

## TAXONOMICAL AND CHOROLOGICAL NOTES 18 (184–194)

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**Abstract:** Floristical records of one fungus and ten flowering plants are presented from Hungary. We report a new occurrence of *Calvatia candida* in a valuable Pannonian sandy steppe habitat. Some of our floristical data present new occurrences of species that are rare in Hungary, but in the case of *Orobancha minor*, *Minuartia viscosa*, due to the low number of recent floristical data, we also try to clarify the distribution pattern of the species with data from specimens documented in the BP herbarium. The first occurrences of the rare, red-listed species *Papaver hybridum* was detected from the Duna-sík region. We report the first data of *Orobancha minor* from the Hungarian Middle Mountain Ranges, *Minuartia viscosa* is new for the southern part of the Mezőföld. A new record of *Dactylorhiza sambucina* from the Vértes Mts, which is in decline in our low-middle mountain areas, is published, an important observation from a conservation point of view. The data of *Potentilla patula* reported here is a new observation for the area of Cserhát-vidék. Our other data are from ruderal habitats, where we report observations of taxa that are mainly expanding but with few records in Hungary. The second Hungarian record of *Senecio × helwingii* is from the district of Zugló in Budapest. *Erigeron sumatrensis* has been found in several regions of Hungary, *Euphorbia glyptosperma*, *Gypsophila perfoliata* new occurrences were found in the border of Kecskemét. The recently suggested spreading of *Medicago orbicularis* is confirmed by new occurrence data from the Tihany Peninsula.

**Key words:** Asteraceae, Caryophyllaceae, Euphorbiaceae, Fabaceae, Lycoperdaceae, Orchidaceae, Orobanchaceae, Papaveraceae, Rosaceae

## INTRODUCTION

This paper is the 18th part of the series launched in *Studia botanica hungarica* focusing on the new chorological records, nomenclature, and taxonomy of plant species from algae to vascular plants and fungi. Almost 380 records of 169 taxa have been reported in this series from 10 countries (Albania, Hungary, Kosovo, Lithuania, Montenegro, North Macedonia, Romania, Serbia, Slovakia, Ukraine) (ASZALÓSNÉ BALOGH *et al.* 2021, BARINA *et al.* 2015, 2020, CSIKY *et al.* 2017, DEME *et al.* 2019, FARKAS *et al.* 2022, KIRÁLY *et al.* 2019*a, b*, MATUS *et al.* 2018, MESTERHÁZY *et al.* 2017, PAPP *et al.* 2016, 2020, RIGÓ *et al.* 2023, SCHMIDT 2020, SCHMIDT *et al.* 2018, SÜVEGES *et al.* 2021, TAKÁCS *et al.* 2016).

The present part of the series provides new records of 11 taxa from Hungary, among them one fungus (*Calvatia candida*) and ten flowering plants (*Dactylorhiza sambucina*, *Erigeron sumatrensis*, *Euphorbia glyptosperma*, *Gypsophila perfoliata*, *Medicago orbicularis*, *Minuartia viscosa*, *Orobanche minor*, *Papaver hybridum*, *Potentilla patula*, *Senecio* × *helwingii*).

## MATERIAL AND METHODS

Nomenclature of vascular plants follows the EURO+MED (2006–) database. Codes of the Central European Flora Mapping grids (NIKL FELD 1971) are in square brackets. Abbreviations of herbaria follow the Index Herbariorum (THIERS 2017).

## NEW RECORDS WITH ANNOTATIONS

## Fungi

(184) *Calvatia candida* (Rostk.) Hollós (Lycoperdaceae)

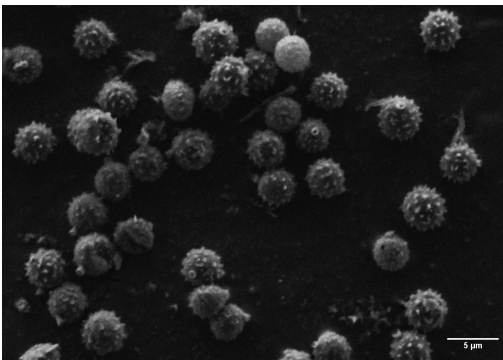
Hungary, Tolna County, Mezőföld region, Paks: Szarkahegyi-legelő, E, alt. 130 m, [9378.4], leg.: Bauer, N., 21.05.2023 (BP 112352, HNHM-MYC 030013). The geographical coordinates are not published for nature conservation reasons, the data have been communicated to the Duna-Dráva National Park Directorate (A. Márkus).

Basidioma epigeous, medium sized, 3–8 cm in diameter, globose to subglobose, conspicuously wrinkled and narrowing towards the base, rooting in the ground with distinct, cord-like rhizomorph (Fig. 1). Exoperidium white to greyish, breaking up into flat scales or patches. Endoperidium thin, fragile, becoming purplish brown in age and its upper part disintegrates with age. Gleba brownish. Sterile base present, but small, yellowish brown to pale brown. Basidiospores globose, 4–5 µm broad, verrucose, with short pedicels (Fig. 2). Capillitial threads

