

Zeitschrift: Veröffentlichungen des Geobotanischen Institutes der Eidg. Tech. Hochschule, Stiftung Rübel, in Zürich
Herausgeber: Geobotanisches Institut, Stiftung Rübel (Zürich)
Band: 107 (1992)

Artikel: The "Molinietum coeruleae" in the Vistula river valley naer Kostrze (s. Poland)
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DOI: <https://doi.org/10.5169/seals-308943>

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Veröff. Geobot. Institut ETH, Stiftung Rübel, Zürich, 107 (1992), 98-100

The *Molinietum coeruleae* in the Vistula river valley near Kostrze (S. Poland)

Kazimierz ZARZYCKI

Fourty years ago humid meadows (*Molinietalia*: *Calthion* and *Molinion*) occupied many hectares of the Vistula valley (ZARZYCKI 1958a,b) (Fig. 1a). As a result of drainage and fertilization, they were transformed into fresh meadows (*Arrhenatheretalia*) and plough land (TUMIDAJOWICZ and ZUBEL 1978) (see Table 1 and Fig. 1b).

The relict of *Molinietum* in Kostrze near Krakow contains many rare and interesting plants (e.g. *Galium boreale*, *Gentiana pneumonanthe*, *Gladiolus imbricatus*, *Iris sibirica*, *Molinia coerulea*, *Salix rosmarinifolia*, *Selinum carvifolia*, *Serratula tinctoria*, *Stachys officinalis*, *Trollius europaeus*).

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Table 1. Constancy of characteristic plant species (Ch.) of humid and fresh meadows in the Vistula valley.

Roman numerals = constancy

I = 1-20, II = 21-40, III = 41-60, IV = 61-80, V = 81-100%

Arabic numerals = cover (Braun-Blanquet scale)

1956 = typical *Molinietum* (ZARZYCKI 1958), 1979 = not precisely the same area (TUMI-DAJOWICZ and ZUBEL 1978a), 1988 = fragments of *Molinietalia* only (ZARZYCKI, pers.obs.).

Years	1956	1979	1988
Ch. Molinetum			
<i>Gentiana pneumonanthe</i>	V ⁺⁻²	III ⁺	
<i>Molinia coerulea</i>	V ²⁻⁴	III ²⁻⁴	
<i>Silaus flavescentis</i>	V ⁺⁻¹	III ⁺⁻²	
<i>Iris sibirica</i>	IV ⁺⁻¹	II ⁺⁻¹	
<i>Laserpitium prutenicum</i>	III ⁺⁻²	II ⁺⁻²	
<i>Gladiolus imbricatus</i>	I ⁺⁻¹	II ⁺	
Ch. Molinion			
<i>Galium boreale</i>	V ⁺⁻²	III ¹⁻³	
<i>Sanguisorba officinalis</i>	V ¹⁻⁴	V ⁺⁻²	
<i>Selinum carvifolia</i>	V ⁺⁻²	V ⁺⁻²	
<i>Serratula tinctoria</i>	V ⁺⁻²	III ⁺⁻¹	
<i>Succisa pratensis</i>	V ⁺⁻²	II ⁺⁻¹	
Ch. Molinietalia			
<i>Deschampsia caespitosa</i>	V ⁺⁻²	IV ¹⁻⁴	
<i>Lysimachia vulgaris</i>	V ⁺⁻²	III ⁺⁻²	
<i>Carex hostiana</i>	IV ⁺⁻³	I ²	
<i>Lychnis flos-cuculi</i>	IV ⁺⁻²	V ⁺⁻²	
<i>Lotus uliginosus</i>	II ⁺⁻¹	V ⁺⁻²	
<i>Lythrum salicaria</i>	I ⁺	II ⁺⁻¹	
<i>Filipendula ulmaria</i>	-	II ⁺	
<i>Angelica silvestris</i>	-	II ⁺⁻¹	
<i>Orchis latifolia</i>	-	II ⁺⁻¹	
<i>Carex panicea</i>	-	II ⁺⁻¹	
<i>Platanthera bifolia</i>	-	II ⁺⁻²	
<i>Juncus effusus et conglomeratus</i>	-	II ⁺⁻²	
Ch. Arrhenatheretum and Arrhenatherion			
<i>Crepis biennis</i>	I ¹	II ⁺⁻¹	
<i>Daucus carota</i>	I ⁺	-	
<i>Bromus mollis</i>	-	II ⁺	
<i>Trisetum flavescentis</i>	-	I ⁺	
<i>Arrhenatherum elatius</i>	-	I ⁺	
<i>Chrysanthemum leucanthemum</i>	V ⁺⁻²	III ⁺	
<i>Heracleum sphondylium</i>	-	I ⁺⁻¹	
<i>Campanula patula</i>	-	III ⁺	
<i>Knautia arvensis</i>	-	I ⁺	
Ch. Arrhenatheretalia			
<i>Achillea millefolium</i>	II ⁺	IV ⁺	
<i>Stellaria graminea</i>	II ⁺⁻¹	III ¹⁻²	
<i>Dactylis glomerata</i>	-	III ¹⁻²	
<i>Trifolium repens</i>	III ⁺	II ⁺	
<i>Cynosurus cristatus</i>	V ¹⁻²	II ⁺	
<i>Alopecurus pratensis</i>	I ⁺	II ⁺	
<i>Trifolium dubium</i>	I ⁺	II ⁺	

