

The flora of Réti-dűlő near Csömör

By

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Abstract: The Réti-dűlő occupies the major part of the Csömöri-legelő nature reserve designated as a county park in 1977. The drying swamp meadows provide asylum for Molinion coeruleae, whereas the reeds is a refuge for seven other protected or endangered species (*Carex appropinquata*, *Dactylorhiza incarnata*, *Epipactis palustris*, *Eriophorum latifolium*, *Iris pseudacorus*, *Orchis laxiflora* subsp. *palustris*, and *Parnassia palustris*). This review provides the first set of botanical data of the area, serving as a basis for further studies.

INTRODUCTION

The Csömöri-legelő (pasture) is a nature reserve protected by the Pest County. It is near the village of Csömör, in the valley of Forrás brook (also called Csömör brook).

The area has been botanically unexplored until 1977. It lies on the Pesti Plain which forms the northern part of Dunamenti Plain which in turn is divided by fan terraces resulting in significant relief. The Forrás brook is a low discharge Tertiary tributary on the left bank of the Danube. It flows into the Mogyoródi brook, which in turn is a right tributary of the Szilas brook. The Forrás brook has its source on the side of the flood-free Terrace V of the Danube and flows through the village of Csömör lying east of the study area. The valley is located on the Middle Pleistocene Terrace III of the Danube, north of the flood-free Terrace IV, 34 m above the 0 level of Danube (Map 1). The Réti-dűlő study area slopes towards the Danube dropping in elevation from 150 m to 140 m above sea level (with reference to the Baltic Sea) (Map 2).

Hay fields, reeds, creekside and meadow willow groves are found in the brook valley what is covered by meadow and swamp soils. The meadow is bordered on the left by intermittent locust groves along the road, cultivated fields lie further on. Also on the left, in the middle of the area lies the Csömör pool. Results of the botanical study of this area have already been published (STOLLMAYER-BONCZ 1982, 1988, 1993).

The northwestern part of the study area is occupied by a sandy knoll (elevation 160 m) with a cultivated field on the top and locust forests on the side. Other parts of the valley beyond the protected area are also cultivated. A strip of the right bank is separated by a road from the wheat fields of Káposztások Knoll (167 m). On most areas towards the village there are high sedgy, reedy, and willowy patches. An artificial fishing lake has been developed in the major part of this area. Regarding the geology of the area, it has no adverse effects on the local water supply.

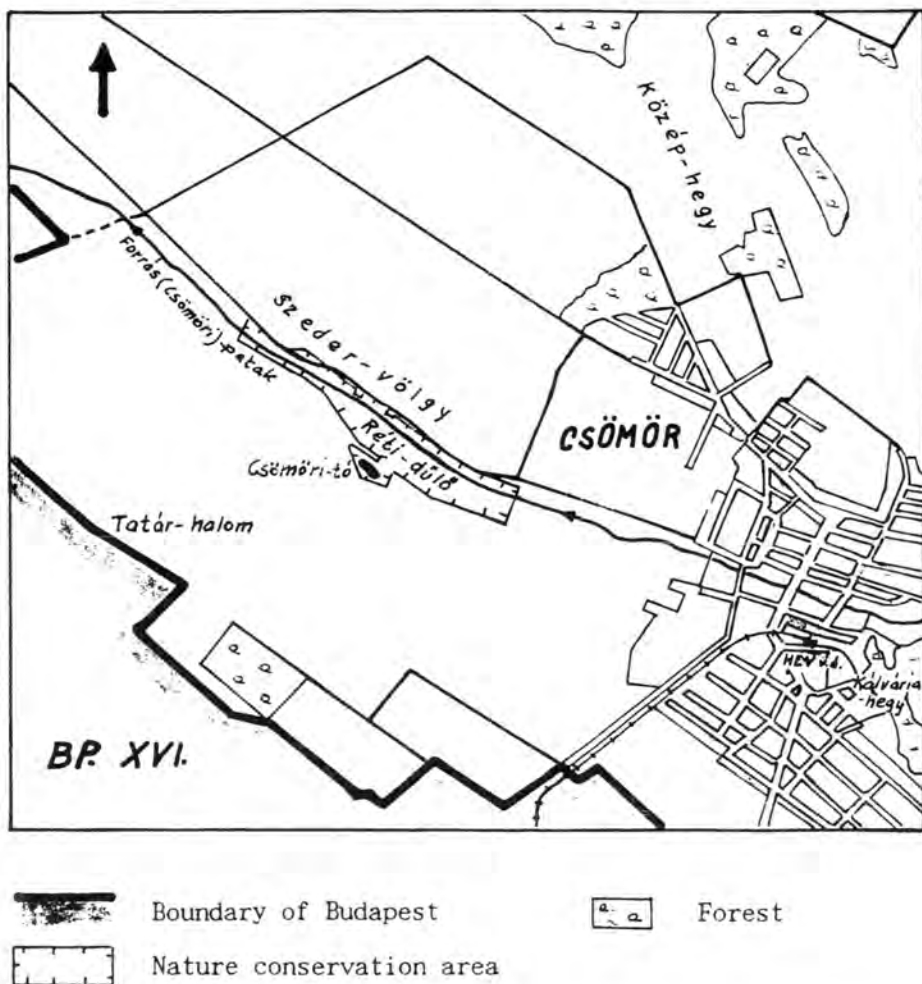
From phytogeographical point of view, the study area forms part of the Praematricum subregion of Eupannonicum region of Pannonian floral province (Pannonicum).

The nature reserve is botanically unexplored, except for the area around the Csömör pool. Although botanical data on the flora of the Rákos and Szilas brook valley have been published by several authors (the first record by BORBÁS dates back to 1879), the plant assemblages of

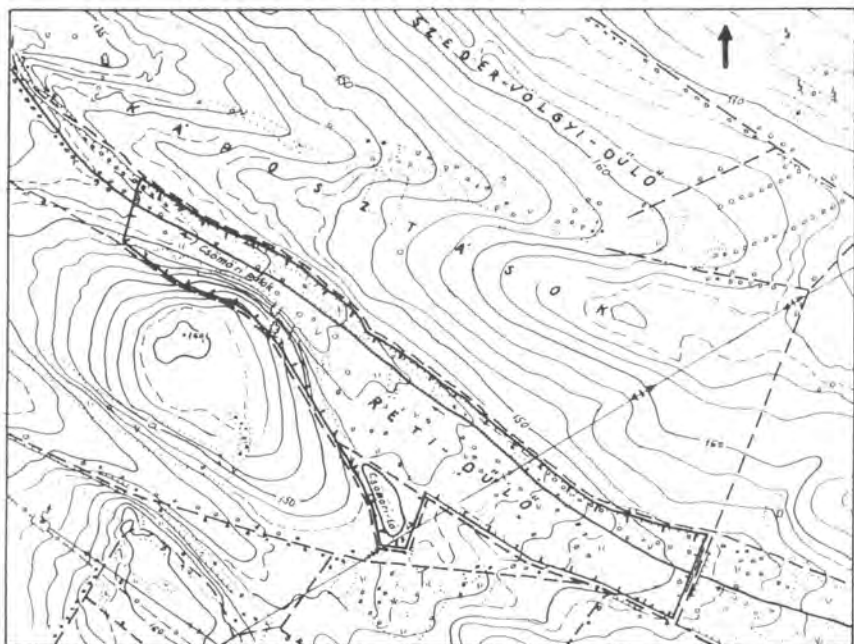
the meadows of Forrás brook have not been treated by botanists. Only Borbás mentioned a single species, *Amblystegium riparium* (syn.: *Leptodictyum riparium*) from here.