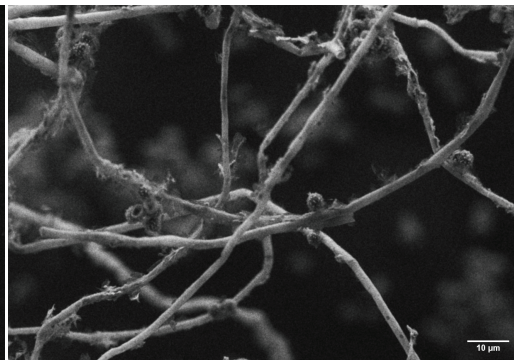


**Fig. 1.** *Calvatia candida* growing on sandy soil in its new locality near Paks (photo: Cs. Locsmándi).

3–4  $\mu\text{m}$  broad, slightly branched, septate, pitted (Fig. 3) (HOLLÓS 1902, 1903, http1, http2). Specimens in the Mycological Collection are recorded mainly from the sandy areas of the Great Hungarian Plain, to a lesser extent from mountains. The Collection contains a total of 20 records of documented specimens of *Calvatia candida*. The first record comes from 1839, the last one from 1980. This is a rare species in Hungary (red list category 2) (RIMÓCZI *et al.* 1999), as evidenced by the fact that it has not been documented in our Collection for over 40 years.



**Fig. 2.** Basidiospores of *Calvatia candida* collected near Paks (SEM photo: Á. Szabó).



**Fig. 3.** Capillitial threads of *Calvatia candida* collected near Paks (SEM photo: Á. Szabó).



Fig. 4. The habitat of *Calvatia candida* in the “Szarkahegyi-legelő” near Paks (photo: N. Bauer).

A new occurrence of the species was found in the southern part of the Mezőföld, on calcareous sandy soils near Paks (Fig. 4). After a rainy spring period, about hundred basidiomata were observed in an open Pannonian sandy grassland (6260 Pannonic sand steppes; Ass: *Festucetum vaginatae stipetosum borysthenicae*). The habitat is in a relatively good condition from a conservation point of view. The coverage of the vegetation is 30–40%. The vascular plant species reaching higher (5–20%) cover in this open sandy grassland are: *Stipa borysthenica* Prokudin, *Festuca vaginata* Willd., *Koeleria glauca* (Schrad.) DC., *Alkanna tinctoria* Tausch.

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### Flowering plants

#### (185) *Dactylorhiza sambucina* (L.) Soó (Orchidaceae)

Hungary, Fejér County, Vértes Mts, Csákvár: Gém Hill, alt. 222 m, 29.04.2023 [8676.2]; obs.: Bauer, N. The geographical coordinates are not published for nature conservation reasons, the data have been communicated to the Duna–Ipoly National Park Directorate (N. Riezinger).

*Dactylorhiza sambucina* is a montane-subalpine species, is in a decline in Hungary, especially in the middle mountainous landscapes of the Transdanubian Mountain Range. Here, many old observations have long been unconfirmed (see the maps of BARTHA *et al.* 2020, MOLNÁR *et al.* 2011), recent observations are rare (Barina Z. 2005 in BARTHA *et al.* 2020, BARINA 2008, BAUER 2007, ÓVÁRI 2019, SOMLYAY 2010), known occurrences of the species in its habitats are also latent, presumed disappearances are reported by its observers.

In the Vértes Mts in the first half of the 20th century, Ádám Boros recorded it at several places (BOROS 1973), in a few places has also documented his observations with specimens collected (30.04.1933, Kotló-hegy prope Csákvár, BP 414077; 14.05.1933, “Eperjás” ad Kőhányás-puszta, BP 414069; 20.04.1935, Fáni-völgy pr. Vérteskozma, BP 414076). Recent documented observations are even more rare (Z. Barina, 17.04.2002, Szár: Fáni-völgy, BP 635827) and since then are also known mainly from the Fáni Valley area (N. Riezing in litt.).

In April 2023, in a cooler and rainier spring than in previous years, a stand of about 30 individuals of the species was found on the north-facing slope of the Gém Hill, in a semi-dry grassland habitat (6210 Natura 2000 habitat). The population is highly endangered by the large numbers of big game, and the problem on the grassland patch is mainly caused by the foraging and trampling of wild boar.

N. Bauer

(186) *Erigeron sumatrensis* Retz. (Asteraceae)

Hungary, Zala County, Gyenesdiás, Csokonai street, roadsides, 46.77489° N, 17.27939° E, 127 m. a.s.l., [9269.2], leg.: Takács, A., 07.08.2023 (DE); Hajdú-Bihar County, Debrecen, Kishatár street, supermarket car park, 47.54190° N, 21.58461° E, 112 m a.s.l., [8495.4], leg.: Takács, A., 27.09.2023 (DE); Budapest, Dohány street, 47.496877° N, 19.067256° E, 110 m. a.s.l., [8580.1], leg.: Bauer, N., 05.10.2023 (BP HNHM-TRA 00702592).

*Erigeron sumatrensis* is a thermophilic neophyte weed in Europe. Its presence in Hungary was reported recently and its spread has been suspected (WIRTH and CSIKY 2020). In Hungary, the species has been found in urban habitats including roadsides and gardeneries, however, it was also documented from vineyards and disturbed fields relatively distant from settlements (BARTHA *et al.* 2020, SCHMIDT and HASZONITS 2021, WIRTH and CSIKY 2020). Its occurrences so far recorded in and around Pécs, Győr and Sopron cities.

