Grassland restoration

using regional seed mixtures in the Bílé Karpaty Mts., Czech Republic

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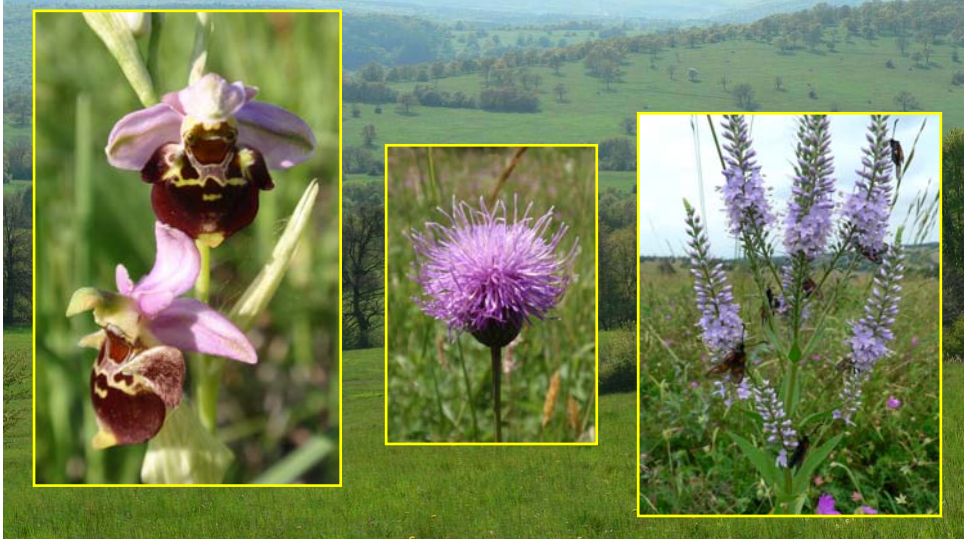
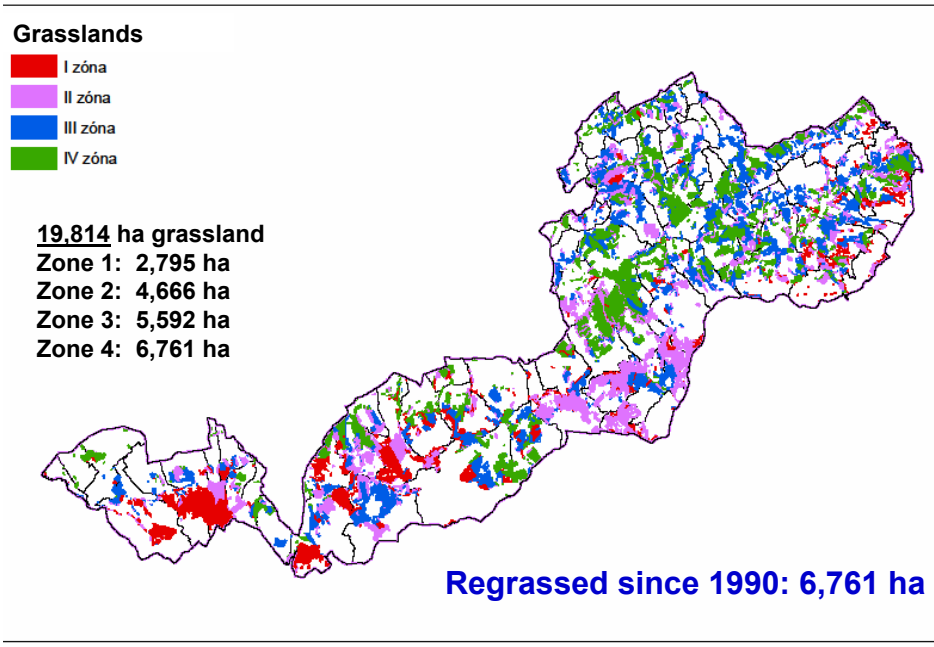
Grasslands of the Bílé Karpaty Mts.

