

Submitted Abstract

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Title	Influence Of Non-Native Species Invasions On Beta-Diversity Of Plant Communities Along A Steep Elevational Gradient On The Island Of Tenerife.
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Abstract

Under the influence of a rapidly warming climate, plant species are able to expand their native or introduced ranges to environments which are now more suited to their niche. The rate at which species are expanding and their impact on community diversity, specifically in highly vulnerable mountainous regions, is currently not well documented. Moreover, increasing anthropogenic influence and disturbance are likely to further support such range expansions.

This study aims to investigate how non-native plant species impact taxonomic, phylogenetic, and functional beta-diversity along a steep elevational gradient on the island of Tenerife, covering almost 2500m in elevation. Additionally, we evaluate the role of non-native species in temporal shifts in community diversity over 14 years. Using species composition and abundance data collected by MIREN (Mountain Invasion Research Network) along three mountainous roads in Tenerife, we can further compare whether spatial and temporal changes differ between easily disturbed roadside sites and more natural interior sites away from roads.

First results of this study suggest that an increase in non-native species leads to an increase in taxonomic beta-diversity on both spatial and temporal scales. The addition of non-native species elicits an increase in the dissimilarity between neighboring sites, more significantly in interior sites than roadside sites. In contrast, across years, roadside sites have become more dissimilar than interior sites. Overall, the effect of species turnover was stronger than the nestedness effect.

These findings are in contrast to previous observations which reported biotic homogenization as a consequence of species invasions. However, we assume that our findings reflect a transitional stage with non-native species not having yet reached stable populations. This is evident by the high rate of turnover between years, specifically in low elevation disturbed roadsides. Hence, as non-native species see expansions in their ranges, our preliminary findings may not hold true into the future and sites may become more similar across elevational ranges and over time.