



Frontiers of Vegetation Science—An Evolutionary Angle

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in collaboration with

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smallest was the moss *Brachythecium rutabulum*, which occurred in more than 80% of all 100 m² plots. Also, the other most frequent species highly coincided between both regions, with the grasses *Lolium perenne* and *Elymus repens*, the forbs *Taraxacum* spp. and *Stellaria media*, the moss *Hypnum cupressiforme*, as well as the lichen *Lepraria incana* being present in more than 1/3 of randomly chosen 100 m² plots, each.

The species-area relationship was best described by a power law with a mean z value (increment) of 0.22 (fitted for log-transformed species richness). Beside substantial differences in the z values between individual plot series (range: 0.15–0.41), z values showed a general pattern of scale-dependency with a minimum between 0.0009 and 0.01 m². The observed increase towards larger plot sizes differs from published findings within homogeneous vegetation stands, where z values generally remain constant or even decrease with increasing plot size. We further analysed the species-area relationship separately for taxonomic groups and species of different floristic status (native, archaeophyte, neophyte, ornamental plant), and correlated diversity parameters to stand structure, landscape type, and site conditions.

We conclude that our flexible approach allows for objective comparison between differently structured landscapes and between various geographic regions. The approach is particularly promising in analysing biodiversity patterns simultaneously on multiple spatial scales and thus being capable of detecting relationships of diversity parameters to predictor variables that change direction with spatial scale.

The basiphilous semi-dry grasslands (Festuco–Brometea) in N and NE Europe: gradient analysis and large-scale classification

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The aim of our study was to develop a comprehensive and consistent classification of the basiphilous semi-dry grasslands (Festuco–Brometea) in the Nordic (Scandinavian) and

circum-Baltic regions. This area includes ten countries or parts of them, including Norway, Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Poland, Germany, and Denmark. Further we aim to unravel gradients in species composition and species richness across the studied regions and reveal the role of relevant ecological factors structuring the complexity of the Festuco–Brometea.

For the purpose of this study, we made use of the phytosociological database of the 'Working Group on Dry Grasslands in the Nordic and Baltic Region', which is a joint project of colleagues from all ten listed countries. Ultimately, our aim was to include in the database all available relevés (both published and unpublished) of the dry grasslands and related vegetation types from the study area. As prerequisites for inclusion of the plots into the database we consider the size of the relevés not to lie outside 1 m² and 100 m² and presence of basic meta-information on the locality of a relevé. Presently, the database contains some 8000 of the ca. 20,000 suitable relevés we are aware of. For the present study, we attempted to enter at least all relevés showing obvious similarities to the Festuco–Brometea.

The first decisive step in any classification is to delimit the syntaxon in focus unambiguously throughout the studied dataset. It is evident that this delimitation can neither be based on the original assignment of the relevés nor on an *à priori* classification of all vegetation types of that area (as such a system is not available). Therefore we used generally accepted diagnostic taxa of relevant classes and assigned each relevé to the one class according to prevailing diagnostic species. The obtained sub-set of the Festuco–Brometea relevés was then subject to a series of classification analyses. We present the pros and cons of each approach used, and present here a new, robust phytosociological classification of the studied communities.

Vegetation/land cover dynamics in agricultural and urbanised landscape in Molise, Italy

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A GIS analysis of the transformation of the land cover in last fifty years using information from 1954–1955 (aerial photographs, cadastral maps) and 2005 (aerial photographs) was done and created maps adapting the CORINE land cover legend at a scale of 1:10,000. Our study area comprises six municipalities of the Italian Molise Region, covering an area of approx. 31,750 ha. This hilly region, spanning altitudes 200 m and 550 m, includes part