



Mains Practice Question

Q. Explain the ecological and economic impacts of invasive species and discuss strategies for their control and eradication. **(150 words)**

03 Jul, 2024 GS Paper 3 Bio-diversity & Environment

Approach

- Introduce by mentioning about invasive species with examples
- Discuss the significant impacts of ecological and economic impacts of invasive species
- List out the strategies for eradication of adverse effects of these species
- Conclude positively.

Introduction

An invasive species is a species **that is non-native (or alien) to the ecosystem** under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

- **Species such as** African catfish, Nile tilapia, red-bellied piranha, and alligator gar dominate India's invasive wildlife list.
- According to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), more than 37,000 alien species have been introduced by many human activities in regions and biomes around the world.

Body

Ecological and Economic impacts of invasive species:

- **Alteration of Food Webs and Habitat Structure:** Invasive species can change the food web in an ecosystem by destroying or replacing native food sources. The invasive species may provide little to no food value for wildlife.
 - Invasive species can also alter the abundance or diversity of species that are important habitat for native wildlife.
- **Socio-Cultural and Health Impacts on Local Communities:** Invasive species affect local communities by affecting their health, safety and cultural attachment to native landscapes.
 - For instance, **Prosopis invasion** has blocked **migratory routes in the Rann of Kutch**, reducing access to water sources and has also led to conflicts among pastoralists over reduced grazing resources.
- **Widespread Invasion in Indian Forests:** It is estimated that Lantana camara, a plant invasive species, has invaded 38.8% of forests, particularly degraded forests of hot and humid areas.
 - Lantana is **widely distributed across landscapes with maximum invasion in fragmented dry deciduous forests** of Central India, Shivalik Hills and Southern Western Ghats.
- **Management Expenditures:** Governments and private entities spend significant resources on the prevention, early detection, and control of invasive species.
 - Efforts to restore ecosystems affected by invasive species can be expensive and long-term,

involving replanting native species and rehabilitating habitats.

▪ **Strategies for Control & Eradication**

◦ **Global:**

- **Convention on Biological Diversity (CBD):** Article 8(h) of the CBD states that each Party should prevent the introduction of, control, or eradicate alien species that threaten ecosystems, habitats, or species.
- **Kunming-Montreal Global Biodiversity Framework:** Target 6 of the Framework, an agreement under the UN-CBD, requires member states, including India, to reduce the impacts of invasive alien species on biodiversity and ecosystem services by **50% by 2030**.
- **IUCN Invasive Species Specialist Group (ISSG):** Manages the Global Invasive Species Database (GISD) and the Global Register of Introduced and Invasive Alien Species.

◦ **India:**

- **National Biodiversity Action Plan:** Target 4 is specifically focused on the prevention and management of invasive species.
- **National Action Plan on Invasive Alien Species (NAPINVAS):** Focuses on preventing new introductions, early detection, control, and management of established invasive species.

Conclusion

In conclusion, while invasive species present significant challenges, the concerted efforts of the global community, coupled with innovative strategies and strong governance, provide hope for preserving biodiversity and maintaining healthy ecosystems. It is possible to safeguard the natural heritage of future generations with persistent and adaptive approaches.

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