In August of 2023, some individuals of *E. sumatrensis* were found in Gyenesdiás, in early flowering stage, in sparse, weedy roadside vegetation. Next month, hundreds of flowering and fruiting individuals were found in barren surfaces (along curbs) in a parking lot in Debrecen. In Budapest, a small population of the species was found on the edge of a pavement in front of a run-down ma-

sonry house, near a construction site. These new sites are similar to the previously documented urban habitats (WIRTH and CSIKY 2020). These new and remote occurrences confirm the efficient spreading of the species. The role of the ornamental trade in distribution of this weed is still likely (Gyenesdiás is a holiday village where public spaces are richly decorated with ornamental plants, and, in Debrecen, there are two ornamental plant dealer within 200 m of the studied parking lot). The locality of Budapest is a very busy area of a big city, where the arrival of propagules is uncertain even at the level of speculation. However, the plant's high seed production and wind-dispersed seeds enable it to spread spontaneously, without direct human-mediation.

The above presented data of *E. sumatrensis* are new to the flora of the Balaton region (Gyenesdiás), to Central Hungary (Budapest) and to Eastern Hungary (Debrecen).

A. Takács and N. Bauer

(187) *Euphorbia glyptosperma* Engelm. (Euphorbiaceae)

Hungary, Bács-Kiskun County, Kecskemét, around a petrol station on the corner of the main road 44 and "Mártírok útja", 46.89130° N, 19.74196° E, 111 m a.s.l., [9184.1], leg.: Takács, A., 24.09.2021 (DE).

*Euphorbia glyptosperma* (syn. *Chamaesyce glyptosperma* (Engelm.) Small) is an alien member in the flora of Europe, introduced from North America (HÜGIN 1998). The first documentation of the species in Hungary dates from the middle of the last century (cf. SOMLYAY 2009a). There are two currently known populations in the country: in the outskirts of Budapest (SOMLYAY 2009a) and in a military area near Táborfalva (KIRÁLY *et al.* 2009).

A new population of the species was found near Kecskemét, about 30 km SE of the last mentioned location. The new population occupies a small area, but forms dense patches with hundreds of individuals (at least in the year of discovery). The habitat is an uncharacteristic, intensively mown lawn patch, next to a petrol station. The location and function of the site suggests that the seeds of the plant may have been transported here by vehicle traffic, and is expected to spread further along the road network.

A. Takács

(188) *Gypsophila perfoliata* L. (Caryophyllaceae)

Hungary, Bács-Kiskun County, Kecskemét, corner of "Mártírok útja" and Klebelsberg street, 46.89538° N, 19.72678° E, 113 m a.s.l., [9184.1], leg.: Takács, A., 24.09.2021 (DE).

*Gypsophila perfoliata* is native to western Asia, and spreads as an alien weed in Europe. Occurrences in its alien range are connected to secondary habitats, such as railway embankments (MÁJEKOVÁ *et al.* 2020, MOLNÁR *et al.* 2019,

OPREA *et al.* 2012), roadsides (BARTOSZEK and STACHURSKA-SWAKOŃ 2016, PLISZKO 2016), slag heaps (AMARELL 2002). Hungarian populations were reviewed by SCHMOTZER *et al.* (2021). The plant was first collected in Hungary a hundred years ago in Győr, where it probably became extinct (cf. SOMLYAY 2009*b*). Recently mass populations of the species have been discovered in industrial areas of Miskolc (SCHMOTZER *et al.* 2021).

A single, well-developed individual of *G. perfoliata* was found in a roadside in Kecskemét. The plant rooted right next to the roadside kerbstones. The species is new to the central region of Hungary (i.e. Danube–Tisza Interfluve), and found about 150 km from the nearest known populations.

A. Takács

(189) *Medicago orbicularis* (L.) Bartal. (Fabaceae)

Hungary, Veszprém County, Bakony region, Balaton Uplands, Tihany: Apáti hill, 46.920833° N, 17.855425° E, alt. 118 m, 09.07.2020, obs. Mesterházy, A.; Tihany: Óvár, 46.920512° N, 17.878341° E, alt. 210 m, 26.05.2021, leg. and det. Mészáros, A. (collected specimen deposited in DE); Tihany: Óvár, 46.920527° N, 17.878410° E, alt. 200–210 m, 10.06.2023 [9073.3]; leg. and det.: Bauer, N. (BP HNHM-TRA 00702589).

*Medicago orbicularis* was previously considered native to Hungary, from the Villány Hills. The occurrence and recent spreading of the species in the Balaton Uplands was reported by BAUER (2018). In the last few years new



Fig. 5. *Medicago orbicularis* on the slope of Óvár hill, near Tihany (photo: N. Bauer)

stands have been found in some places on the Tihany Peninsula. The authors have found the new stands listed here independently, during their field work. At the new localities, *M. orbicularis* were found partly on the edge of the trampled tourist path and in the adjacent xerothermic steppe slopes. At the Óvár locality, the species is found in masses in an 30–40 m<sup>2</sup> area of a dry grassland dominated by *Festuca rupicola* and *Artemisia austriaca* (Fig. 5). It was found in small numbers on Apáti hill in a moderately natural steppe slope. A hiking trail also passes through this grassland, which is occasionally grazed by sheep. These stands, located near very popular hiking trails, seem to confirm that the previously suspected very intensive tourism may play a role in its recent spreading. On the other hand, the vector role of the big game population can also be considered, since the wild boar population has increased significantly in the region, whose permanent disturbance is a particularly significant degradation factor in xerotherm grasslands.

A. Mesterházy, A. Mészáros and N. Bauer

(190) *Minuartia viscosa* (Schreb.) Schinz et Thell. (Caryophyllaceae)

Hungary, Tolna County, Mezőföld region, Paks: Szarkahegyi-legelő, Biritó Hill, 46.615037° N, 18.817345° E, alt. 132 m, 21.05.2023 [9378.4]; leg. and det.: Bauer, N. (BP HNHM-TRA 00129989).

