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## A comparison of the vegetation of forested and non-forested solution dolines in Hungary: a preliminary study

### Abstract

The present study compares the vegetation characteristics of two large forested and one large non-forested solution dolines in Hungary. We investigated the species composition and vegetation pattern along north to south transects (across the doline bottoms) and compared the richness of different species groups (dry and wet groups) on the doline slopes. We applied linear regression models for each slope to explore the effects of topography on species richness, and Detrended Correspondence Analysis (DCA) to detect the major gradients of floristic variation within each site. We found that the vegetation changed significantly along all transects; and, regardless of the vegetation cover, the doline bottoms contained several cool-adapted species. Variations within the two species groups were more pronounced on the south-facing slopes. The changes were similar in the forested dolines, indicating the role of forest cover in maintaining many cool-adapted species on the north-facing slopes as well. However, the number of cool-adapted species increased significantly along both slopes of the non-forested doline from the upper edge to the bottom. Contrary to our expectations, the species turnover along the slopes of the non-forested doline was lower than that along the slopes of the forested ones. We conclude that both the forested and non-forested dolines serve as refuges for many plant species adapted to different environmental conditions. Apart from providing an understanding of population patterns along environmental gradients, our results may also contribute to our understanding of an even more fundamental question for a future research agenda: the probable effects of climate change on vegetation characteristics in climatic islands with environmental conditions substantially different from the surrounding areas.



### Article Metrics

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