

# Meadows provided by Rural Development Programme (2007-2013) as donor sites for species-poor meadows

## case study of Bystrzyca Kłodzka region

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### Introduction

In the last 50 years widespread losses and degradation of grasslands have occurred in Europe. Main causes of this situation are agricultural intensification, like land drainage, application of high doses of fertilizers and conversion the permanent grassland into crop fields. Nowadays several projects were started to restore species-rich grassland, however, restoration and extensification programmes have not always been successful in re-establishing typical grassland species.

Two factors, that impede restoration process are described:

- limitation of sites (inappropriate site conditions)
- dispersal limitation (no seeds of grassland species are available).

Harvesting of valuable seed mixtures and use them to restore arable land and degraded grasslands is the most common method of active restoration of grasslands. The important factor influence effectiveness of re-establishing species is similarity of the renaturalized site and the donor site.

### Case study



The list of plant species with highlighting of indicator species for given variant

No	Species	Relevés							Frequency	Indicator value
		I	II	III	IV	V	VI	VII		
	cover of herb layer (%)	90	90	85	85	80	90	85		
	cover of mosses (%)	0	0	0	0	0	0	0		
1	<i>Achillea millefolium</i>	1	1	+	1	+	+	+	7	
2	<i>Agrostis stolonifera</i>	3	2	2	1	2	2	3	7	
3	<i>Alchemilla pastoralis</i>	+	1	+	1	1	+	+	7	F
4	<i>Arrhenatherum elatius</i>	1	3	2	1	1	3	+	7	
5	<i>Campanula patula</i>	+	+	1	+	+	+	+	7	F
6	<i>Holcus mollis</i>	1	+	1	2	1	1	+	7	
7	<i>Hypericum perforatum</i>	1	+	1	1	1	+	+	7	
8	<i>Lathyrus pratensis</i>	+	+	+	+	+	+	+	7	F
9	<i>Ranunculus acris</i>	1	+	+	+	+	+	+	7	
10	<i>Rumex acetosella</i>	+	+	+	+	+	+	1	7	
11	<i>Stellaria media</i>	+	+	+	+	+	+	+	7	
12	<i>Tragopogon pratensis</i>	+	+	1	+	+	+	+	7	F
13	<i>Angelica sylvestris</i>	+	1	1	+	+	+	-	6	
14	<i>Dactylis glomerata</i>	1	+	1	1	2	+	-	6	
15	<i>Plantago lanceolata</i>	+	+	-	+	+	+	+	6	
16	<i>Anthoxanthum odoratum</i>	1	-	1	1	1	1	-	5	
17	<i>Galium mollugo</i>	+	1	-	1	-	+	+	5	
18	<i>Knautia arvensis</i>	-	-	+	+	+	1	+	5	F
19	<i>Phleum pratense</i>	1	1	-	+	-	+	+	5	
20	<i>Trisetum flavescens</i>	1	-	1	2	+	-	+	5	F
21	<i>Equisetum pratense</i>	-	-	+	+	+	+	-	4	
22	<i>Leontodon hispidus</i>	-	-	+	+	1	1	-	4	
23	<i>Leucanthemum vulgare</i>	-	-	-	+	+	+	+	4	
24	<i>Veronica chamaedrys</i>	-	-	-	+	+	+	+	4	
25	<i>Fragaria vesca</i>	-	-	-	+	+	+	-	3	
26	<i>Heracleum sphondylium</i>	-	-	+	-	+	-	+	3	
27	<i>Luzula multiflora</i>	-	-	-	+	+	+	-	3	G
28	<i>Pimpinella saxifraga</i>	-	-	-	+	-	+	+	3	
29	<i>Taraxacum officinale</i>	-	-	+	-	+	-	+	3	
30	<i>Vicia cracca</i>	-	-	-	+	-	+	+	3	
31	<i>Galeopsis tetrahit</i>	-	-	+	-	-	+	-	2	
32	<i>Poa pratensis</i>	-	+	-	-	-	+	-	2	
33	<i>Betula pendula</i>	+	-	-	-	-	-	-	1	
34	<i>Briza media</i>	-	-	-	-	-	-	1	1	
35	<i>Centaurea jacea</i>	-	-	-	-	-	-	+	1	
36	<i>Cirsium rivulare</i>	-	-	-	-	-	-	+	1	E
37	<i>Festuca rubra</i>	-	-	-	-	-	-	2	1	
38	<i>Galium uliginosum</i>	-	-	-	-	-	-	+	1	
39	<i>Potentilla erecta</i>	-	-	-	-	-	-	+	1	
40	<i>Salix cinerea</i>	-	+	-	-	-	-	-	1	

F - indicator species for fresh meadows (*Arrhenatherion*)

Mostly, the donor sites are medows managed exclusively for grasslands and placed in protected high-valuable nature areas, whereas the degraded sites are located near human disturbed areas. The distance influences the successful restoration negatively, because of the difference in site condition and plant composition. Better way would be to use as a source of seeds or hay a grassland plant community placed as near as possible to restored site.

Through financial compensation mechanisms, EU have supported extensive grassland management. In Poland this programme started in 2004 with accession to the European Union. Nowadays, in Agri-environmental programme, realised by of the Rural Development Programme (2007-2013), the extensive grassland management is promoted in package 3 (extensive permanent grassland), 4 (protection of endangered bird species and natural habitats outside of Nature 2000 areas), and 5 (protection of endangered bird species and natural habitats in Nature 2000 areas). As a donor meadows for restoration of the degraded grassland sites areas covered with package 4th and 5th are potentially useful. Species composition of these meadows are described in detail in elaboration of the flora documentation (variants 4.2-4.9 and 5.2-5.9). The detailed documentation give an excellent oportunity to cretion of databeses of possible donor meadows for particular regions.

### Elements of the documentation

- description of environmental conditions
- GPS coordinates of the meadow
- list of plant species with highlighting of indicator species for given variant
- photographic documentation

### General view



### Indicator species



*Alchemilla* sp.



*Campanula patula*



*Tragopogon pratensis*



*Knautia arvensis*