*Minuartia viscosa* is a characteristic plant of the open, nutrient-poor sandy or sandy-soil dry grasslands of Central and southeastern Europe. According to the map of Atlas Florae Hungariae (BARTHA *et al.* 2020), it is relatively common in Hungary only in the Nyírség region, elsewhere it occurs very sporadically, currently mapped only from the Kisalföld (Kerékteleki; Cs. Németh), Bakonyalja (Fenyőfő; N. Bauer), Déli-Bakony (A. Mesterházy), Külső-Somogy (Látrány; M. Wolf), Belső-Somogy (Barcs; A. Mesterházy) regions and from the Velence Hills (BAUER 2019). Several other occurrences have been recorded in the collection of the Herbarium Carpato-Pannonicum (BP) (see below), so it is also known from Zala Hills, and from the Vértes Mts, Pilis Mts and the Cserhát Mts.

**Zala Hills**

Hungary, Zala County, in graminosis inter opp. Nagykanizsa et pag. Szepetnek, [9567.3], leg.: Károlyi, Á., 28.05.1949 (BP 307717); – Hungary, Zala County, Nagykanizsa és Szepetnek közt, iszapos helyen, [9567.3], leg.: Csapody, V., 24.06.1949 (BP 371670); – Hungary, Zala County, in graminosis arenosisque inter opp. Nagykanizsa et pag. Szepetnek, [9567.3], leg.: Károlyi, Á., 24.05.1950 (BP 208616); – Hungary, Zala County, in pascuis ... Zalaszentjakab, [9568.2], leg.: Károlyi, Á., 19.05.1953 (BP 248537); – Hungary, Zala County, Nagykanizsa / Sormás, in pratis arenosis, [9567.2], leg.: Pócs, T., Gelencsér, I., 08.06.1953 (BP 203935).

**Belső-Somogy Hills**

Hungary, Somogy County, in arenosis “Nagyberek” prope pagum Darány, [0071.1], leg.: Boros, Á., 24.07.1922 (BP 424885); – Hungary, Somogy County, in arenosis “Nagyberek” prope pagum



Darány, [0071.1], leg.: Boros, Á., 29.05.1923 (BP 424889); – Hungary, Somogy County, in arenosis “Szentai erdő” prope pagum Senta, [9769.1], leg.: Boros, Á., 28.07.1922 (BP 424884); – Hungary, Somogy County, in arenosis “Alsó erdő” prope Görgeteg, [9870.4], leg.: Boros, Á., 07.05.1923 (BP 424891); – Hungary, Somogy County, in arenosis “Tormány homok” prope pagum Inke, [9669.1], leg.: Boros, Á., 09.06.1923 (BP 424892); – Hungary, Zala County, Zalaszentjakab, in arenosis ad Miháld versus “Horváti malom”, [9568.2 / 9568.4], leg.: Boros, Á., 09.06.1923 (BP 424890).

#### Bakony Mts

Hungary, Veszprém County, Porva (?), Ferencháza, fenyves m., [8672.4], leg.: Polgár, S., 19.06.1911 (BP 259109); – Hungary, Veszprém County, Fenyőfő, homokon, [8672.4], leg.: Polgár, S., 22.06.1919 (BP 424778).

#### Vértes Mts

Hungary, Komárom-Esztergom County, in pascuis arenosis “Viborka” prope pagum Várgesztes, [8576.1], leg.: Boros, Á., 02.06.1940 (BP 424830).

#### Velence Hills

Hungary, Fejér County, in collibus siccis granit ad Nadap; Alt. s. met. ca: 200, [8777.2], leg.: Boros, Á., 25.05.1933 (BP 424895); – Hungary, Fejér County, prope pag. Sukoró; Meleghegy, in apricis; in decliv. meridion.; solo granitico; Alt. 230 m, [8777.2], leg.: Péntes, A., 25.05.1933 (BP 368921); – Hungary, Fejér County, in collibus siccis granit ad Sukoró; Alt. s. met. ca: 200, [8777.2], leg.: Boros, Á., 25.05.1933 (BP 424896); – Hungary, Fejér County, in collibus siccis granit ad Sukoró; Alt. s. met. ca: 200, [8777.2], leg.: Boros, Á., 22.04.1934 (BP 424897); – Hungary, Fejér County, in collibus siccis granit. Montis Kövecses-hegy supra Sukoró; Alt. s. met. ca: 250, [8777.2], leg.: Boros, Á., 22.04.1934 (BP 424898); – Hungary, Fejér County, in glareosis graniticis montis Meleghegy, supra pag. Nadap; alt. cca. 300 m, [8777.2], leg.: Kárpáti, Z., 22.04.1934 (BP 385482); – Hungary, Fejér County, in lapidosis graniticis siccis culminis montis Meleghegy prope Lovasberény; Alt. s. met. ca: 330–350, [8777.2], leg.: Boros, Á., 06.06.1937 (BP 424875); – Hungary, Fejér County, in glareosis graniticis Sár-hegy et Pogánykő prope Pákozds; Alt. s. met. ca: 200, [8777.3], leg.: Boros, Á., 08.06.1939 (BP 424867); – Hungary, Fejér County, in declivibus siccis graniticis montis Tomposhegy prope Pákozds; Alt. cca. 150–240 m. s. m., [8777.3], leg.: Boros, Á., 04.06.1944 (BP 424859); – Hungary, Fejér County, Pákozds: Hajdú-temetés, rara, in campis siccis, [8777.3], leg.: Bauer, N., 09.06.2016 (HNHM-TRA 00031017); – Hungary, Fejér County, in declivibus siccis graniticis montis Cseplek-hegy prope pagum Pázmánd; Alt. cca. 200 m. s. m., [8777.2], leg.: Boros, Á., 29.05.1940 (BP 424828); – Hungary, Fejér County, Pázmánd: Cseplek-hegy, rara, in pratis siccis, [8777.2], leg.: Bauer, N., 09.06.2016 (HNHM-TRA 00031012); – Hungary, Fejér County, Pázmánd: Zsidó-hegy, rara, in pratis siccis, [8777.2], leg.: Bauer, N., 09.06.2016 (HNHM-TRA 00031011).

