

The relative importance of stochastic and deterministic processes on bryophyte community assembly changes with scale

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Abstract

Studies focused on the drivers of change in species composition often fail to integrate several aspects of beta diversity and scale. Here, we assess the impact of species pool, environmental gradients, geographic distance, and spatial scale on the diversity of epiphytic bryophytes. We identify biogeographic modules of co-occurring species using network analyses. For each biogeographic unit we study the effects of environment, abundance structure of the community and geographic distance on beta diversity. We analyse two aspects of beta diversity related to different scales of analysis: between-forests dissimilarity in species composition and within-forests heterogeneity in species composition. We show that the structuring of the communities is a by-product of niche-related and stochastic processes. The balance of these processes changes with biogeographic region and scale, neutral stochastic effects are more significant in the most favourable regions and for small-scale within-forest heterogeneity

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