

Perennial ruderal vegetation of the Czech Republic: a new vegetation survey

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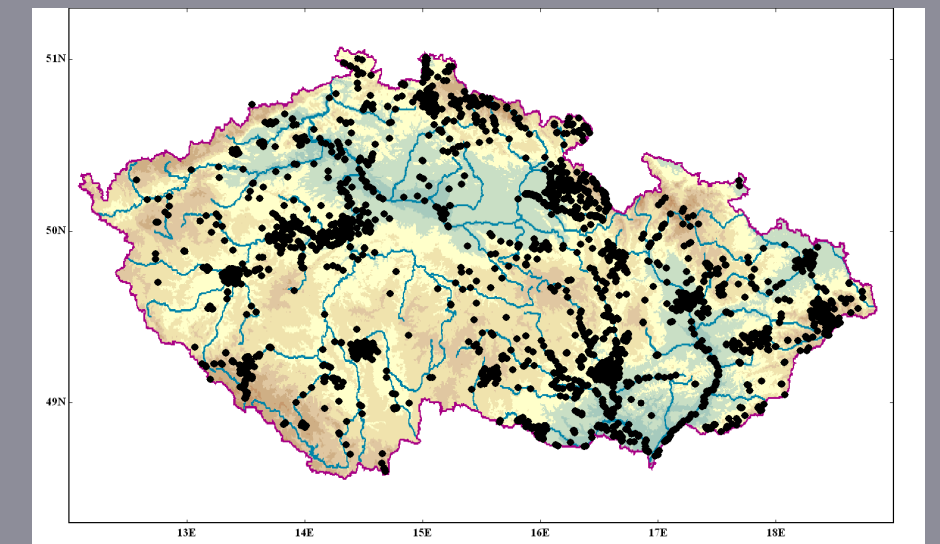
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Main aims

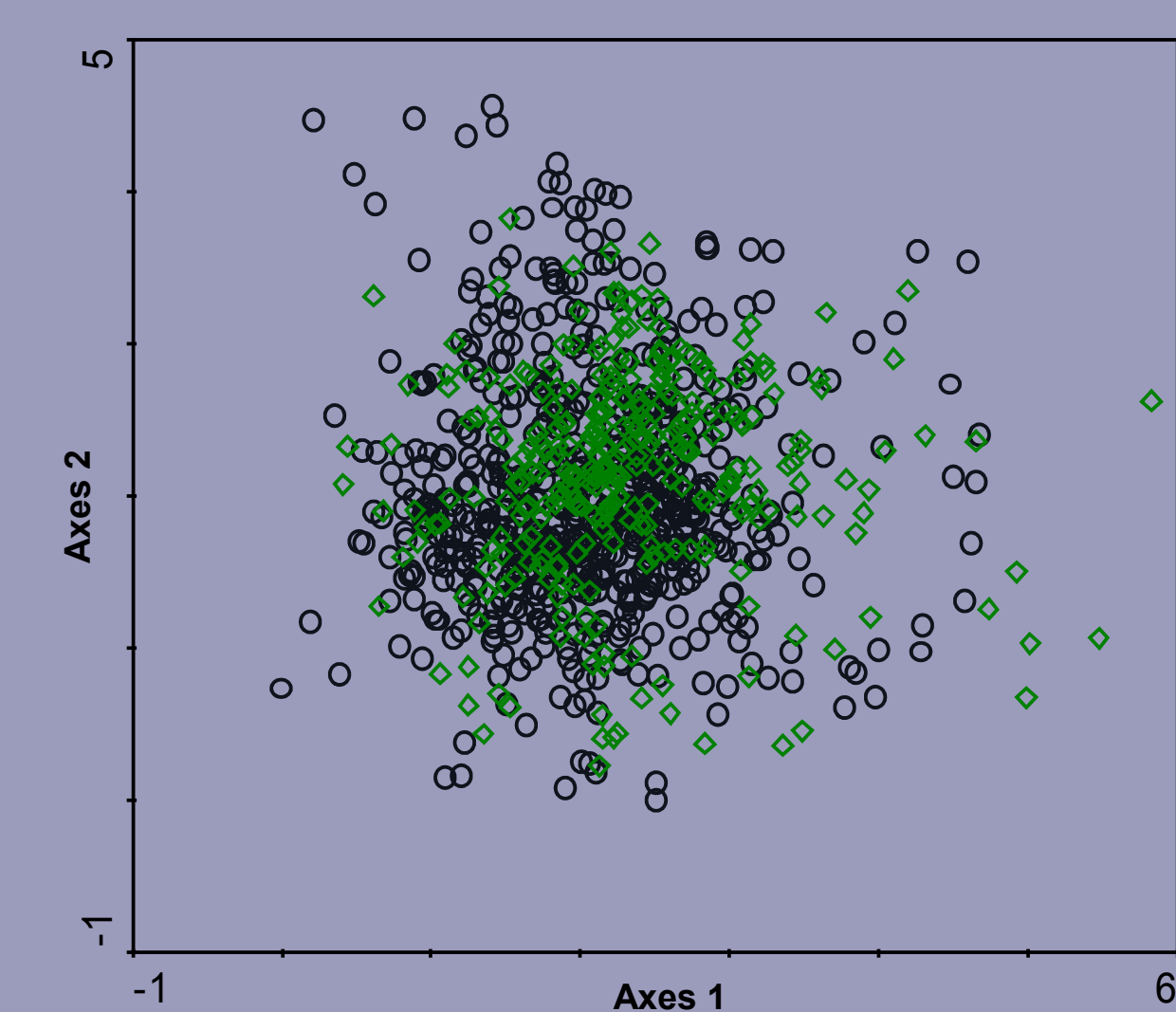
1. Identify and describe the main gradients of variability in species composition and representation of functional species groups in particular vegetation types
2. Create formal definitions of associations of perennial ruderal vegetation using the Cocktail method for the monograph *Vegetation of the Czech Republic*
3. Revise former syntaxonomical concept and nomenclature

