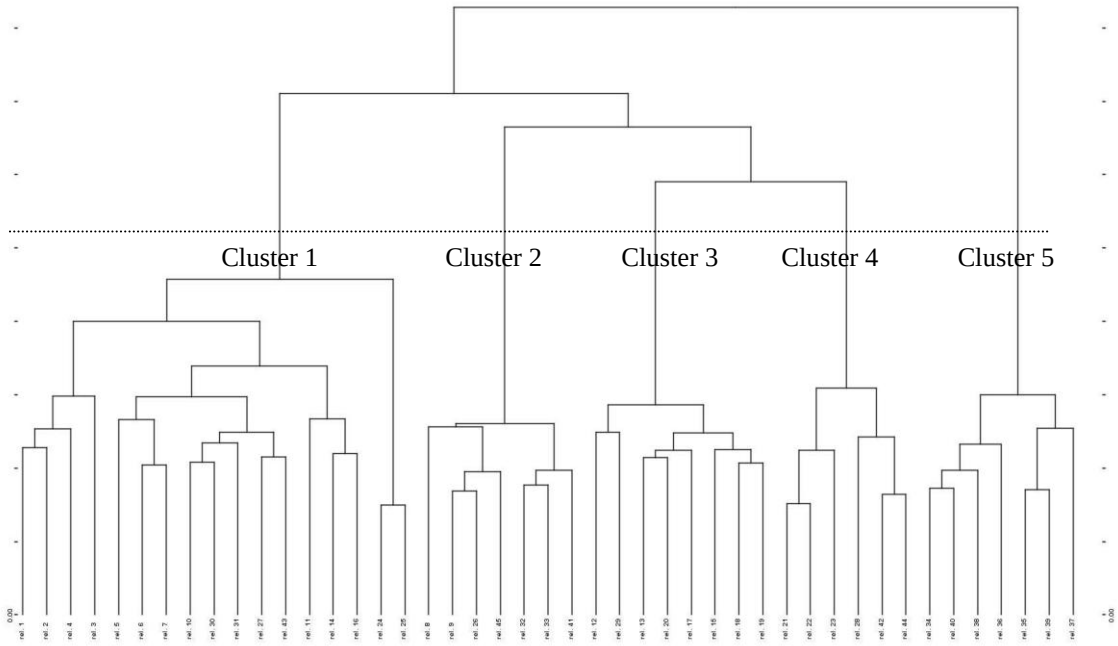
APPENDIX 2:
Vegetation classification

Only grasslands within *Festucetalia valesiacae* Br.-Bl. et R. Tx. in Br.-Bl. 1949 order, which are more xerophytic, represent the subject of the present study. Vegetation classification was performed using data from plots of 100 m^2 in size (sampled in late May-mid August 2014, subjectively chosen in homogeneous stands). The initial data set included 45 relevés and 273 species (Electronic Appendix 1). All relevés were made using the standard method elaborated by the Central European Phytosociologic School, adapted for Romanian vegetation study (Borza and Boşcaiu, 1965). Species cover was visually estimated using a standard 6 level scale: + (<5%); 1 (5–10%); 2 (10–25%); 3 (25–50%); 4 (50–75%); 5 (>75%). Rare species (occurring only in 1 relevé) were removed and the final dataset included 45 relevés and 208 species.

Data analysis was performed using a hierarchical agglomerative clustering procedure (Bray-Curtis dissimilarity and Flexible beta (ß = -0.25) algorithm) in Ginkgo software from the Vegana package (De Cáceres, 2003; Bouxin, 2005). The resulted dendrogram was cut in 9 partitions (2-10 clusters). The optimal number of clusters was assessed with corrected Rand index. Diagnostic species were identified a posteriori using the indicator value (IndVal) coefficient (Dufrêne and Legendre, 1997). Square-rooted values of the IndVal were the subject of a permutation test (999 iterations) in order to observe which the species are significantly associated with the clusters (De Cáceres and Legendre, 2009) (threshold values for the permutation test: 0.500, $p \leq 0.05$). The term "diagnostic species" was used only in the context of the studied area (North-Eastern Romania) and the particular vegetation unit (*Festucetalia valesiacae*). Diagnostic species were used to link the clusters to the plant communities described in phytosociological literature.