- species-rich grasslands
- mostly *Bromion*

93 protected plant species
5 Natura 2000 species



In 1950–1989 thousands of hectares were ploughed, fertilised or remained unmanaged



Regrassing methods

*by **spontaneous succession***
➢ *several hundred hectares*

Requirements:
• adjacent meadows as seed source
• patience

*with **commercial seed mixtures***
➢ *more than 5 thousand hectares*

*with **regional seed mixtures***
➢ *500 hectares*

Regional seed mixtures

since 1999

85–90 % grasses

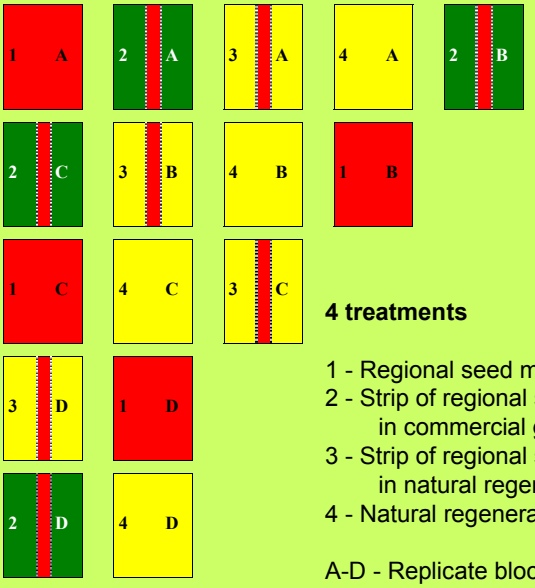
Bromus erectus,
Festuca rupicola

Mixture from combine or brush harvester (40 %)

10–15 % forbs
(20–25 species)

Experimental site at Vyzkum

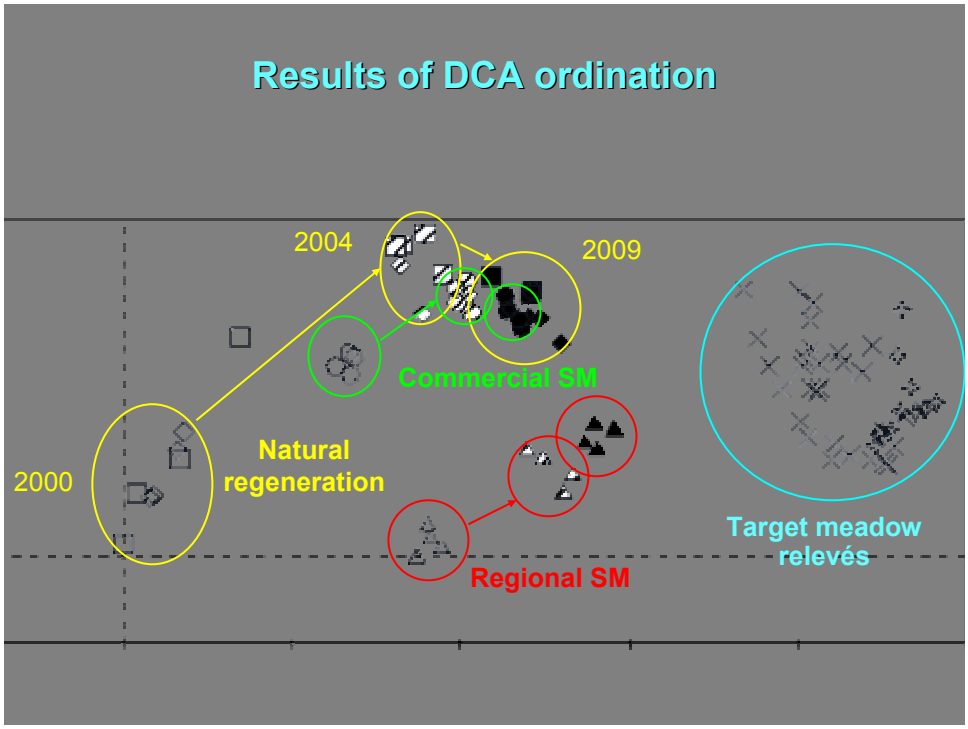
Layout of the experimental plots



4 treatments

1 - Regional seed mixture
2 - Strip of regional seed mixture in commercial grass matrix
3 - Strip of regional seed mixture in natural regeneration matrix
4 - Natural regeneration

A-D - Replicate blocks



Results

Regional grasses establish and persist in cover and number

Regional herbs establish and persist in number, but decline in cover

Due to repeated late cutting?

Commercial grasses establish and spread to other treatments

Don't use them!