Material and methods

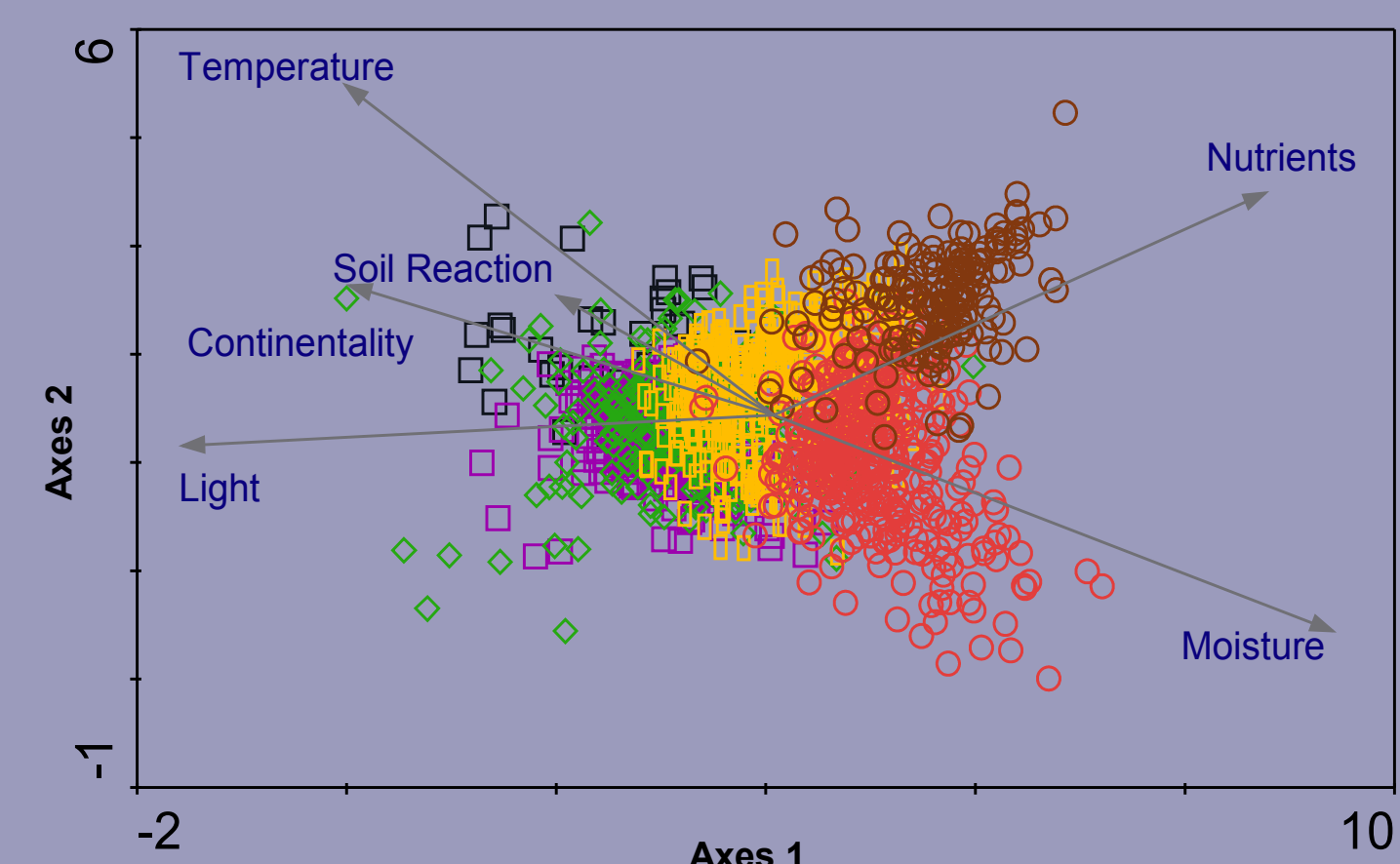
- Relevés from the Czech National Phytosociological Database
- Geographical stratification (one relevé of each syntaxon per grid square of 1.25 longitudinal x 0.75 latitudinal minute, i.e. 1.5km x 1.4km)
- Cocktail method – defines **sociological species groups** and creates **formal definitions of associations** (using sociological species groups and species dominance)



