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Scolochloa festucacea* (Poaceae) in Hungary*Abstract**

Király, G.: *Scolochloa festucacea* (Poaceae) in Hungary. – Willdenowia 35: 259-263. – ISSN 0511-9618; © 2005 BGBM Berlin-Dahlem.
doi:10.3372/wi.35.35205 (available via <http://dx.doi.org/>)

The discovery of the circumboreal grass *Scolochloa festucacea* in Hungary, which is also its first known locality in the entire Carpathian Basin, is documented. Only one population was found, near Földsziget in the western fen basin of the Hanság region in NW Hungary. The locality, where it grows as a dominant, stand-forming species in an area of c. 10 hectare, is one of the low elevation refugia of the boreal flora in Central Europe, indicating the relict character of its Hungarian occurrence.

In 2004, during the floristic mapping of Hanság region (Kisalföld, NW Hungary), a sizeable population of *Scolochloa festucacea* (Willd.) Link was found near the settlement of Földsziget. This species has not been recorded previously from Hungary nor from the Carpathian Basin. The newly discovered population is situated in a distance of 300 km from its previously known range. The plants could be identified as *Scolochloa* without difficulty with the help of Conert (2000), Haeupler & Muer (2000) and Jäger & Werner (2002). The genus *Scolochloa* Link had been considered as unispecific (Conert 1992, 2000), until recently a new species, *S. marchica*, was described from NE Germany, which apart from cytological variations differs from *S. festucacea* mainly in the morphology of the spikelets (Düvel & al. 2001). The Hungarian population clearly belongs to *S. festucacea*, in spite of the short apical lemma teeth, which somewhat remind at *S. marchica* (H. Scholz ex litt.).

Scolochloa festucacea occurs in boreal and sub-boreal region of North America and Eurasia. In Europe it is present in Germany, Poland, the Baltic countries, Sweden, Finland, the Ukraine and Russia, and it has an isolated occurrence in the Caucasus (Conert 1992, Hultén & Fries 1986). It inhabits swamps, oxbows and riverbanks of slow water-courses, where it is often stand-forming (Komarov 1934, Hitchcock 1950, Parish & al. 1996, Tutin 1980, Hultén & Fries 1986, Düvel & al. 2001).

In the Central European part (Germany and Poland) of its hitherto known range *Scolochloa festucacea* is considered a rare species. The closest occurrence to Hungary is in the northern foothills of the Carpathians (Haeupler & Schönfelder 1989, Benkert & al. 1996, Zając & Zając 2001). An adventive occurrence was found in Bavaria at similar latitude (Jäger & Werner 2002). South of this, the species is known only in the Caucasus. The Hungarian locality 300 km southwest from the margin of the continuous distribution and furthermore at a comparatively low elevation is thus remarkable.