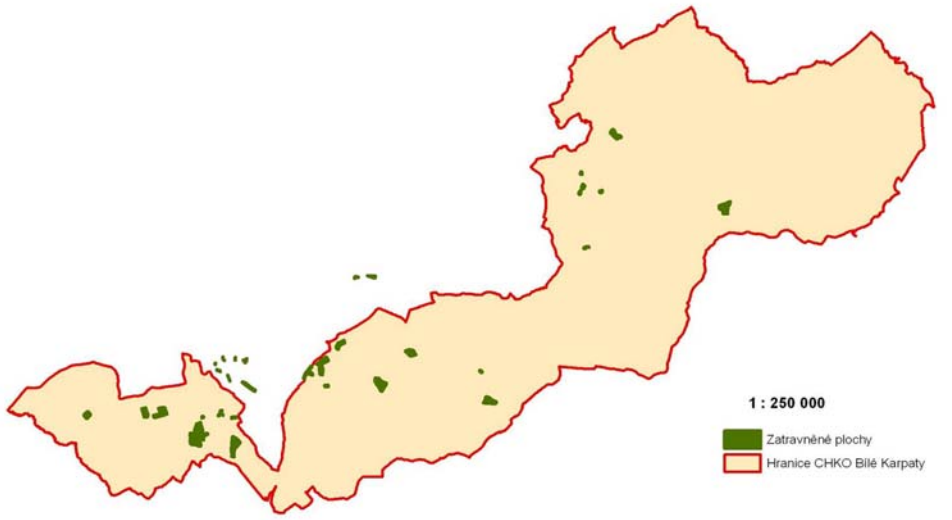
Unsown grassland species colonise all treatments,
especially natural regeneration

Less competition from grasses?

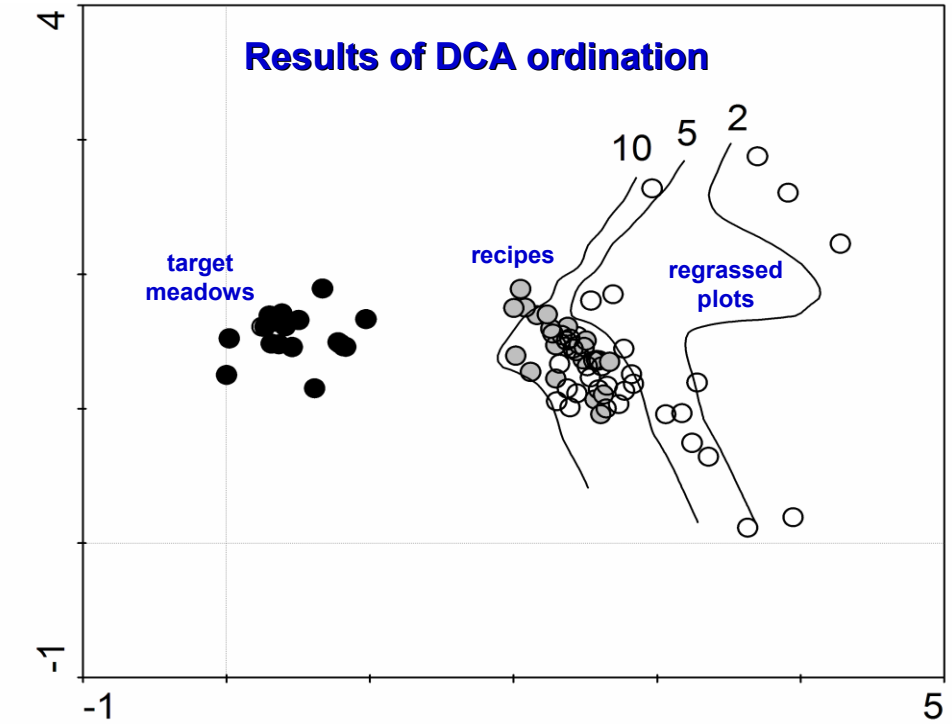
Annual weeds decline by year 2 – *as expected*