Traditional phytosociological classification (Moravec et al. 1995*)



Artemisietea vulgaris
Agropyreteea repentis



Artemisietea vulgaris
- *Onopordion acanthii*
- *Dauco-Melilotion*

Agropyreteea repentis
- *Convolvulo-Agropyron*

Galio-Urticetea
- *Arction lappae*
- *Aegopodion podagrariae*
- *Galio-Alliarion*

DCA ordination graphs: stratified data set of relevés from the Czech National Phytosociological Database, relevés assigned to vegetation units by original authors

* Moravec et al. (1995): Red list of plant communities of the Czech Republic and their endangerment. Ed. 2. – Severočes. Přír., Litoměřice, suppl. 1995/1: 1–206. (in Czech)

Summary

1. Only one class *Artemisietea vulgaris* with four alliances (*Onopordion acanthii*, *Dauco-Melilotion*, *Convolvulo-Agropyron*, *Arction lappae*) is accepted
2. Instead of 25 associations originally described in the last Czech phytosociological survey (Moravec et al. 1995), only 17 associations are delimited
3. Associations with poor floristic differentiation and disputable occurrence in the country are omitted

Formalized classification of associations (monograph *Vegetation of the Czech Republic*)

Sociological species groups	Species composition
group <i>Onopordum acanthium</i>	<i>Onopordum acanthium</i> , <i>Carduus acanthoides</i> , <i>Artemisia absinthium</i> , <i>Sisymbrium orientale</i> subsp. <i>orientale</i>
group <i>Tanacetum vulgare</i>	<i>Tanacetum vulgare</i> , <i>Erigeron annuus</i> agg., <i>Solidago canadensis</i>
group <i>Melilotus albus</i>	<i>Melilotus albus</i> , <i>M. officinalis</i> , <i>Cichorium intybus</i> , <i>Oenothera biennis</i> s. lat.
group <i>Salvia nemorosa</i>	<i>Salvia nemorosa</i> , <i>Bromus inermis</i> , <i>Rapistrum perenne</i> , <i>Falcaria vulgaris</i>
group <i>Arrhenatherum elatius</i>	<i>Arrhenatherum elatius</i> , <i>Dactylis glomerata</i> , <i>Galium mollugo</i> agg., <i>Knautia arvensis</i> agg.
group <i>Brachypodium pinnatum</i>	<i>Brachypodium pinnatum</i> , <i>Festuca rupicola</i> , <i>Centaurea scabiosa</i> , <i>Scabiosa ochroleuca</i> , <i>Salvia pratensis</i> , <i>Sanguisorba minor</i>

