



Threat of Invasive Alien Species

For Prelims: [Invasive Alien Species](#), [Andaman and Nicobar Islands](#), [Convention on Biological Diversity \(CBD\)](#), [Wildlife Protection Act, 1972](#), [IUCN Red List](#)

For Mains: Factors Responsible for Rising Invasive Species and their Impacts, Environmental Pollution & Degradation, Conservation

Source: [IE](#)

Why in News?

In recent years, the issue of [invasive alien species \(IAS\)](#) has gained increasing attention, particularly in regions like the [Andaman and Nicobar Islands](#), where the spread of species like the [chital](#) poses a significant threat to native flora and fauna.

What are Invasive Alien Species?

▪ About:

- Invasive alien species (IAS) are **non-native organisms**, including plants, animals, pathogens, and others, introduced outside their natural habitat, **posing economic, environmental, and health risks**.
- According to the [Convention on Biological Diversity \(CBD\)](#), IAS are characterised by their ability to "**arrive, survive, and thrive**," outcompeting native species for resources.
- In India, IAS are defined under the [Wildlife Protection Act, 1972 \(amended in 2022\)](#), as **non-native species posing a threat to wildlife or habitats**.
- They adversely affect biodiversity by causing the **decline or elimination of native species** through **competition, predation, or transmission** of pathogens.
- Invasive species disrupt local ecosystems and ecosystem functions, leading to ecological imbalance and loss of habitat.
- Invasive species negatively affect livelihoods, particularly in developing countries, where agriculture, forestry, and fisheries are essential sources of income.
- Invasive alien species are **one of the five major direct drivers of biodiversity loss globally**, alongside land and sea-use change, direct exploitation of organisms, climate change, and pollution.

▪ Examples:

- Species such as **African catfish, Nile tilapia, red-bellied piranha, and alligator gar** **dominate** the list of invasive wildlife in India.
- [Red-eared Slider](#), a North American turtle, popular as a pet, has been introduced into Indian water bodies, outcompeting native species for food and habitat.

▪ Impact on Native Flora and Fauna:

- **1 in 10 species on the [IUCN Red List](#) are threatened by invasive alien species.**
- Invasive species disrupt food chains and upset ecosystem balance, often dominating habitats devoid of natural competitors.
- Since the 17th century, IAS has contributed to **nearly 40% of all known animal**

extinctions, highlighting their significant role in biodiversity loss.

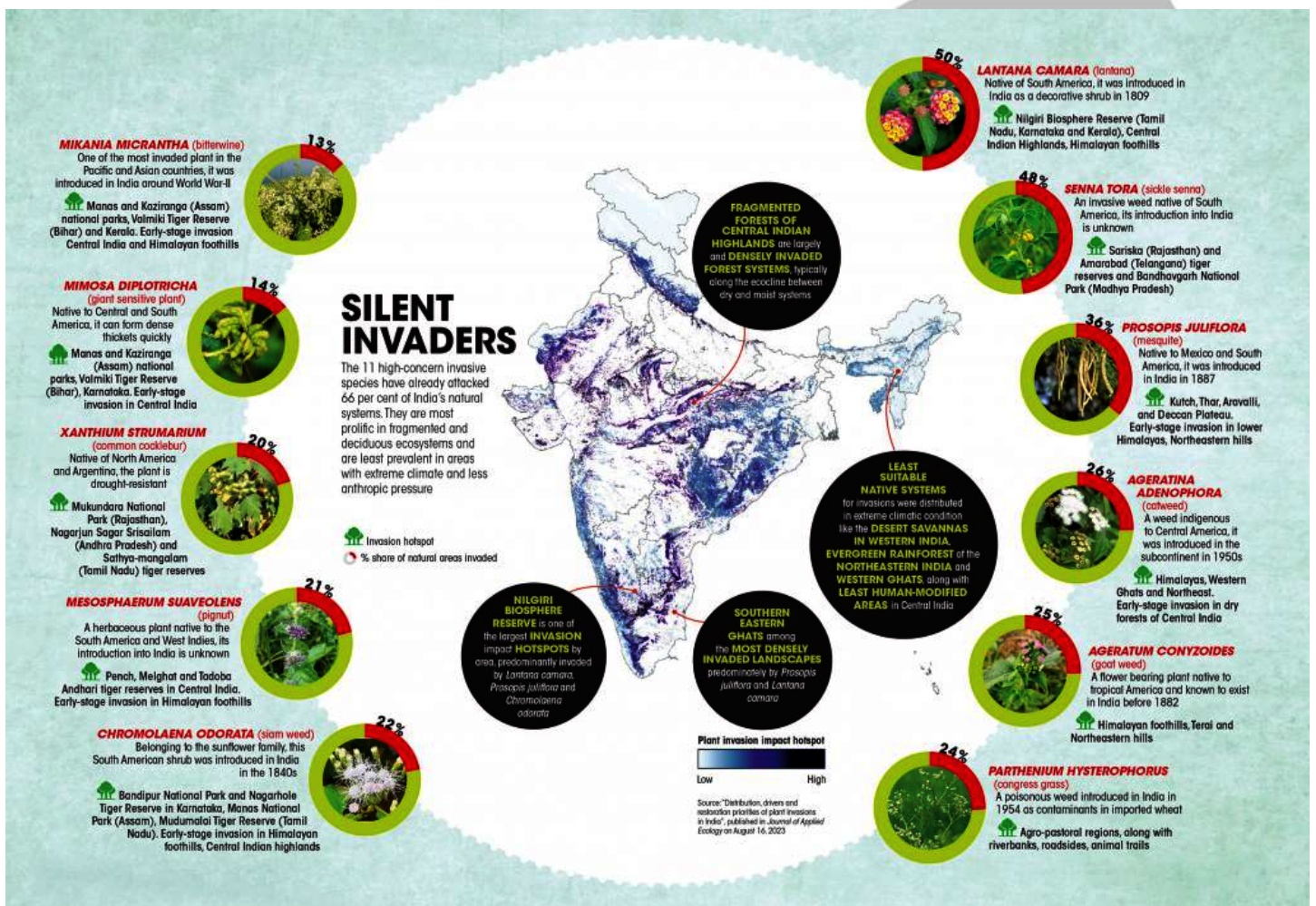
- **Case Study:** In **Keoladeo National Park**, Rajasthan, African catfish prey on waterfowl and migratory birds, altering the park's ecological dynamics.