Fresh meadows and arable land

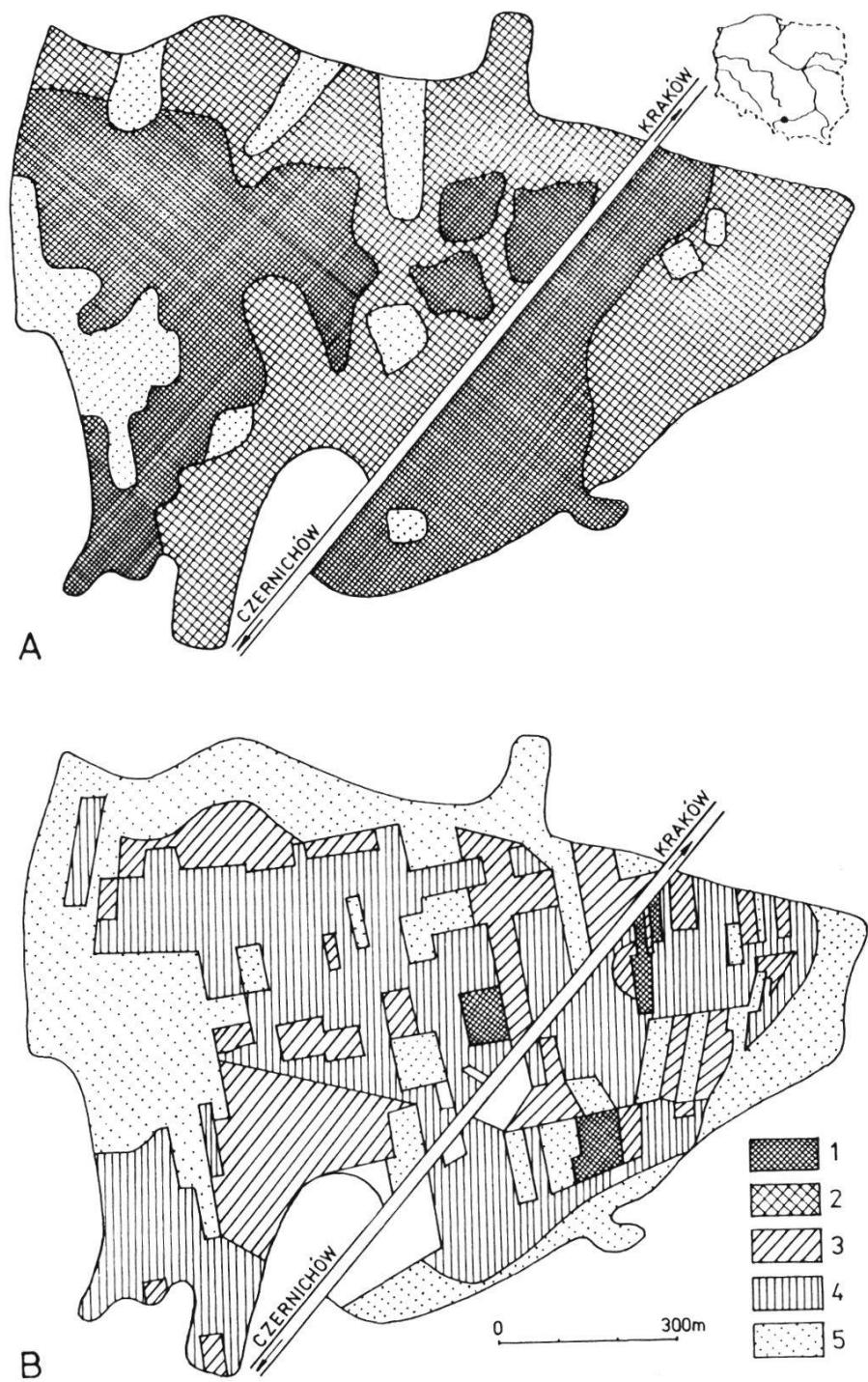


Fig. 1. The phytosociological map of meadow communities in the environs of Czernichów.
A - 1947 (PAWŁOWSKI et al. 1947), B - 1972 (TUMIDAJOWICZ and ZUBEL 1978).
1 - typical *Molinietum coeruleae*, 2 - poorer *Molinietum coeruleae*, 3 - transitional communities from *Molinietum* to *Arrhenatheretum*, 4 - *Arrhenatheretum elatioris*, 5 - arable lands.