Associations	Formal definitions
Artemisietea vulgaris	
Onopordion acanthii	
1 <i>Carduo acanthoides</i> - <i>Onopordetum acanthii</i>	<i>Onopordum acanthium</i> cover > 25 % OR (<i>Onopordum acanthium</i> cover > 5 % AND group <i>Onopordum acanthium</i>)
2 <i>Potentillo argenteae</i> - <i>Artemisietum absinthii</i>	<i>Artemisia absinthium</i> cover > 25 % OR (<i>Artemisia absinthium</i> cover > 25 % AND group <i>Onopordum acanthium</i> NOT <i>Onopordum acanthium</i> cover > 25 % NOT <i>Prunus tenella</i> cover > 25 %)
Dauco-Melilotion	
1 <i>Melilotetum albo-officinalis</i>	<i>Melilotus albus</i> cover > 25 % OR <i>Melilotus officinalis</i> cover > 25 % OR (<i>Echium vulgare</i> cover > 25 % AND group <i>Melilotus albus</i>)
2 <i>Berteroetum incanae</i>	<i>Berteroa incana</i> cover > 25 %
3 <i>Dauco carotae</i> - <i>Crepidetum rhoeadifoliae</i>	<i>Crepis foetida</i> subsp. <i>rhoeadifoliae</i> cover > 5 %
4 <i>Dauco carotae</i> - <i>Picridetum hieracioidis</i>	<i>Picris hieracioides</i> cover > 5 % NOT group <i>Brachypodium pinnatum</i> NOT <i>Brachypodium pinnatum</i> cover > 25 % NOT <i>Bromus erectus</i> cover > 25 % NOT <i>Festuca valesiaca</i> cover > 25 %
5 <i>Poo compressae</i> - <i>Tussilaginetum farfarae</i>	<i>Tussilago farfara</i> cover > 25 %
6 <i>Poëtum humili</i> - <i>compressae</i>	<i>Poa compressa</i> cover > 25 % OR <i>Poa palustris</i> subsp. <i>xerotica</i> cover > 25 %
7 <i>Tanaceto-Artemisietum vulgare</i>	(< <i>Tanacetum vulgare</i> cover > 25 % OR <i>Artemisia vulgaris</i> cover > 25 % AND group <i>Tanacetum vulgare</i> OR group <i>Arrhenatherum elatius</i> OR <i>Tanacetum vulgare</i> cover > 25 % OR <i>Artemisia vulgaris</i> cover > 50 %) NOT (<i>Solidago canadensis</i> cover > 25 % OR <i>Arctium lappa</i> cover > 25 % OR <i>Arctium tomentosum</i> cover > 25 % OR <i>Melilotus albus</i> cover > 25 % OR <i>Melilotus officinalis</i> cover > 25 % OR <i>Tussilago farfara</i> cover > 25 %)
Convolvulo-Elytrigion	
1 <i>Convolvulo arvensis</i> - <i>Agropyretum repentis</i>	<i>Elytrigia repens</i> cover > 50 % NOT <i>Cardaria draba</i> cover > 25 % OR (<i>Elytrigia repens</i> cover > 5 % AND <i>Falcaria vulgaris</i> cover > 5 %)
2 <i>Falcario vulgaris</i> - <i>Agropyretum repentis</i>	<i>Falcaria vulgaris</i> cover > 25 % OR (<i>Elytrigia repens</i> cover > 5 % AND <i>Falcaria vulgaris</i> cover > 5 %)
3 <i>Convolvulo arvensis</i> - <i>Brometum inermis</i>	<i>Bromus inermis</i> cover > 50 % OR (<i>Bromus inermis</i> cover > 25 % AND group <i>Salvia nemorosa</i>)
4 <i>Cardarietum drabae</i>	<i>Cardaria draba</i> cover > 25 %
Arction lappae	
1 <i>Urtico urentis</i> - <i>Chenopodietum boni-henrici</i>	<i>Chenopodium bonus-henricus</i> cover > 25 % OR (<i>Chenopodium bonus-henricus</i> cover > 25 % OR <i>Ballota nigra</i> cover > 25 % AND group <i>Arctium tomentosum</i> NOT <i>Arctium tomentosum</i> cover > 25 % OR <i>Arctium lappa</i> cover > 25 %)
2 <i>Hyoscyamo nigri</i> - <i>Conietum maculati</i>	<i>Conium maculatum</i> cover > 25 %
3 <i>Arctietum lappae</i>	<i>Arctium lappa</i> cover > 25 % OR <i>Arctium tomentosum</i> cover > 25 %
4 <i>Sambucetum ebuli</i>	<i>Sambucus ebulus</i> cover > 25 %

Alliance		Moravec et al. (1995)	Formalized classification
<i>Onopordion acanthii</i>	Vegetation of tall thorny biennials on nutrient-rich soils	5	2
<i>Dauco-Melilotion</i>	Xero-mesophilous vegetation on nutrient-rich skeletal soils	6	7
<i>Convolvulo-Agropyron</i>	Tall-herb grass-dominated vegetation on dry loamy and base-rich soils	7	4
<i>Arction lappae</i>	Vegetation of anthropogenic substrates of rubbles and dumps	7	4
Total		25	17

