

How general are global trends in biotic homogenization? Floristic tracking in Chile, South America

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ABSTRACT

Aim To quantify the occurrence of floristic change in the vascular flora of Chile. We test whether continental areas have experienced floristic modification leading to either homogenization, differentiation or tracking.

Location Continental Chile.

Methods On the basis of the geographical distribution of native (1806 species) and naturalized plants (552 species) in continental Chile, we quantified change between two floristic stages: (1) pre-European flora, including native extant and extinct species; and (2) current flora, including native and naturalized species, but excluding extinct plants. We compared changes in compositional similarity (calculated by Jaccard's index, ΔJ) between pairs of regions, and similarity decay with respect to geographical distance. Additionally, by means of Whittaker's index, we examined species turnover, distinguishing between native and naturalized plants.

Results Between floristic stages (pre-European vs. current flora) no significant changes in floristic similarity were noted at national or regional scales. Similarity decay showed no statistical differences between pre-European and current flora. Analysing patterns of geographical turnover, we found that species turnover of naturalized plants over their geographical range is similar to that of native plants.

Conclusions The composition of the continental flora of Chile does not show significant modifications in similarity patterns after considering naturalized species, thus indicating floristic tracking. The causes of this phenomenon may be related to the current geographical distribution of naturalized plants, which closely parallels that of native plants. Our results differ from those obtained in Northern Hemisphere continents, thus indicating that trends of biotic change may differ between hemispheres.