

An Invasive Plant Provides Refuge to Native Plant Species in an Intensely Grazed Ecosystem

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Abstract

Invasion by exotic plant species and herbivory can individually alternative plant species diversity, but their interactive effects in structuring native plant communities remain little studied. Many exotic plant species escape from their co-evolved specialized herbivores in their native range (in accordance with the enemy release hypothesis). When these invasive plants are relatively unpalatable, they may act as nurse plants by reducing herbivore damage on co-occurring native plants, thereby structuring native plant communities. However, the potential for unpalatable invasive plants to structure native plant communities has been little investigated. Here, we tested whether presence of an unpalatable exotic invader *Opuntia ficus-indica* was associated with the structure of native plant communities in an ecosystem with a long history of grazing by ungulate herbivores. Along 17 transects (each 1000 m long), we conducted a native vegetation survey in paired invaded and uninvaded plots. Plots that harboured *O. ficus-indica* had higher native plant species richness and Shannon–Wiener diversity H' than uninvaded plots. However, mean species evenness J was similar between invaded and uninvaded plots. There was no significant correlation between native plant diversity and percentage plot cover by *O. ficus-indica*. Presence of *O. ficus-indica* was associated with a compositional change in native community assemblages between paired invaded and uninvaded plots. Although these results are only correlative, they suggest that unpalatable exotic plants may play an important ecological role as refugia for maintenance of native plant diversity in intensely grazed ecosystems.

Keywords

Facilitation Native–exotic plant interactions Nurse plants Native species diversity Unpalatable exotic plants Nairobi National Park

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