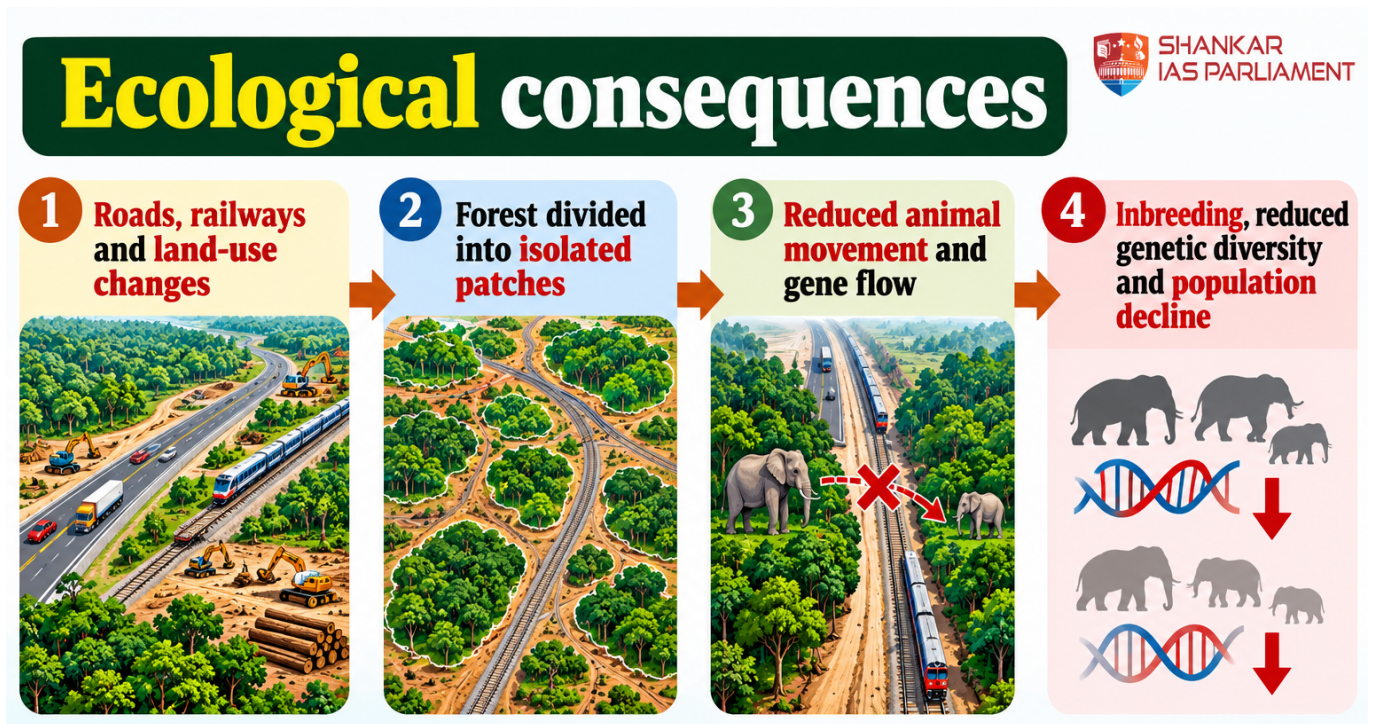


Slow movement makes crossing roads and open ground difficult.



Habitat fragmentation increases its vulnerability.

- Habitat fragmentation refers to the process by which a large, continuous habitat is divided into smaller, isolated patches as a result of human activities or natural processes.
- **Primary Causes**
 - The construction of highways and expressways.
 - The expansion of railway networks.
 - The development of dams, mining operations, and other infrastructure projects.
 - The conversion of forests into agricultural plantations and human settlements.



- **Other impacts**
 - Elevated rates of roadkill and wildlife mortality.
 - Limited access to food resources, potential mates, and breeding habitats.
 - Heightened incidence of human-wildlife conflict.
 - Increased risk of local extinction among small, isolated populations.

Wildlife Crossings: Types and Functions

Type	Description	Importance
Canopy bridges	Trees planted or maintained to create continuous overhead vegetation	Help arboreal animals cross roads or railway lines
Rope bridges	Ropes stretched between trees or across roads	Assist squirrels and other tree-dwelling species
Wildlife overpasses	Vegetated structures built above roads or railways	Allow animals to cross safely over infrastructure
Wildlife underpasses	Tunnels or passages beneath roads and railways	Facilitate movement of terrestrial animals
Green bridges / ecoducts	Broad, vegetation-covered structures connecting habitats	Restore habitat connectivity across major infrastructure

Canopy and rope bridges are particularly suitable for arboreal species, whereas underpasses and overpasses are typically constructed to facilitate movement for terrestrial mammals, reptiles, and other wildlife.

Important Places and Conservation Examples

Location	State / Country	Key fact
Hoollongapar Gibbon Sanctuary	Assam	Conservation of western hoolock gibbons; habitat fragmented by railway infrastructure
Valparai	Tamil Nadu	Lion-tailed macaque habitat affected by plantations and roads
Melghat Tiger Reserve	Maharashtra	Rope bridges have been used to help arboreal wildlife
Srivilliputhur Grizzled Squirrel Sanctuary	Tamil Nadu	Important habitat for the grizzled giant squirrel
Netherlands	Europe	Known for wildlife overpasses and ecological connectivity measures

Reference

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