Dry grasslands in the Western Carpathians and northern Pannonian Basin - a numerical classification

Dúbravková Daniela[1], Chytrý Milan[2], Illyés Eszter[3], Janišová Monika[4], Kállayné Szerényi Júlia[5] & Willner Wolfgang[6]

[1] Institute of Botany, Slovak Academy of Sciences, Bratislava, Slovakia; Homeland Museum, Považská Bystrica, Slovakia e-mail: daniela.dubravkova@savba.sk;
[2] Department of Botany and Zoology, Masaryk University, Brno, Czech Republic;
[3-5] Institute of Ecology and Botany, Hungarian Academy of Sciences, Vácrátót, Hungary;
[4] Institute of Botany, Slovak Academy of Sciences, Bratislava, Slovakia; Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia;
[6] Vienna Institute for Nature Conservation and Analyses (VINCA), Vienna, Austria.

In eastern-central European countries (Austria, the Czech Republic, Hungary, Slovakia) phytosociological studies of dry grassland vegetation have been done separately in the past, which resulted in diverse syntaxonomical evaluations. Numerous associations and subassociations have been described and used in last decades, many of them reflecting local variation of dry grasslands within small regions. This made the classification of dry grasslands extremely unclear. Only creation of national databases of phytosociological relevés has enabled to perform comparative studies over broader region. In the Czech Republic and Slovakia new national surveys of dry grassland vegetation have been done recently using national phytosociological databases (Chytrý et al. 2007, Janišová et al. 2007). However, an over-national survey covering dry grasslands in a narrow sense, i.e. the *Bromo pannonici-Festucion pallentis, Festucion valesiacae* and *Koelerio-Phleion phleoidis* alliances, has been still missing. The purpose of the present study is to bridge this gap for the area of the Western Carpathians and northern Pannonian Basin. Our aims are: (1) to perform numerical classification of dry grasslands in this region using a large international geographically stratified data set, (2) to identify geographical ranges and diagnostic, constant and dominant species of the main types of dry grasslands, (3) to interpret clusters from numerical classification as syntaxa described in phytosociological literature, (4) to summarize broad patterns of floristic variation in dry grasslands of the studied regions. We believe that this study may contribute to consolidation of national vegetation classifications and habitat typologies, which might be helpful for conservation purposes across national boundaries.
We prepared a stratified data set consisting of 2 686 relevés of the *Bromo pannonici-Festucion pallentis, Festucion valesiacae* and *Koelerio-Phleion phleoidis* alliances. The study presents results of the modified TWINSPAN classification (Role_ek et al. 2009. We used 25 clusters for floristical and ecological interpretation. The majority of clusters can be assigned to one or more previously described associations. For each cluster we present syntaxonomical classification, list of diagnostic, constant and dominant species, short description and distribution map. The diagnostic species of individual clusters were determined by calculating the *phi* coefficient as a fidelity measure. The major pattern of variation in species composition of the analysed data set corresponds to soil nutrient availability, pH and moisture.
Financial support: VEGA 2/0181/09