Environment & Ecology · GS - III

Critically examine how the interface between livestock rearing and wildlife habitats can undermine biodiversity conservation in protected landscapes such as the Nilgiri Biosphere Reserve.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 26/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Wildlife disease spillover, habitat fragmentation, livestock grazing, zoonotic pathogens, One Health approach, community participation, protected area management

Model Answer

The livestock–wildlife interface

The Nilgiri Biosphere Reserve, part of the Western Ghats landscape, supports diverse ecosystems and threatened wildlife. However, free-ranging domestic animals entering forest fringes and wildlife habitats create ecological pressures beyond grazing and habitat disturbance. They also facilitate the transmission of infectious diseases.

Major conservation concerns

1. **Pathogen transmission:** Domestic dogs can transmit canine distemper and rabies to susceptible wild carnivores, while infected cattle and goats can transmit foot-and-mouth disease to susceptible wild ungulates.

2. **Population vulnerability:** Disease outbreaks can cause mortality in already threatened wildlife populations, particularly where species have restricted habitats or small populations.

3. **Habitat interaction:** Shared grazing areas, water sources and forest edges increase contact between livestock and wild animals.

4. **Ecological imbalance:** Declining populations of predators and herbivores can disturb food webs and affect ecosystem stability.

5. **Human livelihoods:** Livestock-dependent communities may face restrictions on grazing and associated economic losses, creating challenges for conservation enforcement.

Integrating conservation and animal health

The One Health approach recognises the interdependence of human, animal and environmental health. Its application should include:

1. Regular vaccination, veterinary surveillance and disease reporting in domestic animal populations surrounding protected areas.
2. Responsible dog ownership, control of free-ranging dogs and improved waste management near forest boundaries.
3. Monitoring wildlife disease outbreaks through coordinated forest and veterinary departments.
4. Community participation, alternative fodder arrangements and livelihood support to reduce dependence on forest grazing.
5. Scientific assessment of disease risks before implementing wildlife translocation or rehabilitation programmes.

Conclusion: Effective wildlife conservation requires management of ecological interactions beyond protected-area boundaries. Integrating veterinary public health, community livelihoods and habitat protection can reduce disease spillover while strengthening biodiversity resilience.

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