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Micro-scale habitat associations of woody plants in a neotropical cloud forest

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Abstract

Questions

Species–habitat associations may contribute to the maintenance of species richness in tropical forests, but previous research has been conducted almost exclusively in lowland forests and has emphasized the importance of topography and edaphic conditions. Is the distribution of woody plant species in a Peruvian cloud forest determined by microhabitat conditions? What is the role of environmental characteristics and forest structure in habitat partitioning in a tropical cloud forest?

Location

Cloud Forest, north Peruvian Andes.

Methods

We examined species–habitat associations in three 1-ha plots using the torus-translation method. We used three different criteria to define habitats for habitat partitioning analyses, based on microtopography, forest structure and both sets of factors. The number of species associated either positively or negatively with each habitat was assessed.

Results

Habitats defined on the basis of environmental conditions and forest structure discriminated a greater number of positive and negative associations at the scale of our analyses in a tropical cloud forest.

Conclusions

Both topographic conditions and forest structure contribute to small-scale microhabitat partitioning of woody plant species in a Peruvian tropical cloud forest. Nevertheless, canopy species were most correlated with the distribution of environmental variables, while understorey species displayed associations with forest structure.

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