

The geographic range size and vulnerability to extinction of epiphytes in the Atlantic Forest of Brazil

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Abstract

Epiphytes have long been reported to have larger geographic ranges than terrestrial species, despite evidence of their outstanding diversity and endemism. This apparent contradiction calls for further investigation of epiphytes' poorly understood range size patterns. Here, we address the question of whether epiphytes have larger geographic ranges than terrestrial species in the Atlantic Forest of Brazil, a global centre of epiphyte diversity. In contrasting the extent of occurrence and area of occupancy of 12,679 epiphytes and non-epiphytes at varying taxonomic scales, we found that epiphytes have among the smallest geographic ranges of flowering plants and likely a high vulnerability to species extinction. We found no evidence that epiphytism leads to differences in geographic ranges between close relatives. However, epiphytes and non-epiphytes in epiphyte-rich lineages share many diversification mechanisms and ecological adaptations ('epiphyte-like traits'), which probably explains why both sets of species have small range sizes and high vulnerability to extinction.

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