



Plant diversity response to foredune habitats fragmentation patterns by trampling (Vila Nova de Gaia, Portugal)

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Human trampling has well known fine-scale impacts along individual paths and is amongst the major causes of foredune systems degradation. However, landscape-scale effects of habitat fragmentation patterns in trampled foredunes have not been examined and are poorly understood. In responsive biogeomorphic systems such as coastal dunes (Stallins, 2002), composition, structure and function are particularly bound, as the result of feedbacks among vegetation, morphology and sediment mobility (Parker & Bendix, 1996). On the other hand, nonequilibrium theories of community composition state that they are primarily determined by disturbance (Huston, 1994) and by chance (Hubbell, 2001). In this study, a set of landscape metrics, calculated with FRAGSTATS software (McGarigal *et al.*, 2002), was tested for its ability to predict the ecological processes and vegetation patterns exhibited by trampled foredunes at coarse spatial scales, namely the distinct combinations of environmental gradients, disturbance and competition in shaping plant biodiversity patterns. This study contributes to a more nuanced understanding of trampling impacts in foredune systems and plant recovery along paths, and to the development of a methodological approach to elucidate relationships between spatial patterns and ecological processes.

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