THE STUDIED MATERIAL

A systematic floristical study of the Réti-dűlő was carried out by the author in 1990-91. Mosses, pteridophytes, and angiosperms were examined. The water level of Forrás brook, especially since damming has been extremely low, hindering the collection of algae. In spring algal bloom occurs in the meadow which is inundated by ground water at that time of the year. Any study on that would remain incidental. The herbarium documentation of this floral study is deposited in the Botanical Department of the Hungarian Natural History Museum.



Map 1. Topographic map of the Csömöri-legelő (pasture). A detail of the Map 620212-01 of Cartographic Co., Budapest, 1987-88. The pool is shown according to the survey of Ákos Stollmayer



Map 2. Map sheet 65-241 Csömör Sz-2394/1986.IV., National Office of Land and Cartography, scale 1:10 000, base level of Baltic Sea

METHODS

The collection of the herbarium material and the estimation of relative abundance were carried out biweekly from March through November. More precise data were obtained by quantitative surveys on 2 m by 2 m squares in summer and autumn. These data, however, proved to be insufficient for analysis.

The following units were distinguished during collecting: locust forest, roadside, meadow, reeds, and brook bank. Identifications were based on the following sources: BOROS (1953), ORBÁN and VAJDA (1983), HORTOBÁGYI (1968), and JÁVORKA and CSAPODY (1975). For the interpretation of floral elements, their mode of life, and assemblages, the manual of SOÓ (1964-1980) was used. The table of ecological parameters is based on ORBÁN (1984) and SIMON *et al.* (1992). Categories of nature conservation rank follow SIMON (1988) and RAKONCZAY (1989) (Table 1).

The frequency of occurrence is expressed on a three-grade scale which is quantified for further analysis. Species occurring in small numbers or in scattered patches of the area are referred to as rare (1). Species occurring in greater numbers and at more localities are classified as frequent (5), or abundant (15) (Table 1).

EVALUATION OF DATA

169 species have been identified and evaluated in the course of this study (Table 1).

The flora is dominated by Eurasian-Mediterranean (29%) and Eurasian (20%) elements, which include 5 protected species. 10% of the flora consists of Circumpolar elements, including

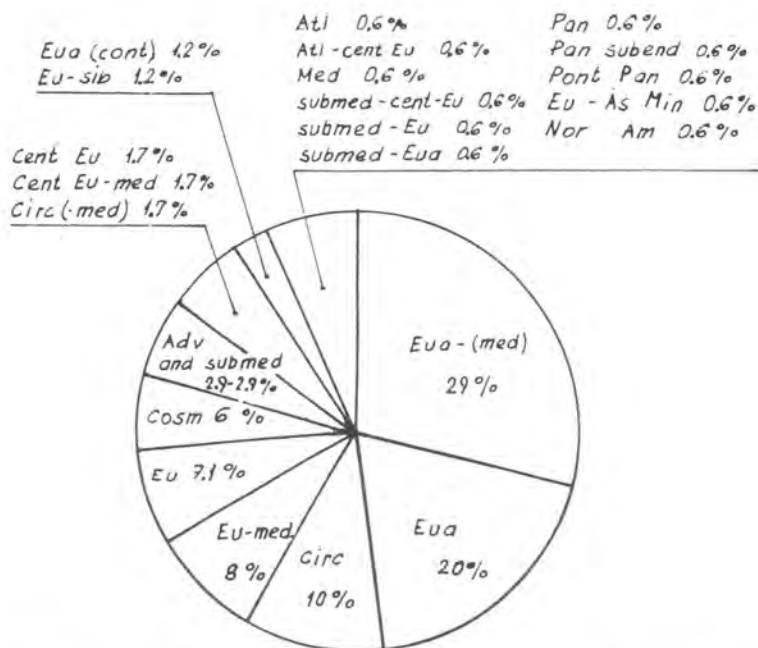


Fig. 1. Floral element composition of the plant assemblage of Réti-dűlő near Csömör

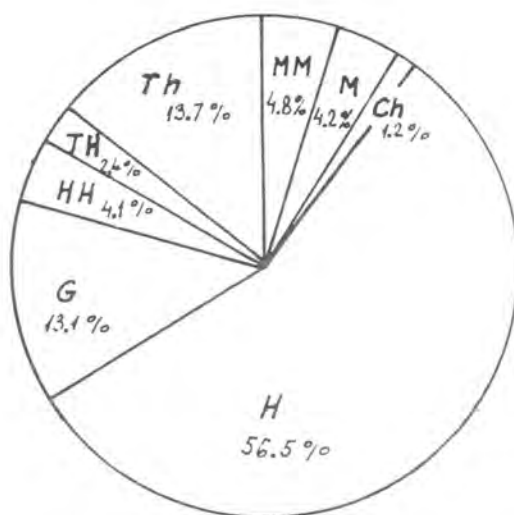


Fig. 2. Distribution of modes of life (according to Raunkiaer) among the plants of Réti-dűlő near Csömör — MM: phanerophyta, M: phanerophyta, Ch: chamaephyta, H: hemicryptophyta, G: geophyta, HH: hydatophyta, helophyta, TH: hemitherophyta, Th: therophyta

one protected species. The proportion of European-Mediterranean, European, and cosmopolitan taxa is between 5% and 10%. Other species belong to 18 floral elements (Fig. 1).

The only moss species present is of P life strategy type (permanent perennial).

The distribution of shoot plants reveals diverse modes of life: 56% are hemicryptophytæ (H), 13% geophytæ (G), 13% therophytæ (Th), 4% phanerophytæ (M and MM), 4% chamaephytæ (Ch), and 2% hemitherophytæ (TH) (Fig. 2).

On the basis of ecological parameters, the whole area is dominated by 118 species with temperature requirement of temperate continental deciduous forest and steppe ($T=5$) (Fig. 3). The majority of species has either slightly calcareous ($R=4$) (71 species), or neutral ($R=0$) (71 species) soil pH requirement (Fig. 4). A study of water requirement were not possible in the area since the water supply of different parts varies greatly (Fig. 5). Obviously the water requirement of the vegetation of the dry locust forest of higher elevation and the low-lying meadows or brookside reeds is significantly different (Fig. 6).