#### Pilis and Buda Mts

Hungary, Pest County, in monte Steinriegelberg prope Üröm, [8480.1], leg.: Degen, Á., 20.06.1902 (BP 222008); – Hungary, Pest County, in asperis montanis ad pagum Borosjenő, [8479.2], leg.: Simkovics, L., 15.06.1873 (BP 605168); – Hungary, Pest County, in asperis montanis Szarvashegy ad pagum Borosjenő [Solymár], [8479.2], leg.: Simkovics, L., 29.06.1873 (BP 200092).

#### Cserhát Mts

Hungary, Nógrád County, in graminosis siccis sub monte Szentpéterhegy supra pagum Becske, solo andesitico, [8082.3], leg.: Kárpáti, Z., 31.05.1951 (BP 424809, HNHM-TRA 00014634).

#### Great Hungarian Plain, Nyírség

Hungary, Hajdú-Bihar County, in collibus arenosis ad viam ferream prope Hajduhadház, [8396.1], leg.: Boros, Á., 07.06.1924 (BP 424893); – Hungary, Szabolcs-Szatmár-Bereg County, in

arenosis ad Nagy mohos prope Kállósején, [8197.2], leg.: Boros, Á., 31.05.1927 (BP 424894); – Hungary, Hajdú-Bihar County, in pascuis arenosis pr. pag. Hajdubagos, [8696.1], leg.: Máthé, I. (E.), 14.06.1933 (BP 720388).

#### Great Hungarian Plain, Pest alluvial plain

Hungary, Pest County, Vácrátót, in arenosis, [8281.3], leg.: Andreánszky, G., 18.05.1950 (BP 605218).

#### Great Hungarian Plain, Northern Mezőföld

Hungary, Pest County, in declivibus argillosis ad Érd, [8679.2], leg.: Degen, Á., 20.05.1917 (BP 347706); – Hungary, Pest County, in declivibus loessaceis prope Kuttyavár ad Érd, [8679.2], leg.: Degen, Á., 19.05.1918 (BP 347699).

#### Great Hungarian Plain, Southern Mezőföld

Hungary, Tolna County, Paks: Szarkahegyi-legelő, Biritó, in pratis arenosis siccis, [9378.4], leg.: Bauer, N., 21.05.2023 (HNHM-TRA 00129989).

A new occurrence of *Minuartia viscosa* was found in open sandy grasslands near Paks, in the Mezőföld. Although there are known some types of sandy grasslands from the Mezőföld (BOROS 1959) and many valuable sandy species have been published from the area (FARKAS 2011, VOIGT and SOMAY 2013), the occurrence of this rare species has not been reported so far. The habitat of *M. viscosa* in the Biritó Hill on the boundary of Paks is an open sandy grassland where calcareous and acidified patches alternate in a mosaic structure. The most abundant species of this habitat are *Bromus tectorum* L., *Festuca vaginata* Willd., *Secale sylvestre* Host, *Stipa borysthenica* Prokudin, *Alkanna tinctoria* Tausch, but the acidic sandy grassland patches are dominated by *Corynephorus canescens* (L.) P. Beauv. Other recorded accompanying species are: *Achillea setacea* Waldst. et Kit., *Artemisia campestris* L., *Carex liparocarpus* Gaudin, *Dianthus serotinus* Waldst. et Kit., *Fumana procumbens* (Dunal) Gren. et Godr., *Iris pumila* L., *Koeleria glauca* (Schrad.) DC., *Linaria genistifolia* (L.) Mill., *Medicago prostrata* Jacq., *Minuartia glomerata* (M. Bieb.) Degen, *Onosma arenaria* Waldst. et Kit., *Sedum urvillei* DC., *Sisymbrium altissimum* L., *Spergula pentandra* L.

N. Bauer

#### (191) *Orobanche minor* Sm. (Orobanchaceae)

Hungary, Zala County, Bakony region, Keszthely Mts, Vindornyaszőlős: “Öreg-hegy” hill, 46.900333° N, 17.176222° E, alt. 238 m, 03.06.2023 [9069.3]; leg. and det.: Bauer, N. (BP HNHM-TRA 00702587); Zalasántó: “Szent Donát-szőlőhegy” hill, 46.893387° N, 17.218813° E, alt. 251 m, 09.06.2023 [9169.1]; leg. and det.: Bauer, N. (BP HNHM-TRA 00702588).