Dendrogram generated by hierarchical cluster analysis with clusters identified via corrected Rand index

Identification of the optimal number of clusters with corrected Rand index

	K=2	K=3	K=4	**K=5**	K=6	K=7	K=8	K=9	K=10
K=2	1,000								
K=3	0,356	1,000							
K=4	0,241	0,776	1,000						
K=5	0,191	0,656	0,870	1,000					
K=6	0,161	0,577	0,781	**0,908**	1,000				
K=7	0,120	0,457	0,637	0,755	0,844	1,000			
K=8	0,099	0,388	0,551	0,661	0,745	0,897	1,000		
K=9	0,091	0,362	0,517	0,623	0,705	0,855	0,957	1,000	
K=10	0,081	0,326	0,471	0,571	0,649	0,794	0,895	0,938	1,000

Diagnostic species analysis results

Taraxaco serotinae – Festucetum valesiacae (Burduja et al. 1956) Sârbu, Coldea et Chifu 1999

Species name	Stat.	P-value
Festuca valesiaca	0.701	0.001
Artemisia austriaca	0.605	0.015
Berteroa incana	0.539	0.045

Taraxaco serotinae – Bothriochloetum iscahaemi (Burduja et al. 1956) Sârbu, Coldea et Chifu 1999

Species name	Stat.	P-value
Dichanthium ischaemum	0.863	0.001
Ononis arvensis	0.756	0.001
Thymelaea passerina	0.725	0.001
Equisetum arvense	0.612	0.013
Rapistrum perenne	0.608	0.016
Daucus carota	0.603	0.02
Phragmites australis	0.569	0.031
Xanthium strumarium	0.569	0.026
Potentilla recta	0.544	0.041

Jurineo arachnoideae – Stipetum lessingianae (Dobrescu 1974) Chifu, Mânzu et Zamfirescu 2006

Species name	Stat.	P-value
Stipa lessingiana	0.980	0.001
Jurinea arachnoidea	0.858	0.001
Stipa tirsa	0.845	0.001
Erysimum diffusum	0.783	0.001
Melampyrum arvense	0.783	0.001
Asparagus officinalis	0.718	0.001
Nonea pulla	0.714	0.002
Adonis vernalis	0.657	0.003
Muscari comosum	0.655	0.01
Trifolium montanum	0.641	0.005
Echium maculatum	0.636	0.003
Stachys recta	0.629	0.008
Thalictrum minus	0.622	0.013

Trinia ramosissima	0.618	0.006
Plantago media	0.614	0.01
Carduus hamulosus	0.612	0.006
Salvia austriaca	0.596	0.026
Campanula sibirica	0.594	0.022
Pastinaca graveolens	0.580	0.02
Stipa pulcherrima	0.580	0.027
Marrubium peregrinum	0.550	0.036
Coronilla varia	0.548	0.035
Koeleria macrantha	0.542	0.05
Clematis integrifolia	0.535	0.05

Agropyro pectinati – Stipetum capillatae (Burduja et al. 1956) Chifu, Mânzu et Zamfirescu 2006

Species name	Stat.	P-value
Stipa capillata	0.968	0.001
Sideritis montana	0.666	0.005
Ajuga chamaepitys	0.653	0.008
Teucrium polium	0.628	0.007
Verbascum phlomoides	0.583	0.017

Thymo pannonici – Chrysopogonetum grylli Doniţă et al. 1992

Species name	Stat.	P-value
Chrysopogon gryllus	0.987	0.001
Acinos arvensis	0.590	0.016

***Plant communities* - syntaxonomic framework**

FESTUCETALIA VALESIACAE Br.-Bl. et R. Tx. in Br.-Bl. 1949
Jurineo arachnoideae – Euphorbion stepposae (Dobrescu 1971) Coldea et Sârbu 2012
1. *Taraxaco serotinae – Festucetum valesiacae* (Burduja et al. 1956) Sârbu, Coldea et Chifu 1999
2. *Taraxaco serotinae – Bothriochloetum iscahaemi* (Burduja et al. 1956) Sârbu, Coldea et Chifu 1999
3. *Jurineo arachnoideae – Stipetum lessingianae* (Dobrescu 1974) Chifu, Mânzu et Zamfirescu 2006
4. *Agropyro pectinati – Stipetum capillatae* (Burduja et al. 1956) Chifu, Mânzu et Zamfirescu 2006

Chrysopogono – Danthonion Kojić 1957
5. *Thymo pannonici – Chrysopogonetum grylli* Doniţă et al. 1992