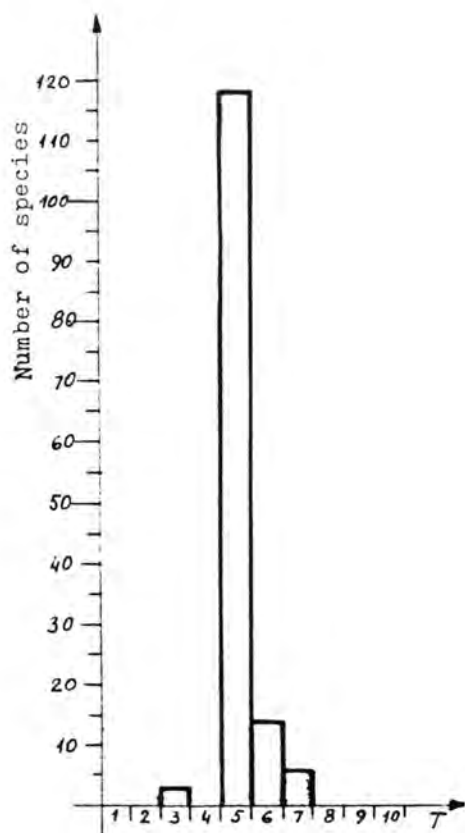


Fig. 3. Distribution of temperature requirements among the plants of Réti-dűlő near Csömör (T — Zólyomi)

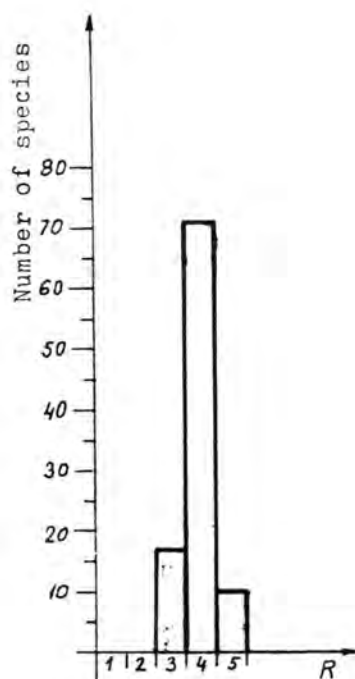


Fig. 4. Distribution of pH requirements among the plants of Réti-dűlő near Csömör (R — Ellenberg)

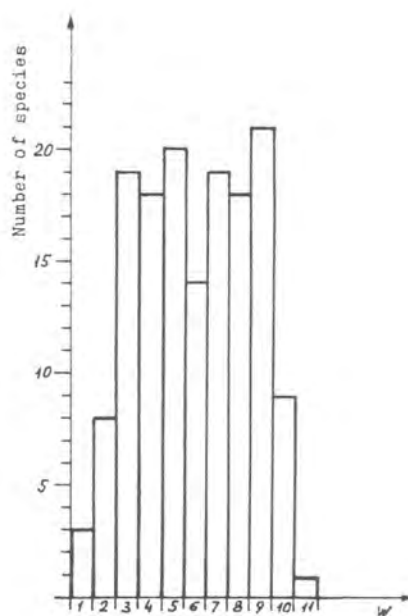


Fig. 5. Distribution of water requirements among the plants of Réti-dűlő near Csömör (W — Zólyomi)

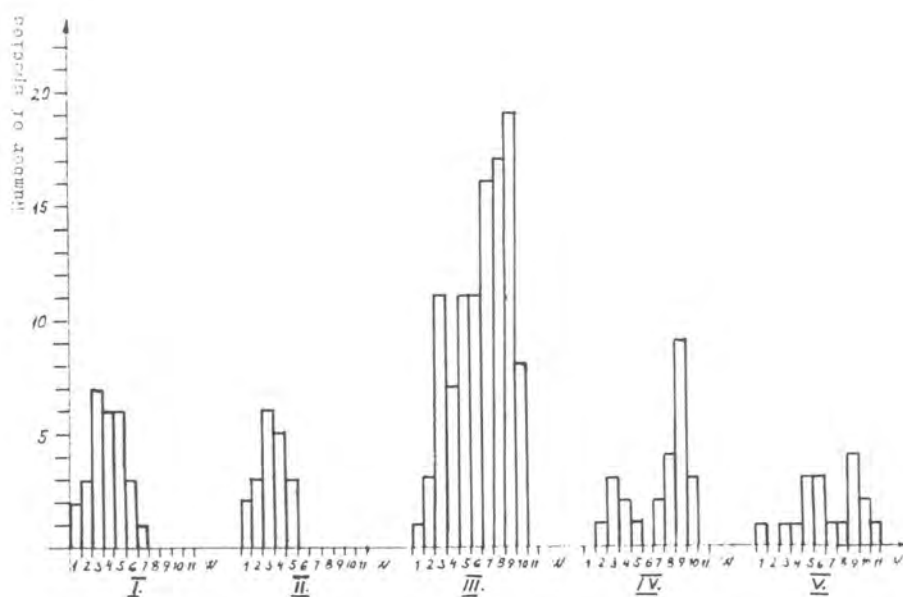


Fig. 6. Distribution of species according to their water requirements at different habitats of Réti-dűlő near Csömör (W — Zólyomi) — I: Locust forest, II: edge of the way, III: field, IV: reedy, V: bank of the brook

The majority of the protected area comprises meadows where most of the plants in need of protection occur. The greatest number of species (19) falls into the "very wet" group (W=9). Species classified as "wet" or "moderately wet" (W=7 and W=8) are also numerous, 16 and 17, respectively. 11 species were assigned to categories "damp" (W=5), "moderately damp" (W=4), and "moderately dry" (W=3). Species of the last group occur on the few, small, elevated parts of the area as well as in drier segments close to the road. Reeds and brookside habitats are naturally dominated by species belonging to the group W=9. The dry roadside area and the locust forests are inhabited by species overwhelmingly of the group W=3. The protected species belong to categories W=7-10. The wet habitats allow the survival of these plants amidst the surrounding cultivated land.

Using the Nature Conservation Ranks (NCR) of Simon, half of the plants occurring in the area is natural and half is indicative of degradation. For a more accurate evaluation of degradation, 30% comprised by disturbance-resistant species (TZ) should be discounted, as most of the area is hay field (Fig. 7). (Their average ratio in the flora of Hungary is 40% to 60%).

Due to the different vegetation of particular units, it is meaningful to analyze the distribution of NCR categories separately, similarly to the study of W values (Fig. 8).

Obviously the locust forest and the roadside show most signs of degradation (76-80%).

The percentage of natural and degraded constituents of the meadow flora is similar to the overall mean value of Hungary (58% and 42%, respectively). Edificator (E) and accompanying (K) species have a higher representation. The share of disturbance-resistant species (TZ) are significantly higher, due to the hay field use of the area. There are no unique (U) and natural pioneer (TP) elements; the percentage of strictly protected (KV) and protected (V) as well as the cultivated (G) and adventive (A) plants is lower than normal in Hungary.