*Orobanche minor* is a species having an Atlantic-Mediterranean distribution (MEUSEL *et al.* 1978), based on the flora mapping of the last two decades it is a quite rare taxon in Hungary (BARTHA *et al.* 2020, KIRÁLY *et al.* 2007, SCHMIDT

2010). It has not been reported so far from the Transdanubian Mountain Range, the data reported here are from the northern, basaltic block of the Keszthely Mountains. The plant has been found in high abundance on the southern slopes of the Kovácsi Hill, where the traditional land use is vineyards and orchards (Fig. 6). Their typical habitats are here the grass verges along roadsides, and the semi-dry grasslands of orchards and oak forest margins. These grasslands are largely managed by haying. On the basis of specimens collected for herbarium, its host plants here are the *T. repens* L., *Trifolium pratense* L., and, exceptionally *Convolvulus arvensis* L., which confirm the previous knowledges (KREUTZ 1995, SÁNCHEZ PEDRAJA *et al.* 2005–2023).

To refine the distribution of the species in Hungary, it is advisable to have a look at its old published and herbarium data. In the middle third of the 20th century, in Southwestern Transdanubia (especially in Zala county) the species was observed in many places (Búcsúszentlászló, Kehida, Nagykapornak, Kisbucsa, Nemeshetés, Misefa, Nemesrádó, Kiscsatár, Söjtör, Lasztonya, Gelse, Zalaszentbalázs). According to KÁROLYI *et al.* (1971), it has also been observed to cause severe agricultural problems in lucerne and red clover crops. Árpád Károlyi documented his observations by collecting plant specimens from several places. To clarify the Hungarian distribution of *O. minor*, we listed the specimens



Fig. 6. *Orobanche minor* with its host (*Trifolium repens*) at Vindornyaszóllós site (photo: N. Bauer)

kept in the collection of the Herbarium Carpato-Pannonicum (BP) (see below). With these data, the distribution pattern of the species in Hungary shows an enrichment in South and West Transdanubia, as is the case for many other Atlantic-Mediterranean species.

#### Hungarian Prealps: Foothills of Kőszeg Mts

Hungary, Vas County, Kőszeg, a nemezgyár előtti kaszálón, [8665.1], leg.: Visnya, A., 30.06.1933 (BP 622842); – Hungary, Vas County, in pratis ad opp. Kőszeg, parasitica in *Trifolii rep.*, [8665.1], leg.: Visnya, A., 00.06.1935 (BP 622843).

#### Sopron-Vas Plain

Hungary, Győr-Moson-Sopron County, Sopronhorpács, lóhere táblán, [8566.1], leg.: Csapody, V., 28.06.1955 (BP 207390); – Hungary, Győr-Moson-Sopron County, Lövő, Mohl Adolf utca, árokszálon, *Trifolium pratense-n*, [8466.4], leg.: Király, G., 02.06.2005 (HNHM-TRA 00007697); – Hungary, Vas County, ad radices *Trifolii pratens.* prope Táplánszentkereszt, [8766.3 / 8866.1], leg.: Boros, Á., 24.07.1959 (BP 458953).

#### Zala Hills

Hungary, Zala County, in trifoleto culto ad pagum Misefa in cottu Zala, [9167.4 / 9267.2], leg.: Kováts, 11.07.1929 (BP 731668); – Hungary, Zala County, inter sagetes *Trifolii pratensis* ad pagum Bezeréd, [9168.1], leg.: Hoffmann, I., 25.06.1938 (BP 255711); – Hungary, Zala County, Bezeréd ad *Trifolium prat.*, [9168.1], leg.: Hoffmann, I., 02.07.1938 (BP 255654, BP 458697); – Hungary, Zala County, gazdanyövénye *Trifolium campestre* Lasztonya-Borshely m. hereföldön, [9466.1], leg.: Károlyi, Á., 08.06.1946 (BP 458692); – Hungary, Zala County, Borshely. Hereföldön. *Trif. pratense*, [9466.1], leg.: Károlyi, Á., 08.06.1946 (BP 154437); – Hungary, Zala County, in cultis pr. pag. Lasztonya. *Trifoliumon.*, [9466.1], leg.: Károlyi, Á., 12.06.1948 (BP 295824); – Hungary, Zala County, Hetés, Zala megye, [9364.3 / 9364.4], leg.: Papp, J., 08.06.1949 (BP 483501); – Hungary, Zala County, inter sagetes *trifolii pr. pag.* Zalaszentbalázs, [9467.1 / 9467.2], leg.: Károlyi, Á., 17.06.1951 (BP 295818); – Hungary, Zala County, in agris pr. pag. Gelse, [9367.4 / 9467.2], leg.: Károlyi, Á., 18.07.1954 (BP 221206, BP 295826, BP 363900); – Hungary, Zala County, in cultis pr. pag. Söjtör. Parasitica in *Trifolii pratense*, [9267.3 / 9367.1], leg.: Károlyi, Á., 19.06.1957 (BP 295823); – Hungary, Zala County, in ruderais pag. Búcsúszentlászló. *Anthriscus silvester-en*, [9267.2], leg.: Károlyi, Á., 28.06.1959 (BP 295822); – Hungary, Zala County, in agris pr. pag. Kisbucsa. *Trifolium pratense-n*, [9167.4], leg.: Károlyi, Á., 18.07.1959 (BP 295820); – Hungary, Zala County, in agris pr. pag. Nagykapornak. Parasitica in *Trifolii prat.*, [9167.4 / 9168.3], leg.: Károlyi, Á., 19.06.1960 (BP 295819); – Hungary, Zala County, in agris pr. pag. Misefa. Parasitica in *Trifolii prat.*, [9167.4 / 9267.2], leg.: Károlyi, Á., 01.07.1961 (BP 295825); – Hungary, Comitatus Zala. In graminosis pr. pag. Rádó, [9267.2], leg.: Károlyi, Á., 07.07.1962 (BP 295821); – Hungary, Zala County, in cultis pr. pag. Nagybakónak, [9468.1 / 9268.3], leg.: Károlyi, Á., 18.07.1954 (BP 401376).

