Chapter 2
Response of Exotic Plant Species to Forests Disturbances

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ABSTRACT

Plants that grow beyond their native geographical range are known as exotic plants. They are introduced into forests either intentionally or unintentionally.These plants have impact on the natural or native plants. Their impact is either positive or negative.The exotic plant species affect the plant diversity as well as the features of the soil in a forest as it changed the microbial activity in a forest. The plant diversity, evenness and richness are also affected by the exotic species. Forest disturbances, provoke the invasion of exotic species.Most of the exotic plant species become inva-

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sive and spread very quickly in that particular area. These plant species disturb the whole native vegetation of a forest. To control the prevalence of exotic species is not an easy task as these become invasive with the passage of time.This study reviews the ecological dynamics of exotic plant species in response to forest disturbances, emphasizing mechanisms of invasion and establishment. Understanding these responses is crucial for biodiversity and control and management of these species.

INTRODUCTION

Introduction of species either intentionally or unintentionally outside their native range has been burgeoning for last few decades and is expected to increase in the near future (Pyšek et al., 2020). The rapid increase in exotic species is due to international trade, travel, global networking and the alteration of native ecosystems. At present, more than 13,000 species of vascular plants have successfully established themselves in regions outside their indigenous habitats (Wan & Zhang, 2021). A portion of these species has effectively surmounted survival constraints and is currently proliferating into novel territories where they are classified as invasive species. (Sedibana et al., 2025) examined that 2500 plant species are recognized as exotic invasive. Approximately 6,000 species of native flowering plants are found in Pakistan, 400 of which are endemic. In Pakistan, four hundred plant species are non-indigenous, constituting about 6.6% flora of the country. Exotic flora includes invasive (27%), casual (45%) and naturalized (29%) species in Pakistan (Zargar et al., 2025).

Disturbances such as wildfire, herbivory, overgrazing alter the structure and composition of plant communities and modifying the species habitat. Disturbance increases the species diversity by excluding competitors. Influence of disturbance on species abundance results from complicate ecological dynamics (Zhang et al., 2025). Disturbance displaces the colonizing species and nutrient assimilation and helps in the invasion of introduced species. The increase in nutrients promotes the invasion of non-native species. Exotic species show better resilience than local species and dominate endemic species due to better adaptibility these are capable to survive in disturbance affected regions than endemic species, irrespective of their reproductive attributes. Localized species are found in habitats that are less disrupted while exotics are frequent in disturbed areas (Taylor et al., 2025).

Grazing and browsing influence the organization of natural ecosystem. Trampling by hoofed animals significantly modify the community dynamics (Chiariotti et al., 2025). Browsing by livestock was initially believed to have no effect, but with the passage of time it is considered as top-notch ecological driver in communities. Herbivory promotes the invasion of non-indigenous species. It also facilitates formation