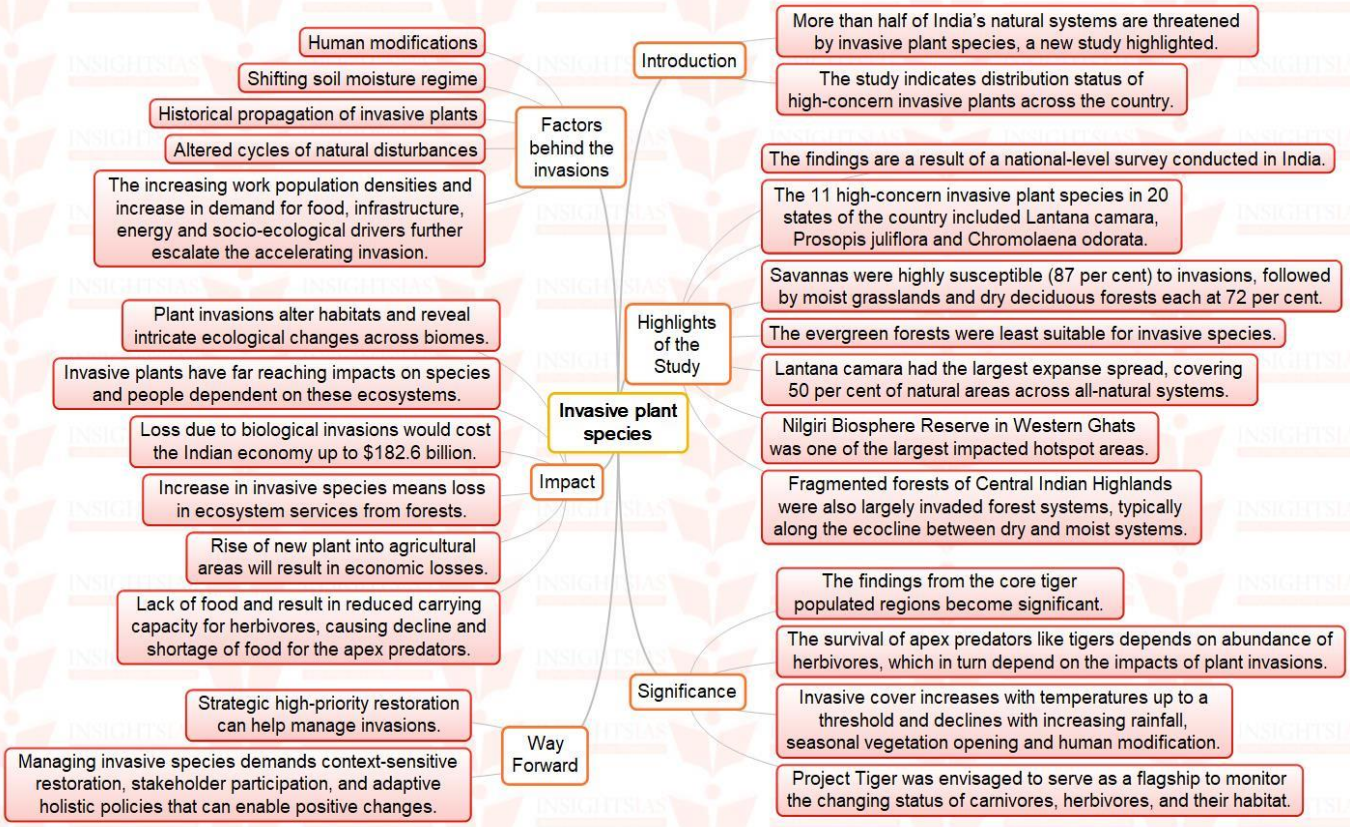

General Studies-3; Topic: Conservation, environmental pollution and degradation, environmental impact assessment.

Invasive plant species

Introduction

- **More than half of India's natural systems are threatened by invasive plant species, a new study highlighted.**
- The study indicates distribution status of high-concern invasive plants across the country.

Highlights of the Study

- The findings are a result of a national-level survey conducted in India.
- The 11 high-concern invasive plant species in 20 states of the country included Lantana camara, Prosopis juliflora and Chromolaena odorata.
- **Savannas were highly susceptible (87 per cent) to invasions,** followed by moist grasslands and dry deciduous forests each at 72 per cent.
- The evergreen forests were least suitable for invasive species.
- Lantana camara had the largest expanse spread, covering 50 per cent of natural areas across all-natural systems.
- **Nilgiri Biosphere Reserve in Western Ghats was one of the largest impacted hotspot areas.**
- Fragmented forests of Central Indian Highlands were also largely invaded forest systems, typically along the ecocline between dry and moist systems.

Significance

- The findings from the core tiger populated regions become significant.

- **The survival of apex predators like tigers depends on abundance of herbivores, which in turn depend on the impacts of plant invasions.**
- Invasive cover increases with temperatures up to a threshold and declines with increasing rainfall, seasonal vegetation opening and human modification.
- **Project Tiger was envisaged to serve as a flagship to monitor the changing status of carnivores, herbivores, and their habitat.**

Factors behind the invasions

- Human modifications
- Shifting soil moisture regime
- Historical propagation of invasive plants
- Altered cycles of natural disturbances
- The increasing work population densities and increase in demand for food, infrastructure, energy and socio-ecological drivers further escalate the accelerating invasion.

Impact

- Plant invasions alter habitats and reveal intricate **ecological changes** across biomes.
- Invasive plants have far reaching **impacts on species and people dependent on these ecosystems.**
- Loss due to biological invasions would cost the Indian economy up to $182.6 billion.
- Increase in invasive species means **loss in ecosystem services from forests.**
- Rise of new plant into agricultural areas will result in **economic losses.**
- Lack of food and result in **reduced carrying capacity** for herbivores, causing decline and shortage of food for the apex predators.

Way Forward

- **Strategic high-priority restoration** can help manage invasions.
- Managing invasive species demands context-sensitive restoration, stakeholder participation, and adaptive holistic policies that can enable positive changes.

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