To obtain a more realistic picture, relative abundance of species was also taken into account in the evaluation (Fig. 9). The ratio of natural and degraded species is 65% to 35%. This is in accordance with the natural landscape pleasing to the eyes. The protected plants (7%) and the edificator plants are reasonably well represented (10%), whereas the share of accompanying species is outstanding (48%). The high proportion of disturbance-resistant species (27%) together with the common accompanying elements are indicative of a healthy wet hay field assemblage.

The area "requires" mowing to prevent overgrowth by willow bushes. The mowing in May is unfavourable for the orchids. They can only bring seeds at the edge of reeds or the wet spots of the meadow with reedy patches. *Parnassia palustris* is fortunate because of its small size and late flowering. *Iris pseudacorus* cannot bring flowers in the small patch where it grows. Mowing in late September or in October would be more advantageous for *Carex appropinquata* and *Eriophorum latifolium* to reach greater number of specimens. The reeds are characterized by a large number of accompanying species. 62% of the floral elements are natural. The brook bank is dominated by accompanying, disturbance-resistant, edificator, and weed species.

The evaluation of some habitats require further studies. A quantitative survey has been carried out in the meadow only. Further such work is being conducted and planned for the future. Upon completion, a more precise assessment of the assemblages of the area and the production of a vegetation map will be possible.

The area can best be characterized by delineating the abundant and common species of each habitats (Table 1).

The vegetation of the locust forest and the roadside serves as a buffer between the cultivated fields and the meadows and reeds. Thus these two areas also deserve a brief treatment.

Abundant species of the locust forest include *Robinia pseudo-acacia* (G) which forms the canopy level, the soft-stemmed, fragrant *Anthriscus cerefolium* subsp. *trichospermum* (TZ), and *Bromus sterilis* (GY). They account for the high ratio of degraded species in the locust forest. There is a large number of common species; dicotyledons include *Alliaria petiolata* (TZ), *An-*

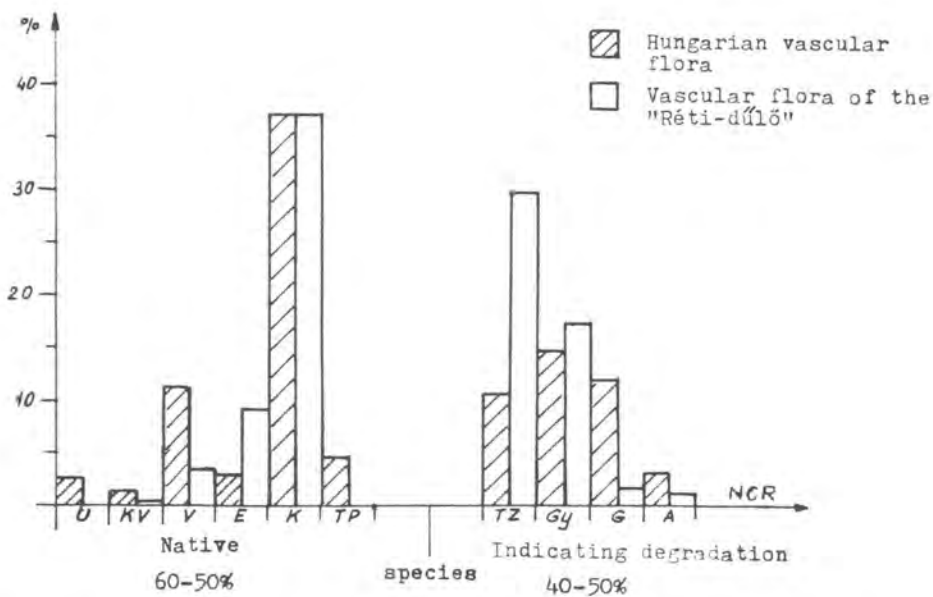


Fig. 7. The ranking of vascular plants of Hungary and the Réti-dűlő near Csömör according to their nature conservation ranks

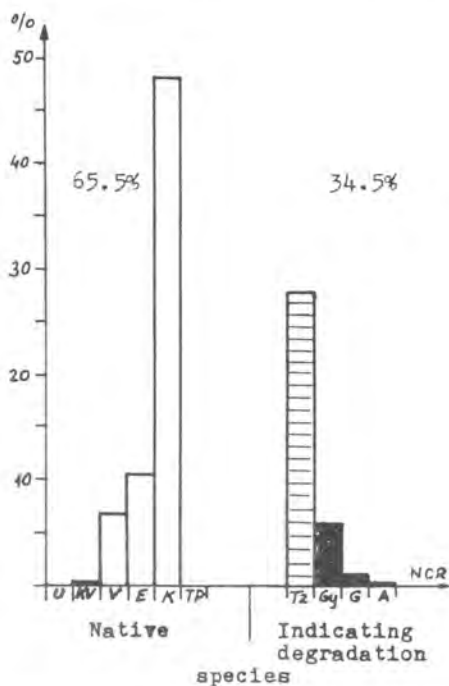


Fig. 9. Nature conservation evaluation of the meadow based on relative abundance data

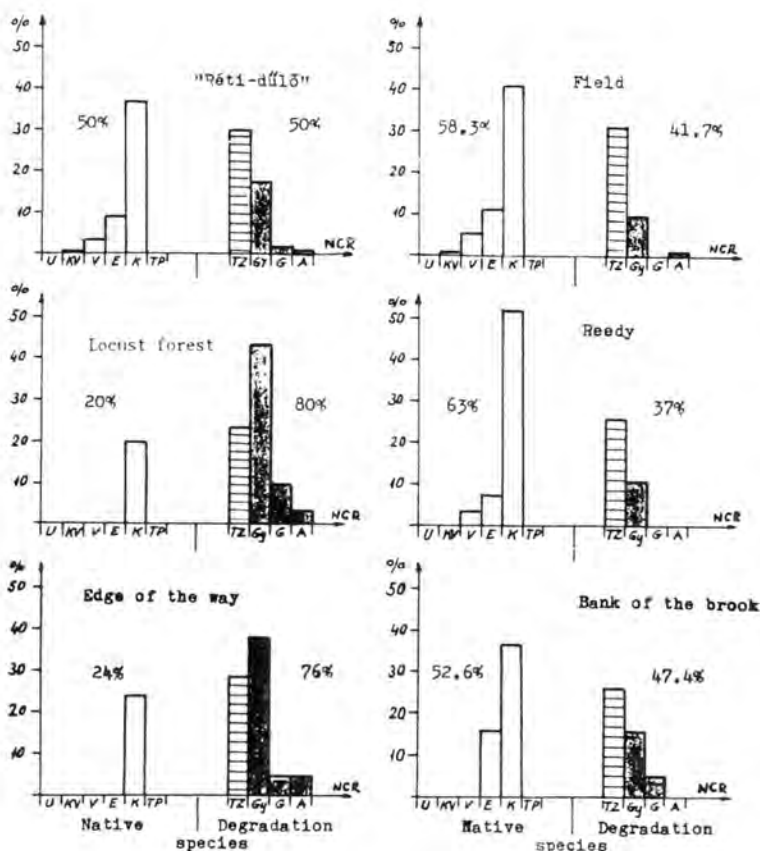


Fig. 8. Distribution of nature conservation rank groups at different habitats of Réti-dűlő near Csömör

chusa officinalis (GY), *Arcticum lappa* (GY), *Cannabis sativa* (A), *Chelidonium majus* (GY), *Falcaria vulgaris* (GY), *Galium aparine* (GY), *Sambucus nigra* (GY), *Stellaria media* (GY), *Seseli osseum* (K), *Thalictrum minus* (K), and *Veronica hederifolia* (TZ), whereas monocotyledons are represented by *Ornithogalum boucheanum* (GY). The locust forest at this locality consists of more species (14 together with rarer species) than most other locust forests.