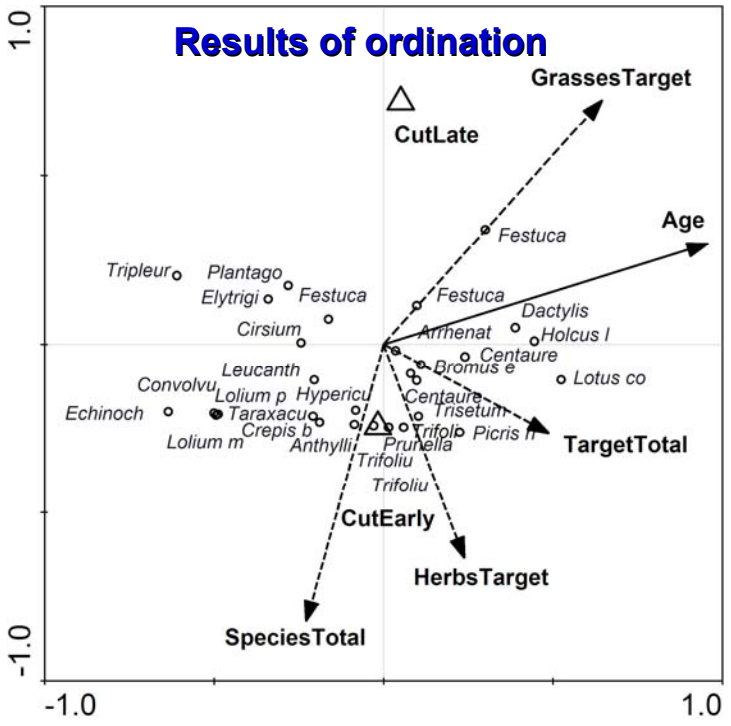
Perennial weeds increase in yr 1–5, but decline by yr 10

Monitoring of ALL fields regrassed with regional seed mixtures



In 1999–2010 regrassed with regional seed mixtures: 500 ha



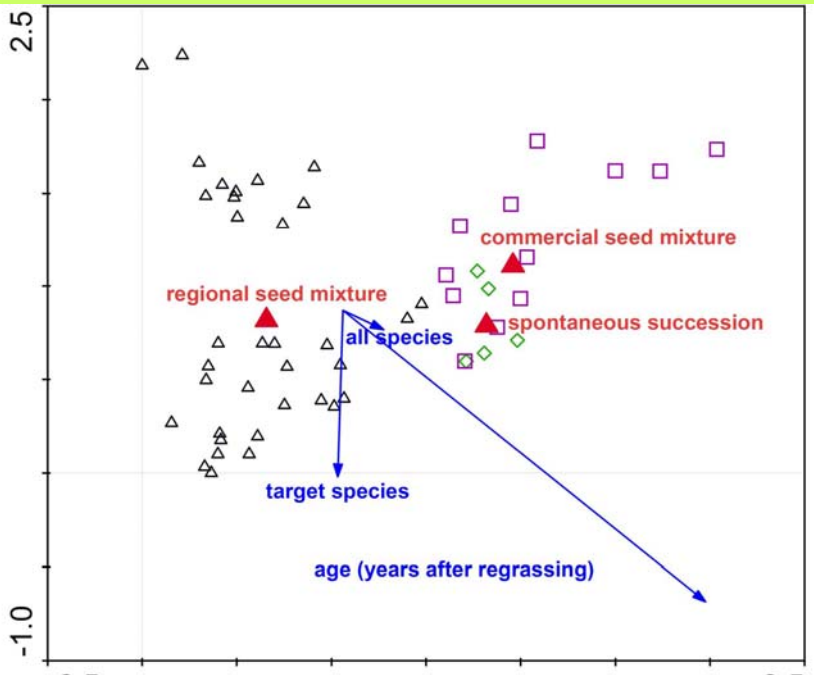


Monitoring of fields regrassed

with regional seed mixtures
with commercial mixtures
by natural regeneration

preliminary results

Results of DCA ordination



Recommendations - Commercial seed mixtures

Do not use hybrids (Felina) and polyploids
for creating species rich and long term grasslands

Use only species growing in the area
especially their extensive varieties

Festuca rubra, F. pratensis, F. ovina
Arrhenatherum elatius
Alopecurus pratensis
Cynosurus cristatus
Agrostis tenuis
Anthoxanthum odoratum
Trisetum flavescens
Holcus lanatus
Poa pratensis

Anthyllis vulneraria
Lotus corniculatus
Onobrychis viciifolia
Securigera varia

Recommendations - Regional seed mixtures

Soil conditions play a role

Vegetation in wetter and more fertile sites is less diverse

Cutting management is a major factor in success of meadow vegetation establishment

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