#### Transdanubian Hills, Outer Somogy

Hungary, Gamás. Com. Somogy, [9372.4], leg.: Csorba, Z., 08.07.1961 (BP 363901).

#### Keszthely Mts

Zala County, Vindornyaszőlős, Öreg-hegy, in pratis ad latera viarum, [9069.3], leg.: Bauer, N. and Hübös-Récsi, A., 03.06.2023 (HNHM-TRA 00702587); – Zala County, Zalaszántó, Szent Donát-szőlőhegy, in pratis inter vineas, [9169.1], leg.: Bauer, N., 09.06.2023 (HNHM-TRA 00702588).

The low number of newer observations certainly suggests a real decline of the species. This is probably due to the expansion of intensive arable lands and the decline in the area of horse pastures, as has been shown in the Netherlands (BORG *et al.* 1994). PINKE and PÁL (2005) mentions *O. minor* as a typical example illustrating how a species that was once dangerous and harmful to agriculture can become endangered as a farming practice changes.

N. Bauer

(192) *Papaver hybridum* L. (Papaveraceae)

Hungary, Bács-Kiskun County, Duna-sík region, Újsolt: Nagy-rét, on the edge of an arable land 46.85630° N 19.10330° E [9180.2]; leg. and det.: Molnár, Cs., 28.05.2023 [BP]

A small population of *Papaver hybridum* appeared in a dense lawn dominated by *Elymus repens* on dirt road verge. A phytosociological relevé was made at the site (1 m × 1 m; Sum E: 100%): *Ballota nigra* 2%, *Bromus sterilis* 1%, *Convolvulus arvensis* 1%, *Dactylis glomerata* 2%, *Elymus repens* 91%, *Papaver hybridum* 0.2%, and *Silene alba* 3%. We had not found it in the same place 1 year earlier (15.06.2022), perhaps it germinated from the seed bank due to abundant rainfall in the spring of 2023. At the edge of this arable land, common species are typical, of which only *Adonis aestivalis* and *Fumaria vaillantii* (subsp. *schrammii* ?) can be highlighted.

This species is native in Southern Europe and Southwest Asia, and widespread further north as a weed in arable lands (MOWAT *et al.* 1993). Perhaps it came to Hungary during the Turkish subjugation (PINKE and PÁL 2005), but it is also possible that it has been living here for a long time (PINKE *et al.* 2011). It is extremely rare in Northern Hungary, only a few considered to be neophytes are known to occur there (http3). The species is only known from a few places in Hungary currently. It is known from one place in Southern Transdanubia (PURGER 2010), and also one from the Northern Hungarian Mountains (http4), and rare in Tiszántúl (http4, CSATHÓ *et al.* 2015). Before this report, there were only two data between the Danube and Tisza (near Kiskunlacháza and Csongrád, http4). It was much more common here. There are also four specimens in the collection of the Botanical Department, Hungarian Natural History Museum [BP] (Kunszentmiklós, 1920, Á. Boros; Kecskemét and Szolnok, 1926, G. Lengyel; Szeged, 1933, F. Kováts). According to SZUJKÓ-LACZA and KOVÁTS (1993) it was a common weed based on Simon's work (SIMON 1988), they did not deal with race anyway. In the cited work, Simon wrote about the flora in general.

The species is considered vulnerable by the Hungarian Red List (KIRÁLY 2007) and endangered by the list of Endangered Field Weeds of Hungary (PINKE and PÁL 2005).

Cs. Molnár and F. Vajna

(193) *Potentilla patula* Waldst. et Kit. (Rosaceae)

Hungary, Pest County, Vácduka, Bükkös hill, 47.76386° N, 19.21082° E, 135 m a.s.l., [8281.1], leg. Takács, A., 11.05.2017 (DE).

*Potentilla patula* is a continental steppic element in the Pannonian flora, living in dry grasslands. The species is protected by law in Hungary, where it is distributed in the transition zone of the Great Hungarian Plain and the Northern Hungarian Mountains. It is present on the foothills of the Zemplén, Bükk and Mátra Mts. Its presence in the Börzsöny Mts was mentioned by botanical guides (JÁVORKA and SOÓ 1951, SIMON 2000, SOÓ 1966), however, the inventory of the Börzsöny Mts' vascular flora has not been provide detailed occurrence data from here. Since nor herbarium specimens are known from this area, it can be stated that the westernmost occurrences of *P. patula* in the Northern Hungarian Mountains are known from the Mátra Mts.

A new population of *P. patula* was found north to Vácduka village, on a west-facing slope of Bükkös hill. The habitat is a secondarily regenerated dry grassland in abandoned vineyards and orchards. The species is new to the flora of the “Cserhátvidék” middle-region.

A. Takács

(194) *Senecio* × *helwingii* Beger ex Hegi (Asteraceae)

Hungary, Budapest, crossroad of Cinkotai and Csömöri roads, 47.528486° N, 19.123946° E, 115 m a.s.l., [8480.4]; Budapest, Zugló “Körvasút-sor” street, 47.529290° N, 19.133312° E, 116 m a.s.l., [8480.4], leg. Rédei, T., 22.05.2023 (BP HNHM-TRA 00702581, BP HNHM-TRA 00702582).