The roadside with its 10 common and 11 less common species borders the area with flowers from spring to autumn. Common dicotyledons include *Berteroa incana* (GY), *Knautia arvensis* (K), *Melandrium album* (GY), *Robinia pseudo-acacia* (G), *Salvia nemorosa* (K), *Scabiosa ochroleuca* (K), *Silene vulgaris* (K), *Veronica chamaedrys* (TZ); monocotyledons are represented by *Allium scorodoprasum* (TZ) and *Bromus sterilis* (GY).

Among the 115 species occurring in the meadow 24 are abundant. *Parnassia palustris* is an endangered and protected species. It is not affected by mowing due to its late flowering time. Its small, white flowers cover a large area in the middle of the colourful meadow. *Dactylorhiza in-*

carnata is a protected, potentially endangered species. It blossoms in May, when its flowers of different shade from light rose to deep purple are so plentiful in the middle of meadow that it is hard to avoid stepping on them. Edificator species occurring at the edge of meadow towards the reeds include *Salix cinerea* (also represented in the meadow by juvenile specimens), *Carex acutiformis*, *Carex distans*, and *Molinia hungarica*. Accompanying species, such as *Equisetum palustre*, *Achillea asplenifolia*, *Angelica silvestris*, *Cirsium canum*, *Galium verum*, *Lotus tenuis*, *Sanguisorba officinalis*, *Tetragonolobus maritimus* subsp. *siliquosus*, *Briza media*, *Carex flacca*, *Carex panicea*, and *Holcus lanatus* are found in the greatest number. These species with beautiful and colourful flowers keep the meadow in magnificent blossom from spring to autumn.

There are only five disturbance-resistant species: *Centaurea pannonica*, *Lychnis flos-cuculi*, *Prunella vulgaris*, *Ranunculus acris*, and *Vicia cracca*. Their purple and yellow flowers also add to the colours of meadow. A weed species of small size, *Carex hirta* is abundant especially towards the village.

There are 9 Molinio-Juncetea, and 9 Molinio-Arrhenatheretea species.

The swamp meadow with blue meadow-grass forms a colourful carpet from May till September. The mowing in May interrupts the splendour of flowers for only a short time, owing to the high ground water level.

48 species are common in the meadow. Strictly protected (KV) is *Carex appropinquata*. *Eipactis palustris* is protected (V) and endangered (**), whereas *Eriophorum latifolium* is protected (V) and potentially endangered (*). The 15 accompanying species (K) are the following: *Caltha palustris*, *Chrysanthemum leucanthemum*, *Galium palustre*, *Glechoma hederacea*, *Leontodon hispidus*, *Lysimachia nummularia*, *Mentha longifolia*, *Myosotis palustris* subsp. *strigulosa*, *Rhinanthus minor*, *Symphytum officinale*, *Trifolium hybridum*, *Valeriana dioica*, *Carex gracilis*, *Carex vulpina*, *Poa pratensis*.

The 9 edificator species include the following: *Salix alba*, *Agrostis stolonifera*, *Alopecurus pratensis*, *Festuca pratensis*, *Juncus subnodulosus*, *Phragmites communis*, *Poa angustifolia*, *Schoenus nigricans*, and *Scirpus silvaticus*, which is rare in the Great Hungarian Plain. The 17 disturbance-resistant species (TZ) are the following: *Daucus carota*, *Lathyrus pratensis*, *Odonites rubra*, *Ononis arvensis*, *Ranunculus repens*, *Rumex acetosa*, *Senecio erratus*, *Trifolium campestre*, *T. pratense*, *Urtica dioica*, *Calamagrostis epigeios*, *Dactylis glomerata*, *Festuca arundinacea*, *Juncus compressus*, *J. effusus*, *J. inflexus*, and *Poa trivialis*. Weeds are represented by four species: *Equisetum arvense*, *Cirsium arvense*, *Ononis spinosa*, and *Pulicaria dysenterica*. Among the rarer species *Colchicum autumnale* (K) with its purple flower in autumn is noteworthy, as it is not common in the Great Hungarian Plain.

In the reeds located between the brook and the meadow, abundant species are *Calystegia sepium* (K) and *Phragmites communis* (E), whereas common species include *Epilobium hirsutum* (K), *Myosotis palustris* subsp. *strigulosa* (K), *Vicia cracca* (TZ), *Alopecurus geniculatus* (TZ), *Carex acutiformis* (E), *Carex flacca* (K), *Carex hirta* (GY), and *Carex vulpina* (K).

The brook bank is dominated by trees and bushes, soft-stemmed plants are subordinate. *Salix alba* (E) is abundant and it lends exceptional beauty to the scenery in windy and sunny weather. The moss species *Leptodictyum riparium* is common. Other common species include *Humulus lupulus* (TZ) which creeps onto all kind of trees, *Populus nigra* (E) and *Salix fragilis* (K) of giant size, *Sambucus ebulus* (GY) which is white in late spring and black in autumn, the climbing *Solanum dulcamara* (TZ), the creeping *Solidago gigantea* (K), and the pungent *Urtica dioica* (TZ).

Many medicinal herbs and spice plants occur in the area. There is no special reference to them in this paper since their collection is prohibited in the nature reserve, although their role as a gene bank is significant.

The Csömöri-legelő (pasture) was designated as a nature reserve in 1977 primarily for the Csömör pool and its valuable scenery. The Réti-dűlő with its seven protected species (*Carex*

appropinquata (KV), *Dactylorhiza incarnata* (V*), *Epipactis palustris* (V**), *Eriophorum latifolium* (V*), *Iris pseudacorus* (V), *Orchis laxiflora* subsp. *palustris* (V), and *Parnassia palustris* (V**), colourful meadows pleasing to the eyes, swaying reeds, willow bushes and spherical old willow trees also contribute to the values of the nature reserve.