▪ **Amplified Damage:**

- **Climate change**, pollution, habitat loss, and human-induced disturbances exacerbate the damage caused by IAS, compounding their adverse effects on ecosystems and human well-being.
 - Biological invasions also put human health, food security and livelihoods at risk, as highlighted in the **United Nations Sustainable Development Goal 15**.

▪ **Economic Implications of IAS:**

- The **Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)** reported over 37,000 established alien species worldwide, with annual economic costs exceeding USD 423 billion.
- A study published in the Journal of Applied Ecology states that the estimated **economic cost of biological invasions in India could reach up to USD 182.6 billion**, emphasising the far-reaching consequences for the economy and livelihoods.
- **Case Example:** The **cotton mealybug**, an invasive species in India, has caused significant yield losses in cotton crops in the Deccan region.



What are the Initiatives Related to the Management of Invasive Alien Species?

▪ **Global:**

◦ **Convention on Biological Diversity (CBD):**

- The **CBD and its Parties including India recognize the urgent need to address the impact of IAS**.
- 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**.

- The CBD sets global priorities, guidelines, collects information, and helps coordinate international action on invasive alien species.
- **Kunming-Montreal Global Biodiversity Framework:**
 - Target 6 of the recently adopted **Kunming-Montreal Global Biodiversity Framework**, an international 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.
 - Provides information on invasive species across taxonomic groups to support management efforts.
- **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):**
 - Launched by the Ministry of Environment, Forest and Climate Change (MoEFCC), NAPINVAS focuses on preventing new introductions, early detection, control, and management of established IAS.
 - **National Invasive Species Information Center (NISIC):**
 - This centre provides information and resources on invasive species in India, raising awareness about the issue.
 - **Plant Quarantine (Regulation of Import into India) Order, 2003:**
 - Under the Department of Agriculture and Cooperation (DAC) it regulates the import of plants and plant material to prevent the introduction of IAS.

Term	Definition
Alien Species	A species, subspecies, or lower taxon introduced outside its natural past or present distribution, including any part, gametes, seeds, eggs, or propagules.
Invasive Alien Species	An alien species whose introduction and/or spread threatens the biological diversity of the region/habitat.
Naturalised Species	Alien species that sustain self-replacing populations for several life cycles or a given period without direct intervention by people or despite human intervention.

Drishhti Mains Question:

Q. Evaluate the economic implications of invasive alien species globally and in the context of India. How do invasive species affect sectors such as agriculture, forestry, and fisheries?

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. With reference to the International Union for Conservation of Nature and Natural Resources (IUCN) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which of the following statements is/are correct? (2015)

1. IUCN is an organ of the United Nations and CITES is an international agreement between governments.
2. IUCN runs thousands of field projects around the world to better manage natural environments.
3. CITES is legally binding on the States that have joined it, but this Convention does not take the place of national laws.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (b)

Mains:

Q. How does biodiversity vary in India? How is the Biological Diversity Act, 2002 helpful in conservation of flora and fauna? **(2018)**

PDF Reference URL: <https://www.drishtiias.com/printpdf/threat-of-invasive-alien-species>