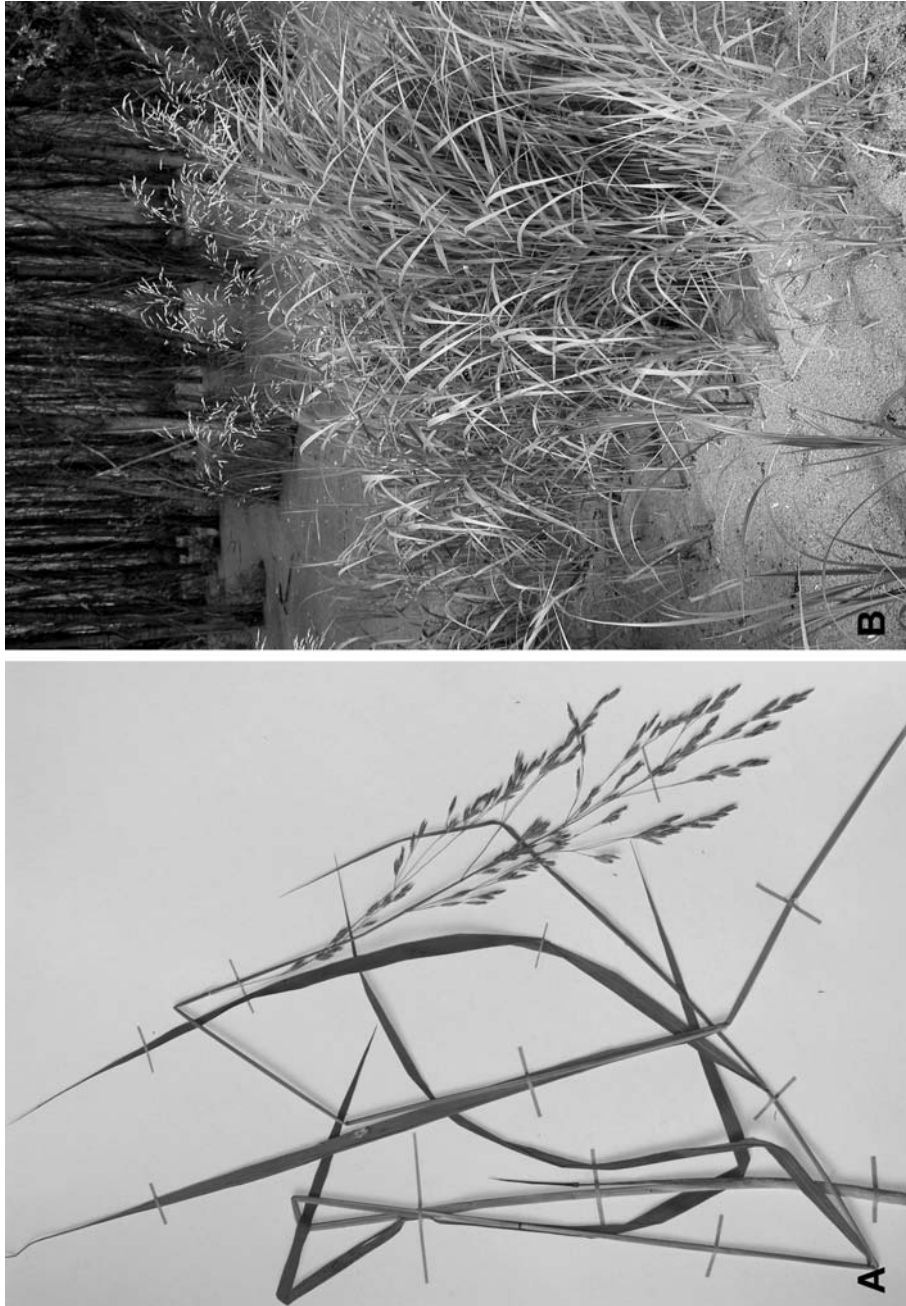


Fig. 1. *Scolochloa festucacea* – A: herbarium specimen from NW Hungary, Győr-Ménfőcsanak-Sopron county, Földsziget, “Csíkos-éger”, 6.9.2004, G. Király (herb. G. Király, Sopron); B: part of the *Scolochloa festucacea* stand at the margin of “Csíkos-éger”, photograph taken on 6.9.2004 by the author.

Habitat characteristics of the Hungarian population. – The locality of *Scolochloa festucacea* is situated in the lowest elevated part of the Kisalföld (Lesser Hungarian Plain) region, in the western fen basin of Hanság. Marsh and fen associations (such as large sedge communities, tall herb communities and reed beds), small alder bog forests and cultivated forests represent the actual vegetation of this region. The stand near the settlement Földsziget, at the margin of the Csíkos-éger forest has an altitude of 113 m above sea level and the water level is permanently high (30-120 cm in May). An area of 10 hectare is covered by an almost continuous stand of *Scolochloa festucacea*, partly surrounded by *Glycerietum*, partly forming the herb layer of planted Euramerican poplar (*Populus × canadensis* Moench) forest (Fig. 1B.). Relevés prepared in *S. festucacea* stands (Table 1) have only frequent hygrophilous species with low abundance values (*Carex riparia*, *Iris pseudacorus*, *Phragmites australis*). It is remarkable that *Scolochloa festucacea* and *Glyceria maxima* do not occur in common stands, although their habitus and habitat requirements are similar and their occurrences adjoin. Characteristics of the association and the typical accompanying species of the Hanság population of *Scolochloa* do not differ significantly from German populations (Düvel & al. 2001). According to Komarov (1934), Conert (2000) and Jäger & Werner (2002), *S. festucacea* flowers in June-July, but the Hanság population was in the middle of its flowering period at the beginning of June 2004.

Hanság region in its original state, before drainage started in the 19th century, was a sizeable low elevation refugia of the boreal flora in southern Central Europe. Still at the beginning of the

Table 1. Relevés prepared in the population of *Scolochloa festucacea* in Hungary, Győr-Moson-Sopron county, 2 km west from Földsziget settlement, “Csíkos-éger” on 9.6.2004; size of the relevés: 5 × 5 m (25 m²); depth of water in the relevés: 1: 20-50 cm; 2: 0 cm, 3: 20-30 cm; 4: 10-40 cm; 5: 20-50 cm; 6: 10-40 cm; 7: 0-20 cm; 8: 0-30 cm; 9: 20-50 cm; 10: 5-30 cm.

