

Invasive Plant Species: The Silent Threat to the Wildlife

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SUMMARY

Weeds account for about one third of the total crop losses. Weeds are reported to cause yield losses of up to 5% in commercial agriculture, 10% in semi-commercial agriculture, 20% in subsistence farming and 37-79% in dryland agriculture. Even the lowest estimate of yield loss of 10% would result in loss of about 25 million tonnes of food grains, valued at US\$ 13 billion. In India, 826 (61 families) weed species are reported to cause yield losses, of which 80 are considered as very serious and 198 as serious weeds. In this article, we discuss the invasive weed species and their drawbacks to crop production. The spread of invasive alien species (IAS) has been increasing exponentially over the years, which is greatly facilitated by international trade and the global transport industry. In this article, we will discuss about alien weed species and measures to prevent it.

INTRODUCTION

The spread of invasive alien species (IAS) has been increasing exponentially over the years, which is greatly facilitated by international trade and the global transport industry (Meyerson and Mooney, 2007). The International Union for the Conservation of Nature (IUCN) defines an alien species as a species, subspecies, or lower taxon introduced outside of its natural range and dispersal potential, *i.e.* outside the range it occupies naturally or could not occupy without intentional or unintentional introduction or care by humans (IUCN 2000). An alien species also referred to as exotic, introduced, foreign, non-indigenous or non-native, has been introduced by humans intentionally or otherwise through human agency or accidentally from one region to another. An alien species becomes invasive once it threatens biological diversity, food and economic security, and human health and well-being (Meyerson and Mooney 2007). India, a rapidly growing developing economy known for its mega-biodiversity and housing four global biodiversity hotspots (Myers *et al.* 2000), has yet to witness a comprehensive national synthesis of this nature. Despite the documentation of several thousand non-indigenous introduced species in India (Sankaran *et al.* 2021), even the most conservative estimates indicate the presence of 173 invasive plant species (Reddy, 2008).

In recent studies, it was mentioned that invasive alien plant species threatened to our native vegetation and wildlife. For example, the invasion of a Giant sensitive plant, *Mimosa diplotricha* has emerged as a major threat in Kaziranga National Park in Assam. The tangled and thorny growth of *Mimosa* hampers movement and access to food and other resources for wild animals like the one-horned rhinoceros (*Rhinoceros unicornis*) an endangered species, Asian elephant (*Elephas maximus*), swamp deer (*Cervus duvauceli*) and tiger (*Panthera tigris*) in Kaziranga National Park in north-east India (Vattakkavan *et al.*, 2005; APFISN, 2006). Similarly, a recent study conducted by Rastogi *et al.* (2023) said that co-occurrence of *lantana camera* and *Pogostemon benghalensis* resulted in a significant change in the native plant composition, decline in plant richness and abundance, increased potassium content in the soil, decline in the regeneration of native dominant tree species, a decline in the abundance of edible forage plants, and increased herbivory pressure on the native forage in Kanha Tiger Reserve in Madhya Pradesh's (Rastogi *et al.*, 2023). The study cautions that repeated instances of such multiple invasions could lead to a future decline in herbivore populations. Furthermore, if this issue persists, it has the potential to directly impact the survival of large mammals in the area, potentially affecting predators such as leopards and tigers (Rastogi *et al.*, 2023).

Western Ghats are one of the richest forests in the country in terms of biodiversity, and possibly the largest breeding ground of the Asian elephant, gaur, tiger, and wild dog. The elephant habitat in Wayanad Wildlife Sanctuary is rapidly being taken over by *Senna spectabilis* and disrupting native vegetation (Anoop *et al.* 2002). It grows rapidly, and animals don't eat its leaves because they give off a foul smell when crushed. Elephants and other animals avoid areas that have an abundance of *Senna* (Anoop and Ganesh, 2023).

Presently there is no exclusive legislation or policy in India to deal with the IAS. Directorate of Plant Protection Quarantine and Storage (DPPQ&S) is responsible for the implementation of the Destructive Insect and

Pest Act (DIPA), 1914 through Plant Quarantine (Regulation of Import into India) Order, 2003 to prevent entry, establishment and spread of alien insects, fungal or other pest species into India to safeguard agriculture, horticulture and forest tree plants (<http://ppqs.gov.in/>).

While the global awareness of the impact of invasive species is widespread, the efforts to control them are often minimal in less developed and developing countries. In the case of India, nearly 1,600 invasive plant species have already been introduced, and this number is expected to increase in future. So, the careful monitoring, timely reporting of the alien plant species status and possible actions to be taken to save our native flora and fauna.

The following actions to be taken to avoid the entry and spread of Invasive Alien Species

- Establish a comprehensive national regulatory framework for the management of invasive species, including stringent quarantine protocols.
- Enhance domestic quarantine procedures to effectively prevent the spread of invasive species to neighboring regions.
- Foster cross-sector collaborations to prevent accidental introductions and effectively manage the proliferation of invasive species.
- Create and maintain a national database cataloging reported instances of invasive species across India.
- Develop a responsive early warning and awareness system to address new sightings of invasive species promptly.
- Allocate priority funding to support foundational research on the management of invasive species.
- Facilitate capacity-building initiatives at various levels, with a particular emphasis on local-level activities to manage invasive species.
- Encourage the restoration of degraded ecosystems, utilizing locally adapted native species wherever possible.
- Promote regional cooperation for the adoption of uniform quarantine measures and the containment of invasive exotic species.

CONCLUSION

Invasive alien species (IAS) are a threat to biodiversity and human health. Early detection is important in the management of these species. There are several factors responsible for the spread of IAS such as adaptability to newer environments, early maturity, reproduction using sexual and asexual means and tolerance to a wide range of stresses. The best methods to protect our country from such invasion we should have strict quarantine and early detection techniques.

REFERENCES

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