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Abbreviations for Table 1

Flora elements — Adv: adventive, As Min: Asia Minor, Atl: atlantic, Cent Eu: Central European, Circ: Circumpolar, Cont: continental, Cosm: Cosmopolitan, Eu: European, Eua: Eurasian, Med: Mediterranean, No Am: North American, Pan: Pannonian, Pan subend: Pannonian subendemic, Pont: Pontian, Sib: Siberian, Submed: sub-Mediterranean.

Ecological parameters — T: temperature requirement (ZÓLYOMI and PRÉCSÉNYI 1964), W: water requirement (ZÓLYOMI and PRÉCSÉNYI 1964), R: soil (ELLENBERG 1950).

Nature conservation ranks (NCR) (SIMON 1988, 1992) — U: Unique or rare species (endemics, subendemics, relics). KV: Strongly protected species, similar to those in the proceeding category but relatively widespread in nature reserves. V: Species protected in Hungary. E: Natural species predominating in plant communities. K: Main components, also native to the area. TP: Natural pioneer elements. TZ: Native species that tolerate disturbance. A: Adventives. G: Cultivated plants. GY: Cosmopolitan weeds. Hungarian Red Data Book categories — **: currently endangered, *: potentially endangered.

Locality — I: locust forest (*Robinia pseudo-acacia*), II: edge of the way, III: field, IV: reedy, V: bank of the brook.

Estimated frequency record — R: rare ($\times 1$), F: frequent ($\times 5$), A: abundant ($\times 15$).

Table 1. Summary of vascular plants of the Réti-dűlő near Csömör

Species	Flora elements	Life strategy	T	W	R	NCR	Locality - Frequency				
							I	II	III	IV	V
BRYOPHYTA											
<i>Leptodictyum riparium</i>	Circ	P	5	10	0	—	—	—	R	R	F
Species	Flora elements	Life form	T	W	R	NCR	Locality - Frequency				
I	II	III	IV	V							
PTERIDOPHYTA											
<i>Equisetum arvense</i>	Circ	G	0	8	0	GY	—	—	F	—	—
<i>Equisetum palustre</i>	Circ	G	3	9	3	K	—	—	A	R	R
ANGIOSPERMAE — Dicotyledones											
<i>Acer campestre</i> subsp. <i>marsicum</i>	Eu	MM	5	4	4	K	R	—	—	—	—
<i>Achillea asplenifolia</i>	Pan	H	5	7	4	K	—	—	A	—	—
<i>Achillea millefolium</i>	Cosm	H	5	5	0	TZ	—	—	—	R	—
<i>Agrimonia eupatoria</i>	Eu(-med)	H	5	3	3	TZ	R	R	—	—	—
<i>Alliaria petiolata</i>	Eua	Th	5	4	4	TZ	F	—	—	—	—
<i>Anchusa officinalis</i>	Eu(-med)	TH	6	3	3	GY	F	—	—	—	—
<i>Angelica silvestris</i>	Eua	H	5	8	3	K	—	—	A	R	—
<i>Anthriscus cerefolium</i> subsp. <i>trichospermum</i>	Adv	Th	6	5	3	TZ	A	—	—	—	—
<i>Arctium lappa</i>	Eua(-med)	TH	5	6	4	GY	F	—	—	—	—
<i>Aristolochia clematitis</i>	Submed	H	5	4	5	GY	R	—	—	—	—
<i>Asperugo procumbens</i>	Eua(cont)	Th	5	3	4	GY	R	R	—	—	—
<i>Aster tradescantii</i>	Adv	H	0	0	0	A	—	R	—	—	—
<i>Ballota nigra</i>	Submed- Eu	H	7	3	4	GY	R	—	—	—	R
<i>Berteroa incana</i>	Eua	Th	6	3	4	GY	—	F	—	—	—
<i>Caltha palustris</i>	Circ	H	5	9	0	K	—	—	F	—	—
<i>Calystegia sepium</i>	Cosm	H	5	9	4	K	—	—	R	A	—
<i>Cannabis sativa</i>	Eua	Th	5	6	4	A	F	—	R	—	—
<i>Capsella bursa-pastoris</i>	Cosm	Th	6	5	0	GY	—	R	—	—	—
<i>Celtis occidentalis</i>	Nor Am	MM	5	5	4	G	R	—	—	—	R
<i>Centaurea pannonica</i>	Eu	H	5	6	0	TZ	R	—	A	—	—
<i>Centaureum uliginosum</i>	Eu	Th	5	7	4	K	—	—	R	—	—
<i>Cerastium vulgatum</i>	Cosm	H	0	0	0	TZ	—	—	R	—	—
<i>Chelidonium majus</i>	Eua(-med)	H	5	4	5	GY	F	—	—	—	—
<i>Chrysanthemum leucanthemum</i>	Eua(-med)	H	5	4	0	K	—	—	F	—	—

Table 1 (continued)

Species	Flora elements	Life form	T	W	R	NCR	Locality - Frequency.				
							I	II	III	IV	V
<i>Cichorium intybus</i>	Eua(-med)	H	7	5	4	GY	—	—	R	—	—
<i>Cirsium arvense</i>	Eua(-med)	G	5	4	0	GY	—	R	F	—	—
<i>Cirsium canum</i>	Eua	H	6	7	0	K	—	—	A	R	—
<i>Crepis tectorum</i>	Eua	Th	5	1	0	GY	—	R	R	—	R
<i>Daucus carota</i>	Eua(-med)	TH	5	5	0	TZ	—	R	F	—	—
<i>Epilobium hirsutum</i>	Eua(-med)	H	5	9	4	K	—	—	R	F	—
<i>Euonymus europaeus</i>	Eu(-med)	M	5	5	3	K	R	—	—	—	—
<i>Eupatorium cannabinum</i>	Eua(-med)	H	5	3	5	TZ	—	—	R	R	—
<i>Euphorbia salicifolia</i>	Pont-pan	H	6	3	3	TZ	—	—	R	—	—
<i>Falcaria vulgaris</i>	Eua(-med)	Th	7	2	4	GY	F	—	—	—	—
<i>Galium aparine</i>	Circ(-med)	Th	6	7	4	GY	F	—	—	—	—
<i>Galium palustre</i>	Circ(-med)	H	5	10	0	K	—	—	F	—	—
<i>Galium schultesii</i>	Cent Eu	H	5	4	3	K	—	—	—	R	—
<i>Galium verum</i>	Eua(-med)	H	5	3	4	K	—	—	A	—	—
<i>Geranium dissectum</i>	Eua	Th	6	2	4	GY	R	—	—	—	—
<i>Glechoma hederacea</i>	Eua	H	5	7	0	K	—	—	F	—	—
<i>Gratiola officinalis</i>	Eua	H	5	8	4	K	—	—	R	—	—
<i>Gypsophila arenaria</i>	Cent Eu	G	5	1	5	K	R	R	—	—	—
<i>Humulus lupulus</i>	Circ	H	5	7	0	TZ	—	—	—	—	F
<i>Juglans regia</i>	As Min	MM	0	0	0	G	R	—	—	—	—
<i>Knautia arvensis</i>	Eua	H	5	3	4	K	—	F	—	—	—
<i>Lamium purpureum</i>	Eua	Th	0	5	0	GY	—	R	—	—	—
<i>Lathyrus pratensis</i>	Eua(-med)	H	5	7	4	TZ	—	—	F	—	—
<i>Lathyrus tuberosus</i>	Eua(-med)	H	7	3	4	GY	—	—	R	R	—
<i>Lavatera thuringiaca</i>	Eua(-med)	H	5	4	0	K	—	—	—	—	R
<i>Leontodon hispidus</i>	Eu	H	5	6	0	K	—	—	F	—	—
<i>Lotus tenuis</i>	Submed- Cent Eu	H	0	0	0	K	—	—	A	—	—
<i>Lychnis flos-cuculi</i>	Eua(-med)	H	5	8	0	TZ	—	—	A	—	—
<i>Lysimachia nummularia</i>	Eu(-med)	Ch	5	8	4	K	—	—	F	R	—
<i>Lysimachia vulgaris</i>	Eua(-med)	H	5	9	0	K	—	—	R	R	—
<i>Lythrum salicaria</i>	Circ	H	5	9	0	K	—	—	R	—	—
<i>Medicago lupulina</i>	Eua(-med)	Th	5	6	4	GY	—	—	R	—	—
<i>Melandrium album</i>	Eua(-med)	Th	5	4	0	GY	—	F	—	—	—
<i>Mentha aquatica</i>	Eu(-med)	H	5	9	0	K	—	—	R	R	—
<i>Mentha arvensis</i>	Circ	H	5	5	0	K	—	—	R	—	—
<i>Mentha longifolia</i>	Eua(-med)	H	5	9	4	K	—	—	F	—	—