On 13 May 2023, a *Senecio* specimen with a peculiar appearance was spotted along Csömöri út, near the northeastern border of the 14th district of Budapest (Zugló). Its inflorescence appearance differed from that of the annual *Senecios* in the area. It was distinguished from *Senecio vulgaris* L. by the presence of ray florets, from *S. vernalis* Waldst. et Kit. by the more cylindrical nesting round and the narrow black appendages on the outer nest scales (Fig. 7). Later, a few specimens were found on the embankment of the circular railway bordering Zugló. Their flowering period was at the end of the flowering period of *S. vernalis*, and the specimens that reached flowering were found in a more closed grassland than the *S. vernalis*, or in a semi-shaded area under *Robinia pseudo-acacia* woodlots.

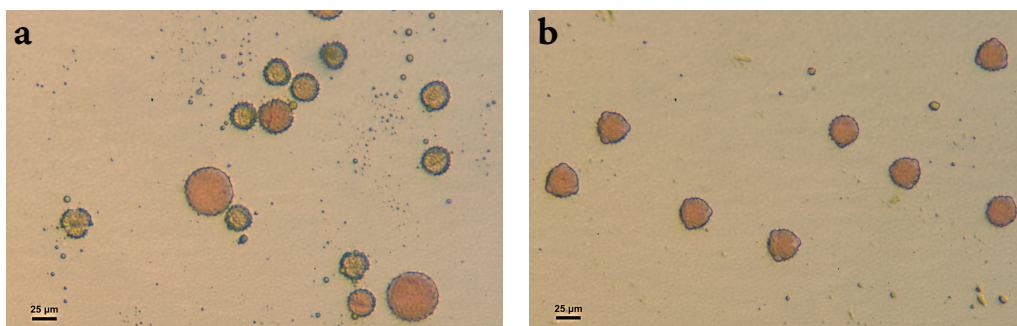
Compared with images on the internet, the specimen was identified as a hybrid of the above two species, *Senecio* × *helwingii*. Recently, *S. vernalis* has become more abundant on loose soils and disturbed open surfaces, so the occurrence of this hybrid may become more likely.



Fig. 7. *Senecio* × *helwingii* in Budapest (photo: T. Rédei)

Searching international databases, we found a specimen collected at the Miskolc station in 2008 [http5], so our data represent the second observation of the taxon in Hungary. On the “Botanikai Fórum” website, some photos of the hybrid from Hungary appear as questions, and the species name *S. x helwingii* appears as a hypothesis in the answers [http6]. On the Internet, photographs from several locations around the world indicate the sporadic occurrence of the taxon.

*Senecio* × *helwingii* is a mostly asexual triploid hybrid, the result of a cross between the diploid *S. vernalis* and the tetraploid *S. vulgaris*. If it is derived from a tetraploid variant of *S. vernalis*, it may also be fertile (COMES and KADEREIT 1990). Pollen samples were taken from the specimens found in Zugló and their microscopic images were compared with pollen from *S. vernalis* collected nearby (Fig. 8). *Senecio* × *helwingii* produces numerous aborted pollen grains among grains of different abnormal size, while the pollen grains of *Senecio vernalis* are fertile and uniform. Furthermore, only white, infertile seeds were found on hybrid specimens.



**Fig. 8.** *Senecio × helwingii* produces numerous aborted pollen grains among grains of different abnormal size (a), while the pollen grains of *Senecio vernalis* are fertile and uniform (b) (photo: S. Barabás)

Based on the above, we recommend the inclusion of the taxon in the list of plant taxa occurring in Hungary and its inclusion in the domestic determination key of the genus. Its occurrence is also possible in other parts of the country, and it is worth searching for specimens in May.

T. Rédei and S. Barabás

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**Összefoglaló:** Jelen közleményben egy Hollós László által leírt gombafaj (*Calvatia candida*) új előfordulását mutatjuk be egy értékes pannon homokpusztagyep élőhelyről, Paks határából. Virágos növény adataink egy része hazánkban ritka fajok új előfordulásait mutatja be, az *Orobancha minor*, *Minuartia viscosa* esetében a recens flóratérképezési adatok alacsony száma miatt, a hazai elterjedés pontosítása érdekében a BP herbáriumban dokumentált példányok adataival is igyekszünk pontosítani a fajok elterjedési mintázatát. Az *Orobancha minor* első adatát közöljük a Magyar-középhegységéből, a *Minuartia viscosa* a Dél-Mezőföld területére új adat, míg a ritka, vörös listás *Papaver hybridum* első előfordulását regisztráltuk a Duna-síkon. Természetvédelmi szempontból érdekes, az alacsony középhegységi területeinken erősen visszaszorulóban lévő *Dactylorhiza sambucina* új előfordulása a Vértesből. A *Potentilla patula* itt közölt adata a Cserhát-vidék területére új megfigyelés. További adataink ruderalis élőhelyekről valók, ahonnan főleg terjedőben lévő, de Magyarországon még kevés adattal dokumentált taxonok megfigyeléséről adunk hírt. Talán legérdekesebb hibrid eredetű *Senecio × helwingii* második hazai adata Budapest Zugló városrészéből. Magyarország több tájegységében felbukkant az *Erigeron sumatrensis*, az *Euphorbia glyptosperma* és *Gypsophila perfoliata* új előfordulásai Kecskemét határában kerültek elő. A *Medicago orbicularis* közelmúltban felvetett recens terjedését a Tihanyi-félszigeten talált új előfordulási adataink is megerősítik.



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