Number of relevé	1	2	3	4	5	6	7	8	9	10
Total percent cover	85	100	90	70	100	90	95	95	100	100
<i>Bidens frondosa</i>	+	+	+	.	.	.	.	.	.	.
<i>Butomus umbellatus</i>	.	.	.	1	+	1	1	.	.	.
<i>Calystegia sepium</i>	.	.	.	.	.	.	r	.	.	.
<i>Carex riparia</i>	1	.	.	2	+	1	2	+	1	3
<i>Epilobium hirsutum</i>	.	.	.	.	.	.	.	+	.	.
<i>Glyceria maxima</i>	1	.	.	+	.	.	.	.	1	+
<i>Humulus lupulus</i>	+	.	.	.	.	.	.	.	.	.
<i>Iris pseudacorus</i>	1	+	2	.	.	1	.	.	2	1
<i>Lemna gibba</i>	.	.	.	(5)	.	.	.	.	.	.
<i>Lemna minor</i>	.	.	.	.	(2)	(2)	(2)	(2)	(2)	(3)
<i>Lysimachia vulgaris</i>	.	.	.	.	.	.	+	.	.	.
<i>Oenanthe aquatica</i>	.	.	.	+	.	.	.	1	.	+
<i>Persicaria hydropiper</i>	.	.	.	+	+	.	.	+	.	+
<i>Phragmites australis</i>	.	.	.	.	3	3	2	.	.	2
<i>Poa trivialis</i>	.	.	.	.	.	.	r	.	.	.
<i>Ranunculus sceleratus</i>	.	.	.	+	.	+	+	+	.	.
<i>Rorippa amphibia</i>	.	.	.	.	.	.	.	.	.	+
<i>Rumex hydrolapathum</i>	.	.	.	1	.	.	.	.	.	.
<i>Scolochloa festucacea</i>	5	5	4	4	4	3	4	5	5	4
<i>Solidago gigantea</i>	.	.	.	.	.	.	1	+	.	.
<i>Spirodela polyrhiza</i>	.	.	.	.	.	(+)	.	.	.	.
<i>Stachys palustris</i>	.	.	.	.	.	.	.	.	+	.
<i>Symphytum officinale</i>	+	+	+	.	.	.	.	+	+	+
<i>Typhoides arundinacea</i>	.	.	.	.	+	+	.	.	.	1
<i>Veronica catenata</i>	.	.	.	.	.	.	+	+	.	.

19th century the close surroundings of Földsziget had a permanently high water level and the presence of peat fens as well as floating mats is most likely on the basis of available data (Kövéér 1930, Zólyomi 1931, 1934). In the course of gradual drainage, the Hanság basin and the territory of Csíkos-éger became significantly drier and some relict species became extinct during the 19th century (e.g. *Vaccinium oxycoccos*, *Utricularia bremii*), other during the 20th century (e.g. *Salix pentandra*, *Betula pubescens*). At present, *Calamagrostis canescens*, *Carex elongata*, *Hottonia palustris*, *Urtica kioviensis* and *Thelypteris palustris* are the more important remains of the former bog flora.

The Hanság population of *Scolochloa festucacea* inhabits the area with the highest water level. In addition, its intensive vegetative reproduction might have helped it to survive. The closed, practically empty anthers of examined specimens from Hanság even indicate exclusive vegetative reproduction and supports corresponding considerations by Smith (1973) and Düvel & al. (2001).

The probability of a recent introduction of *Scolochloa festucacea* in the Hanság region can be considered very low, because the locality is situated in the Austrian-Hungarian borderland and was therefore inaccessible until 1990. Since then, it is part of the strictly protected core area of the Fertő-Hanság National Park. Strong indication for the presence of the species in the middle of the 20th century provide records of a "*Calamagrostis pseudophragmites*" by Járai-Komlódi (1959), who carried out phytosociological studies in that area and prepared relevés exactly at the present locality in reed and large sedge communities. Although no vouchers were collected by Járai-Komlódi, this determination is definitely erroneous, as that species is absent from the Hanság region and has significantly different habitat requirements and may well be a misidentification for *S. festucacea*.

It can be fairly safely concluded that the character of the habitat of *Scolochloa festucacea* in the Hanság region, as a moorland and low elevation boreal refugium, although extremely damaged, provides strong indication for the relict character of its isolated southernmost Central European occurrence.

Voucher specimens. – Hungary, Győr-Moson-Sopron county, 2 km west from Földsziget settlement, in "Csíkos-éger", in swamps and planted Euramerican poplar forests, 47°39'56"N, 17°07'01"E, 113 m, CEU 8368.2, 6.9.2004, G. Király (BP 654981, herb. G. Király, Sopron), Fig. 1A.

Acknowledgements

The author thanks the Fertő-Hanság National Park Directorate for giving permission to entry into the protected areas. Special thanks to Hildemar Scholz (Berlin) for his taxonomic notes and amendments. The author's research was supported by Bolyai János Research Grant of Hungarian Academy of Sciences.

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