Table 1 (continued)

Species	Flora elements	Life form	T	W	R	NCR	Locality - Frequency				
							I	II	III	IV	V
<i>Myosotis palustris</i> subsp. <i>strigulosa</i>	Eua(-med)	H	5	8	0	K	—	—	F	F	—
<i>Myosoton aquaticum</i>	Eua(-med)	Th	0	0	0	GY	—	—	—	R	—
<i>Odontites rubra</i>	Eua(-med)	Th	5	5	0	TZ	—	—	F	—	—
<i>Ononis arvensis</i>	Eua	H	0	0	0	TZ	—	—	F	—	—
<i>Ononis spinosa</i>	Eu(-med)	H	5	3	0	GY	—	—	F	—	—
<i>Parnassia palustris</i>	Circ	H	3	8	5	V**	—	—	A	—	—
<i>Pastinaca sativa</i> subsp. <i>pratensis</i>	Eua	H	5	6	4	TZ	—	—	—	—	R
<i>Physalis alkekengi</i>	Submed	H	5	5	4	K	R	—	—	—	—
<i>Plantago lanceolata</i>	Cosm	H	5	4	0	TZ	—	—	R	—	—
<i>Plantago media</i>	Eua(-med)	H	5	5	0	TZ	—	—	R	—	—
<i>Polygala comosa</i> subsp. <i>podolica</i>	Eu	H	5	4	4	K	—	—	R	—	—
<i>Polygonum amphibium</i> f. <i>terrestre</i>	Circ	HH	5	11	0	K	—	—	—	—	R
<i>Populus alba</i>	Eua	MM	5	6	4	E	—	—	—	—	R
<i>Populus nigra</i>	Eua	MM	5	7	4	E	—	—	—	—	F
<i>Prunella vulgaris</i>	Eua(-med)	H	0	6	0	TZ	—	—	A	—	—
<i>Pulicaria dysenterica</i>	Cent Eu- med	H	5	7	4	GY	—	—	F	—	—
<i>Ranunculus acris</i>	Eua(-med)	H	0	0	0	TZ	—	—	A	—	—
<i>Ranunculus polyanthemos</i>	Eua	H	5	4	3	TZ	—	R	—	—	—
<i>Ranunculus repens</i>	Eua(-med)	H	5	8	0	TZ	—	—	F	—	—
<i>Rhinanthus minor</i>	Eu	Th	5	5	0	K	—	—	F	—	—
<i>Robinia pseudo-acacia</i>	Adv	MM	5	3	4	G	A	F	—	—	—
<i>Rosa canina</i>	Eu(-med)	M	5	3	3	TZ	—	—	R	—	—
<i>Rubus caesius</i>	Eua	H	5	8	4	TZ	—	—	R	—	—
<i>Rumex acetosa</i>	Circ	H	5	5	0	TZ	—	—	F	—	—
<i>Rumex stenophyllus</i>	Eua	H	0	0	0	TZ	—	—	—	R	—
<i>Salix alba</i>	Eua(-med)	MM	5	9	4	E	—	—	F	—	A
<i>Salix cinerea</i>	Eua(-med)	M	5	10	3	E	—	—	A	—	—
<i>Salix fragilis</i>	Eua(-med)	MM	5	9	4	K	—	—	R	—	F
<i>Salix rosmarinifolia</i>	Eua	M	5	7	4	K	—	—	R	—	—
<i>Salix triandra</i>	Eua	M	5	10	4	K	—	—	—	—	R
<i>Salvia nemorosa</i>	Eu	H	6	2	4	K	—	F	—	—	—
<i>Sambucus ebulus</i>	Submed- Eua	H	5	5	3	GY	—	—	—	—	F
<i>Sambucus nigra</i>	Eu(-med)	M	5	5	3	GY	F	—	R	—	—

Table 1 (continued)

Species	Flora elements	Life form	T	W	R	NCR	Locality - Frequency				
							I	II	III	IV	V
<i>Sanguisorba officinalis</i>	Eua(-med)	H	5	7	0	K	—	—	A	—	—
<i>Saponaria officinalis</i>	Eua(-med)	H	5	4	0	TZ	R	—	—	—	—
<i>Scabiosa ochroleuca</i>	Eua(-cont)	H	6	2	4	K	—	F	—	—	—
<i>Scrophularia umbrosa</i>	Eua	H	0	0	0	K	—	—	—	—	R
<i>Senecio erratus</i>	Submed	H	6	7	4	TZ	—	—	F	—	—
<i>Seseli osseum</i>	Pan sub- end	H	6	1	5	K	F	—	—	—	—
<i>Silene vulgaris</i>	Eua(-med)	H	0	0	0	K	—	F	R	—	—
<i>Solanum dulcamara</i>	Eua(-med)	Ch	5	9	4	TZ	—	—	—	R	F
<i>Solidago gigantea</i>	Adv	H	0	8	4	K	—	—	—	—	F
<i>Sonchus palustris</i>	Eua(-med)	H	0	0	0	K	—	—	R	R	—
<i>Stellaria media</i>	Cosm	Th	0	5	0	GY	F	—	—	—	—
<i>Stenactis annua</i>	Adv	Th	0	8	4	TZ	—	—	R	—	—
<i>Symphytum officinale</i>	Eu	H	5	8	0	K	—	—	F	R	—
<i>Taraxacum officinale</i>	Eua(-med)	H	0	5	0	GY	—	—	R	—	—
<i>Tetragonolobus maritimus</i> subsp. <i>siliquosus</i>	Cent Eu(-med)	H	5	6	4	K	—	—	A	—	—
<i>Thalictrum minus</i>	Eua	H	5	3	4	K	F	—	—	—	—
<i>Tragopogon orientalis</i>	Eua(-med)	TH	5	4	0	TZ	—	R	—	—	—
<i>Trifolium campestre</i>	Eua(-med)	Th	5	4	4	TZ	—	—	F	—	—
<i>Trifolium hybridum</i>	Med	H	5	8	4	K	—	—	F	—	—
<i>Trifolium pallidum</i>	Submed	Th	0	0	0	TZ	—	—	R	—	—
<i>Trifolium pratense</i>	Eua(-med)	H	5	6	3	TZ	—	—	F	—	—
<i>Tussilago farfara</i>	Eua(-med)	G	0	0	0	TZ	—	—	—	—	R
<i>Urtica dioica</i>	Cosm	H	5	5	4	TZ	—	—	F	—	F
<i>Valeriana dioica</i>	Atl- Cent Eu	H	5	8	0	K	—	—	F	—	—
<i>Valeriana officinalis</i>	Eua(-med)	H	5	3	4	K	—	—	R	—	—
<i>Verbascum blattaria</i>	Eua(-med)	H	0	0	0	TZ	—	—	R	—	—
<i>Veronica chamaedrys</i>	Eua(-med)	H	5	4	4	TZ	—	F	R	—	—
<i>Veronica hederifolia</i>	Eua(-med)	Th	5	4	4	TZ	F	—	—	—	—
<i>Viburnum opulus</i>	Circ(-med)	M	5	7	4	K	—	—	R	—	—
<i>Vicia cracca</i>	Circ	H	5	4	3	TZ	—	—	A	F	—
ANGIOSPERMAE — Monocotyledones											
<i>Agrostis stolonifera</i>	Circ	H	5	8	4	E	—	—	F	—	—
<i>Allium scorodoprasum</i>	Cent Eu	G	5	3	4	TZ	R	F	R	—	—
<i>Alopecurus geniculatus</i>	Eu	H	5	9	5	TZ	—	—	—	F	—
<i>Alopecurus pratensis</i>	Eua	H	5	8	0	E	—	—	F	—	—

Table 1 (continued)

Species	Flora elements	Life form	T	W	R	NCR	Locality - Frequency				
							I	II	III	IV	V
<i>Asparagus officinalis</i>	Eua(-med)	G	6	3	4	K	—	—	R	—	—
<i>Briza media</i>	Eu	H	5	6	0	K	—	—	A	—	—
<i>Bromus sterilis</i>	Eua(-med)	Th	7	2	4	GY	A	F	—	—	—
<i>Calamagrostis epigeios</i>	Eua(-med)	G	5	2	4	TZ	—	—	F	R	—
<i>Carex acutiformis</i>	Eua(-med)	HH	5	10	4	E	—	—	A	F	—
<i>Carex appropinquata</i>	Eua	HH	5	10	4	KV	—	—	F	—	—
<i>Carex distans</i>	Eu-med	H	7	7	4	E	—	—	A	—	—
<i>Carex disticha</i>	Eu-sib	G	5	9	4	K	—	—	R	—	—
<i>Carex flacca</i>	Eu(-med)	G	5	3	4	K	—	—	A	F	—
<i>Carex gracilis</i>	Eua	HH	5	10	0	K	—	—	F	—	—
<i>Carex hirta</i>	Eu(-med)	G	5	7	0	GY	—	—	A	F	—
<i>Carex panicea</i>	Eua	G	5	7	0	K	—	—	A	—	—
<i>Carex vulpina</i>	Eua(-med)	H	5	9	4	K	—	—	F	F	—
<i>Colchicum autumnale</i>	Cent Eu(- med)	G	5	6	4	K	—	—	R	—	—
<i>Dactylis glomerata</i>	Eua	H	5	6	4	TZ	—	—	F	—	—
<i>Dactylorhiza incarnata</i>	Eua	G	5	7	4	V*	—	—	A	—	—
<i>Deschampsia caespitosa</i>	Circ	H	5	7	0	K	—	—	A	—	—
<i>Eleocharis palustris</i>	Eua(-med)	G	0	9	4	K	—	—	R	—	—
<i>Epipactis palustris</i>	Eua	G	5	9	5	V**	—	—	F	R	—
<i>Eriophorum latifolium</i>	Eua	H	3	9	3	V*	—	—	F	—	—
<i>Festuca arundinacea</i>	Eua-med	H	5	8	0	TZ	—	—	F	—	—
<i>Festuca pratensis</i>	Eua	H	5	7	4	E	—	—	F	—	—
<i>Festuca pseudovina</i>	Eua	H	5	2	0	TZ	—	—	R	—	—
<i>Holcus lanatus</i>	Eu-med	H	5	5	0	K	—	—	A	—	—
<i>Iris pseudacorus</i>	Eu-med	G	5	10	0	V	—	—	R	—	—
<i>Juncus compressus</i>	Eu-sib	G	0	0	0	TZ	—	—	F	—	—
<i>Juncus effusus</i>	Cosm	H	5	9	3	TZ	—	—	F	—	—
<i>Juncus inflexus</i>	Eua	H	5	8	4	TZ	—	—	F	—	—
<i>Juncus subnodulosus</i>	Atl	HH	5	9	5	E	—	—	F	—	—
<i>Molinia hungarica</i>	Eu	H	0	0	0	E	—	—	A	—	—
<i>Orchis laxiflora</i> subsp. <i>palustris</i>	Eua(-med)	G	0	0	0	V	—	—	R	—	—
<i>Ornithogalum boucheanum</i>	Eu	G	0	0	0	GY	F	—	—	—	—
<i>Ornithogalum umbellatum</i>	Submed	G	6	2	4	TZ	—	—	R	—	—
<i>Phragmites communis</i>	Cosm	HH	0	10	4	E	—	—	F	A	—
<i>Poa angustifolia</i>	Circ	H	5	3	4	E	—	—	F	—	—

Table 1 (continued)

Species	Flora elements	Life form	T	W	R	NCR	Locality - Frequency				
							I	II	III	IV	V
<i>Poa pratensis</i>	Circ	H	5	6	0	K	—	—	F	—	—
<i>Poa trivialis</i>	Circ	H	5	9	0	TZ	—	—	F	—	—
<i>Schoenus nigricans</i>	Cosm	HH	5	9	5	E	—	—	F	—	—
<i>Scirpus sylvaticus</i>	Circ	G	0	0	0	E	—	—	F	—	—